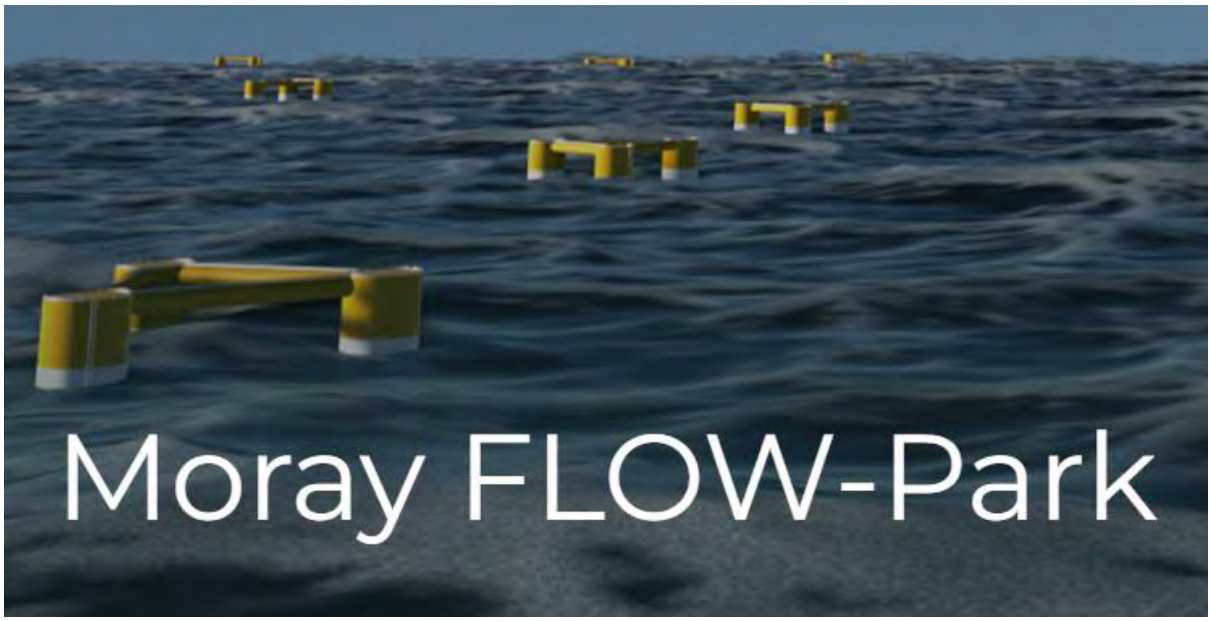


Moray FLOW-Park

Inshore Scoping Report

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Table of Contents

1 Introduction 31
1.1 Background 31
1.2 The Developer 33
1.3 Project Overview 34
1.4 Inshore Scoping Report Purpose 36
1.5 Consenting Process 37
1.6 Scoping Report Structure and Objectives 38
2 Policy and Legislation 41
2.1 Introduction 41
2.2 Climate Change and Renewable Energy Policy 41
2.3 Marine Planning Framework 42
2.4 Application and Consenting Process 44
2.5 Nature Conservation Legislation and Policy 45
2.6 Ports and Harbours 49
2.7 Pre-Application Consultation (PAC) 50
2.8 Relevant Scottish Marine Policy 51
3 Project Description 53
3.1 Introduction 53
3.2 Identification of Scoping Boundary 54
3.3 Key Design Components 56
3.4 Mooring and Anchoring 58
3.5 Safety & Security Buoys 60
3.6 Vessel Transits 61
3.7 Programme 61
4 Environmental Impact Assessment Methodology 65
4.1 Introduction 65
4.2 EIA Legislative Basis and Guidance Documents 66
4.3 EIA Process 67
4.4 EIA Methodology 67

4.5 Cumulative Effects Assessment (CEA) 72
4.6 Inter-Related Effects 73
4.7 Transboundary Effects 73
4.8 Proportionate EIA 73
4.9 Topics Being Scoped Out 74
5 Consultation 77
5.1 Introduction 77
5.2 Consenting Procedure and Relevant Legislation 78
5.3 Stakeholder Engagement 79
5.4 Engagement to Date 79
5.5 Planned Statutory Engagement 80
5.6 Stakeholder Identification 80
6 Marine and Coastal Processes 84
6.1 Introduction 84
6.2 Study Area 84
6.3 Data Sources to Inform the EIA Baseline Characterisation 87
6.4 Description of Baseline Environment 90
6.5 Embedded Mitigation 105
6.6 Scoping of Impacts 106
6.7 Potential Cumulative Effects 110
6.8 Potential Transboundary Effects 112
6.9 Proposed Approach to EIA 112
6.10 Scoping Questions 116
7 Marine Water and Sediment Quality 117
7.1 Introduction 117
7.2 Study Area 117
7.3 Data Sources to Inform the EIA Baseline Characterisation 120
7.4 Description of Baseline Environment 125
7.5 Embedded Mitigation 143
7.6 Scoping of Impacts 145

7.7 Potential Cumulative Effects 152
7.8 Potential Transboundary Effects 153
7.9 Proposed Approach to EIA 153
7.10 Scoping Questions 157
8 Benthic Subtidal and Intertidal Ecology 158
8.1 Introduction 158
8.2 Study Area 158
8.3 Data Sources to Inform the EIA Baseline Characterisation 161
8.4 Description of Baseline Environment 165
8.5 Embedded Mitigation 178
8.6 Scoping of Impacts 179
8.7 Potential Cumulative Effects 183
8.8 Potential Transboundary Effects 183
8.9 Proposed Approach to EIA 184
8.10 Scoping Questions 188
9 Fish and Shellfish Ecology 189
9.1 Introduction 189
9.2 Study Area 189
9.3 Data Sources to Inform the EIA Baseline Characterisation 192
9.4 Description of Baseline Environment 201
9.5 Embedded Mitigation 251
9.6 Scoping of Impacts 252
9.7 Potential Cumulative Effects 256
9.8 Potential Transboundary Effects 256
9.9 Proposed Approach to EIA 257
9.10 Scoping Questions 260
10 Ornithology 261
10.1 Introduction 261
10.2 Study Area 261
10.3 Data Sources to Inform the EIA Baseline Characterisation 263

10.4 Description of Baseline Environment 267
10.5 Embedded Mitigation 280
10.6 Scoping of Impacts 281
10.7 Potential Cumulative Effects 286
10.8 Potential Transboundary Effects 287
10.9 Proposed Approach to EIA 287
10.10 Scoping Questions 292
11 Marine Mammals 293
11.1 Introduction 293
11.2 Study Area 293
11.3 Data Sources to Inform the EIA Baseline Characterisation 297
11.4 Description of Baseline Environment 302
11.5 Embedded Mitigation 315
11.6 Scoping of Impacts 316
11.7 Potential Cumulative Effects 323
11.8 Potential Transboundary Effects 324
11.9 Proposed Approach to EIA 324
11.10 Scoping Questions 329
12 Commercial Fisheries 331
12.1 Introduction 331
12.2 Study Area 331
12.3 Data Sources to Inform the EIA Baseline Characterisation 334
12.4 Description of Baseline Environment 338
12.5 Embedded Mitigation 377
12.6 Scoping of Impacts 379
12.7 Potential Cumulative Effects 387
12.8 Potential Transboundary Effects 388
12.9 Proposed Approach to EIA 388
12.10 Scoping Questions 392
13 Shipping and Navigation 393

13.1 Introduction 393
13.2 Study Area 393
13.3 Data Sources to Inform the EIA Baseline Characterisation 395
13.4 Description of Baseline Environment 397
13.5 Embedded Mitigation 405
13.6 Scoping of Impacts 408
13.7 Potential Cumulative Effects 412
13.8 Potential Transboundary Effects 412
13.9 Proposed Approach to EIA 412
13.10 Scoping Questions 415
14 Marine Archaeology and Cultural Heritage 416
14.1 Introduction 416
14.2 Study Area 416
14.3 Data Sources to Inform the EIA Baseline Characterisation 418
14.4 Description of Baseline Environment 421
14.5 Embedded Mitigation 430
14.6 Scoping of Impacts 432
14.7 Potential Cumulative Effects 439
14.8 Potential Transboundary Effects 439
14.9 Proposed Approach to EIA 439
14.10 Scoping Questions 447
15 Military and Civil Aviation 449
15.1 Introduction 449
15.2 Study Area 449
15.3 Data Sources to Inform the EIA Baseline Characterisation 451
15.4 Description of Baseline Environment 451
15.5 Embedded Mitigation 453
15.6 Scoping of Impacts 454
15.7 Potential Cumulative Effects 458
15.8 Potential Transboundary Effects 458

15.9 Proposed Approach to EIA 458
15.10 Scoping Questions 458
16 Seascape, Landscape and Visual Resources 459
16.1 Introduction 459
16.2 Study Area 459
16.3 Data Sources to Inform the EIA Baseline Characterisation 468
16.4 Description of Baseline Environment 471
16.5 Embedded Mitigation 481
16.6 Scoping of Impacts 482
16.7 Potential Nighttime effects 486
16.8 Potential Cumulative Effects 486
16.9 Potential Transboundary Effects 487
16.10 Proposed Approach to EIA 487
16.11 Scoping Questions 492
17 Socio-Economics, Tourism and Recreation 494
17.1 Introduction 494
17.2 Study Area 494
17.3 Data Sources to Inform the EIA Baseline Characterisation 497
17.4 Description of Baseline Environment 501
17.5 Embedded Mitigation 507
17.6 Scoping of Impacts 509
17.7 Potential Cumulative Effects 519
17.8 Potential Transboundary Effects 519
17.9 Proposed Approach to EIA 520
17.10 Scoping Questions 524
18 Climate 526
18.1 Introduction 526
18.2 Study Area 526
18.3 Data Sources to Inform the EIA Baseline Characterisation 530
18.4 Description of Baseline Environment 532

18.5 Embedded Mitigation 533
18.6 Scoping of Impacts 535
18.7 Potential Cumulative Effects 540
18.8 Potential Transboundary Effects 540
18.9 Proposed Approach to EIA 541
18.10 Scoping Questions 543
19 Infrastructure and Other Users 545
19.1 Introduction 545
19.2 Study Area 545
19.3 Data Sources to Inform the EIA Baseline Characterisation 548
19.4 Description of Baseline Environment 549
19.5 Embedded Mitigation 556
19.6 Scoping of Impacts 559
19.7 Potential Cumulative Effects 566
19.8 Potential Transboundary Effects 566
19.9 Proposed Approach to EIA 566
19.10 Scoping Questions 572
20 Major Accidents and Disasters 573
20.1 Introduction 573
20.2 Key Definitions 573
20.3 Study Area 574
20.4 Data Sources to Inform the EIA Baseline Characterisation 576
20.5 Description of Baseline Environment 578
20.6 Embedded Mitigation 588
20.7 Scoping of Impacts 590
20.8 Potential Cumulative Effects 601
20.9 Potential Transboundary Effects 601
20.10 Proposed Approach to EIA 601
20.11 Scoping Questions 604
21 Summary of Inshore EIA Scoping and Next Steps 605

21.1 Impacts and Commitments 605
21.2 Topics Scoped into the Inshore EIA 605
22 References 611
Appendix A – Embedded Commitments Register 661

Figures

Figure 1-1: Moray FLOW-Park Area 35
Figure 3-1: Location of the Project 55
Figure 3-2: Visual representation of a FLOW substructure / foundation 57
Figure 6-1: Marine and Coastal Processes Study Area 86
Figure 6-2: Bedrock Geology (BGS, 2025) 92
Figure 6-3: Surficial Sediments (EMODnet, 2024) 94
Figure 6-4: Average Suspended Particulate Matter (Cefas, 2016)..... 96
Figure 6-5: Peak Spring Tidal Current Speed and Tidal Excursion Ellipses (ABPmer, 2008 98
Figure 6-6: Wind speed and direction in the Moray FLOW-Park Area (Venterra, 2024). 100
Figure 6-7: Significant wave height in Moray FLOW-Park Area (Venterra, 2024). 101
Figure 6-8: Designated Sites of Relevance to Marine and Coastal Processes 104
Figure 7-1: Marine Water and Sediment Quality Study Area..... 119
Figure 7-2: Climatological Average of Near Bed and Surface Temperature and Salinity within the Study Area..... 128
Figure 7-3: Average Suspended Particulate Matter within the Study Area. 130
Figure 7-4: Water Framework Directive Legislation Waterbodies and Protected Areas in the Study Area. 132
Figure 7-5: Existing Surficial Sediment Characterisation in the Study Area and Location of Nearby CSEMP Monitoring Stations. 139
Figure 8-1: Benthic Subtidal and Intertidal Ecology Study Area..... 160
Figure 8-2: Sediment Modelling Data Across the Study Area (Cefas, 2015)..... 171

Figure 8-3: Seabed Substrate Data, Overlayed Habitat Survey Point Data and OneBenthic Faunal Point Data Across the Study Area (EMODnet, 2021; Cefas, 2019). 172
Figure 8-4: Intertidal Seabed Substrate Data (BGS, 2004). 173
Figure 8-5: Sites Designated for Nature Conservation and PMFs Across the Study Area (Scottish Government, 2024). 177
Figure 9-1: Fish and Shellfish Ecology Study Area 191
Figure 9-2: Rivers of Importance for Migrating Salmon in Relation to the Fish and Shellfish Ecology Study Area 205
Figure 9-3: Spawning Grounds within the Study Area (Cod, Lemon Sole, Sandeel, Plaice) (Coull et al., 1998; Ellis et al., 2012) 214
Figure 9-4: Spawning Grounds within the Study Area (Nephrops) (Coull et al., 1998) . 215
Figure 9-5: Sandeel Substrate Suitability Relative to the Study Area 218
Figure 9-6: Sandeel Spawning Potential Heatmap within the Study Area 220
Figure 9-7: Nursery Grounds within the Study Area (Herring, Cod, Plaice, Lemon Sole) (Coull et al., 1998; Ellis et al., 2012) 222
Figure 9-8: Nursery Grounds within the Study Area (Sandeel, Sprat, Nephrops, Haddock) (Coull et al., 1998; Ellis et al., 2012) 223
Figure 9-9: Nursery Grounds within the Study Area (Whiting, Saithe, Spurdog, Blue Whiting) (Coull et al., 1998; Ellis et al., 2012) 224
Figure 9-10: Nursery Grounds within the Study Area (Ling, Hake, Monkfish, Mackerel) (Coull et al., 1998; Ellis et al., 2012) 225
Figure 9-11: Nursery Grounds within the Study Area (Thornback Ray and Spotted Ray) (Ellis et al., 2012) 226
Figure 9-12: Sites Designated for Nature Conservation 248
Figure 10-1: Ornithology Study Area 262
Figure 11-1: Site-Specific Marine Mammal Study Area 294
Figure 11-2: Regional Marine Mammal Study Area 296
Figure 11-3: Relevant SCANS-IV and SCANS-III survey blocks for marine mammals. . 303
Figure 11-4: Marine mammal designated sites 314

Figure 12-1: Commercial Fisheries Study Area 333
Figure 12-2: Average first sales value of landings by port between 2019 and 2023 in the local commercial fisheries study area ICES rectangles. 343
Figure 12-3: Average annual landed value of species from ICES rectangle 43E5, based on 5-year average from 2019 to 2023 (MMO, 2023a). 344
Figure 12-4: Average annual landed weight of species from ICES rectangle 43E5, based on 5-year average from 2019 to 2023 (MMO, 2023a). 345
Figure 12-5: Average annual landed value of species from ICES rectangle 44E5, based on 5-year average from 2019 to 2023 (MMO, 2023a). 347
Figure 12-6: Average annual landed weight of species from ICES rectangle 44E5, based on 5-year average from 2019 to 2023 (MMO, 2023a). 347
Figure 12-7: Average annual landed value of species from ICES rectangle 44E6, based on 5-year average from 2019 to 2023 (MMO, 2023a). 349
Figure 12-8: Average annual landed weight of species from ICES rectangle 44E6, based on 5-year average from 2019 to 2023 (MMO, 2023a). 350
Figure 12-9: Average annual landed value of species from the commercial fisheries regional study area (ICES rectangles 43E5, 44E5, 44E6, 44E7, 45E6, 45E7), based on 5-year average from 2019 to 2023 (MMO, 2023a). 352
Figure 12-10: Average annual landed weight of species from the Commercial Fisheries regional study area (ICES rectangles 43E5, 44E5, 44E6, 44E7, 45E6, 45E7), based on 5-year average from 2019 to 2023 (MMO, 2023a). 352
Figure 12-11: Average first sales value of landings between 2019 and 2023 in the regional commercial fisheries study area ICES rectangles. 353
Figure 12-12: Comparative average first sales value of landings between the local and regional commercial fisheries study area ICES rectangles. 354
Figure 12-13: Comparative effort by gear type and ICES rectangle for vessels 10 m and under and over 10 m operating in the commercial fisheries study area 357
Figure 12-14: Average surface SAR for EU Vessels (including UK) (>12 m) between 2019 to 2022 (Source: EMODnet, 2025). 360

Figure 12-15: Total Fishing Effort of UK Vessels (>15 m) in 2020 (kW/h) (Source MMO, 2025). 362
Figure 12-16: Average Fishing Effort for EU vessels (including UK) 12 m and over deploying beam trawls, bottom otter trawls, bottom seines, dredges, pelagic trawls and seines and static gears between 2019 and 2022 (Source: EMODnet, 2025)..... 364
Figure 12-17: Spatial Distribution of Annual Fishing Monetary Value (£) for All Gear Types in ICES Rectangles 44E5 and 44E6 Based on ScotMap Data. 366
Figure 12-18: Spatial Distribution of Scallop Towed Dredge Fishing Effort in ICES Rectangles 44E5 and 44E6 Based on ScotMap Data. 367
Figure 12-19: Spatial Distribution of Nephrops pots Fishing Effort in ICES Rectangles 44E5 and 44E6 Based on ScotMap Data..... 368
Figure 12-20: Spatial Distribution of NOT Nephrops Trawls Fishing Effort in ICES Rectangles 44E5 and 44E6 Based on ScotMap Data. 369
Figure 12-21: Spatial Distribution of Nephrops Trawls Fishing Effort in ICES Rectangles 44E5 and 44E6 Based on ScotMap Data..... 370
Figure 12-22: Spatial Distribution of Crab and Lobster Pots Fishing Effort in ICES Rectangles 44E5 and 44E6 Based on ScotMap Data. 371
Figure 12-23: Average Annual Monetary Value (£) from Creels, Pots, and Traps by Scottish Vessels Under 12 m (2018–2022). 372
Figure 12-24: Average Annual Monetary Value (£) from Bottom Trawls by Scottish Vessels Under 12 m (2018–2022). 373
Figure 12-25: Fishing Vessel Route Density 2024 (Source: EMSA, 2025)..... 375
Figure 13-1: Shipping and Navigation Study Area 394
Figure 13-2: Key Navigational Features 399
Figure 13-3: 28 Days of AIS Vessel Traffic by Vessel Type (Winter and Summer 2025) . 402
Figure 13-4: MAIB Incident Data by Incident Type (2015 to 2024)..... 403
Figure 13-5: RNLI Incident Data by Incident Type (2015 to 2024) 404
Figure 14-1: Marine Archaeology and Cultural Heritage Study Area 417
Figure 14-2: Marine Archaeology and Cultural Heritage Receptors..... 428
Figure 15-1: Airports and Radars within the Military and Civil Aviation Study Area..... 450

Figure 16-1: Moray FLOW-Park and SLVIA Study Area 460
Figure 16-2: Floating Foundations Zone of Theoretical Visibility (ZTV) 461
Figure 16-3: Floating Foundations Screened Zone of Theoretical Visibility (ZTV) 462
Figure 16-4: Landscape Character Types and National Coastal Character Types with Screened ZTV 465
Figure 16-5: Landscape Planning Designations with Screened ZTV 466
Figure 16-6: Preliminary Viewpoint Locations and Visual Receptors with Screened ZTV 467
Figure 17-1: Socio-Economics, Tourism and Recreation Study Area 496
Figure 19-1: Infrastructure and Other Users Study Area 547
Figure 19-2: Subsea Cables and Utilities, aquaculture, PEXA, O&G and disposal sites within the Infrastructure and Other Users Study Areas. 551
Figure 19-3: Recreational users and activity within the Infrastructure and Other Users Study Areas. 552
Figure 20-1: Major Accident and Disasters Study Area 575

Tables

Table 1-1: Key MDS Parameters for the Moray FLOW-Park 36
Table 1-2: Scoping Report Structure 39
Table 2-1: Key UK and Scottish Marine Policy. 51
Table 3-1: The Maximum Design Scenario for the Moray FLOW-Park 56
Table 3-2: The Maximum Design Scenario for a FLOW Substructure and Foundation 57
Table 3-3: The Maximum Design Scenario for mooring lines and anchors 59
Table 3-4: The Maximum Design Scenario for the Security Monitoring Buoy 60
Table 3-5: Indicative Project Schedule 61
Table 4-1: Significance of effect 70
Table 5-1: Identification of key statutory and non-statutory stakeholders 81
Table 6-1: Key sources of Marine and Coastal Processes data. 88
Table 6-2: Designated Sites Relevant for Marine and Coastal Processes. 103

Table 6-3: The proposed embedded mitigation measures relevant to Marine and Coastal Processes receptors..... 105
Table 6-4: Scoping assessment for Marine and Coastal Processes..... 107
Table 6-5: Scoping assessment of cumulative impacts for Marine and Coastal Processes..... 111
Table 6-6: Impact Magnitude criteria for Marine and Coastal Processes 114
Table 6-7: Receptor Sensitivity Criteria for Marine and Coastal Processes 115
Table 7-1: Key sources of Marine Water and Sediment Quality data. 121
Table 7-2: Monthly Mean Sea Surface and Near-bed Temperature and Salinity across the Study Area Based on Climatology Data Between 1971 and 2000 where Green cells indicate the lowest and highest monthly values. 127
Table 7-3: Summary of Latest Classification Status (2023) for WFD Coastal Waterbodies in the Study Area. 135
Table 7-4: Summary of Latest Classifications of Bathing Waters in the Study Area (2021 – 2024). 136
Table 7-5: Summary of Metal Concentrations in Sediments Analysed from Monitoring Stations in the Moray Firth as part of the CSEMP Assessment (1999 - 2019) with AL1 and AL2 Threshold Values Included for Comparison. Green highlight indicates average concentration above AL1. 140
Table 7-6: Summary of PAH Concentrations in Sediments Analysed from Monitoring Stations in the Moray Firth as part of the CSEMP Assessment (1999 - 2019) with TEL and PEL Threshold Values Included for Comparison. 140
Table 7-7: The Proposed Mitigation Measures Relevant to Marine Water and Sediment Quality Receptors. 143
Table 7-8: Scoping assessment for Marine Water and Sediment Quality. 146
Table 7-9: Impact Magnitude Criteria for MW&SQ. 155
Table 7-10: Receptor Sensitivity Criteria for MW&SQ. 156
Table 8-1: Key sources of Benthic Subtidal and Intertidal Ecology data. 162
Table 8-2: Designated sites relevant for Benthic Subtidal and Intertidal Ecology 176

Table 8-3: The proposed mitigation measures relevant to Benthic Subtidal and Intertidal Ecology receptors. 178
Table 8-4: Scoping assessment for Benthic Subtidal and Intertidal Ecology. 180
Table 8-5: Definitions of magnitude levels for Benthic Subtidal and Intertidal Ecology. 185
Table 8-6: Definitions of sensitivity levels for Benthic Subtidal and Intertidal Ecology. 186
Table 9-1: Key Sources of Fish and Shellfish Ecology Baseline Data 193
Table 9-2: Summary of Monthly Spawning Timings (Coull et al., 1998) in the Northern North Sea for Fish Species Known to Have Spawning Grounds in the Study Area (Light Grey Cells Indicate Spawning Period and Dark Grey Cells Indicate Peak Spawning Period) 213
Table 9-3: Sandeel Spawning Habitat Categories as Defined by Reach et al. (2024) (Originally Defined by Latto et al., 2013) 217
Table 9-4: Species of Conservation Importance Potentially Present within the Study Area 229
Table 9-5: Designated Sites Relevant for Fish and Shellfish Ecology 245
Table 9-6: Fish and Shellfish Species Recorded, or Potentially Present within the Study Area 249
Table 9-7: The Proposed Mitigation Measures Relevant to Fish and Shellfish Ecology Receptors 251
Table 9-8: Scoping Assessment for Fish and Shellfish Ecology 253
Table 9-9: Impact Magnitude Criteria for Fish and Shellfish Ecology 259
Table 9-10: Receptor Sensitivity Criteria for Fish and Shellfish Ecology 260
Table 10-1: Key sources of Ornithology data. 265
Table 10-2 Bird species totals recorded from DAS across the Moray Firth SPA (which overlaps with the FLOW-Park Area) from Scott et al. (2023). 273
Table 10-3: Designated Sites Relevant for Ornithology. 276
Table 10-4: The proposed mitigation measures relevant to Ornithology receptors. 280
Table 10-5: Scoping assessment for Ornithology. 282
Table 10-6: Proposed displacement and mortality rates for FLOW Park. 290

Table 10-7: Impact Magnitude criteria definitions for Inshore and Intertidal Ornithology. 291
Table 10-8: Receptor Sensitivity criteria definitions for Inshore and Intertidal Ornithology. 292
Table 11-1: Key sources of marine mammal data. 298
Table 11-2: Designated sites relevant for marine mammals 312
Table 11-3: The proposed mitigation measures relevant to marine mammal receptors 315
Table 11-4: Scoping assessment for Marine Mammals. 317
Table 11-5: Definition of the level of sensitivity for marine mammal receptors 327
Table 11-6: Definition of the level of magnitude for marine mammal receptors 328
Table 12-1: Key sources of commercial fisheries data. 335
Table 12-2 Summary of key stakeholder engagement information. 339
Table 12-3: The proposed embedded mitigation relevant to commercial fisheries receptors 377
Table 12-4: Scoping assessment for commercial fisheries. 380
Table 12-5: Definitions of magnitude level for commercial fisheries. 390
Table 12-6: Definitions of sensitivity levels for commercial fisheries. 391
Table 13-1: Key sources of Shipping and Navigation data. 396
Table 13-2: The proposed mitigation measures relevant to Shipping and Navigation receptors 405
Table 13-3: Scoping assessment for Shipping and Navigation 409
Table 13-4: IMO FSA Risk Matrix 414
Table 14-1: Key sources of Marine Archaeology and Cultural Heritage data. 419
Table 14-2: Known Seabed Assets Recorded in the Study Area. 426
Table 14-3: The proposed mitigation measures relevant to Marine Archaeology and Cultural Heritage receptors 431
Table 14-4: Potential Impact Categories Associated with Marine Archaeology and Cultural Heritage 432

Table 14-5: Potential Impact Categories Associated with Marine Archaeology and Cultural Heritage..... 433
Table 14-6: Scoping assessment for Marine Archaeology and Cultural Heritage 435
Table 14-7: Criteria to Assess Archaeological Sensitivity..... 445
Table 14-8: Criteria to Assess Magnitude..... 447
Table 15-1: Key sources of Military and Civil Aviation data. 451
Table 15-2: Proposed Embedded Commitment measures relevant to Military and Civil Aviation receptors 453
Table 15-3: Scoping assessment for Military and Civil Aviation..... 455
Table 16-1: Key sources of Seascape, Landscape and Visual data..... 469
Table 16-2: Landscape Planning Designations..... 475
Table 16-3: Proposed viewpoint locations. 479
Table 16-4: The proposed mitigation measures relevant to seascape, landscape and visual receptors. 481
Table 16-5: Scoping assessment for Seascape, landscape and visual. 483
Table 16-6: Matrix used to guide determination of effect significance, ... 491
Table 17-1: Key sources of socio-economic, tourism and recreation data. 498
Table 17-2: The proposed mitigation measures relevant to Socio-Economics, Tourism and Recreation receptors 507
Table 17-3: Scoping assessment for Socio-Economics, Tourism and Recreation..... 510
Table 18-1: Summary of GHG study area components within the climate assessment 528
Table 18-2: Carbon budget periods..... 531
Table 18-3: Average climatic conditions and observations, taken from Kinloss, between 1991-2020 (source Met Office, 2023). 533
Table 18-4: The proposed embedded mitigation measures relevant to Climate receptors 534
Table 18-5 Potential sources of GHG emissions during project lifecycle. 537
Table 18-6: Scoping assessment for Climate 538
Table 19-1: Key sources of IOU data..... 548

Table 19-2: Summary of baseline receptors..... 555
Table 19-3: The proposed mitigation measures relevant to IOU receptors..... 557
Table 19-4: Scoping assessment for IOU..... 560
Table 19-5: Scoped Out Receptors..... 565
Table 19-6: Legislation of relevance to IOU..... 567
Table 19-7: Policy of relevance to IOU..... 568
Table 19-8: Impact Magnitude Criteria for IOU..... 570
Table 19-9: Receptor sensitivity Criteria for IOU..... 571
Table 20-1: Key sources of Major Accident and Disasters data. 577
Table 20-2: The proposed mitigation measures relevant to Major Accident and Disasters receptors..... 588
Table 20-3: Major Accident and Disaster Thresholds by Receptor Type (Source: COMAH Regs 2015)..... 590
Table 20-4: Scoping assessment for Major Accident and Disasters (Source NRR 2025) 592
Table 20-5: Consequence Criteria..... 602
Table 20-6: Likelihood Criteria..... 603
Table 20-7: Tolerability Matrix..... 603
Table 21-1: Proposed structure of the EIAR..... 608
Table 21-2: Indicative list of technical appendices to support the EIAR. 610

Glossary

Term	Definition
(The) Developer	Organisation or consortium responsible for planning, constructing, and operating a project under the terms of a lease or agreement with Crown Estate Scotland (Offshore Solution Group Ltd).
Commitment	A term used interchangeably with mitigation and enhancement measures. Commitments are Embedded Mitigation Measures. The purpose of Commitments is to reduce and/or eliminate Likely Significant Effect (LSE), in EIA terms.
Competent Authority	The Competent Authority is the public body or organisation legally responsible for ensuring compliance with the Habitat Regulations. For the Project's Inshore Habitats Regulation Appraisal (HRA) Screening Report, the Competent Authority is the Scottish Ministers.
Cumulative Effects	The combined potential effect of the Project in combination with the potential effects from consented and future projects, on the same single receptor/resource.
Cumulative Effects Assessment (CEA)	A Cumulative Effects Assessment (CEA) is a quantification and evaluation of potential effects by taking into consideration any other plans or projects proposed or existing, and where sufficient information is available, which, together with the Project have a likely significant effect on a receptor due to a common impact pathway and/or temporal or spatial overlap.
Design Envelope	Project parameters that are used in the Environmental Impact Assessment (EIA) for the Moray FLOW-Park. This comprises a description of the range of possible elements that make up the project design options under consideration, as set out in detail in the project description when the exact engineering parameters are not yet known. This is often referred to as a Rochdale Envelope" approach.
Effect	Term used to express the consequences of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
Embedded Mitigation	Primary (design) and tertiary (inherent) mitigation measures that are included in the design of the Project.
Environmental Impact Assessment (EIA)	A statutory process whereby planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment

Term	Definition
	requirements on the EIA Directive and EIA Regulations, including the publication of an Environmental Impact Assessment (EIA) Report.
Environmental Impact Assessment (EIA) Directive	European Union Directive 85/337/EEC.
Environmental Impact Assessment (EIA) Regulations	The term used to refer to the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017
European Protected Species (EPS) Licence	Species of plants and animals (other than birds) that are protected under Annex IV of the EU Habitats Directive (Directive 92/43/EEC) due to their rarity or threatened status across Europe. These species are afforded strict protection within all EU Member States, including prohibitions on deliberate capture, killing, disturbance, or destruction of their breeding sites or resting places.
FLOW Floating Foundations	Floating substructure, moored to the seabed by anchoring systems, designed to support the WTG.
Foundation Anchors	The structure which anchors the moorings to the seabed.
Foundation Moorings	The chains/synthetics that connect the FLOW foundations to the Foundation Anchors to maintain floater station.
Greenhouse Gas (GHG)	A gas that absorbs and emits radiant energy at thermal infrared wavelengths causing the greenhouse effect.
Habitats Regulation Appraisal (HRA)	A process required under the Conservation (Natural Habitats, &c,) (as amended) Regulations 1994, the Conservation of Habitats and Species Regulations 2017; and the Conservation of Offshore Marine Habitats and Species Regulations 2017, (commonly known as the Habitat Regulations), which helps determine likely significant effects and (where appropriate) assesses adverse impacts on the integrity of European conservation sites and Ramsar sites. The process consists of up to four stages of assessment: screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI).
Habitats Regulations	A term commonly used to refer to the Conservation (Natural Habitats, &c,) (as amended) Regulations 1994, the Conservation of Habitats and Species Regulations 2017; and the Conservation of Offshore Marine Habitats and Species Regulations 2017, which transpose the EU Habitats and Birds Directives into Scots law. These Regulations provide the legal framework for the protection

Term	Definition
	of European sites, including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), and underpin the Habitats Regulations Appraisal (HRA) process. The Regulations apply to both terrestrial and inshore areas under Scottish jurisdiction and are particularly relevant to assessing the impacts of developments such as offshore wind farms.
Inshore	Inshore is defined as waters extending out to 12 nautical miles (22.2km) within Scotland National Marine Plan, and out to 6 nautical miles (11.1km) in the Fishing (Scotland) Act 1984.
Inshore Environmental Impact Assessment Report (Inshore EIAR)	The published report of the Environmental Impact Assessment (EIA) that will be undertaken for the Project.
Inshore Scoping Opinion	The Scoping Opinion that will be provided by Marine Directorate - Licensing Operations Team (MD-LOT) under the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017, setting out the Scottish Ministers' opinion on the content of the Inshore EIAR including those issues that will or will not need to be addressed in the Inshore EIA.
Inshore Scoping Report	The Scoping Report setting out the proposed contents of the Inshore EIAR and provided to Marine Directorate - Licencing Operations Team (MD-LOT) to support the request for a Scoping Opinion
Likely Significant Effect (LSE)	In the context of Environmental Impact Assessment (EIA), a Likely Significant Effect (LSE) refers to a predicted environmental impact of a proposed development that, by its nature, magnitude, duration or likelihood, has the potential to be significant in the context of the EIA Regulations. This determination is made during the EIA screening and scoping stages and helps establish whether a full EIA is required and what topics should be assessed in detail.
Likely Significant Effect (LSE)	In the context of Habitats Regulations Assessment (HRA). A Likely Significant Effect (LSE) refers to the result of the screening exercise that determines if the proposed development "would be likely to have a significant effect" on a European site.
Marine Directorate	The Directorate responsible for the integrated management of Scottish waters. Acts on behalf of the Scottish Ministers.

Term	Definition
Marine Directorate – Licensing Operations Team (MD-LOT)	The Marine Directorate responsible for marine licensing within the Scottish inshore region (between 0 and 12 nautical miles (nm)) and in the Scottish offshore region (between 12 and 200 nm). MD-LOT acts on behalf of the Scottish Ministers.
Marine Directorate-Science, Evidence, Data and Digital (MD-SEDD)	The scientific division of the Marine Directorate, responsible for provision of expert scientific, economic, and technical advice and services on issues relating to fisheries, aquaculture, marine renewable energy. It provides the evidence to support the policies and regulatory activities of the Scottish Government through a programme of monitoring and research as well as performing regulatory and enforcement activities.
Marine Licence	Licence granted under the Marine (Scotland) Act 2010 and/or the Marine and Coastal Access Act 2009 where relevant.
Maximum Design Scenario	The maximum design parameters for each inshore project design asset considered to be a worst case for any given assessment.
Moray FLOW-Park Area	The area in which the floating foundations infrastructure for Moray FLOW-Park will be located.
National Site Network	A network of protected sites across the UK established post-Brexit, equivalent to the former Natura 2000 network.
Non-statutory Consultee	Organisations that the Local Authorities and/or Marine Directorate may choose to engage (if, for example, there are planning policy reasons to do so) who are not designated in law but are likely to have an interest in the Project.
O&M – Operations and Maintenance	The term used within the Inshore Scoping Report and Inshore EIAR, relates to the operation of the FLOW Park and the maintenance of the permanently installed infrastructure at the FLOW-Park, this specifically excludes any maintenance activities on FLOW Foundations.
Pre-application Consultation (PAC)	The statutory pre-application consultation with communities required for National and Major developments under Section 35B of the Town and Country Planning (Scotland) Act 1997 as amended.
Primary Commitments	Measures that form an intrinsic part of the design that are described in the design evolution narrative and included within the project description e.g., reducing development heights to reduce visual impact.

Term	Definition
Project	The Moray FLOW-Park – comprising all associated permanently installed infrastructure, and the operation of the site.
Red Line Boundary	The boundary within which all inshore development will take place.
Safety and Security Buoy	Safety buoys equipped with high-definition GPS and monitoring sensors that will be located around the site. These systems monitor metocean conditions to ensure the integrity of the moorings, and security systems to manage risks from other users (monitored live).
Safety Zone	An area around a structure where entry is prohibited to other sea users. Safety Zone requirements for the Moray FLOW Park to be defined and agreed with the Maritime and Coastal Agency and other sea users through consultation.
Scottish Ministers	The Ministers of the devolved Scottish Government, who exercise statutory functions transferred from the UK Government. The Scottish Ministers support the First Minister in leading the Scottish Government.
Scour Protection	Protection installed in order to prevent seabed scour around foundation structures and cables.
Secondary Commitments	Measures that require further activity in order to achieve the anticipated outcome, e.g. development of the optimum reinstatement measures for restoring a disturbed sensitive natural habitat.
Statutory Consultee	Organisations that are required to be consulted by the Planning Authority and/or Marine Scotland, and who have a duty to respond to the consultation within a set deadline. Not all consultees will be statutory consultees (see non-statutory consultees definition).
Tertiary Commitments	Measures which will be required regardless of the EIA process as they are imposed e.g. as a result of legislative requirements and/or standard industry practices e.g. via a Construction Environmental Management Plan (CEMP), Code of Construction Practice (CoCP) or similar.
Wind Turbine Generator (WTG)	The wind turbines that generate electricity consisting of tubular towers and blades attached to a nacelle housing mechanical and electrical generating equipment. There will be no WTGs stored at the FLOW-Park.

Acronyms and Abbreviations

Term	Definition
AA	Appropriate Assessment
AA-EQS	Annual Average – Environmental Quality Standard
ACAS	Aberdeenshire Council Archaeology Service
AD	Air Defence
ADCP	Acoustic Doppler Current Profiler
ADD	Acoustic Deterrent Device
AEZ	Archaeological Exclusion Zone
AIP	Aeronautical Information Publication
AIS	Automatic Information System
AL	Action Level
ALARP	As Low As Reasonably Possible
APS	Annual Population Survey
ASL	Above Sea Level
AWB	Artificial Waterbody
BAP	Biodiversity Action Plan
BDMPS	Biologically Defined Minimum Population Scales
BGS	British Geological Survey
BOCC	Birds of Conservation Concern
BOWL	Beatrice Offshore Wind Farm Limited
BPEO	Best Practicable Environmental Option
BRES	Business Register and Employment Survey
BSI	British Standards Institute
BTO	British Ornithology Trust
CAA	Civil Aviation Authority
CBRN	Chemical, Biological, Radiological and Nuclear
CCA	Coastal Character Area
CCC	Climate Change Committee
CCRA	Climate Change Resilience Assessment
CCUS	Carbon Capture, Utilisation and Storage
CDOIF	Chemical and Downstream Oil Industries Forum
CEA	Cumulative Effects Assessment
CEF	Cumulative Effects Framework
Cefas	Centre for Environment, Fisheries and Aquaculture
CES	Crown Estate Scotland
CES	Coastal and East Scotland
CGNS	Celtic and Greater North Sea
CI	Confidence Interval
CIEEM	Charged Institute of Ecology and Environmental Management
CIfA	Charted Institute for Archaeologists
CLVIA	Cumulative Landscape and Visual Impact Assessment
CMS	Construction Method Statement

Term	Definition
CO	Conservation Objective
COLREG	International Regulations for Preventing Collisions at Sea
COMAH	Control of Major Accident Hazards
COWRIE	Collaborative Offshore Wind Research into the Environment
CPA	Coast Protection Act
CSEMP	Clean Seas Environment Monitoring Programme
CV	Coefficient of Variation
DAS	Digital Aerial Survey
DDV	Drop Down Video
DE	Design Envelope
DEFRA	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy Security and Net Zero
DETR	Department of the Environment, Transport and the Regions
DIO	Defence Infrastructure Organisation
DM	Do-Minimum
DP	Decommissioning Programme
ECoW	Environmental Clerk of Works
EEA	European Economic Area
EEZ	European Economic Zone
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Plan
EPS	European Protected Species
EQS	Environmental Quality Status
ESCA	European Subsea Cables Association
EU	European Union
FeAST	Feature Activity Sensitivity Tool
FEPA	Food and Environmental Protection Act
FLO	Fisheries Liaison Officer
FLOW	Floating Offshore Wind
FLOWW	Fisheries Liaison with Offshore Wind and Wet Renewables
FMS	Fisheries Management Strategy
FSA	Formal Safety Assessment
FU	Functional Unit
GCR	Geology Conservation Review
GCS	Good Chemical Status
GDL	Garden and Designed Landscape
GES	Good Ecological Status
GHG	Greenhouse Gas
GIS	Geographical Information System
GLVIA3	Guidelines for Landscape and Visual Impact Assessment: 3rd Edition
GNS	Greater North Sea

Term	Definition
GRAASP	Genetically-based Regional Assignment of Atlantic Salmon Protocol
GSD	Ground Sampling Distance
GT	Gross Tonnage
GVA	Gross Value Added
GW	Gigawatt
GWP	Global Warming Potential
HER	Historic Environment Record
HES	Historic Environment Scotland
HIAL	Highlands and Islands Airports Limited
HRA	Habitats Regulations Appraisal
HSE	Health and Safety Executive
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IAMMWG	Inter-Agency Marine Mammal Working Group
IC	Inorganic Carbon
ICCI	In-Combination Climate Impacts
ICES	International Council for the Exploration of the Sea
IEMA	Institute of Environmental Management and Assessment
IFP	Instrument Flight Procedures
IHLS	International Herring Larval Survey
IMO	International Maritime Organisation
INNS	Invasive Non-Native Species
INTOG	Innovation and Targeted Oil and Gas
IOF	Important Ornithological Features
IOU	Infrastructure and Other Users
ISEP	Institute of Sustainability and Environmental Professionals
ISRA	Important Shark and Ray Areas
IUCN	International Union for Conservation of Nature
JCCC	Joint Casualty and Compassionate Centre
JNCC	Joint Nature Conservation Committee
JUV	Jack-Up Vessel
LAT	Lowest Astronomical Tide
LCA	Landscape Character Area
LCT	Landscape Character Type
LLD	Local Landscape Designation
LMP	Lighting and Marking Plan
LVIA	Landscape and Visual Impact Assessment
LoD	Limit of Detection
LSE	Likely Significant Effect
MAC-EQS	Maximum Allowable Concentration – Environmental Quality Status
Mag.	Magnetometer
MAIB	Marine Accident Investigation Branch

Term	Definition
MCA	Maritime and Coastguard Agency
MCS	Marine Conservation Society
MD-LOT	Marine Directorate – Licencing and Operations Team
MDS	Maximum Design Scenario
MD-SEDD	Marine Directorate – Science, Evidence, Data and Digital
MFRAG	Moray Firth Regional Advisory Group
MGN	Marine Guidance Noite
MHW	Mean High Water
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MOD	Ministry of Defence
MP	Member of Parliament
MPA	Marine Protected Area
MSA	Merchant Shipping Act
MSP	Member of Scottish Parliament
MU	Management Unit
MW	Megawatt
MWSQ	Marine Water and Sediment Quality
NBN	National Biodiversity Network
NCCT	National Coastal Character Types
NCMPA	Nature Conservation Marine Protected Area
NETS	National Electricity Transmission System
NLB	Northern Lighthouse Board
NMP	National Marine Plan
NMP2	National Marine Plan 2
NMPi	National Marine Plan Interactive
NNR	National Nature Reserve
NOC	National Oceanographic Centre
NRA	Navigational Risk Assessment
NRR	National Risk Register
NRW	Natural Resources Wales
NSA	National Scenic Area
NSRA	National Security Risk Assessment
NSSS	North Sea Sandeel Survey
NSTA	North Sea Transition Authority
NTS	National Trust for Scotland
NVZ	Nitrate Vulnerable Zone
O&M	Operation and Maintenance
OC	Organic Carbon
OLS	Obstacle Limitation Surface
ONS	Office for National Statistics

Term	Definition
ORE	Offshore Renewable Energy
OREI	Offshore Renewable Energy Infrastructure
ORJIP	Offshore Renewables Joint Industry Programme
OSG	Offshore Solutions Group
OWF	Offshore Wind Farm
OWIC	Offshore Wind Industry Council
PAC	Pre-Application Consultation
PAD	Protocol for Archaeological Discovery
PAH	Polyaromatic Hydrocarbons
PAM	Passive Acoustic Monitoring
PAN	Planning Advice Note
PCB	Polychlorinated Biphenyls
PEL	Probable Effect Level
PEXA	Practice and Exercise Area
PMF	Priority Marine Feature
PMSC	Port Marine Safety Code
PNT	Positioning, Navigation and Timing
PO	Plan Option
PS	Piling Strategy
PSA	Particle Size Analysis
PSR	Primary Surveillance Radar
PTS	Primary Threshold Shift
PVA	Population Viability Analysis
QSR	Quality Status Report
RAF	Royal Air Force
RBMP	River Basin Management Plans
rBWD	revised Bathing Water Directive
RCCA	Regional Coastal Character Area
RCP	Representative Concentration Pathway
RIAA	Report to Inform Appropriate Assessment
RLoS	Radar Line of Sight
RNLI	Royal National Lifeboat Institute
ROV	Remote Operated Vehicle
RQF	Regulated Qualifications Framework
RSPB	Royal Society for the Protection of Birds
RYA	Royal Yacht Association
SAC	Special Area of Conservation
SALSEA	Salmon at Sea
SAR	Search and Rescue
SCANS	Small Cetaceans in European Atlantic waters and the North Sea
SCOS	Special Committee on Seals
SEL	Sound Exposure Level

Term	Definition
SEPA	Scottish Environmental Protection Agency
SFF	Scottish Fishermen's Federation
SLA	Special Landscape Area
SLQ	Special Landscape Quality
SLVIA	Seascape, Landscape and Visual Impact Assessment
SMA	Seal Management Area
SMP	Scottish Marine Plan
SMP-OWE	Scottish Marine Plan – Offshore Wind Energy
SMR	Scottish Marine Region
SNCB	Statutory Nature Conservation Body
SNH	Scottish Natural Heritage
SOWEC	Scottish Offshore Wind Energy Council
SPA	Special Protected Area
SPFA	Scottish Pelagic Fishermen's Association
SPM	Suspended Particulate Matter
SSC	Suspended Sediment Concentration
SSS	Side Scan Sonar
SSSI	Site of Special Scientific Interest
SWFPA	Scottish White Fish Producers' Association
SWPA	Shellfish Water Protected Areas
SWT	Scottish Wildlife Trust
TBT	Tributyltin
TEL	Threshold Effect Level
TOC	Total Organic Carbon
TTS	Temporary Threshold Shift
UK	United Kingdom
UKCP	UK Climate Projections
UKHO	United Kingdom Hydrographic Office
UNESCO	United Nations Educational, Scientific and Cultural Organization
UTM	Universal Transverse Mercator
UWN	Underwater Noise
UWWTD	Urban Wastewater Treatment Directive
UXO	Unexploded Ordnance
VMP	Vessel Management Plan
VMS	Vessel Monitoring System
VP	Vantage Point
WDC	Whale and Dolphin Conservation
WFD	Water Framework Directive
WSI	Written Scheme of Investigation
WTG	Wind Turbine Generator
ZoI	Zone of Influence
ZTV	Zone of Theoretical Visibility

1 Introduction

1.1 Background

1.1.1.1 Within the United Kingdom (UK), Offshore Wind Farm (OWF) development has been progressing continuously since the instalment of the first Wind Turbine Generator (WTG) at Blyth in 2003 and has mainly focused on the application of fixed bottom technology within shallower inshore waters. More recently, Floating OWF (FLOW) solutions have been developed that can be deployed within deeper waters further offshore, promoted through recent UK offshore wind leasing rounds. Within Scotland, Kincardine OWF and Hywind Scotland have been the first projects to demonstrate the use of FLOW technology. FLOW is increasingly viewed as a key element in delivering energy security for the UK and addressing the climate change emergency.

1.1.1.2 In support of the Scottish Government's commitment to achieving net-zero Greenhouse Gas (GHG) emissions by 2045, the Crown Estate Scotland (CES) launched the ScotWind Leasing process in 2021. This process made new areas of seabed within Scottish waters available for potential offshore development. The initiative aims to deliver 15 Gigawatt (GW) of offshore wind capacity within a series of Plan Option (PO) areas designated by the Scottish Government as the most suitable for development, as outlined in the 'Sectoral Marine Plan for Offshore Wind Energy' (Scottish Government, 2020a). A total of 27.6 GW of projects were awarded a lease.

1.1.1.3 Following on from ScotWind, CES progressed with the Innovation and Targeted Oil and Gas (INTOG) leasing round in 2022 which promoted FLOW to electrify oil and gas infrastructure in the North Sea (4 to 5 GW), alongside encouraging demonstration projects associated with new technologies. Lease agreements were awarded in March 2023 (five innovation and eight INTOG sites) in accordance with the '*Initial Plan Framework: Sectoral Marine Plan for Offshore Wind for Innovation and Targeted Oil and Gas Decarbonisation*' (Scottish Government, 2022a).

1.1.1.4 FLOW represents a key component of both the ScotWind and INTOG leasing processes, enabling the development of offshore wind projects in deeper waters not suitable for fixed bottom technologies. By facilitating the deployment of FLOW, ScotWind and INTOG aim to maximise Scotland's offshore wind capacity, promote innovation in FLOW technology, while contributing to the diversification and resilience of the UK's energy infrastructure.

1.1.1.5 Offshore Solutions Group Ltd (OSG), hereby termed the Developer, working on behalf of FLOW Park Investment Ltd, are developing the Moray FLOW-Park, hereby referred to as the 'Project'. The Moray FLOW-Park is to be located in the inshore waters of Findhorn, within the inner Moray Firth (see Figure 1-1).

1.1.1.6 The Developer therefore intends to apply for the relevant consents and permissions required to enable construction, O&M and decommissioning of the Project. This process will be subject to Environmental Impact Assessment (EIA), with an Environmental Impact Assessment Report (EIAR) to be prepared to underpin any applications.

1.1.1.7 The purpose of the Inshore Scoping Report is to request a formal Scoping Opinion from the Marine Directorate-Licensing Operations Team (MD-LOT), on behalf of the Scottish Ministers in relation to the Project. This Inshore Scoping Report sets out the environmental baseline conditions associated within the local / regional area of the Project, the environmental receptors needing to be assessed within (or scoped in to) the EIAR, and those environmental receptors not considered to require assessment (scoped out).

1.1.1.8 The Inshore Scoping report also sets out the proposed impact assessment methodology to be adopted for the EIAR and any site-specific surveys or studies that will need to be completed. This Inshore Scoping Report considers all of the Project infrastructure and its operational processes, as presented in Chapter 3: Project Description.

1.1.1.9 It is anticipated the Scoping Opinion received from MD-LOT will be based on responses to this Inshore Scoping Report that are received from statutory and non-statutory consultees and these will be used to guide the EIA.

1.1.2 Wet Storage

1.1.2.1 FLOW technology has construction and Operation and Maintenance (O&M) requirements that differ fundamentally from those of fixed-foundation developments. For fixed-foundation projects, major components are manufactured onshore (e.g. blades and nacelles), while foundations and WTGs are installed in situ at the Project location. In contrast, floating wind foundations are constructed onshore and integrated with the WTGs prior to deployment. These fully assembled floating units are then towed to the Project location for installation, where anchoring and mooring systems are installed to secure the structures.

1.1.2.2 The towing of floating foundations or fully integrated units is also sensitive to weather conditions and can only be undertaken in suitable weather windows, which limits installation to certain times of the year (typically late spring / summer / early autumn). Due to the large numbers of floating units required to meet ScotWind and INTOG ambitions and future demand, there would be insufficient space within the East and Northeast of Scotland to store constructed foundations and fully integrated units of any significant number within existing ports, harbours and construction bases. Port constraints and logistical challenges of movement, supply, weather and vessel availability restrict the number of floating foundations and/or fully assembled FLOW units that can be positioned quayside or temporarily held within a port during the construction phase of an offshore floating wind farm.

1.1.2.3 Most ports can accommodate a maximum of four FLOW units or foundations, and current OWF developer project execution plans for large projects (≥500 Megawatt (MW)) have c. 30 FLOW units and a limited timeframe within which to complete assembly, integration and installation. Therefore, to enable efficient and effective port and vessel operations, there is a need for additional 'parking' or 'wet storage' for the temporary short-term storing of non-operational FLOW foundations. This need has been identified within the industry, and the ability to use these areas is critical to the successful construction / operation and delivery of future floating OWFs.

1.1.2.4 The establishment of nearshore FLOW wet storage areas provides secure locations for FLOW floating foundations to be temporarily staged, stored, maintained and managed prior to deployment. Such temporary storage areas will enable safe handling of foundations during adverse weather conditions, reducing operational delays and improving resilience to OWF projects.

1.2 The Developer

1.2.1.1 OSG were founded in 2020 and are the world's leading developer of FLOW-dedicated wet storage. The company is comprised of a multi-disciplined international team of renowned experts, highly experienced in the technical delivery, execution and commercial aspects of inshore & offshore development. FLOW-Park Investment Limited is a majority owned subsidiary of Offshore Solutions Group Limited.

1.2.1.2 The Developer has undertaken over five years of research and development in order to pioneer the development and delivery of wet storage for FLOW industrial-scale deployment, while ensuring that the stringent regulations and requirements that ensure safe and compliant inshore operations can be met. Within the UK, OSG has been developing wet storage through extensive site selection, evaluation, regulator engagement and consultation in order to identify the best suited locations.

1.2.1.3 The Developer is advancing wet storage within the UK as well as internationally, with the Moray FLOW-Park being selected as the UK's first FLOW-Park location after an extensive three-year process of surveys, technical assessments, and industry and legislative body interaction.

1.3 Project Overview

1.3.1.1 The location of the Project is shown in Figure 1-1. The Moray FLOW-Park investigation area covers an approximate area of 18 km^2 (it should be noted that not all of the area will be utilised, which will be defined during further site investigation, EIA progress and detailed design). The technical capacity of storage allows anchoring for a maximum of up to 30 FLOW floating foundations. The actual number of foundations stored in the FLOW Park will vary depending on OWF developer requirements and will vary from being empty to fully utilised. The Moray FLOW-Park will be for the temporary storage of FLOW floating foundations only. There will also be a seasonal use of the Project (further details are provided in Chapter 3: Project Description).

1.3.1.2 The Project will consist of the following key components:

- FLOW Foundations – this includes the FLOW floating foundations only, without a tower or WTG. These will vary in design and dimensions depending upon the particular OWF developer. The Maximum Design Scenario (MDS) is used within the EIA, in order to capture all designs of FLOW Foundations currently under consideration for wet storage, as presented in Chapter 3: Project Description;
- Mooring Lines and Anchoring systems; and
- Safety & Security Buoys.

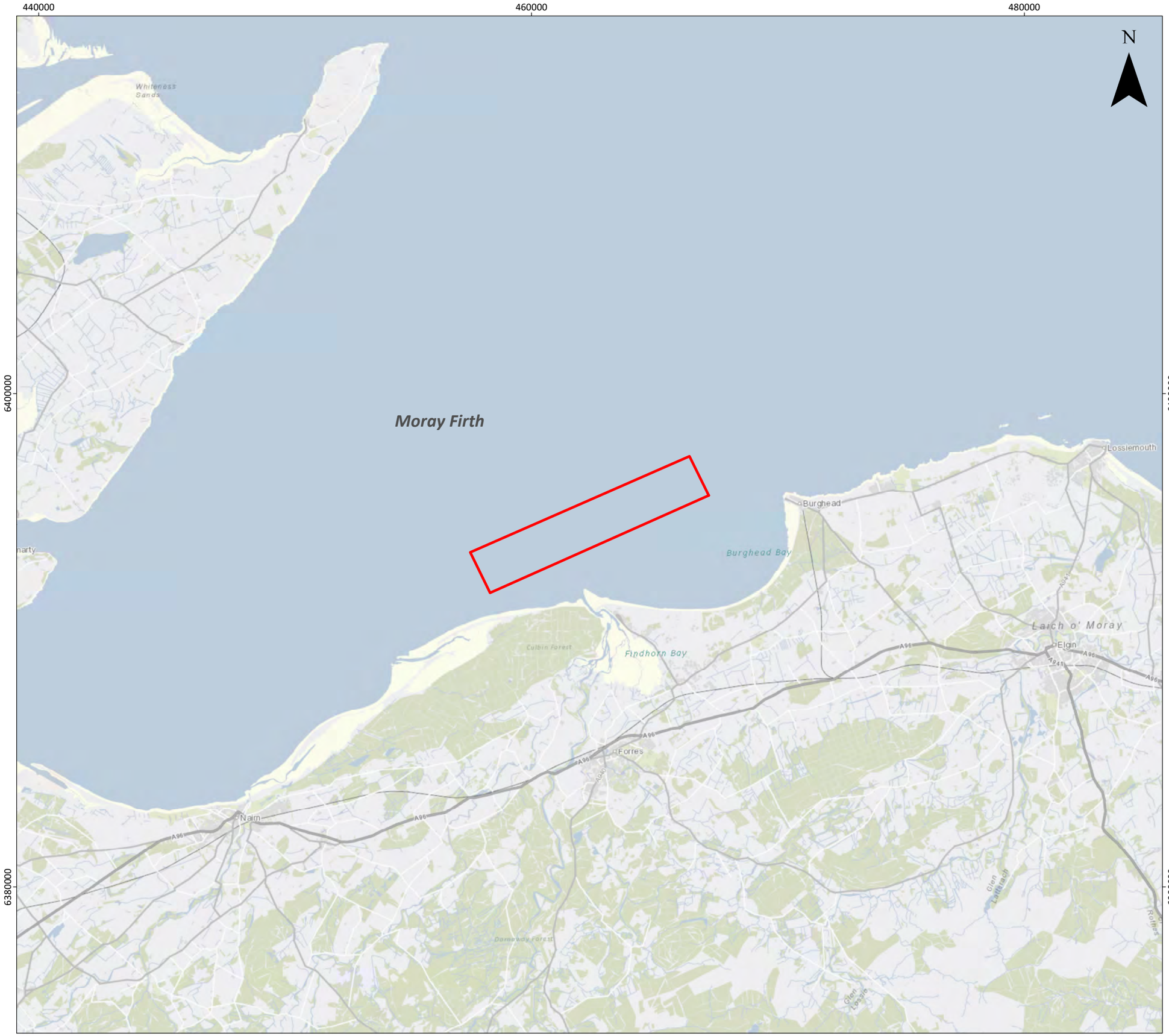


Figure Reference: MFP_INT_Fig1-1_SiteLocation_v1

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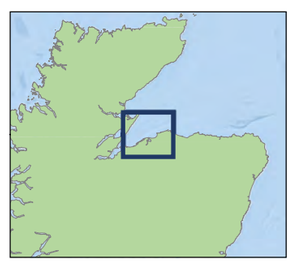
OFFSHORE SOLUTIONS GROUP | working on behalf of Flow Park Investment Ltd

Moray FLOW-Park
Inshore Scoping Report

Moray FLOW-Park Site Location

Legend

Moray FLOW-Park



Notes

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Coordinate System:
WGS 1984 UTM Zone 30N

0 5 10 km

0 2 4 nm

Scale	Date	Drawn by	Checked by	Approved by
1:150,000 @A3	12/12/2025	EV	BPHB	CC

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Figure 1-1

1.3.1.3 A summary of key MDS parameters is presented in Table 1-1.

Table 1-1: Key MDS Parameters for the Moray FLOW-Park

Description	Moray FLOW-Park
Area	18 km^2
Minimum distance to shore (from red line boundary)	1.06 km
Maximum number of FLOW Foundations	Up to 30
Typical distance between FLOW Foundations	600 m

1.3.1.4 The total number of FLOW floating foundations in the Moray FLOW-Park Area will not exceed 30. Some of these locations may not be installed to account for the installation of the specific anchoring requirements of a FLOW developer's foundation design. Locations will only be utilised and anchoring installed to match market demand.

1.3.1.5 Further details of the Project are provided in Chapter 3: Project Description, specifically the individual elements of relevance to this Inshore Scoping Report.

1.4 Inshore Scoping Report Purpose

1.4.1.1 The Project is located within the Scottish Territorial Waters (extending to 12 nm from shore) and is considered to be an Inshore Development consistent with the spatial scope outlined in Scotland's National Marine Plan and used within the legislation that forms the Scottish Fisheries Act framework. To enable the Scottish Ministers to properly consider development proposals, developers are required to provide information which demonstrates compliance with the relevant legislation and allows for adequate understanding of the material considerations associated with the Project.

1.4.1.2 The project has received a Screening Opinion from MD-LOT on behalf of the Scottish Ministers in relation to the project. The Scottish Ministers consider the Proposed Works to fall under paragraph 3(j) of schedule 2 of The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ("the 2017 MW Regulations"), with the Proposed Works meeting the corresponding threshold described in column 2 of schedule 2. Consequently, the Scottish Ministers In view of the findings above, the Scottish Ministers are of the opinion that the Proposed Works are an EIA project under the 2017 MW Regulations and, therefore, an EIA is required to be carried out in respect of the Proposed Works

1.4.1.3 The purpose of the Inshore Scoping Report will be to request a formal Scoping Opinion from MD-LOT, on behalf of the Scottish Ministers in relation to the Project, the scope of the EIA and the content of the supporting EIAR. A Scoping Opinion is being requested under Regulation 14 of the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) (for Scottish inshore waters) (herein referred to as "the EIA Regulations").

1.4.1.4 An Inshore Habitats Regulations Appraisal (HRA) Screening Report (OSG-MFP-ENV-002) will be submitted to MD-LOT alongside this Inshore Scoping Report, detailing the outcome of Likely Significant Effect (LSE) screening on the qualifying features of relevant European sites for the Project.

1.4.1.5 The Inshore Scoping Report & Inshore Habitat Regulations Appraisal have considered and included the consultation responses received from the Screening Opinion provided by the Scottish Ministers.

1.5 Consenting Process

1.5.1.1 Consents, licences, and permissions to be sought by the Developer for the Project include:

- The Marine (Scotland) Act 2010 provides the legislative and management framework for the marine environment within Scottish Territorial Waters (from Mean High Water Spring (MHWS) out to 12 nm). Under Section 21 of the Marine (Scotland) Act 2010, it is considered the Project requires a Marine Licence for the construction and deposit of structures below MHWS (Her Majesty Stationary Office (Scottish Parliament, 2010).

1.5.1.2 An EIAR will be prepared and submitted to support applications for the necessary consents, licences, and permissions for the Project, see Chapter 2: Policy and Legislation. The EIAR will be undertaken in accordance with the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017, to assess the potential for significant environmental effects.

1.5.1.3 As the Project is located within a sensitive area, namely the Moray Firth Special Area of Conservation (SAC), it is subject to assessment under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended), including Habitats Regulations Appraisal (HRA).

1.6 Scoping Report Structure and Objectives

1.6.1.1 This Inshore Scoping Report supports a request to MD-LOT, on behalf of the Scottish Ministers, for a formal Scoping Opinion in relation to the Project. It is anticipated the Scoping Opinion issued by MD-LOT will be based on and informed by responses to this Inshore Scoping Report that are received from statutory and non-statutory consultees, and the Scoping Opinion will then be used to guide the Developer in progressing the EIA. The EIA process is outlined in Chapter 4: EIA Methodology.

1.6.1.2 As such, the primary objective of this Inshore Scoping Report is to engage with the Scottish Ministers, MD-LOT, and other relevant statutory and non-statutory consultees as part of the initial stages of the EIA process. The aim is to invite each organisation to provide relevant information and to comment on the proposed approach to the EIA. This will ensure that a robust and proportionate EIAR is submitted in support of any future consenting applications.

1.6.1.3 To engage in an informed manner, the Inshore Scoping Report provides information on the following:

- The Project and proposed infrastructure associated with the Project;
- Topics considered and proposed for scoping into the EIA, where potentially significant effects may result from the Project on the physical, biological, and human environment;
- Topics considered and proposed for scoping out of the EIA, where significant effects are not anticipated with consideration of embedded and industry best practice mitigation; and
- An outline of the proposed approach to be adopted to gain a full understanding of existing baseline conditions associated with the Project (and the future baseline assuming that the Project is not progressed) and to allow a robust environmental assessment of potential effects through the EIA process.

1.6.1.4 This Inshore Scoping Report outlines the potential environmental effects of the Project, identifying those considered likely to be significant and therefore proposed for inclusion in the EIA process. It also highlights effects deemed not significant and consequently proposed to be scoped out. The final list of topics to be assessed within the EIA will be confirmed following receipt of the Scoping Opinion and further consultation with MD-LOT, NatureScot, and other key stakeholders and consultees.

1.6.1.5 A proportionate approach to EIA will be applied wherever possible. This Scoping Report seeks to scope out issues that, based on repeated assessments in EIAs, are consistently shown to be non-significant. The report also aims to define the scope of the Cumulative Effects Assessment (CEA) and any relevant transboundary effects requiring consideration. The Developer welcomes early engagement with stakeholders to obtain feedback on both the Project and the proposed scope of the inshore assessment within the EIAR.

1.6.1.6 The structure of this Scoping Report is set out in Table 1-2.

Table 1-2: Scoping Report Structure

Chapter	Title	Summary
1	Introduction	This chapter introduces the Developer, the Project and outlines the key objectives of the Scoping Report.
2	Policy and Legislation	Sets out the need for the Project and the relevant policy and legislative context.
3	Project Description	Provides a description of the key components that comprise the Project.
4	EIA Methodology	Describes the EIA methodology proposed and demonstrates the measures taken to progress a proportionate EIA.
5	Consultation	Outlines the approach to stakeholder consultation for the Project.
6 -20	Technical scoping topics	• Marine and Coastal (Chapter 6); • Marine Water and Sediment Quality (Chapter 7); • Benthic Subtidal and Intertidal Ecology (Chapter 8); • Fish and Shellfish Ecology (Chapter 9); • Inshore and Intertidal Ornithology (Chapter 10); • Marine Mammals (Chapter 11); • Commercial Fisheries (Chapter 12); • Shipping and Navigation (Chapter 13); • Marine Archaeology and Cultural Heritage (Chapter 14); • Military and Civil Aviation (Chapter 15); • Seascape, Landscape and Visual Resources (Chapter 16); • Socio-economics, Tourism and Recreation (Chapter 17); • Climate (Chapter 18);

Chapter	Title	Summary
		• Infrastructure and Other Users (Chapter 19); and • Major Accidents and Disasters (Chapter 20)
21	Summary of Inshore Scoping and Next Steps	Provides a summary of the approach taken to scoping and the key findings of the Inshore Scoping Report and outlines the proposed structure of the EIAR and next steps.
22	References	Sets out full reference to documents and publications used to inform the Inshore Scoping Report.
Appendix A	Embedded Commitments Register	Sets out a record of the embedded commitments that the Project will commit to and will be further developed as required during the EIA process.

2 Policy and Legislation

2.1 Introduction

2.1.1.1 The need for a secure and resilient energy supply in response to climate change has driven the establishment of a wide range of international, national, and local legislation and policy frameworks aimed at accelerating the growth of the renewable energy sector. This chapter outlines the key legislation, policy and guidance pertinent to the development of the Moray FLOW-Park and highlights their relevance to the consenting process for the Project.

2.2 Climate Change and Renewable Energy Policy

2.2.1.1 In reviewing policy relevant to renewable energy development, it is essential to also consider the legislation needed to address climate change, support decarbonisation, and promote the growth of renewable energy generation. This includes the development of wet storage areas, which are increasingly recognised as critical components in the deployment of FLOW technologies.

2.2.1.2 Government decision making and policy regarding renewable energy is increasingly shaped by the challenges of climate change, energy supply, and energy security. A wide range of national and international policies, strategies, and regulations have been implemented, notably including specific and targeted provisions within Scottish territorial waters as well as the rest of the UK and across Europe, all aimed at tackling climate change and advancing renewable energy. Scotland has set ambitious long-term climate targets, including achieving net-zero GHG emissions by 2045, in line with recommendations from the Committee on Climate Change (CCC).

2.2.1.3 To meet these targets, ongoing development of the renewable energy sector is essential, with offshore wind expected to play a key role. As development and operational costs continue to fall with each new round of projects, offshore wind has become one of the most cost-effective technologies available to help meet energy and climate goals.

2.2.1.4 The Scottish Offshore Wind Energy Policy Statement (Scottish Government, 2020b), building on the goals set out in the Scottish Energy Strategy (Scottish Government, 2017), outlines Scotland's ambition to harness the opportunities presented by offshore wind development. It highlights the role this technology can play in achieving the national target of net zero emissions by 2045. Similarly, the British Energy Security Strategy (HM Government, 2022) sets a UK-wide goal to deliver up to 50 GW of offshore wind capacity by 2030, including up to 5 GW from innovative floating wind projects—an ambition that aligns with Scotland's national objectives.

2.2.1.5 Through supporting the development of a number of FLOW developments in Scotland, the Project will play a key role in supporting the delivery of relevant international, European, UK, and Scotland-specific energy and climate policy targets.

2.3 Marine Planning Framework

2.3.1 National Marine Plan

2.3.1.1 In March 2015, the Scottish Government published Scotland's National Marine Plan (NMP) (Scottish Government, 2015b), which sets out strategic policies for the sustainable use and development of Scotland's marine resources, extending out to 200 nautical miles—covering the portion of the UK's Exclusive Economic Zone (EEZ) adjacent to Scotland. The NMP is designed to be compatible with the UK Marine Policy Statement (HM Government, 2011) and with existing marine plans across the UK, particularly where there are cross-border interactions with England's inshore and offshore marine plans and Northern Ireland's Marine Plans.

2.3.1.2 In 2022, the Scottish Government announced the development of Scotland's National Marine Plan 2 (NMP2), and consultation was opened on the NMP2 Planning Position Statement between November 2024 and February 2025 (Scottish Government, 2025a). The purpose of the NMP2 was to update the previous NMP as a result of significant national and global developments which have impacted the use and management of Scotland's marine resources, with consideration of these responses ongoing (Scottish Government, 2025a).

2.3.2 Sectoral Marine Plan (SMP) for Offshore Wind Energy

2.3.2.1 The first Sectoral Marine Plan (SMP) for Offshore Wind Energy (Scottish Government, 2011) was adopted in 2011 to guide the sustainable development of offshore wind in Scottish waters. In July 2013, Marine Scotland published the Draft Sectoral Marine Plan for Offshore Wind, Wave and Tidal energy in Scotland, which identified potential future options for commercial scale offshore wind energy developments. These plans have since been succeeded by the SMP for Offshore Wind Energy (SMP-OWE) (Scottish Government, 2020b), which identifies areas suitable for the development of offshore wind projects such as those associated with the ScotWind leasing round.

2.3.2.2 The Scottish Government are developing an updated SMP-OWE. Consultation took place on the draft updated SMP-OWE between May 2025 to August 2025 (Scottish Government, 2025b). The updated SMP-OWE will reflect on the ambitious pipeline of potential offshore wind development in Scotland over the next decade. The draft updated SMP-OWE acknowledges the importance of considering the impacts of wet storage, reflecting its significance in the planning and implementation of offshore wind energy projects in Scotland. Consideration of these responses is currently ongoing (Scottish Government, 2025b).

2.3.2.3 The Moray FLOW-Park has been through a robust site selection process (as detailed in Section 3.2 of Chapter 3: Project Description) and is well-situated to provide essential logistical support to facilitate the construction, delivery and future repair and maintenance of floating OWFs identified within the SMP-OWE, aligning with national and regional objectives for renewable energy development.

2.3.3 Regional Marine Plan

2.3.3.1 Regional marine plans are currently in the process of being prepared within those Scottish Marine Regions (SMRs) where there is an established Regional Marine Planning Partnership. The planning competence of these Regional Marine Planning Partnerships extends out to 12 nm. Regional marine plans are required to be developed in accordance with Scotland's National Marine Plan (unless relevant considerations indicate otherwise).

2.3.3.2 Elements of the Project are within the Moray Firth SMR which encompasses the coastal waters from Fraserburgh to Duncansby Head, extending from MHWS out to 12 nm (Marine Scotland, 2024).

2.4 Application and Consenting Process

2.4.1 Marine (Scotland) Act 2010

2.4.1.1 The Marine (Scotland) Act 2010 provides the legislative and management framework for the marine environment within Scottish Territorial Waters (from MHWS out to 12 nm). Under section 21 of the Marine (Scotland) Act 2010, the Project requires a Marine Licence for the construction and deposit of structures below MHWS (UK Parliament, 2010).

2.4.1.2 Part 4 (Marine Licensing) of the Marine (Scotland) Act 2010 includes licensable marine activities (Section 21) for which the following would apply to the Project (noting other licensable activities may be identified as the project description is defined during the EIA):

(1) To deposit any substance or object within the Scottish marine area, either in the sea or on or under the seabed, from any of the following:

(a) a vehicle, vessel, aircraft or marine structure,

(b) a container floating in the sea, or

(c) a structure on land constructed or adapted wholly or mainly for the purpose of depositing solids in the sea.

(2) To deposit any substance or object anywhere in the sea or on or under the seabed from a vehicle, vessel, aircraft, marine structure or floating container which was loaded with the substance or object either:

(a) in Scotland, or

(b) in the Scottish marine area.

(5) To construct, alter or improve any works within the Scottish marine area either:

(a) in or over the sea, or

(b) on or under the seabed.

(6) To use a vehicle, vessel, aircraft, marine structure, or floating container to remove any substance or object from the seabed within the Scottish marine area.

(7) To carry out any form of dredging within the Scottish marine area (whether or not involving the removal of any material from the sea or seabed).

2.4.1.3 The Scottish Ministers can grant a Marine Licence under Part 4 of the Marine (Scotland) Act 2010 with consideration of input and recommendations from MD-LOT.

2.4.2 Environmental Impact Assessment

2.4.2.1 In relation to marine licensing under the Marine (Scotland) Act 2010, the requirements of the EIA Directive are enacted by the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) (UK Parliament, 2017a). These EIA Regulations set out the statutory process and minimum requirements for EIA, to which the Project will adhere.

2.4.2.2 Following the response by MD-LOT[1] to the Moray FLOW-Park EIA screening report submitted in February 2026, it is considered that the Project falls within Schedule 2 of the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017. The Developer acknowledges that a detailed EIA for the Project is therefore required.

2.5 Nature Conservation Legislation and Policy

2.5.1 Conservation of Habitats and Species Regulations 2017 (Habitats Regulations)

2.5.1.1 Article 3 of the European Union (EU) Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, commonly known as the Habitats Directive (92/43/EEC), requires the establishment of a European network of important high-quality conservation sites known as SACs that will contribute to conserving habitats and species identified in Annexes I and II of the Directive (European Union Council, 1992). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds). In accordance with Article 4 of the EU Directive on the conservation of wild birds, commonly known as the Birds Directive (2009/147/EC), Special Protection Areas (SPAs) are strictly protected sites classified for rare and vulnerable birds (Annex I of the Directive), and for regularly occurring migratory species (European Union Council, 2009).

[1] The MD-LOT screening opinion response (07/04/2026) stated The Scottish Ministers consider the Proposed Works to fall under paragraph 3(j) of schedule 2 of The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (“the 2017 MW Regulations”), with the Proposed Works meeting the corresponding threshold described in column 2 of schedule 2. Consequently, the Scottish Ministers are obliged to adopt a screening opinion as to whether the Proposed Works are an Environmental Impact Assessment (“EIA”) project under the 2017 MW Regulations.

2.5.1.2 For Scotland's terrestrial and marine environment, the requirements of the Habitats and Birds Directives are largely transposed by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (up to 12 nm) (UK Parliament, 1994), the Conservation of Offshore Marine Habitats and Species Regulations 2017 (beyond 12 nm) (UK Parliament, 2017b), and the Wildlife and Countryside Act 1981 (as amended) (UK Parliament, 1981).

2.5.1.3 Following the UK's departure from the EU on 31 December 2020, the UK is no longer an EU Member State. Notwithstanding, the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019 and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 have transferred functions from the European Commission to the appropriate authorities in the UK/Scotland, with SACs and SPAs in the UK no longer forming part of the EU's Natura 2000 ecological network (UK Parliament, 2019a; UK Parliament, 2019b). These Habitats Regulations have created the UK's National Site Network on land and at sea, including both the inshore and offshore marine areas in the UK. This includes all existing SACs and SPAs, and new SACs and SPAs designated under the Habitats Regulations, noting policy on the protections and standards afforded to these sites remains unchanged. These European sites are still protected in Scotland and the rest of the UK and the terms "European site", "European marine site" and "European offshore marine site" have been retained.

2.5.1.4 Scottish Government policy notes that in Scotland, all Ramsar sites are also SACs and/or SPAs or Sites of Scientific Special Interest (SSSIs). Ramsar sites are wetlands of international importance designated under the Ramsar Convention (adopted in 1971 and came into force in 1975), providing a framework for the conservation and wise use of wetlands and their resources (United Nations Educational, Scientific and Cultural Organization (UNESCO), 1971). For the purposes of the Report to Inform Appropriate Assessment (RIAA), all relevant Ramsar sites will be considered alongside designated European sites.

2.5.1.5 The Habitats Regulations require that wherever a plan, project or activity, that is not directly connected to, or necessary to the management of a European/Ramsar site, is to have an LSE on a European/Ramsar site (directly, indirectly, alone or in-combination with other plans, projects or activities), then an Appropriate Assessment (AA) of the implications of that site in view of that site's Conservation Objectives must be undertaken by the competent authority. The HRA process, comprising Stage 1 (HRA Screening) and, if required, Stage 2 (AA), must be carried out before consent or authorisation can be given for the Project and there is no regulatory timescale for the competent authority to provide a HRA consent.

2.5.1.6 The Inshore HRA process will be progressed alongside the EIA, but it will be reported upon separately. The EIA and HRA will draw from, and cross reference, similar ecological information. The HRA Inshore Screening Report (OSG-MFP-ENV-002) will be submitted to MD-LOT alongside this Inshore Scoping Report, detailing the outcome of LSE screening on the qualifying features of relevant European sites for the Project.

2.5.2 Nature Conservation Marine Protected Areas (NCMPAs)

2.5.2.1 Under the Marine (Scotland) Act 2010, MD-LOT is required to consider whether a licensable activity can affect (other than insignificantly) a protected feature of a Nature Conservation Marine Protected Area (NCMPA) or any protected ecological or geomorphological process on which the conservation of any protected feature of an NCMPA is dependent. Impacts on relevant NCMPAs will be considered within the EIAR.

2.5.3 European Protected Species

2.5.3.1 European Protected Species (EPS) are animals and plants listed within Annex IV of the Habitats Directive and as such protected under the Habitats Regulations. Under these Regulations certain activities likely to cause disturbance or injury to EPS (for example through the introduction of underwater noise) which would otherwise constitute an offence, can be carried out legally under an EPS Licence, as follows:

- Within 12 nm of the coast (Scottish Territorial Water): An EPS Licence may be required under the Conservation (Natural Habitats, &c) Regulations 1994 (as amended) where there is potential for the presence of vessels or underwater noise from the proposed survey activities to injure or cause disturbance to an EPS. EPS Licences are granted by NatureScot (for scientific research) or MD-LOT on behalf of the Scottish Ministers (e.g., for commercial activities such as geophysical surveys).

- Outside 12 nm (Scottish Offshore Region): An EPS Licence may be required under the Conservation of Offshore Marine Habitats and Species Regulations 2017 where there is potential for the presence of vessels or underwater noise from the proposed survey activities to injure or cause significant disturbance to an EPS (population level effect rather than individual animals). MD-LOT is the licencing authority for EPS Licences. As the Project is located close to shore, it is not anticipated that the project will need to consider applying for an EPS Licence beyond 12 nm.

2.5.3.2 The Developer will apply for EPS Licences as appropriate, including for relevant works associated with the Project. Should additional pre-construction licences be required (e.g., survey works), these will be discussed and agreed with the relevant consenting authority during the pre-construction phase of the Project.

2.5.4 Basking Sharks

2.5.4.1 Basking sharks (*Cetorhinus maximus*) are protected under section 4A and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which prohibits the killing, injuring or taking by any method of those wild animals listed on Schedule 5 of the Act. The Nature Conservation (Scotland) Act 2004, Part 3 and Schedule 6 make amendments to the Wildlife and Countryside Act 1981 (as amended), strengthening the legal protection for threatened species to include 'reckless' acts (UK Parliament, 2004; UK Parliament, 1981). The Act makes it an offence to intentionally or recklessly disturb basking sharks.

2.5.4.2 Licensing requirements under the Wildlife and Countryside Act 1981 (as amended) are similar to those for EPS described above (Section 2.5.3). For basking sharks, a licence is required for commercial survey activities (e.g., geophysical surveys) and MD-LOT (on behalf of the Scottish Ministers) is the licensing authority under Sections 16 and 16A of the Wildlife and Countryside Act 1981 (as amended).

2.5.5 Atlantic Salmon

2.5.5.1 As presented in Chapter 9: Fish and Shellfish Ecology, there is a high potential for Atlantic salmon (*Salmo salar*) to be within / to transit the study area. Atlantic salmon are listed under Appendix II of the Bern Convention, which provides protection for species requiring strict conservation measures across Europe (Council of Europe, 1979). In the UK, freshwater populations of Atlantic salmon are protected under the Conservation of Habitats and Species Regulations 2017, where they are recognised as a species of interest, particularly in SACs designated for salmon (UK Parliament, 2017b). More details on the SACs designated for Atlantic salmon within and in close proximity to the Project are presented in Chapter 9: Fish and Shellfish Ecology.

2.5.6 Priority Marine Features

2.5.6.1 In July 2014, Scottish Ministers adopted a list of 81 priority marine features (PMFs), many of which are features characteristic of the Scottish marine environment (Joint Nature Conservation Committee, 2014). The list, which covers a variety of habitats and species that are a priority for conservation in Scotland's seas, was developed by Marine Scotland, the Joint Nature Conservation Committee (JNCC) and Scottish Natural Heritage (SNH). PMFs include a range of intertidal and continental shelf habitats, deep sea habitats, mammals, fish, shellfish, and other invertebrates.

2.6 Ports and Harbours

2.6.1 Context

2.6.1.1 The inclusion of ports and harbours legislation within this chapter reflects the unique nature of wet storage areas, with marine operations reflecting elements of both OWF and port activities. Legislation governing these ports and harbours provide statutory powers to manage navigation, safety, and environmental protection within a port and harbour context, and contain elements that are of relevance to the Project. These legal frameworks are essential for ensuring that the Project is safely located, appropriately regulated, and integrated with broader port operations and marine planning objectives.

2.6.2 Port Marine Safety Code (PMSC)

2.6.2.1 The Port Marine Safety Code (PMSC) outlines a national standard for every harbour authority in the UK to manage marine safety (UK Government, 2012). This code typically applies to ports and harbours, however it is also applicable to marine facilities and as such will be considered as the Moray FLOW-Park wet storage areas are developed.

2.6.2.2 The PMSC can be applied to the Project through the consideration of its risk-based safety principles, which include the safe navigation and operation of vessels within and around the Project, formal risk assessment and management systems, clear communication and emergency procedures, and coordination with harbour authorities and regulators to minimise navigational impacts (UK Government, 2012).

2.6.3 Merchant Shipping Act 1995

2.6.3.1 The Merchant Shipping Act (MSA) 1995 is the principal UK legislation governing vessel operations, safety and navigation in UK Waters, including Scottish Waters up to 12 nm (UK Parliament, 1995). It ensures that any vessels used for transporting, installing or storing components associated with marine operations comply with MSA-compliant standards (including registration, health and safety and reporting standards). It also details navigational safety standards and marking requirements, pollution prevention and maritime incident responsibilities.

2.6.3.2 Compliance with the MSA 1995 is considered to be a baseline legal expectation for all marine operations and associated vessel activity, in accordance with the Marine (Scotland) Act 2010.

2.6.4 International Regulations for Preventing Collisions at Sea (COLREGs)

2.6.4.1 The International Regulations for Preventing Collisions at Sea (COLREGs) are the internationally recognised regulations which ensure the safety of navigation for all vessels operating both within and around the Moray-FLOW Park (International Maritime Organization, 1972). The COLREGs include the governance of vessel conduct and collision avoidance, requirements for navigation lighting and marking, and standards for the production of navigational risk assessments and safety management systems.

2.6.4.2 Compliance with the COLREGS forms a baseline navigational safety requirement, in accordance with the Marine (Scotland) Act 2010 and Merchant Shipping Act 1995.

2.7 Pre-Application Consultation (PAC)

2.7.1.1 The Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013, commonly referred to as the PAC Regulations, apply to activities occurring within Scottish Territorial Waters (i.e., from MHWS out to 12 nm) (UK Parliament, 2013).

2.7.1.2 For a prescribed class of activity, within which wet storage areas are captured, the PAC Regulations require developers to notify the Marine and Coastguard Agency (MCA), Northern Lighthouse Board (NLB), NatureScot and Scottish Environment Protection Agency (SEPA) along with any delegate for a relevant marine region. Developers must hold at least one pre-application event for which notification is given to these bodies, and members of the public may provide comments to the developer. Developers must publish, within at least one local newspaper, a notice containing a description of the activity, detail where further information may be obtained, the date and place of the pre-application event and how and when comments should be submitted to the developer. A PAC Report must then be submitted alongside the Marine Licence application to MD-LOT. Further details of planned consultation to support the Project are presented in Chapter 5: Consultation.

2.8 Relevant Scottish Marine Policy

2.8.1.1 Various policy documentation is available from the UK/Scottish Government and from industry leaders which will be used to inform the EIA process. Table 2-1 sets out the key policy documents that will be reviewed as part of the EIA.

Table 2-1: Key UK and Scottish Marine Policy.

Subject Matter	Policy
All topic areas	UK Renewable Energy Roadmap: 2013 update (UK Government, 2013)
	UK Clean Growth Strategy (2017) (UK Government, 2017a)
	UK Industrial Strategy (2025) (UK Government, 2025)
	UK Marine Policy Statement (UK Government, 2011)
	National Planning Framework 4 (Scottish Government, 2023a)
	National Marine Plan (Scottish Government, 2015b)
	Sectoral Marine Plan for Offshore Wind Energy (Scottish Government, 2020a)
	Scottish Energy Strategy (Scottish Government, 2017)
	Climate Change Plan, Third Report on Proposals and Policies (2018-2032) (Scottish Government, 2018a)
	Clean Power 2030 Action Plan: A new era of clean electricity – main report (Department for Energy Security and Net Zero, 2024)

Subject Matter	Policy
Ornithology	The European Biodiversity Strategy for 2030 (European Commission, 2020)
	The Scottish Biodiversity Strategy (Scottish Government, 2022b)
Marine Mammals	Scottish Priority Marine Features (NatureScot, 2014)
	The Scottish Biodiversity Strategy (Scottish Government, 2022b)
Benthic Ecology	As above for Marine Mammals
Commercial Fisheries	Assessments have made reference to general policy and topic specific guidance rather than topic-specific policy.

3 Project Description

3.1 Introduction

3.1.1.1 This Chapter provides a high-level description of the Project, based on the information available at the time of writing this Inshore Scoping Report. It includes details on the Design Envelope (DE) approach, the identification of the scoping boundary, the Inshore components associated with the Project, details of the mooring and anchoring process and an indicative programme of works.

3.1.1.2 At this preliminary stage, the description of the Project is indicative, with the DE developed to allow flexibility for future refinement during detailed design. This Chapter therefore outlines a range of options and parameters, using maximum values to represent a realistic MDS.

3.1.1.3 The MDS presents a maximum extent for the Moray Firth FLOW-Park for which significant effects can be established and meaningful assessments undertaken for the Project, while retaining reasonable flexibility for future development of the Project design.

3.1.1.4 The Project requires flexibility due to the nature of the usage case. The site will be used for mooring of varying FLOW foundation designs for multiple developers and varying wind turbine generation output capacity. This will lead to a variation in the physical dimension of the individual floating foundations (width, depth and height) due to the different output capacities of the WTG's designed to be mounted on the foundations (width, depth and height), the WTG's will not be installed on the foundations while stored within the FLOW-Park. The mooring design will vary also to accommodate the specific dynamic requirement of each FLOW foundation, although a standard layout/type is anticipated for the first phase of moorings installed.

3.1.1.5 The final design and layout will depend on factors including ground conditions, wave and tidal conditions, mooring design, environmental assessment, and economic assessment.

3.1.1.6 Innovations being developed as part of the Project, fall within the DE presented within this Scoping Report. Innovations fall broadly within the following categories:

- Standardised mooring arrangements (to accommodate the majority of FLOW Foundation designs);
- Safety & security buoys to maximise the security and protection of FLOW foundations and all users of the sea; and

- Integration of environmental monitoring (e.g. mammal/acoustic)
- Knowledge sharing partners to support skill development and job creation.

3.2 Identification of Scoping Boundary

3.2.1.1 To inform the Inshore Scoping Report, an Inshore Project Boundary has been identified. The Inshore Project Boundary identifies a wider area within which the Project will be located, which will be refined throughout the EIA process.

3.2.1.2 The selection of the final Scoping Boundary was undertaken through a robust site evaluation process, with initial storage locations grouped into regions, reflecting the location of licenced floating OWFs and future locations for fabrication, assembly, and integration ports. Further site identification was carried out through desktop screening and evaluation of sites to support FLOW developments in the North of the UK, including current SCOTWIND and INTOG projects.

3.2.1.3 The Inshore Project Boundary consists of the Moray FLOW-Park area (Figure 3-1). This is the location in which wet storage will take place and therefore where the FLOW foundations and Safety and Security Buoys will be moored. It is 18 km^2 in size and located approximately 1.06 km from the shore at its closest point. Water depths vary from 7.95 m Lowest Astronomical Tide (LAT) to 48 m LAT.

3.2.1.4 More information on the infrastructure that will be located within the Inshore Project Boundary is presented in Section 3.3.

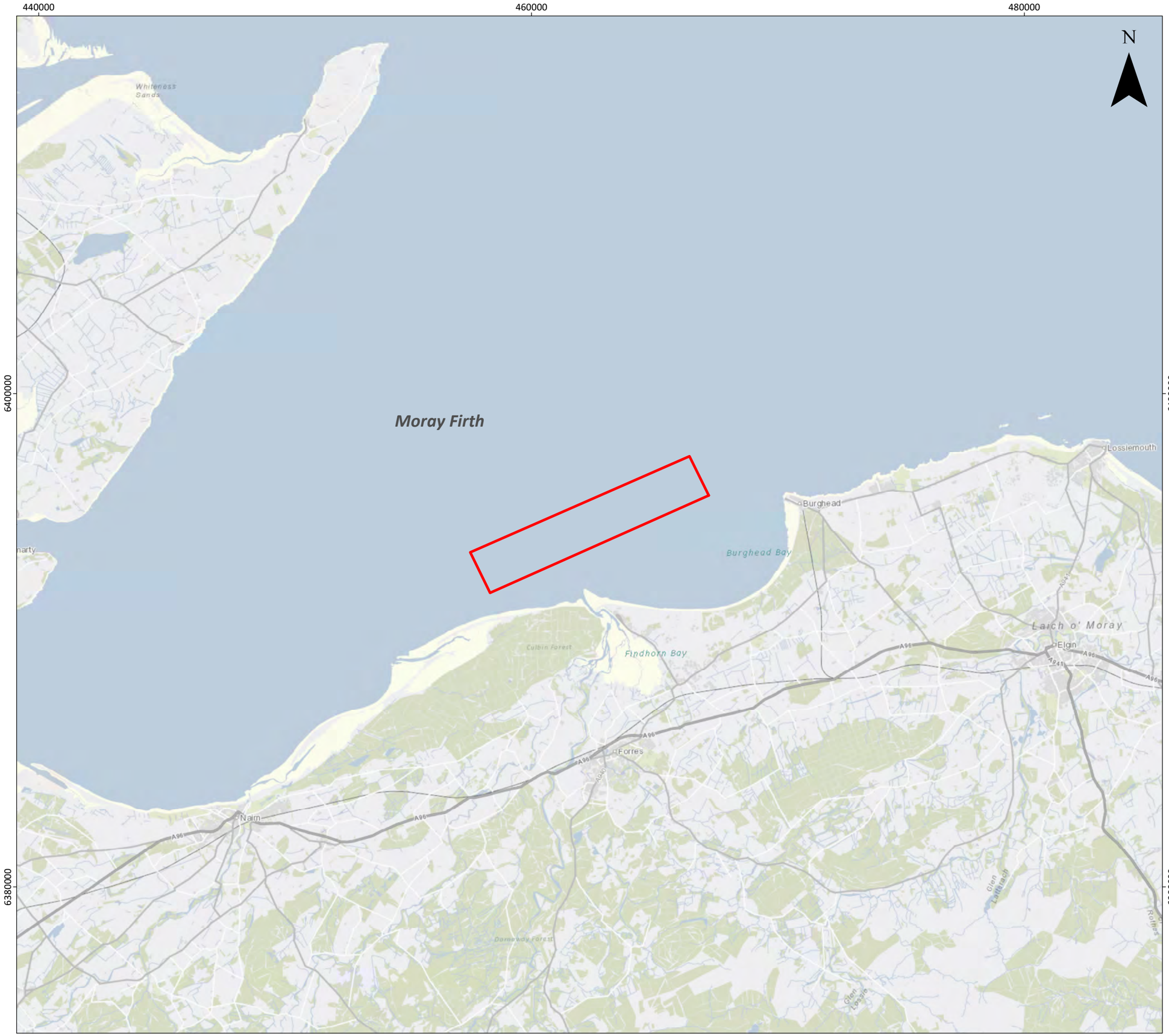


Figure Reference: MFP_PD_Fig3-1_ProjectLocation_v2

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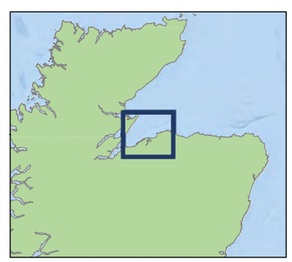
working on behalf of Flow Park Investment Ltd

Moray FLOW-Park
Inshore Scoping Report

Location of the Project

Legend

Moray FLOW-Park



Notes

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Coordinate System:
WGS 1984 UTM Zone 30N

0 5 10 km

0 2 4 nm

Scale	Date	Drawn by	Checked by	Approved by
1:150,000 @A3	11/12/2025	EV	BPHB	CC

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Figure 3-1

3.3 Key Design Components

3.3.1.1 The following elements are expected to be included in the DE as part of the Project:

- FLOW foundations - these will vary by Developer, the MDS is used which considers the maximum designs of FLOW foundations currently in known, as presented in Section 3.1.1.2);
- Mooring Lines and Anchoring systems; and
- Safety & Security Buoys.

3.3.2 Moray FLOW-Park Area

3.3.2.1 The Moray FLOW-Park Area will be the safe anchorage location for the FLOW foundations. The FLOW foundations will have a spacing of approximately 600 m to allow access to each of the individual FLOW foundations, for security and for towing in and out of the storage site. This spacing maybe increased to allow safe and clear access for emergency response and lifesaving as agreed following further consultation with the MCA and are likely to be laid out in a grid formation.

3.3.2.2 There are two types of infrastructure considered within the DE:

- Permanently installed infrastructure:
  - Mooring and anchoring systems to connect the floating substructures to the seabed;
  - Safety & Security Buoys
- Temporarily Installed Infrastructure:
  - FLOW Substructures and Foundations;

3.3.2.3 The Moray FLOW-Park will contain FLOW Foundations only.

3.3.2.4 A summary of the MDS for the Moray FLOW Park Area is presented in Table 1-1.

Table 3-1: The Maximum Design Scenario for the Moray FLOW-Park

Description	Moray FLOW-Park Area
Moray Firth FLOW-Park Area	18 km^2
Minimum distance to shore	1.06 km
Maximum number of FLOW Foundations	Up to 30*
Typical distance between FLOW foundations	600 m
* Some of these locations may not be installed to account for the installation of the specific anchoring requirements of a FLOW developer's foundation design.	

3.3.3 FLOW Units

3.3.3.1 The WTG converts wind energy into electrical energy. Each WTG is a complex system composed of a high number of components. The main components are:

- Rotor assembly, composed of three blades and a hub;
- Nacelle, containing the generator, shaft and gearbox (if applicable), power electronic converter and transformer; and
- Tower containing lifting equipment and, if applicable, the switchgear.

3.3.3.2 It is reinforced that the FLOW-Park will **not** be used for storage of FLOW units with any part of the above components installed on the foundation.

3.3.3.3 As described in Paragraph 3.3.2.2, there is only one FLOW foundation configuration under consideration for the Project, which will be considered as temporarily installed infrastructure.

3.3.3.4 No FLOW foundation ballasting or deballasting operations will be conducted within the Moray-FLOW-Park, that could lead to introduction of water and therefore pollutants.

3.3.3.5 The configuration is for mooring of just the FLOW substructure and Foundation (Figure 3-2). The FLOW substructure and Foundation will be moored prior to the integration of the WTG at a separate location. The MDS for the FLOW substructure and foundation are presented in Table 3-2.

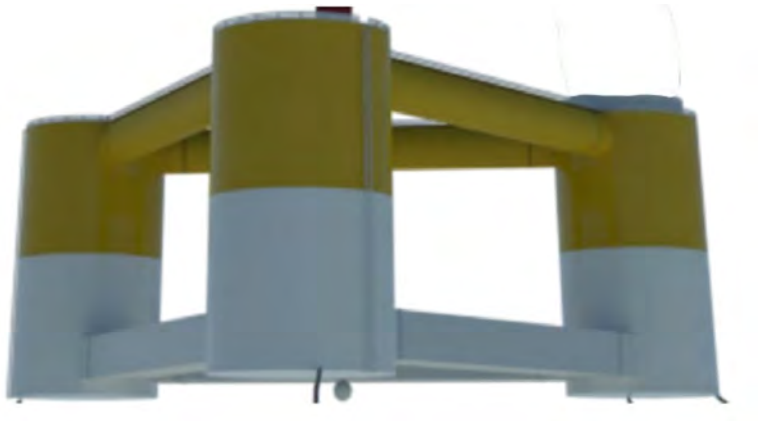


Figure 3-2: Visual representation of a FLOW substructure / foundation

Table 3-2: The Maximum Design Scenario for a FLOW Substructure and Foundation

Description	Moray FLOW-Park
FLOW Foundation dimension	130 m x 130 m
FLOW Foundation height	45 m
FLOW Foundation height (typical above Mean Sea Level [MSL])	30 m

3.4 Mooring and Anchoring

3.4.1.1 The mooring and anchoring systems are responsible for the station-keeping of the FLOW foundations and maintain the position of the FLOW Foundations during varying metocean conditions. The mooring and anchoring systems which will be installed within the Moray FLOW-Park Area and are considered to be permanent infrastructure (see Paragraph 3.3.2.2).

3.4.1.2 The FLOW foundations will be moored to the anchoring systems with a maximum of six mooring lines attached to each FLOW foundation. The mooring lines are laid out in multiple directions holding the platform stable, with potential additional mooring lines directed into the prevailing wave/wind conditions.

3.4.1.3 There are three mooring line types being considered for the Project, consisting of taut, catenary or semi-taut moorings, or a hybrid combination, depending on the final design and the specifics of the floating foundations for each developer.

3.4.1.4 A catenary mooring consists of steel chains and/or wires and in some cases synthetic elements whose weight and curved shape holds the floating platform in place. The lower section of the mooring chain rests on the seafloor and provides restoring forces through the suspended weight of the mooring lines. The mooring line terminates at the seabed horizontally and the anchor point is only subjected to horizontal loads.

3.4.1.5 A taut mooring consists mainly of synthetics fibres, which use the buoyancy of the floater and a firm anchor to the seabed to maintain high tension in the mooring lines for floater stability. Taut mooring lines require tensioning and may terminate at an angle to the seabed, potentially requiring the transfer of both horizontal and vertical loads. These may also require a seabed positioned tensioning system.

3.4.1.6 A semi-taut mooring may utilise buoyancy modules or clump weights &/or a seabed positioned tensioning system to combine elements of the taut and catenary mooring systems. The motion of the floating platform is decoupled from the lower sections of the mooring and the resulting line tension can be optimised along the mooring line.

3.4.1.7 The end of each mooring line connects to an anchor. There are a number of permanently installed anchoring solutions being considered, depending on the mooring configuration, seabed condition, and holding capacity required. The FLOW-Park may use one or a combination of the following anchor types: pile (including drilled micro-piles), suction or gravity, again depending on the final design and the specifics of the floating foundations for each developer.

3.4.1.8 Pile anchors consist of one or more cylindrical piles and can be installed by either driving, drilling or screwing, depending on the seabed conditions. Piled anchors have a high holding capacity and can resist both vertical and horizontal loads.

3.4.1.9 Suction anchors (also known as suction piles or suction caissons) use an upside-down 'bucket' from which the seawater is pumped out, creating a pressure differential that drives the structure into the seabed. Suction anchors minimise the disturbance during installation but are only feasible in specific seabed conditions, such as sands and clays.

3.4.1.10 Gravity anchors are buried to a depth depending on their weight and geometry and the soil characteristics of the site. Their holding potential is proportional to their weight, and they can resist both vertical and horizontal loads. Gravity anchors require medium to hard soil conditions.

3.4.1.11 Helical Piles are steel shafts with helical plates which are driven into the seabed through rotations similar to a corkscrew. Helical piles are stable enough to be used in a variety of hard and soft soil conditions and are considered to have a low noise footprint.

3.4.1.12 Depending on the anchor solution selected there may also be a requirement to install scour protection to prevent the structure being undermined by sediment processes and seabed erosion. The requirement for scour protection will be refined when the results of the Geophysical Survey and/or Geotechnical Survey are available and have been analysed.

3.4.1.13 The MDS for mooring lines and anchors are presented in Table 3-3.

Table 3-3: The Maximum Design Scenario for mooring lines and anchors

Description	Moray FLOW-Park
Maximum number of mooring lines	6
Mooring line types	Catenary Taut Semi-taut Hybrid
Maximum mooring line radius	300 m
Maximum number of anchors	6[2]
Anchor types	Pile Suction Gravity Micropile Helical pile

[2] Up to 8 at each anchor location if Micropile technology is selected

3.5 Safety & Security Buoys

3.5.1.1 The temporarily moored FLOW foundations will be unmanned, have no marine propulsion systems and potentially in remote locations which are beyond the visual range of the operational base. Therefore, Safety & Security Buoys will be installed as part of an integrated Management & Control System to monitor the position of all FLOW foundations and provide oversight of the wider FLOW-Park areas.

3.5.1.2 The Safety and Security Buoys will be unmanned. Each foundation will have a flow monitor (including a high-definition Geographic Positioning System) and multi sensors – a series of safety buoys with sensors such as sonar / radar to deal with risks from other users. The outputs from these buoys will be live-monitored.

3.5.1.3 The Safety and Security Buoys are considered as permanent infrastructure (see Paragraph 3.3.2.2) and are expected to be long-term infrastructure with minimal reconfiguration required between projects.

3.5.1.4 The MDS accounts for four Safety and Security Buoys at the Moray FLOW-Park Area, which will be positioned at the outer corners of each Area. The number and position of these Safety and Security Buoys may be refined following further coverage studies.

3.5.1.5 The buoy system would be moored using a 3-point spread mooring system, with each mooring line connected to a piled anchor. The mooring configuration may also be refined following the refinement of the buoy design.

3.5.1.6 The MDS for the Safety and Security Buoys, including mooring lines and anchors, is presented in Table 3-4.

Table 3-4: The Maximum Design Scenario for the Security Monitoring Buoy

Description	Moray FLOW-Park
Maximum number of security buoys	4
Buoy dimensions (length x width)	5.2 m x 2.2 m
Maximum Buoy height	15 m
Mooring type	3 point spread mooring
Anchor type	Pile

3.6 Vessel Transits

3.6.1 Details on the assembly locations and vessel transit routes for incoming and outgoing FLOW Foundations are not known at this stage. The FLOW-Park will be a multi-use facility for multiple developers, and/or installation contractors, with FLOW foundations being delivered to the FLOW-Park through multiple routes and transport methods. Potential supply location options include local ports, ports located around the UK Coastline, European ports, or Worldwide import. The method of transport can vary from individual FLOW foundations being towed, to multiple foundations being delivered from Heavy Lift Vessels.

3.6.2 The locations and methods for transit to and from the FLOW-Park are currently unknown, and relevant details may not be confirmed with greater certainty until the developers confirm their project execution plans and build strategy.

3.6.3 It is acknowledged that vessel and FLOW foundation transit issues within the FLOW-Park boundary should be considered within the EIA. However, vessel and FLOW foundation movements to and from the FLOW-Park cannot be accurately assessed within the Project EIAR due to the uncertainty and limited availability of information at this stage.

3.6.4 It is considered that relevant ports and operators eventually selected by the FLOW developers, will review these potential transit effects within their own licencing arrangements. The Project can then consider these issues post EIA consent, when the required level of detail is known, and incorporate into the Project Vessel Management Plan.

3.7 Programme

3.7.1.1 This section summarises the key project activities across all phases of the Project's lifecycle.

3.7.1.2 An indicative schedule of the Project phases is presented in Table 3-5.

Table 3-5: Indicative Project Schedule

Phase	2026	2027	2028	2029	2030
Development/Consenting					
Detailed Design					
Construction					
Operation					

3.7.2 Development Phase

3.7.2.1 The development phase of the Project is focused on planning design and engineering. The development phase is currently ongoing, focused on planning, consents, design and engineering. To date, key stakeholder consultation and inshore activities through surveys have supported this phase, as well as contributing to engineering refinement and detailed design.

3.7.3 Construction Phase

3.7.3.1 A range of pre-construction surveys are expected to be carried out within the Moray FLOW-Park Area. These may include geophysical, geotechnical, and Unexploded Ordnance (UXO) surveys. Depending on the outcomes of these surveys, boulder clearance and UXO removal activities may also be undertaken if necessary.

3.7.3.2 It is anticipated that moorings will be installed sequentially. Once the anchors are installed then sections of ground anchoring chain will be installed. The installation of moorings will be conducted in a phased approach, as the FLOW-Park usage increases to maximum capacity. The first phase is likely to approximately 24 mooring locations.

3.7.3.3 It is anticipated that installation of the inshore elements will commence in 2028 and will take approximately 4 months. Inshore construction works would be undertaken 24 hours a day, 7 days a week dependent on weather conditions.

3.7.3.4 The vessel types that are associated with the construction of the Project include a combination of vessel types including a small jack-up barge, small spread-moored barge, an offshore construction vessel and an anchor handling tug. It is anticipated that during construction there will only be one vessel in-field at a time. This would either be a vessel to install mooring piles, followed by a separate vessel for install the ground moorings (chain) or the same vessel conducting both activities. Other potential vessel types also include a small workboat and a crew transfer vessel.

3.7.3.5 During construction, appropriate safety zones will be established around construction vessels, and active work areas. The Developer plans to apply for standard safety zones for both construction and major maintenance activities, with specific distances to be confirmed. These zones will also be maintained around any structure where construction is complete, but commissioning is still pending for the Moray FLOW-Park. As part of the EIAR, regulatory body, and stakeholder engagement the Developer will confirm whether operational safety zones will be implemented during routine operations around certain inshore structures, such as FLOW foundations and Safety and Security Buoys.

3.7.4 Operation and Maintenance Phase

3.7.4.1 The final O&M strategy for the Moray FLOW-Park will be determined once the onshore base location and technical specifications are confirmed. It is expected that the Project will be operated from a local onshore facility throughout its lifecycle.

3.7.4.2 The FLOW foundations will generally be stored over the 'off' season (autumn/winter/spring) where weather and metocean conditions do not allow for the safe towing of FLOW foundations out to a Developer's final location. When approaching the Summer season or suitable weather windows during the 'off' season, the FLOW foundations will be disconnected from the anchorage points and towed out to the integration port for integration of the WTG components, the FLOW foundations will not return to the FLOW-Park following integration activities and will be towed directly to the offshore location when a suitable weather window is presented.

3.7.4.3 The transit routes to and from the FLOW-Park are excluded from the EIA Scoping and EIAR report.

3.7.4.4 Maintenance activities associated with the operational phase of the Project include an annual inspection of mooring lines/piles and associated equipment (buoys, clump weights, seabed tensioners etc.), an annual inspection of the safety & security buoys, and a maintenance period for the safety & security buoy every three to five years, which may require the buoy to be towed offsite. These potential maintenance and inspection measures will be refined as the Project's DE develops.

3.7.4.5 All inshore infrastructure, including FLOW foundations and Safety & Security Buoys, will be covered by monitoring and maintenance programmes. The EIA will evaluate the LSEs of anticipated maintenance activities, drawing on industry experience and best practice. If additional consents or licences are required, these will be sought accordingly.

3.7.5 Decommissioning

3.7.5.1 It is anticipated that the mooring lines and Safety & Security Buoys will be removed in a reversal of their installation process. It is anticipated that all infrastructure above the seabed will be removed. If technically possible, the anchors will be removed in their entirety or to a depth of 2 m below the mudline, in accordance with standard good practice on the decommissioning of inshore infrastructure. The seabed will then be returned to a condition to allow the continuance of all commercial and leisure activities previously undertaken at the site.

3.7.5.2 The Energy Act 2004 and the Scotland Act 2016 contain statutory requirements for the decommissioning of Offshore Renewable Energy Installations (OREI) and. The Developer will provide a Decommissioning Programme (DP) for approval, prior to construction. Whilst the development is not an OREI structure, and not bound by the energy act, best practice will be followed by the Project for developing the DP. The DP will be updated throughout the Project's operational phase in order to take account of changing best practice and new technologies. The approach employed at decommissioning will be in line with the applicable legislation and policy requirements at the time of decommissioning.

4 Environmental Impact Assessment Methodology

4.1 Introduction

4.1.1.1 EIA is the process of systematically assessing the potential environmental impacts associated with a Project. This requires developing a clear understanding of both the proposed activities (such as installation, operation, and eventual decommissioning) and the characteristics of the environment in which the development is to take place. Potential effects are then assessed to establish how the development may influence the environment, both as standalone impacts and in combination with other projects, as well as to evaluate the overall significance of these impacts. Consideration is also given to interrelated effects and, where relevant, potential transboundary implications.

4.1.1.2 Where impacts are anticipated to be significant, specific measures are required to avoid, minimise, or otherwise address such impacts (mitigation measures). These may take the form of management practices required by legislation or industry standards (tertiary mitigation), design modifications to the Project (primary mitigation), or the application of additional measures (secondary mitigation). The EIA process also considers whether it is proportionate and appropriate to implement monitoring measures to confirm the nature and extent of predicted impacts from the Project.

4.1.1.3 The sections that follow outline the proposed approach to undertaking the EIA for the Project, including the methods by which impacts and effects will be presented throughout the assessment process. While the general EIA framework is described, it is recognised that certain technical topics may require a tailored approach to reflect subject-specific best practice guidance and relevant standards. These topic-specific approaches will be clearly identified within each technical chapter of the Scoping Report and the subsequent EIAR. Furthermore, the EIA will be progressively developed and refined in consultation with relevant stakeholders.

4.2 EIA Legislative Basis and Guidance Documents

4.2.1.1 As discussed within Chapter 2: Policy and Legislation. In compliance with the EIA Directive (2011/92/EU, as amended by Directive 2014/52/EU), in applying for a marine licence for the Project, an EIAR is required.

4.2.1.2 In addition to the legislative requirements, guidance and good practice documents have been developed to assist with the production of a robust and proportionate EIA. These include:

- Marine Scotland Consenting and Licensing Guidance: For Offshore Wind, Wave and Tidal Energy Applications (Marine Scotland, 2018) (Note the Developer is aware that Marine Scotland is currently consulting on updates to this guidance. Any updated guidance will be considered in the EIA Report);
- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine (Chartered Institute for Ecology and Environmental Management (CIEEM), 2018);
- Delivering Proportionate EIA. A Collaborative Strategy for Enhancing UK EIA Practice (Institute of Environmental Management and Assessment (IEMA), 2017);
- Environmental impact assessment for offshore renewable energy projects (British Standards Institute (BSI), 2015);
- Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects (Centre for Environment, Fisheries and Aquaculture Science (Cefas), 2012);
- A Review of Assessment Methodologies for OWFs (Collaborative Offshore Wind Research into The Environment (COWRIE) METH-08-08) (Maclean et al., 2009);
- IEMA Environmental Impact Assessment Guide to Shaping Quality Development (IEMA, 2015);
- Planning Advice Note (PAN) 1/2013 Environmental Impact Assessment (Scottish Government, 2017);
- A Handbook on Environmental Impact Assessment (SNH, 2018);
- OWFs: Guidance Notes for EIA in Respect of Food and Environmental Protection Act (FEPA) and Coast Protection Act (CPA) Requirements: V2 (Cefas), 2004a);
- Guiding Principles for Cumulative Impacts Assessment in Offshore Windfarms (Renewable UK (2013));
- Assessment of the Environmental Cables (OSPAR, 2009);
- EIA of Projects – Guidance of Projects – Guidance on the preparation of the EIAR (European Commission, 2017); and
- Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (European Commission, 1999).

4.3 EIA Process

4.3.1.1 The EIA process can be broadly summarised of consisting of:

- Scoping: The Developer prepares an EIA Scoping Report (this document) and formally requests a Scoping Opinion from Scottish Ministers;
- Consultation: The Developer is required to carry out pre-application consultation in relation to the proposed marine licence application, which will also include relevant information to inform the EIAR;
- EIAR Preparation: The EIAR will be prepared, taking into account consultation responses and the assessment of likely significant effects (as defined in the EIA Regulations) associated with the Project across construction, operation and maintenance, and decommissioning phases of the project;
- EIAR Consultation: The EIAR (together with the associated application) must be publicised, providing consultation bodies and the public with the opportunity to review the Project and submit comments;
- Determination: The competent authority must review all environmental information, including the EIAR and any representations received, and reach a reasoned conclusion on the likely significant effects of the development. These conclusions, together with the environmental information, must be considered when deciding whether to grant consent. The competent authority must also assess whether monitoring measures are required; and
- Decision Notice: The competent authority must notify both the public and consultation bodies of its decision and publish a formal decision notice setting out the authority's reasoned conclusion on the significant effects of the development on the environment.

4.4 EIA Methodology

4.4.1 Baseline Characterisation

4.4.1.1 The characterisation of the existing baseline environment will be undertaken to establish the prevailing conditions in the Project's boundary (and the projected future baseline in the absence of the Project), and the relevant surrounding technical study areas for topics scoped into the EIAR. This will follow a stepwise approach, as outlined below:

- Study area definition, based on the relevant characteristics of each receptor (e.g., mobility or range);
- Review of publicly available information, including relevant datasets and published studies;
- Review of existing data from other offshore wind farm projects within the baseline study area;

- Assessment of potential impacts, identifying likely or possible effects of the Project under a Maximum Design Scenario;
- Evaluation of data sufficiency, to determine whether the available evidence is adequate to support robust EIA judgements;
- Targeted data collection, where additional information is required, ensuring that further studies are designed to address key questions and fill critical knowledge gaps; and
- Review and consolidation of gathered information, to confirm that the environmental baseline is characterised in sufficient detail and at an appropriate level of confidence.

4.4.2 Assessment of Potential Impacts

4.4.2.1 The potential environmental impacts of the Project are set out in this Scoping Report, and it has been determined which impacts will be scoped into or scoped out of the EIA process. Embedded commitment measures have been considered in the Scoping Report. These will be built into the Project concept through design or implementation of industry good practice.

4.4.2.2 For those potential impacts scoped into the EIA, the EIAR will describe the level of significance of effect expected to result from the Project using standard EIA methodology. The assessment process will consider the potential magnitude of the change to the baseline conditions (impact) arising from the Project and the sensitivity of the receptor under consideration, as well as any embedded mitigation measures.

4.4.3 Design Envelope Approach and Establishing the Maximum Design Envelope

4.4.3.1 The Design Envelope approach (also referred to as the Rochdale Envelope approach) will be applied in the assessment of the Project, consistent with established good practice and the “Rochdale Envelope Principle.” This approach provides flexibility in defining project design parameters, particularly in relation to elements such as foundation types and wind turbine technology, where full project details may not be finalised at the time of application submission.

4.4.3.2 Chapter 3: Project Description sets out the parameters of the Design Envelope and identifies the range of potential values for the key components of the Project. Within each technical section of the EIAR, and for each potential impact assessed, the scenario representing the greatest potential effect (hereafter referred to as the MDS) will be used as the basis for assessment.

4.4.3.3 The Developer has undertaken a process of refining the Design Envelope prior to submission of this Scoping Report. As such, the assessment presented in the final application will be based on the most refined and focused Design Envelope practicable, while retaining sufficient flexibility to accommodate new technologies or design solutions in the post-consent stage.

4.4.4 Impacts and Effects

4.4.4.1 The Project has the potential to create a range of impacts and effects regarding the physical, biological, and human environment, for both terrestrial and marine receptors. For the purposes of the EIA, the term 'impact' is defined as a change that is caused by an action. For example, the installation of an anchor (action) is likely to result in seabed disturbance (impact). Impacts can be defined as direct, indirect, temporary, irreversible, secondary, cumulative, and inter-related. They can also be either positive or negative, although the relationship between them is not always straightforward.

4.4.4.2 The term 'effect' is defined as the consequence of an impact. Using the anchor example, the installation of an anchor (action) results in seabed disturbance (impact), with the potential to disturb benthic habitats and species (effect). The significance of effects is determined by consideration of the magnitude of impact alongside the sensitivity of each receptor/receptor group.

4.4.4.3 The magnitude of an impact is the consideration of the extent, duration, frequency, and reversibility of an impact. The magnitude of impacts is the severity in the level of change to pathways and receptors. This magnitude may vary depending on the pathway, receptor, or the technical assessment being implemented but will broadly follow:

- High: total change or major alteration to key elements/features of the baseline conditions;
- Medium: Partial change or alteration to one or more key elements/features of the baseline conditions;
- Low: Minor shift away from baseline conditions; and
- Negligible: Very slight change from baseline conditions.

4.4.4.4 In some cases, the Project may be both adverse and positive so magnitude definitions will be defined for both.

4.4.4.5 Receptors can be defined as the physical or biological resource or user group that could be affected by the potential impacts. In defining the sensitivity for each receptor/receptor group, the vulnerability, recoverability, and value/importance of that receptor will be taken into consideration. However, the EIA topic or receptor in question always determines the type of scale of sensitivity for its given receptor. The ability for a receptor to adapt to change, tolerate and/or recover from potential impacts is pertinent in assessing its sensitivity to the impact under consideration. The scale of sensitivity will be classes as: Negligible, Low, Medium, or High.

4.4.4.6 During topic specific assessments there may be more specific scales of increasing sensitivity which will be defined when appropriate. Guidance will also be taken from the value attributed to elements through designation or protection under law. When establishing the sensitivity of receptors, it is important to have expert judgement.

4.4.4.7 To ensure consistency in defining the significance of an effect, a matrix approach will be adopted in the EIAR as presented in Table 4-1.

Table 4-1: Significance of effect

Moray FLOW-Park		Magnitude of Impact			
		Negligible	Low	Medium	High
Sensitivity of Receptor	Negligible	Negligible	Negligible	Negligible	Negligible
	Low	Negligible	Negligible	Minor	Minor
	Medium	Negligible	Minor	Moderate	Moderate
	High	Negligible	Minor	Moderate	Major

4.4.4.8 The EIA will provide topic-specific definitions of magnitude, sensitivity, and significance of effect as required. The topic specific definitions will consider guidance and specialist knowledge specific to the topic in question.

4.4.4.9 A level of effect of **moderate** or more will be considered a 'significant' effect for the purposes of the EIA. A level of effect of **minor or less** will be considered 'not significant'. Effects of moderate significance or above are therefore considered important in the decision-making process, whilst effects of minor significance or less warrant little, if any weight in the decision-making process.

4.4.4.10 The matrix-based approach adopted is consistent with established UK EIA practice for combining receptor sensitivity and impact magnitude, as set out in the Design Manual for Roads and Bridges (DMRB) (Highways England et al., 2019), and with marine-specific guidance including Environmental Impact Assessment for Offshore Renewable Energy Projects (BSI, 2015). The approach has been adapted as appropriate to reflect the inshore context of the Project.

4.4.4.11 Several modifications have been made in the interest of proportionality, including:

- A negligible magnitude impact will not be considered further because it will always lead to a non-significant effect; and
- Receptors of negligible importance, value or sensitivity will not be considered further because it will always lead to a non-significant effect.

4.4.4.12 Where significant effects are initially identified, the EIA will follow a "feedback loop" methodology. Through this process, an impact is initially assessed to determine the significance of the potential environmental effect. If the effect of an impact presents a major or moderate significant adverse outcome, mitigation measures, above and beyond any embedded commitments or design changes will be incorporated into the assessment process to avoid or reduce significant effects to acceptable (non-significant) levels.

4.4.4.13 This process is repeated until the EIA practitioner is satisfied that:

- The effect is reduced to a level that is not significant in EIA terms; or
- No further changes can be made to the Project design to reduce the magnitude of impact and therefore the significance of the effect. In these cases, an overall effect that is still significant in EIA terms may be presented.

4.4.4.14 Following this iterative approach ensures that the significance of effect presented for each identified impact may be presumed to be representative of the maximum residual adverse effect the Project may have on the receiving environment.

4.4.4.15 The Embedded Commitments Register is provided in Appendix A and details all commitments or mitigation adopted by the Project. The Embedded Commitments Register is a live document that will be updated and built upon as part of the EIA process and is subject to consultation with stakeholders.

4.5 Cumulative Effects Assessment (CEA)

4.5.1.1 In addition to assessing the effects arising from the Project alone, the EIA Regulations require consideration of cumulative effects that may occur in combination with other relevant plans, projects, and activities. Cumulative effects will be assessed by examining other proposed or existing plans and projects where sufficient information is available, and where, together with the Project, they could have a likely significant effect on a receptor due to a shared impact pathway and/or temporal or spatial overlap.

4.5.1.2 Each technical chapter of the EIAR will include a CEA for the receptors relevant to that topic. Within this Scoping Report, each technical chapter provides a high-level overview of potential cumulative impacts and indicates whether such impacts will require detailed consideration at EIA stage.

4.5.1.3 As part of the EIAR preparation, a list of plans, projects, and activities that may act cumulatively with the Project will be compiled and subject to consultation, to ensure all relevant interactions are considered. For each identified plan, project, or activity, the most up-to-date publicly available project parameters will be used to inform the CEA. Where this information is not publicly available, the Developer will seek to consult and collaborate with relevant parties to obtain the necessary data. The CEA will account for the temporal and spatial extent of impacts across each phase of the Project to determine overlap with other plans, projects, and activities.

4.5.1.4 A number of projects and plans in the vicinity of the Project may contribute to cumulative effects on receptors and impact pathways. Further detail on projects in proximity to the Project is provided in Chapter 19: Infrastructure and Other Users.

4.5.1.5 The CEA for each technical chapter will take account of such projects (to the extent that information is available), along with relevant projects from other sectors, when assessing the potential cumulative impacts of the Project on the environment.

4.5.1.6 It is recognised that some proposed projects may not ultimately be taken forward or built out as currently described, introducing a degree of uncertainty in predicting cumulative effects. The 'phase' of a project, in relation to the certainty of delivery, will therefore be considered when drawing conclusions on cumulative impacts. Projects that are already built and operational, as well as licensed activities active at the time of baseline data collection, will be treated as part of the existing baseline, as receptors will already have adapted to their presence. However, it is also acknowledged that some operational projects may continue to exert ongoing effects (e.g., collision risk), which will be incorporated into the CEA as appropriate.

4.5.1.7 Potential in-combination effects on European sites will be addressed separately through the Habitats Regulations Appraisal (HRA) process. The list of in-combination projects will be based on those in planning, consented, or under construction

4.6 Inter-Related Effects

4.6.1.1 The EIA will consider inter-related effects i.e. the potential effects of multiple impacts from the construction, O&M, and decommissioning of the Project, affecting one receptor. Inter-related effects are assessed through consideration of all effects on a receptor by the Project.

4.7 Transboundary Effects

4.7.1.1 Transboundary effects arise when impacts from a development within one European Economic Area (EEA) state's territory significantly affect the environment or interests of another EEA state(s). The EIA Directive, and thus the relevant EIA Regulations, requires the assessment of transboundary effects. This Scoping Report will therefore identify any relevant transboundary impacts that will need to be considered within the EIA.

4.7.1.2 If an EIA project is considered to have significant effects on the environment of another EEA state, then Scottish Ministers must engage with that EEA state to allow consultation if that state wishes to participate" (Marine Scotland, 2018).

4.8 Proportionate EIA

4.8.1.1 This Inshore Scoping Report has been prepared to support a robust, yet proportionate, EIA. The importance of delivering proportionate and accessible EIAs is recognised by regulators, stakeholders, and practitioners, with guidance on this approach provided by IEMA (2017).

4.8.1.2 The principle of proportionate EIA has been considered from the outset of project planning. Our approach includes:

- Robust EIA Scoping process: Scoping informed by extensive industry experience and detailed local knowledge, to identify key impacts likely to arise from the Project;
- Consideration of embedded and industry good practice commitments from the outset: Commitments integrated into the Project concept, rather than in response to effects identified during the EIA. A range of such commitments have been applied to the Project and are considered within this Inshore Scoping Report;
- Embedded Commitments Register (Appendix A): A register documenting all mitigation measures committed as part of the Project, including how these will be secured through consents and licences. The register is maintained as a 'live' document and will be updated throughout the Inshore Scoping and EIA process. Each mitigation measure is linked to relevant project phases and environmental topics.

4.9 Topics Being Scoped Out

4.9.1.1 The EIA Regulations state that an EIA must provide a description of the LSE of the Project. Amendments to the EIA Regulations in 2017 broadened the scope of EIAs with the requirement to consider the following aspects:

- The risk to human health (e.g., due to accidents or disasters);
- The vulnerability of the works to risks of major accidents and/or disasters; and
- Climate and the vulnerability of the Project to climate change and potential for GHG.

4.9.1.2 The Inshore Scoping Report proposes to scope out human health. The justification for this is set out in the following Section 4.9.2.

4.9.1.3 The potential for major accidents and/or disasters is inherently linked to the nature of the Project and the presence of nearby high-risk infrastructure. Nearshore construction, O&M and decommissioning activities of this type are well-established activities. Through careful site selection, design, planning, and the implementation of embedded mitigation measures (such as adherence to a Construction Method Statement (CMS), Environmental Management Plan (EMP), and Vessel Management Plan (VMP), the likelihood of major accidents and/or disasters is considered to be very low.

4.9.1.4 A separate chapter of this Inshore Scoping Report has been provided to consider Major Accidents and Disasters (Chapter 20). The topic will be scoped in for the EIA, with the assessment based on the design envelope and construction approach/details that are taken forward for assessment.

4.9.1.5 A Navigation Risk Assessment (NRA) will be undertaken to support the Shipping and Navigation EIA (see Chapter 13) and will further underpin the assessment of collision and allision risks associated with vessel activity.

4.9.1.6 The EIA will also consider potential interactions with other inshore & offshore infrastructure, see Chapter 19: Infrastructure and Other Users, in relation to relevant accident scenarios.

4.9.1.7 It is not anticipated that the Project will have a significant adverse effect on GHG emissions or climate change. Providing key support to multiple OWF projects, there may be notable benefits. A separate chapter of this Scoping Report has been provided to consider Climate (Chapter 18), including an assessment of climate change risks *to* the Project, potential In-Combination Climate Impacts (ICCI) from climate change on other receptors, and effects from GHG emissions related to its construction, O&M and decommissioning. The topic will be scoped in for the EIA, with the assessment based on the design envelope and the Project approach taken forward for assessment.

4.9.1.8 As well as assessing potential adverse effects from the Project arising from emissions, the EIAR will outline the benefits the Project will deliver in reducing GHG and meeting renewable energy targets. Climate resilience and in-combination climate change impact assessments will also be presented.

4.9.2 Human Health

4.9.2.1 A stand-alone chapter on human health is not included within this Inshore Scoping Report. The Project is entirely located in inshore waters below the Low Water Mark, with no onshore elements or receptors that could be affected by airborne noise, air quality, or other human health pathways. As such, potential effects on human health are not anticipated, and this topic is proposed to be scoped out of the inshore assessment.

4.9.2.2 Furthermore, adherence to embedded mitigation measures ensures that inshore operations are carried out safely, further reducing any potential risks to human health.

4.9.3 Airborne Noise and Vibration

4.9.3.1 Several potential airborne noise and vibration effects have been identified during the construction, O&M, and decommissioning phases of the Project. This includes piling and auxiliary construction activities (such as vessels, other machinery, and generators) generating airborne noise and vibration that may affect marine users. However, all effects are proposed to be scoped out of the assessment for inshore airborne noise and vibration.

4.9.3.2 Commercial vessels will maintain a minimum distance when passing construction activities. Vessels are transient in nature and will only be in the vicinity of construction activities for a short period. Considering existing sources of anthropogenic and natural airborne noise, the effect of airborne noise from piling on receptors onboard other marine vessels is expected to be negligible. Auxiliary construction noise is anticipated to be localised around the vessels being used and unlikely to propagate significantly, taking into account existing vessel traffic, other anthropogenic noise, and natural noise sources in the area.

4.9.3.3 There will be no WTG's stored in the Moray FLOW Park, therefore the only noise or vibration created will be from the foundation motions and interaction with the marine environment. Considering the presence of existing anthropogenic and natural noise sources (including wind, wave, and precipitation), this noise is not considered likely to be perceptible to transient marine and onshore receptors in the vicinity of the Project.

4.9.3.4 It is therefore proposed to scope out inshore airborne noise and vibration for the inshore elements of the Project, noting the embedded mitigation measures including adherence to a CMS, EMP and Piling Strategy (PS).

4.9.4 Air Quality

4.9.4.1 Engine emissions from construction vessels active during construction, O&M, and decommissioning will contribute to atmospheric emissions at a small, localised scale. The VMP will define the final vessel strategies for the Project, ensuring efficient use of vessels where possible and compliance with relevant national and international air quality standards and legislation. The number of project-related vessels active on site will be limited relative to the total regional vessel traffic, and emissions are expected to be minor compared with the existing baseline. While there may be a negligible increase in background emission levels in the immediate vicinity of vessels supporting the Project, the nature of the works inshore limits exposure to sensitive receptors.

4.9.4.2 Overall, the Project will support the generation of clean, renewable energy, contributing positively to the reduction of GHG emissions at national and global scales by reducing reliance on fossil fuels and supporting Scotland's 2045 net zero emissions target.

4.9.4.3 It is therefore proposed that inshore air quality is scoped out of further assessment, as any impact on identified receptors is expected to be negligible, noting the embedded mitigation measures through adherence to the CMS, EMP and VMP.

5 Consultation

5.1 Introduction

5.1.1.1 Effective stakeholder engagement and consultation represent fundamental components of the EIA process and are essential to the successful delivery of a consent or marine licence application for any offshore development. Active engagement with statutory consultees and key stakeholders enables the identification and resolution of potential issues at an early stage, thereby supporting the achievement of UK and Scottish renewable energy targets and the continued provision of sustainable, low-carbon energy.

5.1.1.2 In addition to statutory consultees, consultation with non-statutory organisations, interested parties, and members of the public may also be appropriate to ensure that all relevant social, economic, and environmental considerations, such as impacts on marine users, recreational activities, and local livelihoods are taken into account. This inclusive approach ensures that the application is robust, transparent, and informed by the full range of potential environmental and socio-economic receptors that could be affected by the Project.

5.1.1.3 This chapter of the Inshore Scoping Report outlines the proposed approach to stakeholder consultation, including the intended programme and key stages of engagement to be undertaken by the Developer with statutory consultees, non-statutory stakeholders, and the general public.

5.1.1.4 Stakeholder engagement will comprise two principal elements: communication and consultation. Communication involves the timely and accessible dissemination of information to allow stakeholders to understand the nature and progress of the proposed development. Consultation provides stakeholders with the opportunity to contribute knowledge, express views, and offer feedback that can influence project design and decision-making.

5.1.1.5 The stakeholder engagement strategy is underpinned by four key objectives:

- **Identify** – to identify stakeholders with an interest or potential involvement in the proposed development;
- **Communicate** – to provide clear and relevant information regarding the proposed development, including potential beneficial and adverse effects;
- **Consult** – to invite, record, and consider stakeholder views and concerns; and

- **Communicate again** – to report back to stakeholders on the outcomes of the consultation process, demonstrating how feedback has been considered and incorporated where appropriate.

5.2 Consenting Procedure and Relevant Legislation

5.2.1.1 As highlighted in Chapter 2 (Policy and Legislation), the Developer will undertake the EIA process in line with legislative requirements, including the following:

- The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended).

5.2.1.2 The above is part of the collective set of legislation termed the "EIA Regulations", which consider the requirement for public participation in in inshore project planning and development in Scotland.

5.2.1.3 The Aarhus Convention is designed to strengthen the role of citizens and civil society organisations in environmental decision-making, underpinned by the principles of participatory democracy. The Convention establishes specific rights for individuals and organisations with respect to the environment. In accordance with these principles, the Developer will undertake the EIA in line with the Aarhus Convention, ensuring that the general public has access to environmental information. This includes the right to receive environmental information held by public authorities, the right to participate in environmental decision-making, and the right to review and challenge decisions made without appropriate public consultation or consideration.

5.2.1.4 As part of the consent application, the Developer will also submit a RIAA in line with the Habitats Regulations, which implement the EU Habitats Directive (see Chapter 2: Policy and Legislation). The content and scope of the RIAA will adhere to guidance provided within the Inshore Scoping Opinion to ensure compliance with statutory requirements.

5.2.1.5 The statutory consultation requirements outlined above establish the minimum obligations for engagement during the pre-application stage, including the advertising of consent applications. Further Pre-application Consultation requirements are set out under the Marine (Scotland) Act 2010 and the Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013.

5.3 Stakeholder Engagement

5.3.1 Background

5.3.1.1 The Developer will follow best practice guidance, where relevant and appropriate, with a focus on inclusiveness and equality. Stakeholders will be provided with the opportunity to indicate their preferred methods of engagement in relation to the proposed development. The Developer will also adhere to guidance and advice provided by statutory consultees, including MD-LOT and NatureScot, regarding stakeholder engagement and consultation processes.

5.3.1.2 The development and consenting of the Project will rely on ongoing engagement with relevant stakeholders throughout all stages, from pre-EIA consultation through to the consent application and post-consent phases.

5.4 Engagement to Date

5.4.1.1 The Developer recognises the importance of establishing and maintaining strong professional relationships with statutory stakeholders and relevant communities from the early stages of the Project through to the consent application and subsequent determination. Engagement with key statutory stakeholders has already commenced before and will continue during the scoping phase, including introductory meetings to present the Project and the Developer. Since 2023 the Developer has participated in regular Meetings with Crown Estate Scotland, MD-LOT and NatureScot, in line with Regulator and stakeholder expectations for structured and purposeful engagement.

5.4.1.2 The Developer is committed to building on this initial engagement in preparation for the EIA. Relevant stakeholders being consulted/to be consulted across all stages of the Project (such as pre-application, application submission and review, construction, commissioning, O&M and decommissioning) include:

- National and local authorities;
- Local communities/councils;
- Local and national interest organisations;
- Suppliers/industry;
- National/regional grid providers;
- Other users of the sea;
- Other users of the airspace;
- The owner of the seabed; and
- Other seabed leaseholders.

5.4.1.3 It is acknowledged that stakeholders will hold different information needs and will have different levels of involvement in the Project.

5.5 Planned Statutory Engagement

5.5.1.1 The Developer has commenced early engagement with MD-LOT and NatureScot to agree the preferred approach to ongoing consultation throughout the EIA process. This engagement includes the establishment of a structured programme of regular Project Update Meetings to be held throughout the Project's consenting timeline, ensuring effective communication, transparency, and alignment with stakeholder expectations.

5.5.1.2 The Developer will comply with all statutory consultation requirements associated with the marine licensing process. Engagement with stakeholders will be ongoing and iterative throughout the EIA process, with particular focus on the following key stages:

- Formal submission and publication of this Inshore Scoping Report and request for a Scoping Opinion;
- Consultation with technical consultees on the scope of survey programmes for key survey campaigns, including liaison regarding Marine Licence and EPS risk assessment requirements to facilitate survey delivery;
- Provision of key technical reports and datasets to relevant stakeholders to inform assessments and obtain feedback;
- Preparation and submission of the statutory PAC Report;
- Formal submission and publication of consent applications and the accompanying EIAR to seek views on the Project; and
- Additional stakeholder and public engagement events, as appropriate, together with the dissemination of project communications and documentation via the Project website.

5.5.1.3 A consultation event is proposed to inform and obtain feedback from local communities regarding the Project. This event is currently anticipated to take place Q3/Q4 2026.

5.6 Stakeholder Identification

5.6.1.1 This section has been informed by the Developer team's experience of stakeholder engagement for other projects. The Project has developed a list of anticipated stakeholders that will be relevant to the Project (Table 5-1). This list is not exhaustive and will be added to as the Project progresses through the EIA.

Table 5-1: Identification of key statutory and non-statutory stakeholders

Type	Organisation	
	Statutory	**Non-Statutory**
Governmental	• Historic Environment Scotland (HES) • Local Planning Authorities • NatureScot • MD-LOT • Marine Directorate – Science, Evidence & Data Division (MD-SEDD) • MCA • NLB • Scottish Environment Protection Agency (SEPA) • Relevant District Salmon Fishery Boards	• Crown Estate Scotland • Joint Nature Conservation Ministry of Defence (MOD)/Royal Air Force (RAF) • JNCC • Offshore Wind Industry Council (OWIC) • Scottish Offshore Wind Energy Council (SOWEC)
Politically Established		• Local/regional Members of Parliament (MP) • Members of Scottish Parliament (MSP)
Local Authorities and Organisations		• Community Councils and Representatives
Environmental Organisations		• Bat Conservation Society • British Trust for Ornithology (BTO) • Cetacean Research & Rescue Unit (CRRU) • Fisheries Management Scotland (FMS) • Keep Scotland Beautiful • Marine Conservation Society (MCS) • National Nature Reserves (NNR) • National Trust for Scotland (NTS) • Scottish/Local Wildlife Sites • Royal Society for the Protection of Birds (RSPB) • Scottish Environment Link • Scottish Wildlife Trust (SWT)

Type	Organisation	
	Statutory	**Non-Statutory**
		• Whale and Dolphin Conservation (WDC)
Aviation	• Civil Aviation Authority (CAA) • National Air Traffic Services (NATS) • MOD	• RAF Lossiemouth • Defence Infrastructure Organisation (DIO) • Inverness (Highlands & Islands Airports Limited (HIAL))
Navigation	• MCA	• Chamber of Shipping • Port and Harbour Authorities inclusive of the Harbour Master • Royal National Lifeboat Institution (RNLI) • Royal Yachting Association (RYA) • UK Hydrographic Office (UKHO)
Tourism and Recreation		• Local Tourists Board • Local Water Sports Groups • Sub Aqua and Scuba Diving Clubs • Surfers Against Sewage • Visit Scotland
Fisheries		• Fisheries Trusts • Individual fishermen as identified by the Company Fisheries Liaison Officer (FLO)/other means • Local fishing organisations • Northeast Regional Inshore Fisheries Group • Scottish Fisherman's Federation (SFF) • Scottish Pelagic Fishermen's Association (SPFA)

Type	Organisation	
	Statutory	**Non-Statutory**
		• The Scottish White Fish Producers Association (SWFPA) • The Scottish Creel Fishermen's Federation
Other		• Media, Public Relations • Other OWF Developers • Transport Scotland

6 Marine and Coastal Processes

6.1 Introduction

6.1.1.1 This Chapter of the Inshore Scoping Report identifies the Marine and Coastal Processes receptors of relevance to the Moray FLOW-Park (hereafter referred to as the 'Project') and considers the potential impacts from the construction, O&M and decommissioning of the Project on Marine and Coastal Processes receptors up to MHWS. A full description of the Project is provided within Chapter 3: Project Description.

6.1.1.2 Marine and Coastal Processes are defined as, and include a consideration of:

- Morphology, including bathymetry, geology, surficial sediments and seabed form;
- Hydrodynamics, including tidal and non-tidal influences, and waves; and
- Sediment transport, including bedload, littoral and suspended sediment transport.

6.1.1.3 This Chapter should be read alongside the following other chapters:

- Chapter 7: Marine Water and Sediment Quality, as marine physical processes influence the transport and dispersion of water and sediment;
- Chapter 8: Benthic Subtidal and Intertidal Ecology, as benthic communities may be adversely affected by smothering and disturbance to seabed habitats;
- Chapter 9: Fish and Shellfish Ecology (including Megafauna), as fish species may be adversely affected by smothering and disturbance to seabed habitats;
- Chapter 10: Marine Mammals, as prey availability may be adversely affected by smothering and disturbance to seabed habitats; and
- Chapter 12: Commercial Fisheries, as benthic communities and fish species may be adversely affected by smothering and disturbance to seabed habitats.

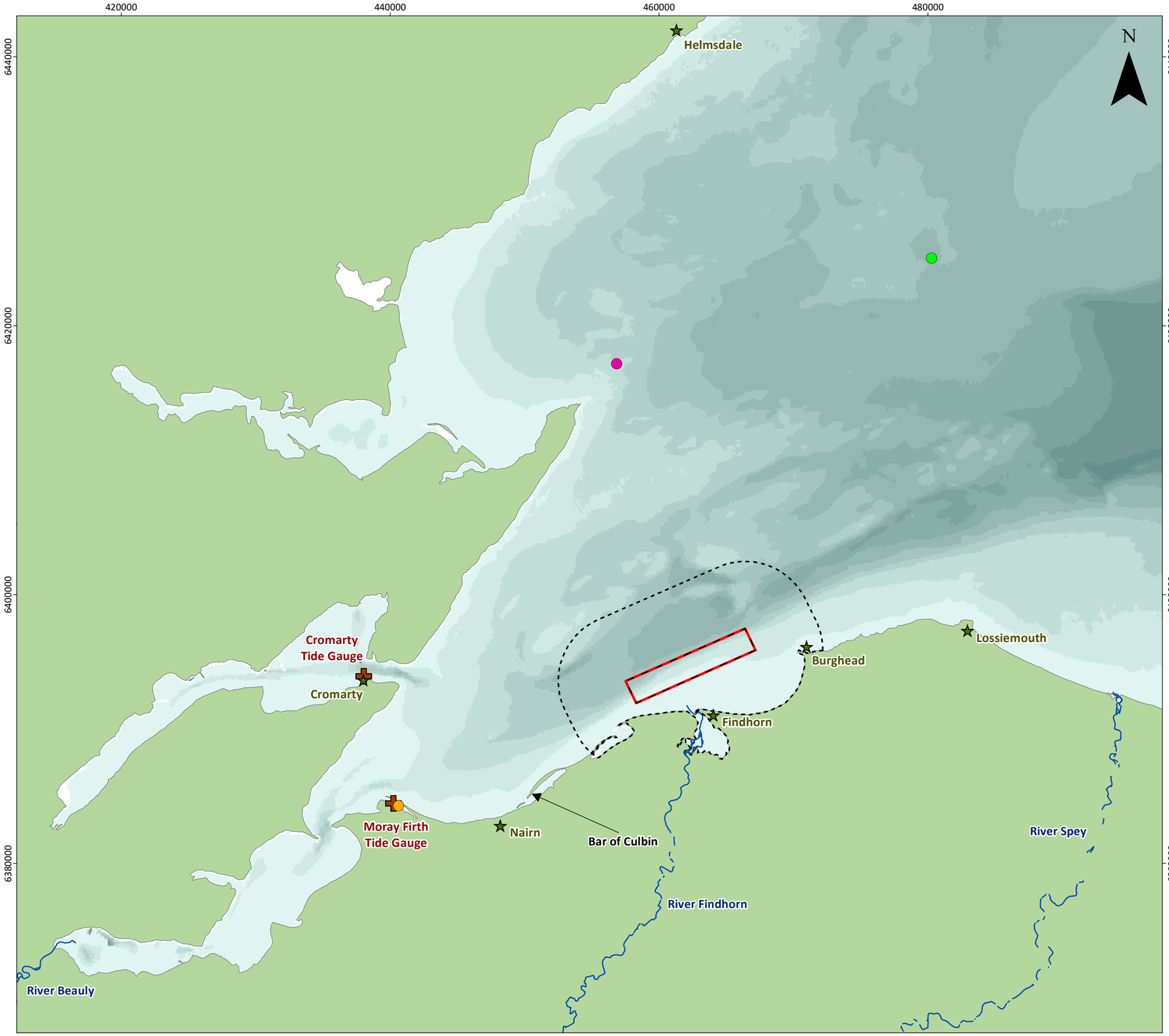
6.2 Study Area

6.2.1.1 The Marine and Coastal Processes study area is defined by the Moray FLOW-Park area in addition to a Zone of Influence (ZoI). This study area covers a total of 181.7 km^2 as presented in Figure 6-1.

6.2.1.2 Marine and Coastal Processes study area is defined as:

- Near-field:
  - Moray FLOW-Park area;
- Far-field:
  - Coastal and seabed zones outwith the near-field, but within the vicinity of the Project that may be influenced by Marine and Coastal Processes.

6.2.1.3 The far-field aspects of the study area have been defined based on a consideration of maximum spring tidal excursion ellipses, which represent the distance away from the Project over which suspended sediment plumes may be advected (and meaningfully interact with potentially sensitive receptors). The spring tidal excursion ellipse distance, or ZoI, is conservatively scaled at 5 km (as shown in Figure 6-1) and extends into Findhorn Bay to account for physical processes receptors across the whole estuary rather than just the section included in the 5 km buffer.



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Moray FLOW-Park
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Marine and Coastal Processes Study Area

Legend

- Moray FLOW-Park
- Geophysical Survey Area
- Zone of Influence (ZoI)
- ADCP Location
- WaveNet Location
- Ardersier Port
- Tide Gauge Location
- Coastal Locations
- Rivers

Depth (m)

- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 5 10 km

0 2 4 nm

Scale	Date	Drawn by	Checked by	Approved by
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Figure 6-1

Figure Reference: MFP_MP_Fig6-1_StudyArea_v5

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6.3 Data Sources to Inform the EIA Baseline Characterisation

6.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this Marine and Coastal Processes Chapter are presented in Table 6-1. These data sources will be taken forward and used to inform the EIA, in addition to site-specific data, which will include:

- Geophysical survey, as shown on Figure 6-1;
- Benthic subtidal survey with accompanying Particle Size Analysis (PSA) data;
- Hydrodynamic survey; and
- Hydrodynamic model (Venterra, 2024).

Table 6-1: Key sources of Marine and Coastal Processes data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Existing data sources		
TS-FLOW Wet Storage – Metocean (Venterra, 2024)	Site-specific hydrodynamic model developed to represent water level, wave, wind and tidal regime.	Full coverage of the Moray FLOW-Park
Atlas of UK Marine Renewable Energy Resources (ABPmer, 2008 and ABPmer, 2025 (sediment transport))	Low resolution modelled hindcast wave, wind, hydrodynamic and sediment transport data. Summary data provided only.	Full coverage of the Moray FLOW-Park
SEASTATES Metocean Data and Statistics Interactive Map (ABPmer, 2018)	Modelled hindcast wave and hydrodynamic data.	Full coverage of the Moray FLOW-Park
Centre for Environment, Aquaculture and Fisheries (Cefas) Wavenet data (Cefas, 2025)	Records of real-time wave data in the centre of the inner Moray Firth presented in a report (Figure 6-1).	N/A
National Tidal and Sea Level Facility (NTSLF) Real-time data (NTSLF, 2025)	Records of real-time tide gauge data for sites around the UK, including Moray Firth between 1994 and 2005.	N/A
British Geological Survey (BGS) Offshore GeoIndex Map (BGS, 2025)	Seabed sediment maps (based on Folk classification) and borehole records from point locations. Data gaps exist in the coastal zone.	Full coverage of the Moray FLOW-Park
European Marine Observation and Data Network (EMODnet) Bathymetry Data (EMODnet, 2024)	Interactive bathymetry map.	Full coverage of the Moray FLOW-Park
Cefas Suspended Sediment Climatologies (Cefas, 2016)	Satellite-derived annual averages of non-algal Suspended Particulate Matter (SPM) in UK waters.	Full coverage of the Moray FLOW-Park.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
National Aeronautics and Space Administration (NASA) Sea Level Projection Tool (Garner *et al.*, 2021 and NASA, 2021)	Interactive map for sea level projection data from the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6).	N/A
UK Climate Projections (UKCP) Science Report UKCP18 Marine report (Palmer *et al.*, 2018)	Sea level rise predictions for coastal locations.	N/A
FLOW-Park Anchorage – Geotechnical desk study & Geophysical survey technical requirements	Site specific desk study report concerning the bathymetry, surficial sediments and subsurface geology.	Full coverage of the Moray FLOW-Park
Site-specific geophysical survey	To inform the construction works, completed in October/November 2025 by the vessel *Green Rebel*.	Full coverage of the Moray FLOW-Park
Further data collection to be undertaken		
Site-specific benthic survey	To inform the construction works, updated site-specific benthic surveys will be undertaken. These will include sediment PSA.	Full coverage of the Moray FLOW-Park

6.4 Description of Baseline Environment

6.4.1.1 An initial desk-based review of literature and available data sources (see Table 6-1) has been undertaken to support this Inshore Scoping Report. The findings of this research are presented below to provide an understanding of the Project environment and inform the Scoping process.

6.4.1.2 The key Marine and Coastal Processes receptors which will inform this Inshore Scoping Report and the subsequent EIAR include:

- Morphology, including bathymetry, seabed features, geology and surficial sediment;
- Coastal form;
- Sediment transport;
- Hydrodynamics, including tides, waves and non-tidal influences;
- Future changes; and
- Designated sites.

6.4.2 Morphology

6.4.2.1 This section provides an overview of the bathymetry, geology, surficial sediments and seabed features of relevance to the Project.

Bathymetry

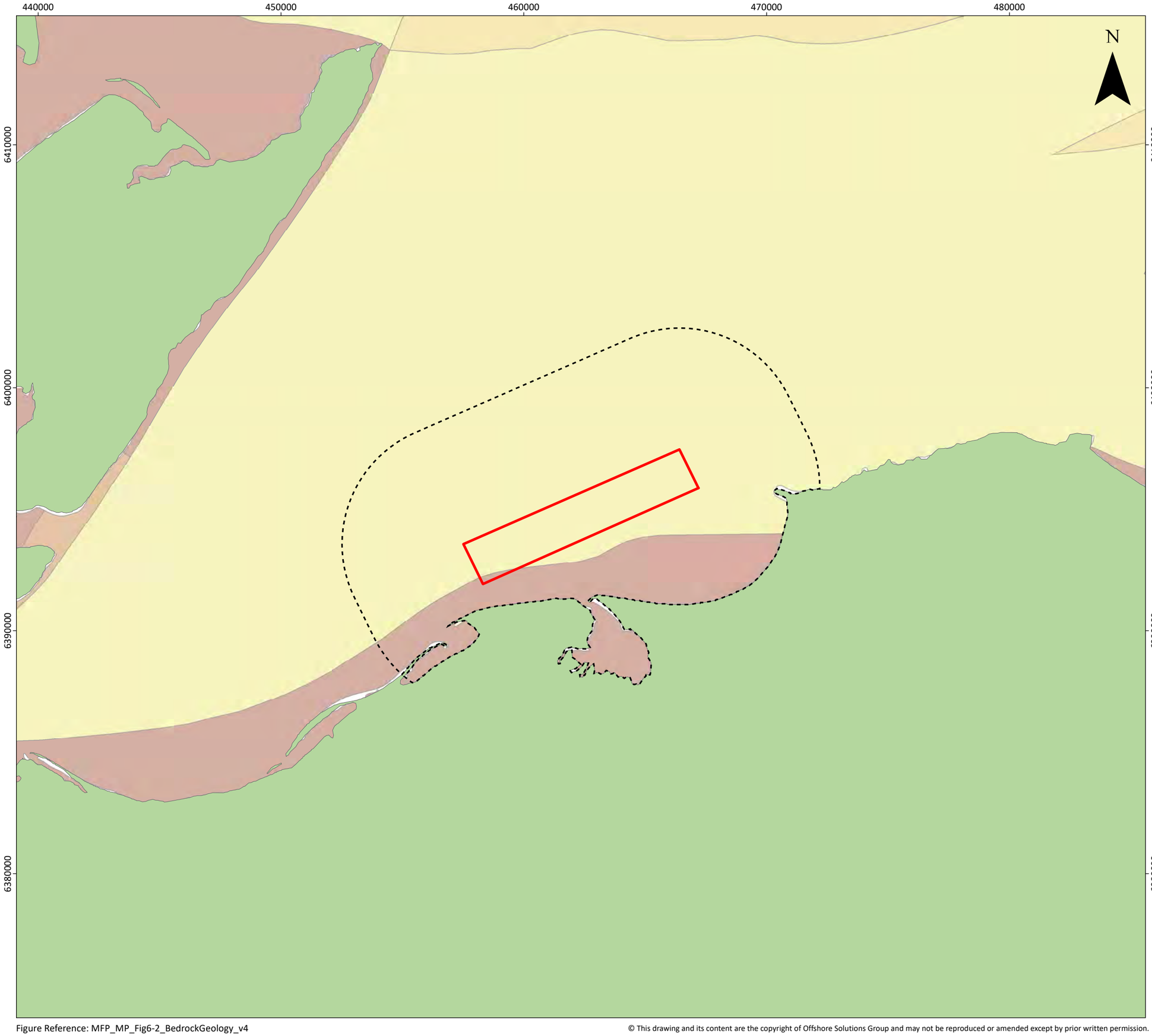
6.4.2.2 The Project is located in the Moray Firth and more precisely within the inner Moray Firth located to the west of the line drawn from Helmsdale to Lossiemouth (Figure 6-1; Robinson *et al.*, 2009). The inner Moray Firth is characterised by gentle seabed slopes rarely more than 1° with a maximum depth of 70 m (Robinson *et al.*, 2009).

6.4.2.3 The water depths at in the Moray FLOW-Park Area vary from 7.95 m LAT to 48 m LAT (Figure 6-1; EMODnet, 2024; OSG, 2025). The shallowest areas are found closer to the coast with a gradual increase of water depth further from the shore.

Geology

6.4.2.4 The inner Moray Firth's geology is defined by a sedimentary founded on older Precambrian-Caledonian metamorphic rocks and Devonian-Carboniferous Old Red Sandstone sediments, which were later overlaid by thick, fault-controlled Permian-Cretaceous sequences that formed as part of the North Sea rift system (Perkins *et al.*, 2023).

6.4.2.5 The bedrock geology within the Moray FLOW-Park Area is composed mostly by Upper Old Red Sandstone followed by a fine layer of Permian and Triassic rocks at the northern limit (Figure 6-2; BGS, 2025). The thickness of quaternary deposit is observed between 5 m to 20 m (BGS, 2025; OSG, 2025).



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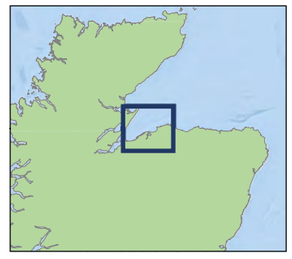
Bedrock Geology (BGS, 2025)

Legend

- Moray FLOW-Park
- 5km Zone of Influence (ZoI)

Bedrock Lithologies (Category)

- Mesozoic interbedded
- Mesozoic mudstones
- Metamorphic
- Palaeozoic sedimentary



Notes

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Coordinate System:
WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

Scale	Date	Drawn by	Checked by	Approved by
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Figure 6-2

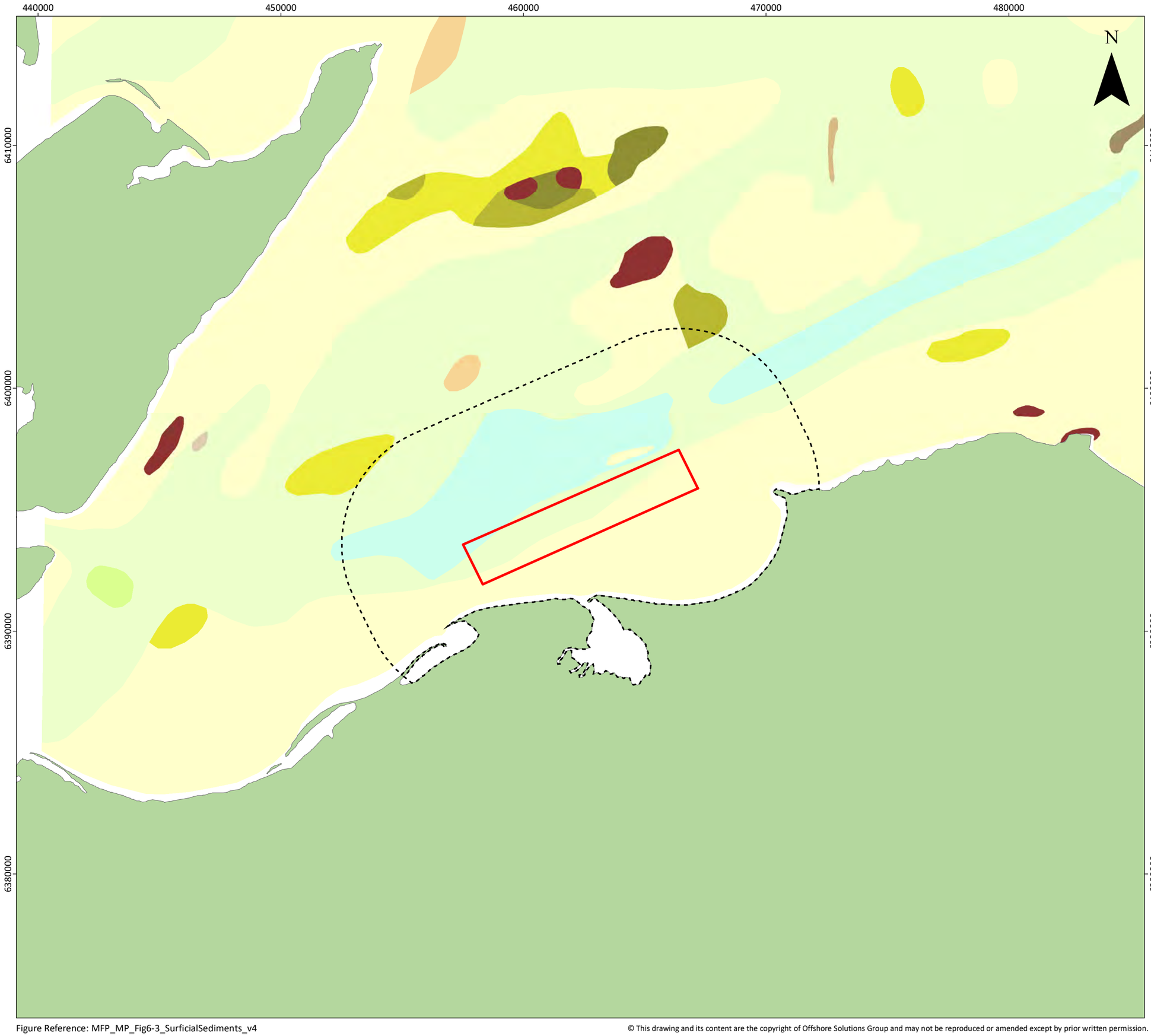
Figure Reference: MFP_MP_Fig6-2_BedrockGeology_v4

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Surficial sediments

6.4.2.6 The inner Moray Firth is mostly covered by fine sands, with muddy sands and sandy muds characterising the bathymetric depression found north of the Moray FLOW-Park Area (Figure 6-1 and Figure 6-3; Holmes *et al.*, 2004; EMODnet, 2024). The prevalence of fine sands, muddy sands and sandy muds is characteristic of low sediment mobility (paragraph 6.4.4.1).

6.4.2.7 The Moray FLOW-Park Area itself is mostly composed of sand except for a small patch of muddy sand located in the northwest limit (Figure 6-3; EMODnet, 2024). The surficial sediment within the Moray FLOW-Park Area reflects higher sediment mobility in the south, towards the coast, than in the north (paragraph 6.4.4.1).



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Surficial Sediments (EMODnet, 2024)

Legend

- Moray FLOW-Park
- Zone of Influence (ZoI)

Seabed Sediments (Folk, 1954) (EMODnet)

- 1.2.1 sandy Mud
- 1.3.1 muddy Sand
- 1.3.2 (gravelly) muddy Sand
- 2.1.1 Sand
- 3.1.1 gravelly Sand
- 3.2.1 sandy Gravel
- 3.3.1 Gravel
- 4.1.1 gravelly Mud
- 4.2.1 muddy Gravel
- 4.3.1 gravelly muddy Sand
- 4.4.1 muddy sandy Gravel
- 5. Rock and Boulders



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

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Figure 6-3

Figure Reference: MFP_MP_Fig6-3_SurficialSediments_v4

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6.4.3 Coastal Form

6.4.3.1 The study area shoreline extends from Burghead, in the east, to approximately 10 km west from Findhorn (Figure 6-1). The coast is defined as soft coastal shore, which includes intertidal flats, dunes, curving sand and shingle beaches, and saltmarsh (Moray Council, 2017).

6.4.3.2 Burghead Bay is located between Burghead and Findhorn (Figure 6-1), where the coast is represented by a large shingle beach, approximately 11 km long, with small dunes, formed by longshore drift and wave action moving material westward towards Nairn (paragraph 6.4.4.1; Hansom *et al.*, 2017; Ramsay and Brampton, 2000; NatureScot, 2019a).

6.4.3.3 Between Findhorn and Nairn (Figure 6-1), the shoreline comprises intertidal flats, sand and shingle bars, dunes, dune slacks (NatureScot, 2019a; Ramsay and Brampton, 2000). Where the River Findhorn meets the sea, the coastline presents a large open bay of saltmarsh (NatureScot, 2019a). This part of the coast is highly dynamic with sediment transport westwards towards the inner Moray Firth

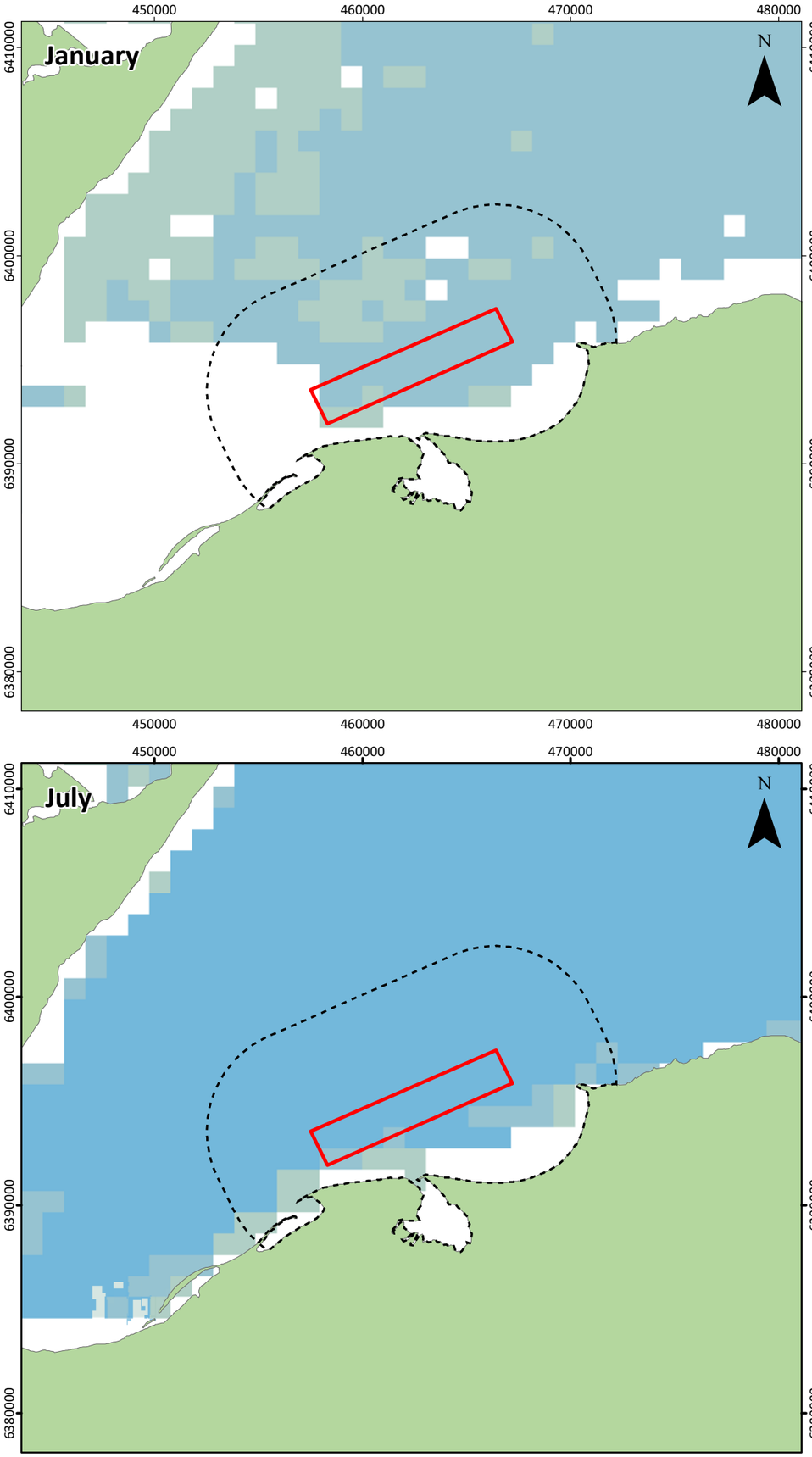
6.4.4 Sediment transport

6.4.4.1 The sediment transport in the study area is complex and composed of two distinct features:

- Low sediment transport within the deeper and centre part of the inner Moray Firth as shown by the presence of fine sediments (paragraph 6.4.2.6; Figure 6-3); and
- High sediment transport along the coast due to the westward longshore drift induced by wave regime (paragraph 6.4.5.9; Ramsay and Brampton, 2000).

6.4.4.2 The Moray FLOW-Park Area is located between the two sediment transport regimes (paragraph 6.4.4.1) with an increase of sediment transport rate from north to south.

6.4.4.3 Within the study area, Suspended Particulate Matter (SPM) is low, with values comprised between 1 mg/l and 2 mg/l respectively during summer and autumn (Figure 6-4; Cefas, 2016). In winter and spring, SPM reaches 6 mg/l within the north and northeast of the study area, being the consequence of stronger wind and increase of river inputs due to rain (Figure 6-4; Cefas, 2016).



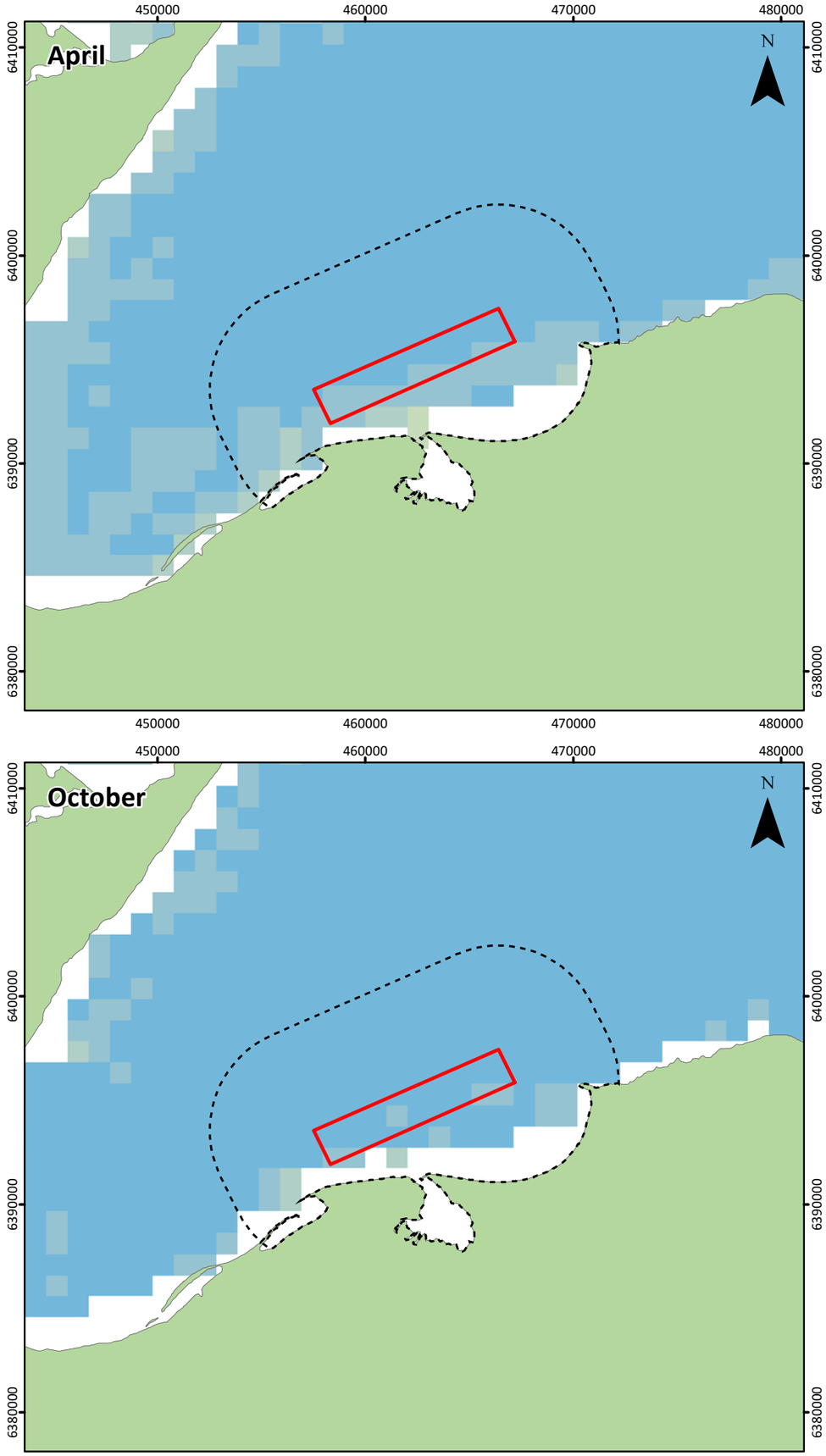


Figure Reference: MFP_MP_Fig6-4_AverageSPM_v4

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Inshore Scoping Report

Average Suspended Particulate Matter (Cefas, 2016)

Legend

- Moray FLOW-Park
- Zone of Influence (ZoI)

Suspended Particulate Matter (mg/l)

- 1 - 2
- 2 - 4



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

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Figure 6-4

6.4.5 Hydrodynamics

6.4.5.1 This section provides an overview of the influences of tidal, non-tidal, and wave processes on the Project.

Tides

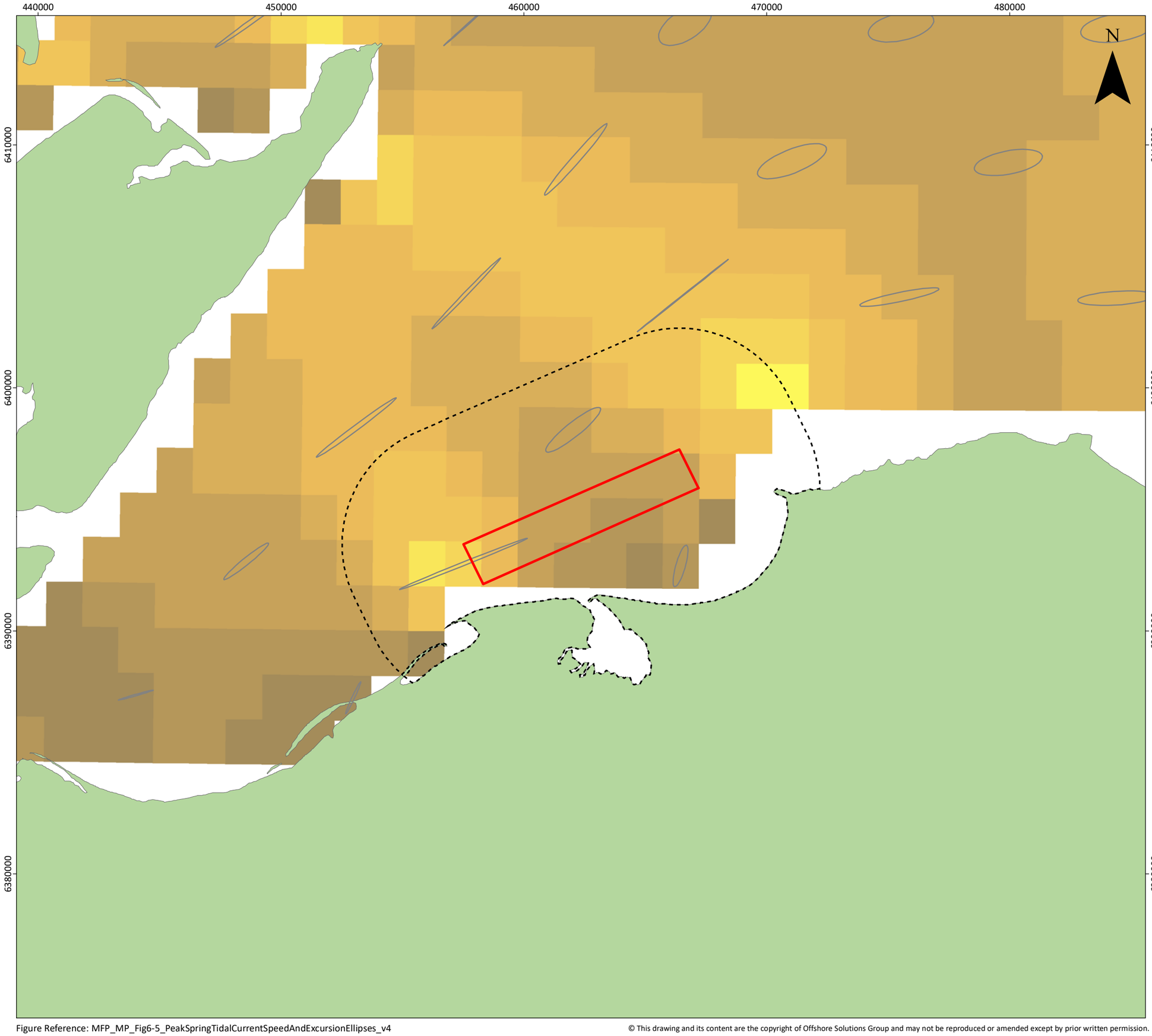
6.4.5.2 The inner Moray Firth is characterised as mesotidal area, with spring tidal range comprised between 3 m to 4 m and neap tidal range between 1 m to 2 m (ABPmer, 2008). Moray Firth tidal gauge data, recorded between 1994 and 2004, presented the same results with, on average, tidal ranges of 3.5 m and 1.5 m during spring and neap tides respectively. This correlates with observation at Ardersier Port, with a tidal range of 3.3 m during spring tides and 1.6 m during neap tides (Figure 6-1; EnviroCentre, 2018; NTSLF, 2025). Also, tidal range is shown to reach 5 m during storm events (paragraph 6.4.5.8; NTSLF, 2025).

6.4.5.3 Site-specific hydrodynamic model shows a depth-averaged current speed of 0.14 m/s and a current speed below 0.3 m/s for 82% of the time (Venterra, 2024), which is correlated by ABPmer (2008) data showing spring peak flow speeds in the Moray FLOW-Park Area are between 0.1 m/s and 0.25 m/s, whereas the neap peak flow is less than 0.1 m/s (Figure 6-5). The weak tidal current within the study area cannot explain the sediment transport occurring along the coast, confirming that the wave regime dominates this process (paragraphs 6.4.4.1 and 6.4.5.12).

6.4.5.4 Current profile was obtained 24 km north of the Project by the deployment of an Acoustic Doppler Current Profiler (ADCP) during one month between April and May 2016 (Figure 6-1; Marine Scotland Science, 2016). The observations showed a depth-averaged speed comprised between 0.05 m/s and 0.25 m/s, which correlate the site-specific hydrodynamic model from Venterra (2024) (paragraph 6.4.5.3).

6.4.5.5 Tidal ellipses within the inner Moray Firth range from 1 km to 4 km orientated northeast to southwest (Figure 6-5; ABPmer, 2008). Site-specific hydrodynamic model shows that residual currents[3] are orientated southwest due to a highest proportion in that same direction (36%) then northeast (21%) (Venterra, 2024), which correlates ABPmer (2008) data. The tidal ellipses in the Moray FLOW-Park Area decrease north to south from 5 km to 2 km[4] (Figure 6-5; ABPmer, 2008).

[3] Residual current is defined as the difference between the total current and linearly predicted tidal current (Taniguchi *et al.*, 2018).
[4] The resolution of ABPmer (2025) does not provide sufficient resolution in the nearshore.



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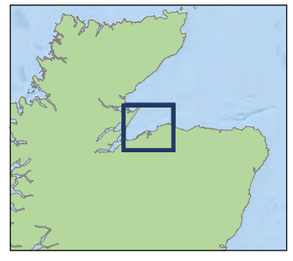
Peak Spring Tidal Current Speed and Tidal Excursion Ellipses (ABPmer, 2008)

Legend

- Moray FLOW-Park
- Zone of Influence (ZoI)
- Tidal Ellipses

Peak Flow for Mean Spring Tide (m/s)

- <0.1
- 0.11 - 0.15
- 0.16 - 0.2
- 0.21 - 0.25
- 0.26 - 0.3
- 0.31 - 0.35
- 0.36 - 0.4
- 0.41 - 0.45
- 0.46 - 0.5



Notes

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Figure 6-5

Figure Reference: MFP_MP_Fig6-5_PeakSpringTidalCurrentSpeedAndExcursionEllipses_v4

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Non-tidal influences

6.4.5.6 Superimposed on regular tidal behaviour are various non-tidal influences, which typically originate from meteorological effects. An example is surges, formed by the combined effects of rapid changes in atmospheric pressure and strong winds causing the water levels to fluctuate considerably above or below the tidal level.

6.4.5.7 Extreme water levels can be associated with the influence of wind. In the Moray FLOW-Park Area, wind comes mostly from southwest (21%), followed by west (15%) and south (12%) for wind simulated at 10 m above sea Level (ASL) (Figure 6-6; Venterra, 2024). The wind speed is mostly predicted below 10 m/s (93% of the time) but can reach speed above 16 m/s (Figure 6-6; ABPmer, 2018; Venterra, 2024). This data correlates with observations from Inverness airport, which show that wind comes mostly from southwest during winter and autumn, and west-southwest during spring and summer, with an average speed of 9 m/s (Windfinder, 2025).

6.4.5.8 The surges in the inner Moray Firth can be enhanced by the peak river flow, due to heavy rains essentially during storm events, which is explained by the numerous rivers output within the inner Moray Firth. For example, strong southwest winds (> 16 m/s) coupled with heavy rain led to anormal water levels up to 3 m with a 1:50 year return period surge (National Oceanographic Centre (NOC), 2025). Highest water level records were observed around 5.2 m ± 0.1 m during the period 1994-2004 at the Moray Firth tidal gauge (Figure 6-1; NTSLF, 2025). Upon increasing water levels, surges also increase tidal current speed. Typically, a one-meter surge event can double tidal speed (HR Wallingford, 2002). As per example above, a 3 m surge with 1:50 year return period could increase the tidal speed to 3 m/s[5]. Rossiter (1961) showed interactions between storm surges and tides with amplification of surge height on the rising tide.

[5] Calculation based on Venterra (2024) showing a maximum speed of 0.5 m/s at the Moray FLOW-Park Area,

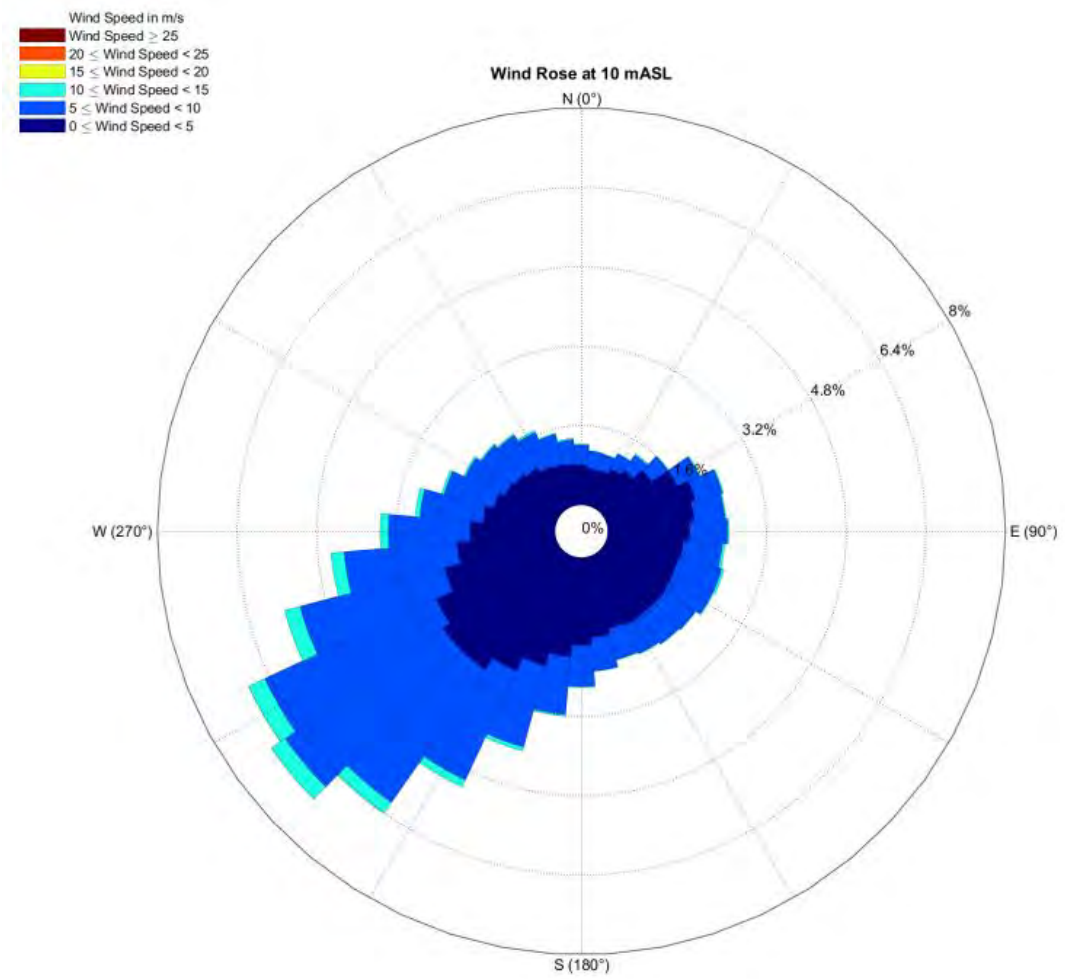


Figure 6-6: Wind speed and direction in the Moray FLOW-Park Area (Venterra, 2024).

Waves

6.4.5.9 The results obtained from the site-specific hydrodynamic model shows a higher proportion of waves coming from the northeast (i.e., 54%) (Venterra, 2024). This predominant wave direction supports the conclusions relating to a westwardly predominance of sediment transport (paragraph 6.4.4.1).

6.4.5.10 The Moray FLOW-Park Area shows waves coming mostly from the northeast (24 %), followed by waves from the southwest (5 %) (Figure 6-7; Venterra, 2024).

6.4.5.11 Significant wave height is indicated to be less than 1 m for approximately 90% of Moray FLOW-Park Area (Figure 6-7; Venterra, 2024). Waves entering the Moray Firth from the northeast lose energy towards the inner Moray Firth, which explains the low significant wave height observed at the Moray FLOW-Park Area (Figure 6-7; Venterra, 2024).

6.4.5.12 In the inner Moray Firth, the WaveNet Moray Firth buoy, deployed between 2008 to 2011, recorded the most frequent wave direction from northeast (18% of the record), whilst almost 75% of the record is comprised of waves from northeast and east (Figure 6-1; Cefas, 2022). The most frequent wave heights were recorded between 1 m and 1.5 m (45% of the record) (Cefas, 2022). This observation correlates that wave energy reduces from northeast to southwest towards the Moray FLOW-Park Area (paragraph 6.4.5.11).

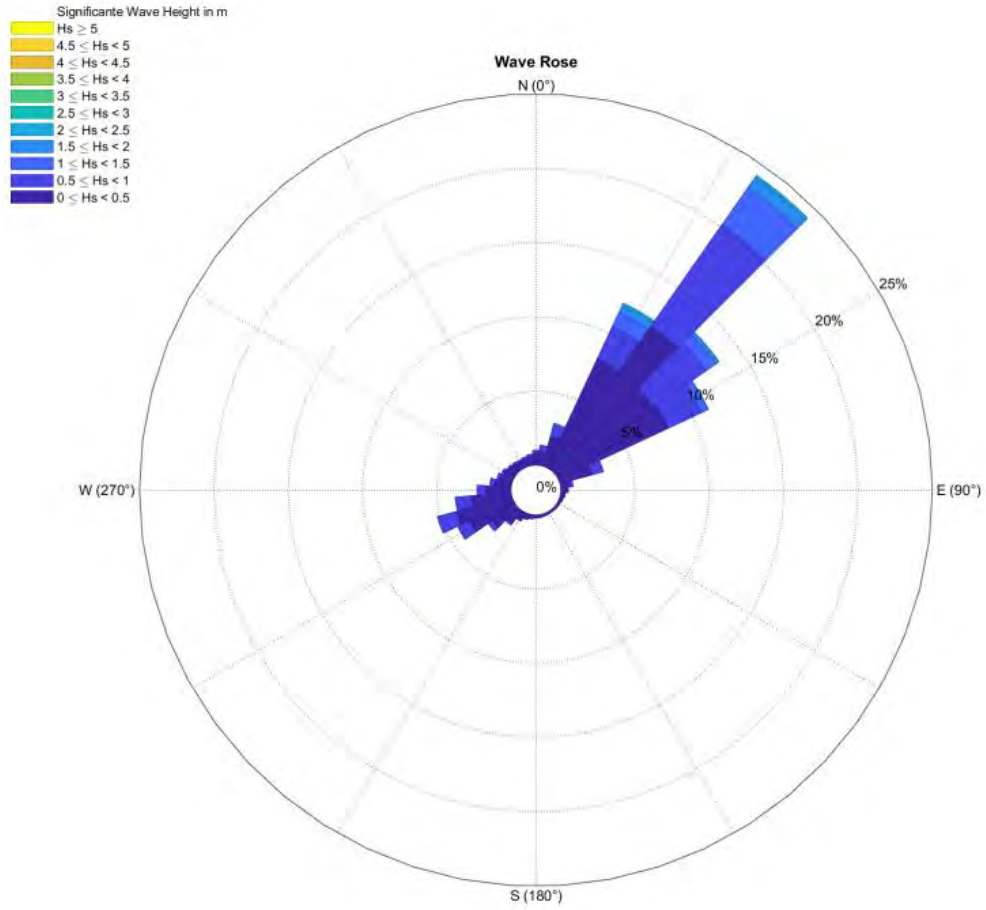


Figure 6-7: Significant wave height in Moray FLOW-Park Area (Venterra, 2024).

6.4.6 Future Baseline

6.4.6.1 For the purposes of this Scoping Report, the Representative Concentration Pathway (RCP) 8.5 (high-emissions) climate change scenario (Palmer *et al.*, 2018) has been presented.

6.4.6.2 The UKCP 2018 suggest an increase of sea level comprised between 0.5 m and 0.6 m by 2100 (Palmer *et al.*, 2018) within the study area, which correlates the data from Duarte *et al.* (2022) predicting sea level rise between 0.4 m and 0.6 m. However, the site-specific hydrodynamic model simulated the sea level rise to reach 0.31 m by 2050 and 0.82 m by 2100 under RCP 8.5 climate change scenario (Venterra, 2024).

6.4.6.3 Forecasted sea level rise will induce a coastal retreat estimated to be approximately 0.2 km between Burghead and Findhorn (Dynamic Coast, 2025).

6.4.6.4 Mean sea level rise results in a direct increase in both low and high waters. However, since the propagation of tide and surge is dependent on water depth, there is also a potential for mean sea level change to have a more spatially complex effect on local tidal range and the extent of storm surges above the high tide (Palmer *et al.*, 2018). At this stage it is considered difficult to provide accurate values and projections on the sea level rise impacts on tidal currents within the Moray Firth.

6.4.6.5 Wave energy is predicted to decrease between 10% to 20% within the UK, which corresponds to a reduction of significant wave height of 0.12 m to 0.25 m[6] (Palmer *et al.*, 2018; Meucci *et al.*, 2020).

6.4.6.6 Future changes in storm surges are predicted to be undistinguishable from background variation (Lowe *et al.*, 2009), although extreme surge level event frequency is likely to increase (IPCC, 2021).

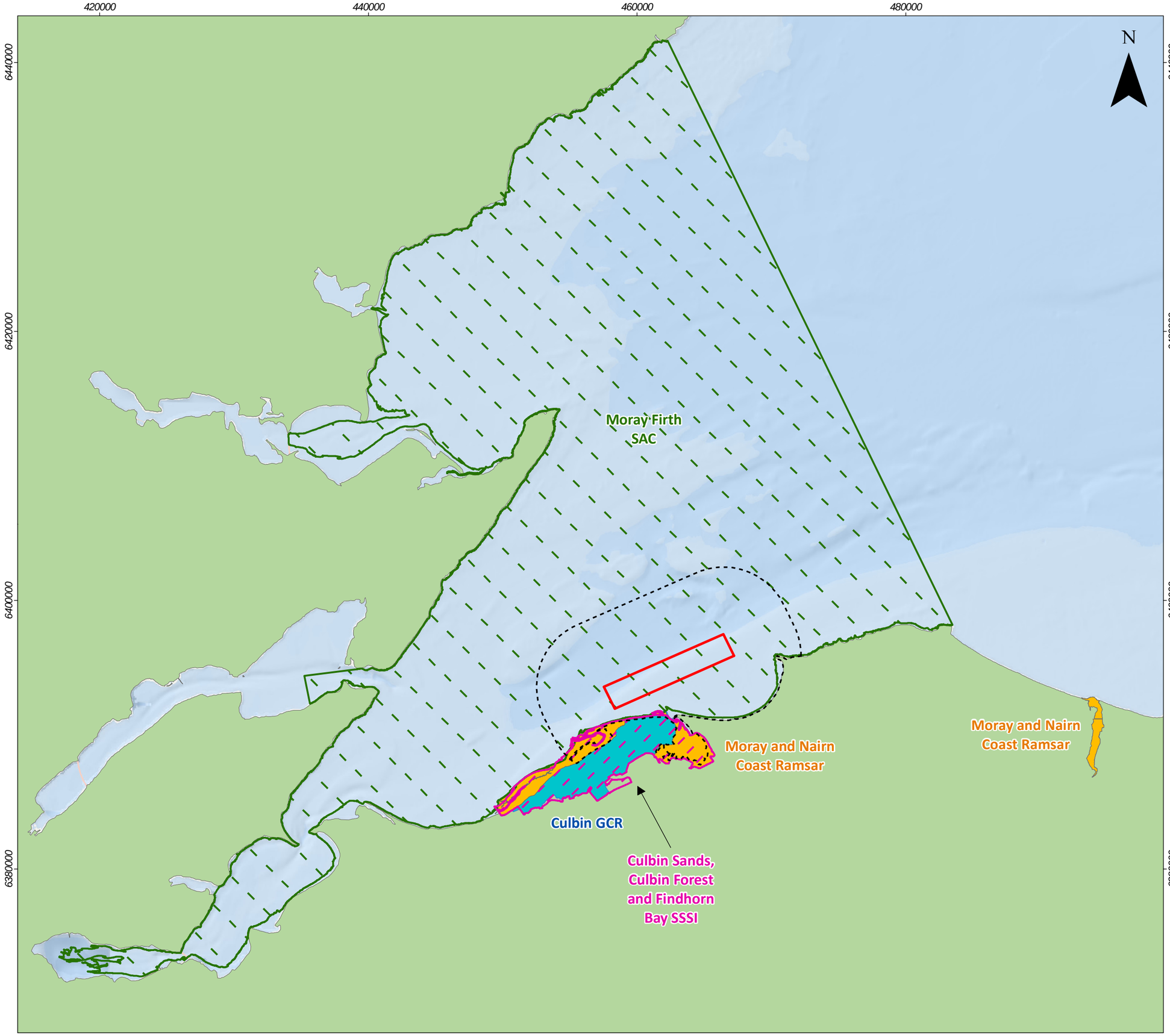
6.4.7 Designated Sites

6.4.7.1 Designated sites within the study area, which are designated for the protection and conservation of marine habitats of relevance to marine and coastal processes are provided in Table 6-2 and shown on Figure 6-8.

[6] Calculation based on significant wave height of 1.25 m (paragraph 6.4.5.11).

Table 6-2: Designated Sites Relevant for Marine and Coastal Processes.

Designated Site	Marine and Coastal Processes Protected Feature(s)
Moray Firth SAC	• Subtidal sandbanks
Culbin Sands, Culbin Forest and Findhorn Bay SSSI	• Coastal Geomorphology of Scotland
Moray and Nairn Coast Ramsar Site	• Intertidal mudflats and sandflats
Culbin Geological Conservation Review Site (GCR)	• Coastal Geomorphology of Scotland



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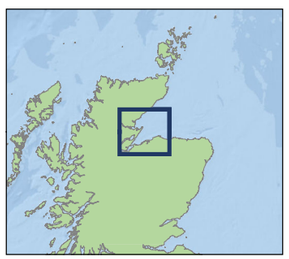
Designated Sites of Relevance to Marine and Coastal Processes

Legend

- *Moray FLOW-Park*
- *Zone of Influence (ZoI)*

Designations

- *Site of Special Scientific Interest (SSSI)*
- *Special Area of Conservation (SAC)*
- *Ramsar Site*
- *Geological Conservation Review (GCR) Site*



Notes

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Figure 6-8

Figure Reference: MFP_MP_Fig6-8_DesignatedSites_v5

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6.5 Embedded Mitigation

6.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 6-3 and in the Embedded Commitments Register (Appendix A). These commitments will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 6-3: The proposed embedded mitigation measures relevant to Marine and Coastal Processes receptors

Reference	Embedded Mitigation/Commitment
C2	Development of and adherence to a Construction Method Statement (CMS) setting out construction procedures and good working practices, roles and responsibilities and construction related mitigation to be delivered.
C4	Development of and adherence to a Development Specification and Layout Plan (DSLP) to confirm final development specification and layout.
C32	Return of the seabed to its original profile, or as close as reasonably practicable following completion of construction works.
C33	Provision of scour protection where there is potential for scour to develop around infrastructure (foundations, moorings).
C34	Completion of post-installation hydrographic surveys of the Project and periodic hydrographic surveys thereafter.
C38	Typical separation distance between foundations of 600 m.
C43	Development of and adherence to an Operation and Maintenance Programme (OMP) to safeguard environmental interests during operation and maintenance.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.
C47	All reasonable, appropriate and practicable steps will be taken at the end of the operational life of the Moray FLOW-Park to restore the site of the works to its original pre-construction condition, or to as close to its original condition as is reasonably practicable.

6.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

6.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon Marine and Coastal Processes receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

6.6 Scoping of Impacts

6.6.1.1 An initial assessment of the likelihood of effects on Marine and Coastal Processes, due to Project activities for the Scoping stage of the EIA process is presented in Table 6-4.

6.6.1.2 This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Section 6.5, together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for Marine and Coastal Processes effects associated with Project activities; relevant policy; and the professional judgement of qualified Marine and Coastal Processes specialists.

6.6.1.3 Marine and Coastal Processes are typically best described as pathways in most cases, rather than receptors. Accordingly, although outputs from the Marine and Coastal Process assessments will be reported in a stand-alone EIAR chapter, for the most part they will not be accompanied by statements of effect significance. Instead, the information on changes to the Marine and Coastal Processes pathways will be used to inform other EIA topic assessments, such as:

- Chapter 7: Marine Water and Sediment Quality;
- Chapter 8: Benthic Subtidal and Intertidal Ecology;
- Chapter 9: Fish and Shellfish Ecology (including Megafauna);
- Chapter 10: Marine Mammals; and
- Chapter 12: Commercial Fisheries.

Table 6-4: Scoping assessment for Marine and Coastal Processes

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction (and Decommissioning)			
Increases in suspended sediment concentrations (SSCs) and changes to seabed levels.	C2, C4, C32, C33, C46 and C47	Scoped In	Temporary elevations in SSCs due to construction (i.e. anchor installation) activities. This could in turn result in changes to the underlying seabed/coastal bed levels, through deposition of the suspended material and changes to the surficial sediment type. Increases in SSC and associated deposition may have indirect, adverse impacts upon other receptor groups including, Benthic Subtidal and Intertidal Ecology (Chapter 8), Fish and Shellfish Ecology (including megafauna) (Chapter 9), Marine Mammals (Chapter 10) and Commercial Fisheries (Chapter 12). Decommissioning activities, such as anchor removal, can cause increase of SSC as a result of seabed disturbance. The transport of the disturbed material and the eventual deposition could in turn result in variations in bed levels and changes to the sediment type.
Potential impacts to seabed morphology (sandbanks and notable bathymetric depressions).	C2, C4, C32, C33, C46 and C47	Scoped In	Activities such as anchor installation could have a potential direct and localised impact on seabed morphology. Decommissioning activities relating to the removal of infrastructure (if required) have the potential to directly disturb the local seabed morphology.
Modifications to littoral transport and coastal behaviour (erosion).	N/A	Scoped Out	No construction and decommissioning activities are planned to occur directly in intertidal and coastal zones.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
O&M			
Potential impacts to seabed morphology.	C32, C33, C34 and C43	Scoped In	There is the potential for the introduction of localised seabed abrasion associated with the Project infrastructure that moves, for example anchor or mooring chains, under the influence of waves, currents, and movement of the WTGs[7] (Maxwell *et al.*, 2022). This could result in localised change to seabed morphology.
Modifications to the wave and tidal regime, and associated impacts to morphological features.	C4, C34, C38 and C43	Scoped In	The interaction between FLOW foundations and the baseline metocean regime (waves; tides) may result in localised changes to tidal current speeds, wave energy and turbulence. These changes may, in turn, impact on adjacent physical features inshore.
Modifications to the wave and tidal regime and associated impacts to littoral transport and coastal behaviour (erosion).	C4, C34, C38 and C43	Scoped In	The interaction between FLOW foundations and the baseline metocean regime (waves; tides) may result in localised changes to tidal current speeds and wave energy. These changes may, especially on wave regime as the main sediment transport factor (paragraph 6.4.4.1), in turn, impact the littoral transport being wave dominated and the coastal erosion.
Seabed scouring.	C32, C33 and C34	Scoped In	The Project infrastructure has the potential to cause localised seabed scouring, resulting in bathymetric changes and localised alterations to sediment transport patterns. This is likely to occur around anchors and clump weights that may be part of the mooring system.

[7] WTG will not generate energy whilst moored in the Moray FLOW-Park Area.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Modifications to stratification and frontal features.	N/A	Scoped Out	The Project is located close to the shore, approximately 1 km, where the study area is defined as well-mixed waters through the year (Connor *et al.*, 2006; Miller *et al.*, 2014).

6.7 Potential Cumulative Effects

6.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment. For Marine and Coastal Processes, cumulative interactions may occur with other activities in the study area notably related to ports and coastal management.

6.7.1.2 Impacts that are scoped into the assessment for the Project alone are generally spatially restricted to being within close proximity to the Moray FLOW-Park Area and are listed in Table 6-5. However, certain potential impacts, such as an increase in SSC, have the potential to be observed over a wider area. Potential cumulative impacts on Marine and Coastal Processes receptors will be guided by tidal excursions, to be further quantified using project specific numerical modelling.

6.7.1.3 For example, if any dredging activities occur within local ports (Ardersier, and Findhorn) and harbours (Nairn and Findhorn) to ensure consistent navigational depth, these activities might have a cumulative impact on SSC release within the water column during the construction phase of the Project if they occur at the same time. Of note, there is no existence of aggregate extraction nor disposal sites within the study area (see Chapter 19: Infrastructure and Other Users).

6.7.1.4 The CEA for Marine and Coastal Processes will consider the MDS for each of the projects, plans and activities in line with the methodology outlined in Chapter 4: EIA Methodology.

Table 6-5: Scoping assessment of cumulative impacts for Marine and Coastal Processes

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction and Decommissioning			
Cumulative increase in SSCs and changes to seabed levels.	C2, C4, C33, C34, C40 and C41	Scoped In	Cumulative elevations in SSCs due to construction of the Project can be observed if other developments activities, such as dredging in nearby ports, occur at the same time.
O&M			
Cumulative modifications to the wave and tidal regime and associated potential impacts to the sediment transport regime.	C11, C29, C33 and C36	Scoped In	Any potential cumulative changes, with other developments, to the wave and tidal regime within the Study Area can impact sediment transport notably along the coast (paragraph 6.4.4.1) due to the proximity of the Project to the shore, approximately 1 km.

6.8 Potential Transboundary Effects

6.8.1.1 No transboundary impacts on marine physical process pathways are anticipated to occur as a result of the Project activities during construction, O&M or decommissioning. Any predicted impacts on these pathways will largely be localised to within the study area and will not give rise to effects on the marine environment beyond UK waters. Therefore, it is proposed to scope out transboundary impacts with regards to Marine and Coastal Processes.

6.9 Proposed Approach to EIA

6.9.1 Guidance

6.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of Marine and Coastal Processes receptors will also comply with the following guidance documents where they are specific to this topic:

- Best Practice Advice for Evidence and Data Standards for offshore renewables projects (Natural England, 2021a and 2021b);
- Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications (MS-LOT, 2018)
- National Resources Wales (NRW) Monitoring Evidence Report No: 243 Guidance on Best Practice for Marine and Coastal Physical Processes Baseline Survey and Monitoring Requirements to inform EIA of Major Development Projects (Brooks *et al.*, 2018);
- EIA for offshore renewable energy projects (British Standards Institute (BSI), 2015);
- Review of environmental data associated with post-consent monitoring of licence conditions of offshore wind farms. MMO Project No: 1031 (Fugro-Emu, 2014).
- Guidelines for Data Acquisition to Support Marine Environmental Assessments of Offshore Renewable Energy Projects (Cefas, 2011);
- Further review of sediment monitoring data (COWRIE ScourSed-09) (ABPmer *et al.*, 2010);
- Coastal Process Modelling for Offshore Wind Farm EIA; Best Practice Guide (Lambkin *et al.*, 2009);
- Guidelines in the use of metocean data through the lifecycle of a marine renewable development (Cooper *et al.*, 2008);
- Review of Round 1 Sediment process monitoring data - lessons learnt (Sed01) (ABPmer *et al.*, 2007);
- Dynamics of scour pits and scour protection - Synthesis report and recommendations (Sed02) (HR Wallingford *et al.*, 2007);

- Offshore Windfarms: Guidance note for EIA in Respect of FEPA and CPA requirements (Cefas, 2004); and
- Potential effects of offshore wind developments on coastal processes (ABPmer and METOC, 2002).

6.9.1.2 The Project will also account for the Decommissioning of Offshore Renewable Energy Installations in Scottish waters or in the Scottish part of the Renewable Energy Zone under The Energy Act 2004 - Guidance notes for industry (in Scotland) (Marine Scotland, 2022a), however as the Project is not an OREI structure, and not bound by the energy act, the Project will comply where the legislation is applicable as described in Section 3.7.5.

6.9.1.3 New guidance is currently being developed specifically for Scottish OWF EIAs, focussing on physical processes and will incorporate feedback on both fixed-bottom and floating foundations. The new guidance will be used if it published in time for this EIA Project.

6.9.1.4 The Offshore Renewable Energy (ORE) Catapult Joint Industry Project are currently developing seabed mobility guidance, which will be used if published in time for this EIA Project.

6.9.2 Additional Data Sources

6.9.2.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Inshore Scoping Report. Project-specific survey outputs will be used to enhance the understanding of the baseline conditions. These may include the following across the Moray FLOW-Park Area:

- Geophysical survey – completed 29th of October 2025;
- Geotechnical survey;
- Hydrodynamic survey; and
- Benthic subtidal sampling (including PSA and contaminants) - planned to commence Q1 to Q2 2026 for a period of maximum 4 days.

6.9.2.2 A numerical model will be developed and applied to investigate the source-pathway-receptor relationship for those issues scoped in (Table 6-4), including the potential modification to wave and associated longshore sediment transport, and based upon the realistic maximum design scenario, as provided in Chapter 3: Project Description.

6.9.3 Assessment Methodology

6.9.3.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

6.9.3.2 Specific to Marine and Coastal Processes, the scope of the assessment is to characterise and understand the marine and coastal physical processes present within the study area, particularly with respect to the metocean regime and associated sediment transport pathways, and how these could be impacted by the Project from the construction, O&M and decommissioning activities. A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Scoping Chapter.

6.9.3.3 A source-pathway-receptor approach will be adopted, considering those issues scoped in (Table 6-4), based in the realistic MDS, as provided in Chapter 3: Project Description and following stakeholder consultation.

6.9.3.4 An assessment of the potential impacts will be undertaken through application of the evidence base, including site-specific survey outputs and associated morphological assessments. The significance of environmental changes will be evaluated against the anticipated natural variability within, or long-term changes to, the marine physical environment due to natural cycles (such as storm events and/or climate change).

6.9.4 Magnitude of impact

6.9.4.1 The magnitude criteria for Marine and Coastal Processes are provided in Table 6-6. In determining magnitude, each assessment considered the spatial extent, duration, frequency, and reversibility of impact and these will be outlined within the magnitude section of each assessment of impact.

Table 6-6: Impact Magnitude criteria for Marine and Coastal Processes

Magnitude Value	Description
Negligible	Changes which are not discernible from background conditions. Impact is of short-term duration (i.e. duration of individual construction works).
Low	Noticeable change, or barely discernible change for any length of time, restricted to the near-field and immediately adjacent far-field areas, to key characteristics or features of the particular environmental aspect's character or distinctiveness. Impact is of short- to medium-term duration (i.e. construction works).

Magnitude Value	Description
Medium	Permanent changes, over the near- and parts of the far-field, to key characteristics or features of the particular environmental aspect's character or distinctiveness. Impact is of medium-term duration (i.e. operational period).
High	Permanent changes across the near- and large parts of the far-field to key characteristics or features of the particular environmental aspect's character or distinctiveness. Impact is of long-term duration (i.e. total life).

6.9.5 Receptor sensitivity

6.9.5.1 The importance and sensitivity of each receptor will be assessed using expert judgement and described with a standard semantic scale using the terms negligible, low, medium and high as presented in Table 6-7.

6.9.5.2 The Marine and Coastal Processes features that are considered as potential receptors are:

- The adjacent coastlines;
- Subtidal sandbanks;
- Culbin GCR;
- Moray and Nairn coast Ramsar;
- Moray Firth SAC; and
- Culbin Sands, Culbin Forest and Findhorn Bay Site SSSI.

Table 6-7: Receptor Sensitivity Criteria for Marine and Coastal Processes

Sensitivity Value	Description
Negligible	High capacity to accommodate the proposed form of change; and/or receptor not designated and only of local level importance.
Low	Moderate to high capacity to accommodate the proposed form of change; and/or receptor not designated but of district level importance.
Medium	Moderate to low capacity to accommodate the proposed form of change; and/or receptor designated and/or of regional level importance. Likely to be relatively rare. May also be of moderate socio-economic importance.
High	Very low or no capacity to accommodate the proposed form of change; and/or receptor designated and/or of international level importance. Likely to be rare with minimal potential for substitution. May also be of very high socio-economic importance.

6.10 Scoping Questions

6.10.1.1 The following Scoping questions refer to the Marine and Coastal Processes Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the study area(s) defined for Marine and Coastal Processes?
- Do you agree with the use of those data listed in Section 6.3, and any additional anticipated data listed in Section 6.9, being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to Marine and Coastal Processes have been identified?
- Do you agree with the Scoping in and out of impact pathways in relation to Marine and Coastal Processes?
- Do you agree with the assessment of transboundary effects in relation to Marine and Coastal Processes?
- Do you agree with the assessment of cumulative effects in relation to Marine and Coastal Processes?
- Do you agree with the proposed assessment methodology for Marine and Coastal Processes, notably the development of a numerical model?
- Do you agree with the proposed assessment methodology for Marine and Coastal Processes, notably the definition of magnitude and sensitivity?

7 Marine Water and Sediment Quality

7.1 Introduction

7.1.1.1 This Chapter of the Inshore Scoping Report identifies the Marine Water and Sediment Quality (MW&SQ) receptors of relevance to the Project. Potential impacts from the construction, O&M and decommissioning of the Project on MW&SQ receptors up to MHWS) are considered.

7.1.1.2 MW&SQ encompasses the following key elements:

- Water quality (including physicochemical parameters and considerations under the Water Framework Directive (WFD) and related legislation; encompassing coastal and transitional water bodies and Protected Areas, which include Bathing Waters, Shellfish Water Protected Areas (SWPAs), and Sensitive Areas); and
- Sediment quality (including surficial sediment characterisation and contamination).

7.1.1.3 Of note is that MW&SQ is considered a receptor in its own right, whilst also providing an impact pathway for other receptors. As such, this Chapter should be read alongside the following other chapters:

- Chapter 6: Marine and Coastal Processes;
- Chapter 8: Benthic Subtidal and Intertidal Ecology;
- Chapter 9: Fish and Shellfish Ecology;
- Chapter 11: Marine Mammals; and
- Chapter 12: Commercial Fisheries.

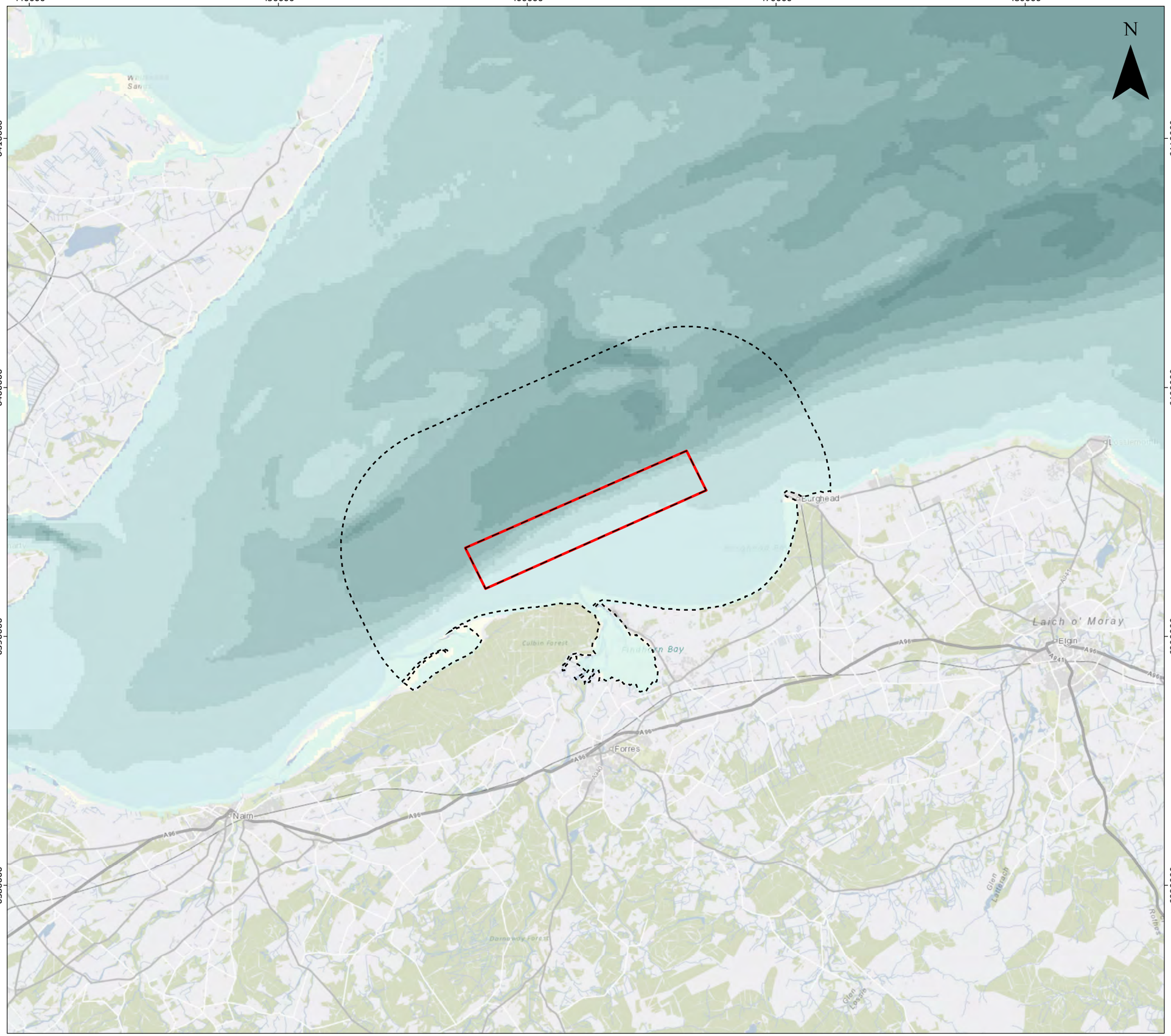
7.2 Study Area

7.2.1.1 The MW&SQ study area is defined by the Moray FLOW-Park Area, in addition to the buffer zone, and encompasses a total area of 181.7 km^2. This study area is presented in Figure 7-1 and described below:

- Near-field:
  - Moray FLOW-Park Area, which is 18 km^2 in size and located approximately 1.06 km from the shore at its closest point.
- Far-field:
  - Coastal and seabed zones outside the near-field, but within the vicinity of the Project that may be influenced by changes to MW&SQ, as identified through the analysis of physical processes, Chapter 6: Marine and Coastal Processes).

7.2.1.2 The far-field buffer has been delineated based on a ZoI, defined with reference to the maximum spring tidal excursion ellipse. This represents the potential distance over which suspended sediment plumes may disperse from the Project and interact with sensitive receptors. For the purposes of scoping, this includes a precautionary buffer of 5 km around the Moray FLOW-Park Area which also extends into Findhorn Bay to account for physical processes receptors across the whole estuary rather than just the section included in the 5 km buffer, as presented in Figure 7-1.

7.2.1.3 The extent of the ZoI may be further refined during the EIA process as more detailed assessments of sediment transport and tidal dynamics become available. The study area will continue to align with that defined in Chapter 6: Marine and Coastal Processes).



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Moray FLOW-Park
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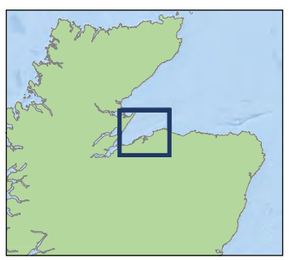
The Marine Water and Sediment Quality Study Area

Legend

- Moray FLOW-Park
- Geophysical Survey Area
- Zone of Influence (ZoI)

Depth (m)

- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10



Notes

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Figure 7-1

Figure Reference: MFP_MWSQ_Fig7-1_StudyArea_v3

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7.3 Data Sources to Inform the EIA Baseline Characterisation

7.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this MW&SQ Chapter are presented in Table 7-1. These data sources will be taken forward and used to inform the EIA, in addition to any site-specific data that will be collected for the Project (see Section 7.9.2 for more details).

Table 7-1: Key sources of Marine Water and Sediment Quality data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park Area
Existing Data Sources		
Cefas Suspended Sediment Climatologies (Cefas, 2016)	Satellite-derived annual averages of non-algal SPM in UK waters.	Full coverage of the Moray FLOW-Park.
UKCP Science Report UKCP18 Marine report (Palmer et al., 2018)	Sea level rise predictions for coastal locations.	N/A
BGS Offshore GeoIndex Map (BGS, 2025)	Seabed sediment maps (based on Folk classification) and borehole records from point locations. Data gaps exist in the coastal zone.	Full coverage of the Moray FLOW-Park.
Atlantic - European North West Shelf - Ocean Biogeochemistry Analysis and Forecast (Copernicus, 2024)	A coupled physical-biogeochemical model providing the main biogeochemical variables including dissolved oxygen and pH of the north-west shelf over the past two years.	Full coverage of the Moray FLOW-Park.
Bathing Water Profiles (SEPA, 2025)	SEPA monitors the water quality of designated Bathing Waters in Scotland, through an annual sampling programme (running from 15 May to 30 September). Bathing Water profiles are provided online, giving a detailed insight into the current status and pressures of individual Bathing Waters.	Partial coverage of the Moray FLOW-Park.
Water Classification Hub (SEPA, 2023)	SEPA provides an interactive mapping feature which presents the status of various quality elements for waterbodies in Scotland (e.g., surface waters and Protected Areas).	Partial coverage of the Moray FLOW-Park.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park Area
Ardersier -12.9m Dredge Best Practicable Environmental Option (BPEO) Report (CWC Group, 2018)	Assessment of sediment quality and contaminant levels across sampling stations at Ardersier Port to inform dredging and disposal options, including analysis of metals, Polyaromatic Hydrocarbons (PAHs), Tributyltin (TBT), and Polychlorinated Biphenyls (PCBs) against threshold levels.	N/A
Urban Waste Water Treatment Directive (UWWTD) Sensitive Areas (SEPA, 2024)	A map produced by SEPA presenting the Scottish waters sensitive to the effects of sewage discharge, as designated under the Urban Waste Water Treatment (Scotland) Regulations.	Partial coverage of the Moray FLOW-Park.
Contaminant and biological effect data 1999-2019 for the 2020 Clean Seas Environment Monitoring Programme (CSEMP) assessment. (Marine Scotland, 2020a)	The UK has a long-term environmental monitoring set, which details various measures of contamination in UK waters (e.g., sediment contaminants, biological effects data). This dataset provides records from as early as 1999 and was last updated following the 2020 assessment for the UK's CSEMP.	Partial coverage of the Moray FLOW-Park.
Shellfish Water Protected Areas: Maps (Scottish Government, 2019)	Maps showing all the SWPAS in Scotland.	N/A
Annual Mean Surface Temperature (°C) - Climatology of the North-West European Continental Shelf for 1971–2000 (Marine Scotland, 2017a)	This data is available on Scotland's National Marine Plan interactive (NMPi) map, denoting the sea surface (and near-bed) temperature of the Scottish Continental Shelf areas of the North Sea.	Full coverage of the Moray FLOW-Park.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park Area
Annual Mean Surface Salinity (‰) - Climatology of the North-West European Continental Shelf for 1971–2000 (Marine Scotland, 2017b)	This data is available on Scotland's NMPi map, denoting the sea surface (and near-bed) salinity of the Scottish Continental Shelf areas of the North Sea.	Full coverage of the Moray FLOW-Park.
Waste water treatment in the United Kingdom – 2012 (Department for Environment, Food and Rural Affairs (DEFRA), 2012)	This report provides an overview of the various sensitive waters in Scottish territorial and inshore limits. This data is caveated that maps produced reflected the spatial data reporting and submission guidelines, as opposed to legal designations.	Partial coverage of the Moray FLOW-Park.
Protection of Water Against Agricultural Nitrate Pollution (Scotland) Regulations 1996: implementation report 2020 to 2023 (Scottish Government, 2024)	This implementation report, published every four years, summarises the status of water quality and the impact of action programmes on water quality and agricultural practices, in accordance with the Protection of Water Against Agricultural Nitrate Pollution (Scotland) Regulations 1996.	Partial coverage of the Moray FLOW-Park.
Moray Firth Scottish Marine Region (Marine Scotland, 2021)	Regional assessment of the Moray Firth Scottish Marine Region, encompassing hazardous substances, marine litter, habitat diversity, key marine species, and potential climate change effects,	Full coverage of the Moray FLOW-Park.
OSPAR Quality Status Report (QSR)	Comprehensive regional assessment of sediment contamination, dissolved oxygen, and eutrophication in the North-East Atlantic.	Full coverage of the Moray FLOW-Park.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park Area
Further Data Collection to be Undertaken		
Site-Specific Geophysical Surveys	Characterise seabed morphology prior to benthic survey.	Full coverage of the Moray FLOW-Park.
Site-Specific Benthic Survey	Benthic subtidal sampling, including PSA and contaminant sample collection to assess sediment composition and quality.	Full coverage of the Moray FLOW-Park.

7.4 Description of Baseline Environment

7.4.1.1 An initial desk-based review of literature and available data sources (see Table 7-1) has been undertaken to support this Inshore Scoping Report. The findings of this research are presented below in order to provide an understanding of the Project environment and inform the Inshore Scoping process.

7.4.1.2 The key MW&SQ receptors which will inform this Inshore Scoping Report and the subsequent EIAR include:

- Water Quality:
  - Temperature and salinity; and
  - SPM.
- WFD Coastal Waterbodies and Protected Areas:
  - Coastal and transitional waterbodies;
  - Bathing waters;
  - SWPAs;
  - UWWTD Sensitive Areas; and
  - Nitrate Vulnerable Zones (NVZs).
- Sediment Quality:
  - Surficial sediment characterisation; and
  - Sediment contamination.
- Blue Carbon Storage.

Water Quality

Temperature and Salinity

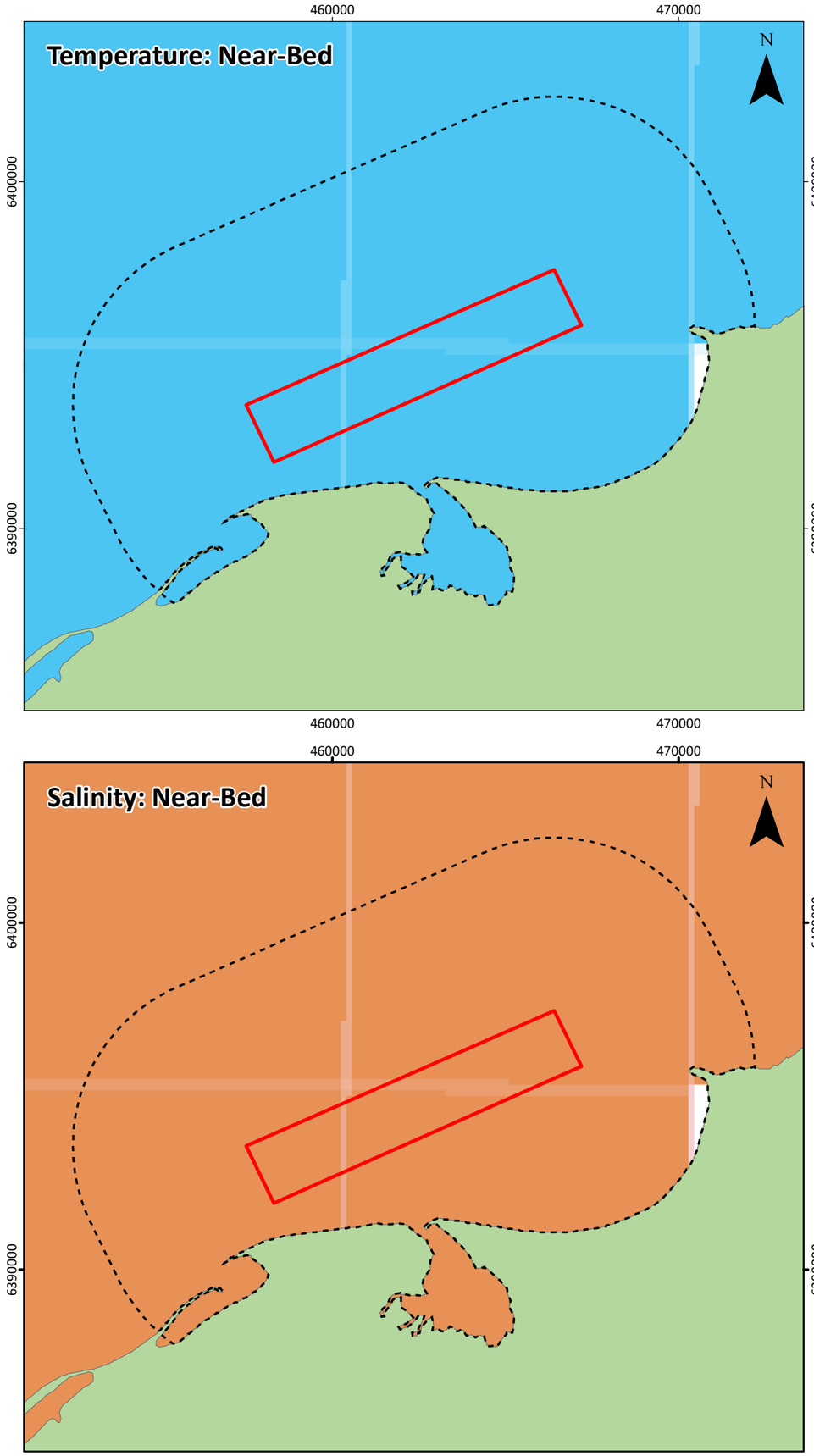
7.4.1.3 Annual mean surface temperature (°C) and salinity (‰) within selected grid cells (9518, 9519, 9368, 9369) with central points within or near the Project boundary have been collated from climatology data presented via Scotland's NMPi (see Figure 7-2; Marine Scotland, 2025). From the original data, which are irregularly distributed in space and time, the mean monthly surface temperature and salinity are calculated, as well as the climatic mean annual cycle.

7.4.1.4 In the study area, the mean annual surface temperature is 9.55 °C, closely aligned with the near-bed mean of 9.10 °C (Table 7-2). Both surface and near-bed temperatures follow a clear seasonal cycle with minima in March (5.50 °C surface; 5.72 °C near-bed) and maxima in August-September (13.38 °C surface; 12.72 °C near-bed). Vertical differences were generally small (< 2 °C), increasing slightly during late spring and summer (for example, 2.31 °C in June), indicating weak seasonal stratification that diminishes through autumn and winter as the water column becomes well mixed.

7.4.1.5 Salinity was consistently marine, with annual means of 34.42 ‰ at the surface and 34.64 ‰ near-bed (Table 7-2). Seasonal variability was limited where surface salinity ranged from 34.07 ‰ in February to 34.62 ‰ in August, while near-bed values varied between 34.44 ‰ in February and 34.81 ‰ in December. Vertical differences were minor (< 0.6 ‰) throughout the year, confirming a stable, well-mixed regime.

Table 7-2: Monthly Mean Sea Surface and Near-bed Temperature and Salinity across the Study Area Based on Climatology Data Between 1971 and 2000 where Green cells indicate the lowest and highest monthly values.

Time Period	Temperature (°C)		Salinity (‰)	
	Surface Mean (Min, Max)	Near-bed Mean (Min, Max)	Surface Mean (Min, Max)	Near-bed Mean (Min, Max)
January	7.18 (7.17, 7.20)	7.31 (7.28, 7.34)	34.36 (34.33, 34.39)	34.47 (34.44, 34.50)
February	5.92 (5.87, 5.97)	6.12 (6.08, 6.15)	34.07 (34.00, 34.15)	34.44 (34.41, 34.47)
March	5.50 (5.48, 5.51)	5.72 (5.72, 5.73)	34.39 (34.36, 34.43)	34.63 (34.63, 34.64)
April	7.07 (7.05, 7.08)	6.77 (6.75, 6.80)	34.19 (34.14, 34.25)	34.64 (34.64, 34.65)
May	9.06 (8.98, 9.15)	7.59 (7.57, 7.61)	34.55 (34.54, 34.56)	34.65 (34.64, 34.66)
June	12.27 (12.11, 12.43)	9.96 (9.84, 10.08)	34.46 (34.42, 34.50)	34.65 (34.64, 34.66)
July	11.83 (11.79, 11.87)	10.58 (10.55, 10.60)	34.20 (34.13, 34.27)	34.80 (34.79, 34.80)
August	13.38 (13.32, 13.43)	12.41 (12.28, 12.54)	34.62 (34.61, 34.64)	34.59 (34.56, 34.62)
September	12.98 (12.92, 13.04)	12.72 (12.66, 12.78)	34.56 (34.53, 34.59)	34.70 (34.69, 34.72)
October	11.72 (11.71, 11.73)	11.78 (11.78, 11.78)	34.61 (34.58, 34.64)	34.74 (34.72, 34.75)
November	9.50 (9.47, 9.53)	9.48 (9.47, 9.49)	34.56 (34.55, 34.58)	34.55 (34.54, 34.57)
December	8.14 (8.12, 8.16)	8.76 (8.73, 8.78)	34.43 (34.38, 34.48)	34.81 (34.81, 34.82)
Annual	9.55	9.10	34.42	34.64



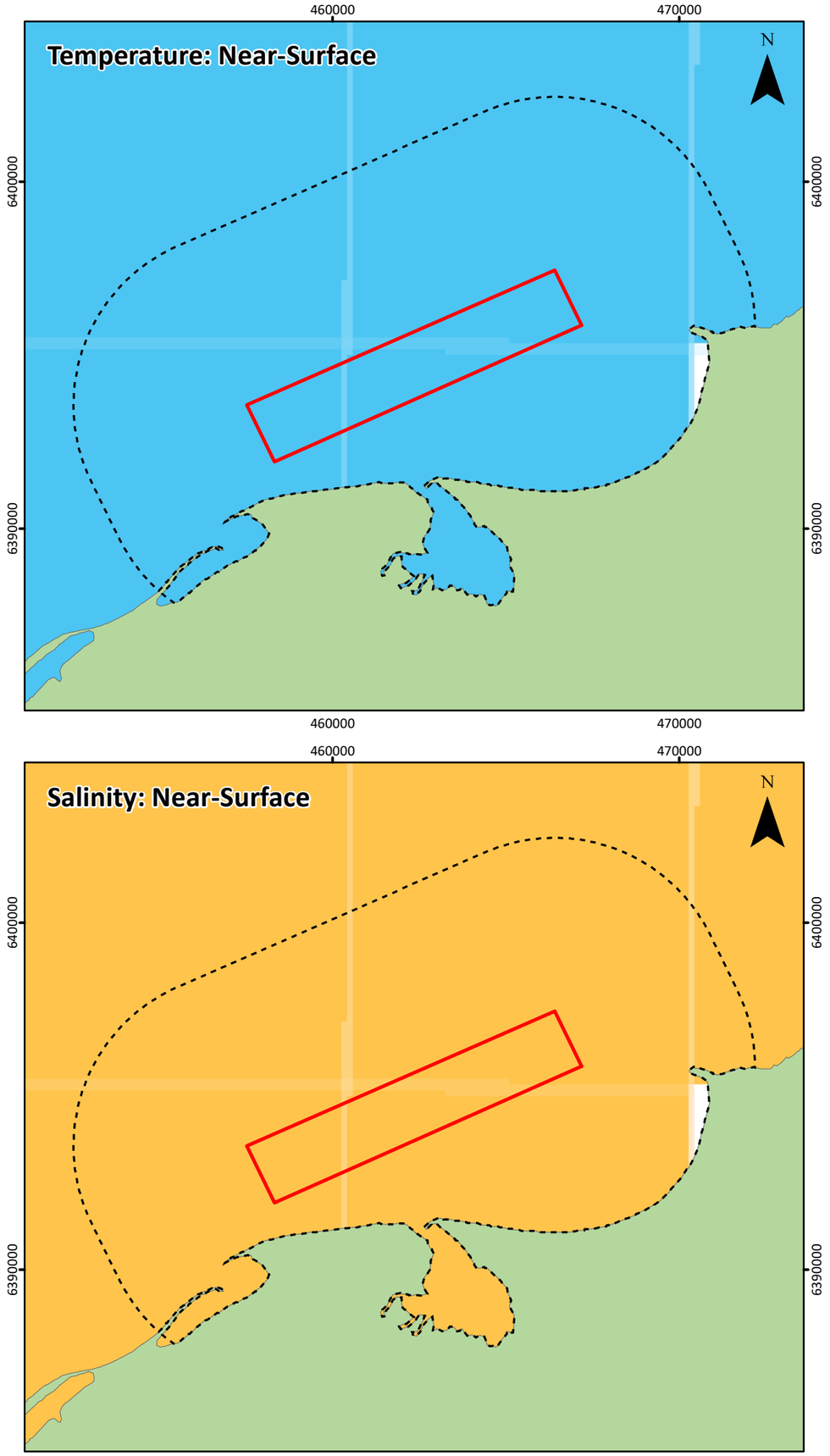


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Moray FLOW-Park
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Climatological Average of Near-Bed and Surface Temperature and Salinity within the Study Area

Legend

- Moray FLOW-Park
- Zone of Influence (ZoI)

Annual Mean Surface and Near-bed Temperature (°C) or Salinity (ppt) from the Climatology of the North-West European Continental Shelf for 1971–2000

- 8 °C
- 10 °C
- 12 °C
- 14 °C
- 32 ppt
- 33 ppt
- 34 ppt
- 35 ppt



Notes

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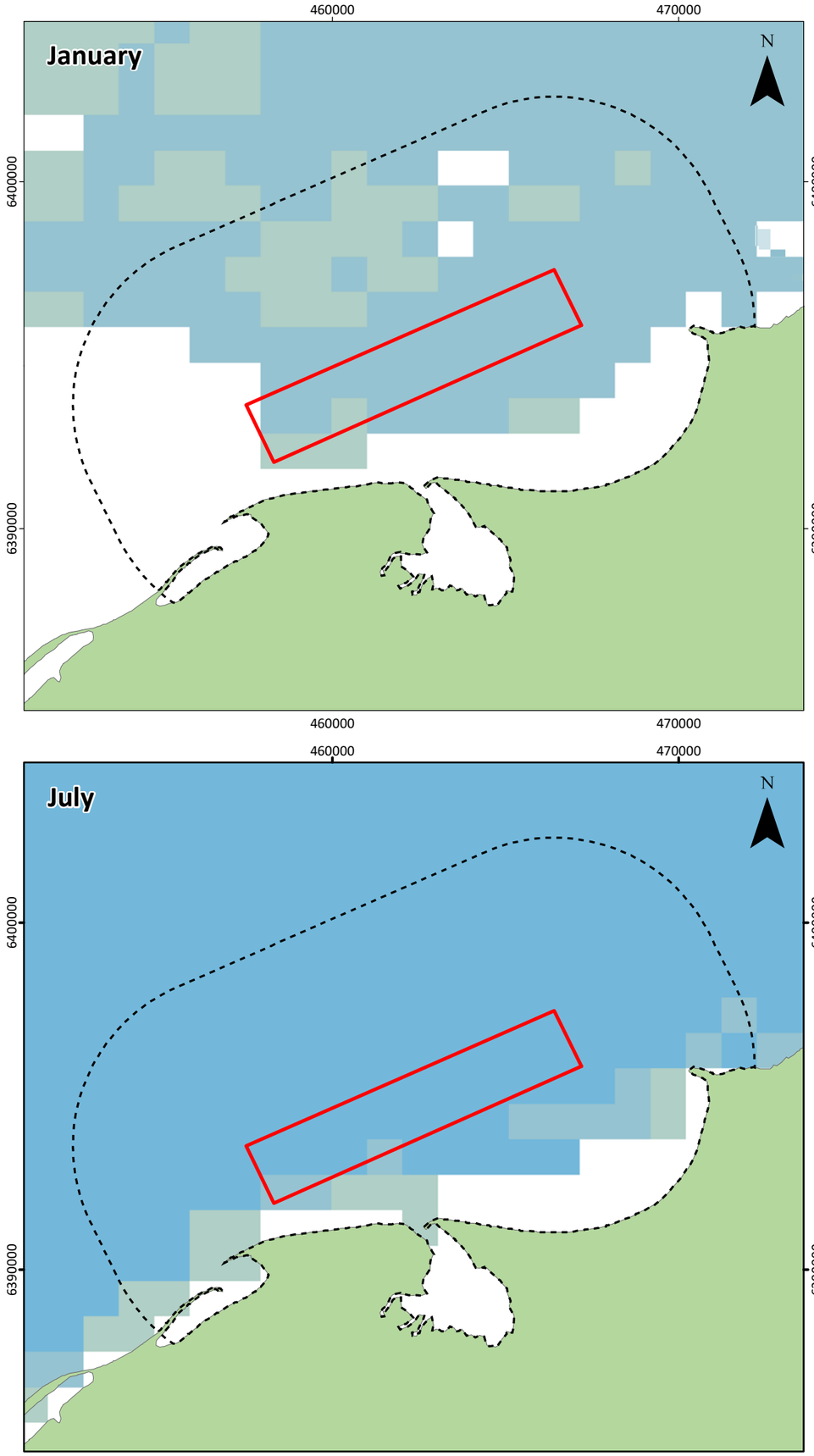
Figure 7-2

Suspended Particulate Matter

7.4.1.6 SPM provides an indication of turbidity and is highly variable according to the water depth and hydrodynamic processes (i.e. tide, current, and wave regimes). Within the study area, SPM levels vary seasonally, with average concentrations of 1.77 mg/l in January, 0.97 mg/l in April, 0.73 mg/l in July, and 0.68 mg/l in October (Cefas, 2016; see Figure 7-3). Although full Cefas (2016) SPM data are unavailable for the southern and southwestern coastal areas in winter (see Figure 7-3), elevated SPM is likely given the region's dynamic sediment transport.

7.4.1.7 Towards the shore, where water depths reduce, tidal flows increase and wave effects are more regularly experienced on the seabed, it is expected that higher SPM levels, particularly during the winter period, will occur in shallower areas.

7.4.1.8 During storm events, nearbed SSCs can be significantly increased in the short-term due to the influence of waves stirring the seabed resulting in sediment suspension. Coarser sediments may be transported a short distance in the direction of ambient flow or down-slope under gravity before being redeposited. Finer material that persists in suspension will eventually be transported in the direction of net tidal residual flow, Chapter 6: Marine and Coastal Processes.



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Moray FLOW-Park
Inshore Scoping Report

Average Suspended Particulate Matter within the Study Area

Legend

- Moray FLOW-Park
- Zone of Influence (ZoI)

SPM Concentrations (mg/l) (CEFAS, 1998-2015)

- 1 - 2
- 2 - 4



Notes

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Figure 7-3

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Water Framework Directive - Screening

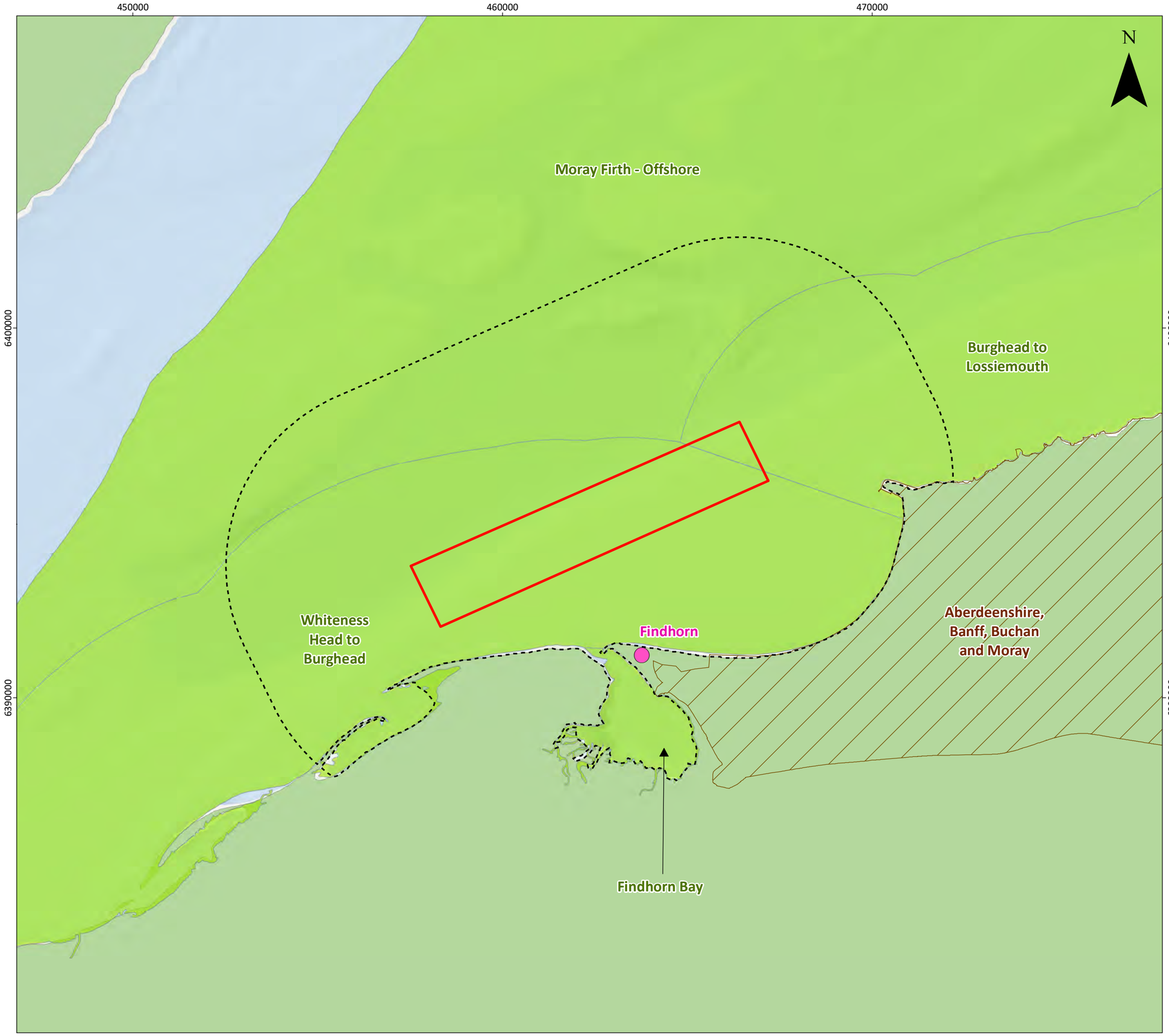
7.4.1.9 As specified in the WFD Legislation (see paragraph 7.4.1.13 *et seq*.), there is a requirement to characterise coastal waters, as part of River Basin Districts, within the area extending landward from three nautical miles up to the limit of the highest tide or, where appropriate, the seaward limits of any bodies of transitional water. This Chapter further characterises the study area based on the expected maximum distance that water from within the Project might be transported on a single mean spring tide, in either flood and/or ebb direction (see Section 7.2).

7.4.1.10 This exercise serves as an initial WFD screening assessment to understand the coastal and transitional waterbodies and Protected Areas surrounding the Project. A full WFD Compliance Assessment will be provided as a technical appendix to the MW&SQ Chapter of the EIA. This will ensure that the most up-to-date and comprehensive design parameters are considered in compliance with WFD Legislation. The assessment will follow the staged approach set out in Clearing the Waters for All (Environment Agency, 2016).

7.4.1.11 All sites designated in accordance with the WFD Legislation that fall within the study area (Figure 7-4) will be considered potential receptors in the EIA and include:

- Four coastal and no transitional waterbodies;
- One Bathing Water;
- No SWPAs;
- No UWWTD Sensitive Areas; and
- One NVZs.

7.4.1.12 There are no transitional waterbodies, SWPAs or UWWTD Sensitive Areas within the study area and are consequently not considered further in this Chapter.



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Moray FLOW-Park
Inshore Scoping Report

Water Framework Directive Waterbodies and Protected Areas in the Study Area

Legend

- Moray FLOW-Park
- Zone of Influence (ZoI)
- Nitrate Vulnerable Zones
- Bathing Water Locations (Excellent Status)

Coastal Waterbodies

- Good Status



Notes

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Figure 7-4

Figure Reference: MFP_MWSQ_Fig7-4_WFDWaterbodiesAndProtectedAreas_v3

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Coastal and Transitional Waterbodies

7.4.1.13 The WFD (2000/60/EC) established a framework for the management and protection of Europe's water resources. It is now implemented in Scotland through the Water Environment and Water Services (Scotland) Act 2003 and the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), more commonly known as the Controlled Activity Regulations (CAR).

7.4.1.14 The WFD divides interconnected waterbodies into discrete surface waterbodies for assessment (e.g., rivers, estuaries, and coastal waters). In Scotland, coastal waters are defined using the territorial waters limit of three nautical miles from the Mean High Water (MHW) mark due to the complex coastline and large number of islands.

7.4.1.15 Surface waters are assessed for ecological and chemical status, with the aim of achieving 'Good' overall status, requiring both 'Good Ecological Status' (GES) and 'Good Chemical Status' (GCS). Chemical status is classed as 'Pass' or 'Fail', ecological status as 'High', 'Good', 'Moderate', or 'Bad'. To support achieving this GES and GCS target, there is a general 'no deterioration' provision.

7.4.1.16 Each waterbody is also assigned a hydromorphological designation reflecting its deviation from natural conditions: Undesignated (unaltered), Heavily Modified Waterbody (HMWB; substantially altered by human activity), or Artificial Waterbody (AWB; created by human activity). The default objective assigned to HMWBs and AWBs under the WFD is to attain 'Good Ecological Potential', which ensures the ecology of the waterbody is protected while also taking into consideration the role of the waterbodies to human use.

7.4.1.17 Ecological status of surface waterbodies is assessed through multiple quality elements, including physico-chemical (e.g., dissolved oxygen and dissolved inorganic nitrogen), biological (e.g., invertebrates and phytoplankton), hydromorphological (e.g., hydrological regime), and specific pollutants.

7.4.1.18 Chemical status is assessed against Environmental Quality Standards (EQS), which specify ‘priority’ and ‘priority hazardous’ substances for monitoring. The list of substances and corresponding EQS were originally established under the Priority Substances Directive (2008/105/EC) and updated by Directive 2013/39/EU. In Scotland, up-to-date standards are applied through the Scotland River Basin District (Standards) Directions 2024.

7.4.1.19 River Basin Management Plans (RBMPs) define Scotland's River Basin Districts and set objectives for improving the quality of surface and groundwater bodies. RBMPs are reviewed every six years to track changes in water quality (SEPA, 2021b). The current (third) cycle of the RBMP for Scottish Waters covers 2021 to 2027.

7.4.1.20 A summary of the latest classification status of the coastal waterbodies of relevance to the Project is presented in Table 7-3. There are four coastal waterbodies within the study area, as presented in Figure 7-4. The Moray FLOW-Park lies mainly within the Whiteness Haad to Burghead waterbody but extends slightly into the Burghead to Lossiemouth waterbody at its northeast corner.

Table 7-3: Summary of Latest Classification Status (2023) for WFD Coastal Waterbodies in the Study Area.

Parameter	Whiteness Head to Burghead	Burghead to Lossiemouth	Moray Firth – Inshore	Findhorn Bay
Waterbody ID	200502	200148	200171	200496
Waterbody Type	Coastal	Coastal	Coastal	Coastal
Waterbody surface area (km^2)	173.3	122.4	681.4	6.5
Overall Status	Good	Good	Good	Good
Pre-HMWB Status	Good	Good	Good	Good
Overall Chemistry	-	-	-	-
Priority Substances	-	-	-	-
Overall Ecology	Good	Good	Good	Good
Physico-chem	High	High	High	High
Dissolved Oxygen	High	High	High	High
Dissolved Inorganic Nitrogen	High	High	High	High
Biological Elements	Good	Good	Good	Good
Invertebrate Animals	Good	Good	Good	Good
Benthic Invertebrates IQI	Good	Good	Good	Good
Macroalgae	-	High	-	-
Phytoplankton	High	High	High	High
Specific Pollutants	-	-	Pass	Pass
Unionised Ammonia	Pass	Pass	Pass	Pass
Hydromorphology	High	High	High	High
Morphology	High	High	High	High
Water Quality	Good	Good	Good	Good
Distance to Moray FLOW-Park Area	0.00 km	0.00 km	0.14 km	2.12 km

A Dash (-) Indicates where SEPA have not Reported this Information

Bathing Waters

7.4.1.21 The revised Bathing Water Directive (rBWD; 2006/7/EC) came into force in March 2006. The rBWD has been implemented in Scotland via the Bathing Waters (Scotland) Regulations 2008 (as amended). The rBWD provides more stringent standards than the previous (original) Bathing Water Directive (BWD; 76/160/EEC) and places an emphasis on providing information to the public.

7.4.1.22 Bathing Waters under the rBWD are classified according to the levels of certain types of bacteria (intestinal enterococci and *Escherichia coli*) in samples obtained during the bathing season (May to September). Monitoring of Bathing Water quality has been reported against rBWD indicators since 2015. Bathing Waters are classified based on microbiological samples collected over the previous four years, with four performance categories:

- Excellent - the highest, cleanest class;
- Good - generally good water quality;
- Sufficient - water quality meets minimum required standards; and
- Poor - water quality does not meet the minimum required standards.

7.4.1.23 One Bathing Water is located within the study area, as shown in Table 7-3 and Figure 7-4. This Bathing Water is not within the Moray FLOW-Park Area but is instead situated in the far-field ZoI, with further detail provided in Table 7-4.

Table 7-4: Summary of Latest Classifications of Bathing Waters in the Study Area (2021 – 2024).

Designated Site	**Distance to Moray FLOW-Park (km)**	**Classification per Year**			
		2024	*2023*	*2022*	*2021*
Findhorn (ID: UKS7616070)	2.94	Excellent	Excellent	Excellent	Excellent

Nitrate Vulnerable Zones

7.4.1.24 NVZs are designated under the Nitrates Directive (91/676/EEC). In Scotland, NVZs are implemented through the Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2008, as amended. There is one NVZ that slightly overlaps the coastline adjacent to the study area (see Figure 7-4):

- Moray, Aberdeenshire, Banff and Buchan NVZ.

7.4.1.25 This NVZ is located approximately 2.99 km from Moray FLOW-Park. It is not considered that the Project involves activities associated with risk of nitrate inputs from activities and therefore is not considered further in this Chapter or taken forward to the EIAR.

Sediment Quality

Surficial sediment characterisation

7.4.1.26 The study area comprises of a mix of mostly sand, muddy sand and sandy mud according to Folk classification (see Figure 7-5). EMODnet (2025) data indicate that the Moray FLOW-Park Area is predominantly sandy with a small patch of muddy sand in the northwest. Sediment composition will be further assessed using sediment grab samples during the EIA stage for PSA. Sediment characterisation, including PSA and Total Organic Carbon (TOC) content, is a key consideration for understanding the behaviour and fate of sediment-bound contaminants.

Sediment Contamination – Guidelines

7.4.1.27 Unlike water quality, there are no formal quantitative EQS for sediments. Therefore, in the absence of any quantified UK standards, common practice for characterising baseline sediment quality conditions is to compare against Action Levels (AL) for the disposal of dredged material as defined by Scottish Government (2017).

7.4.1.28 The ALs should not be viewed as pass/fail threshold, instead providing an appropriate context for consideration of contaminant levels in sediments for dredging/disposal works and other activities which disturb the seabed. These ALs are used as part of a 'weight of evidence' approach to assessing material suitability for disposal at sea. In general, contaminant levels below AL1 are unlikely to influence the licensing decision. However, material with contaminant levels above AL2 is generally considered unsuitable for disposal at sea (Listed in Table 7-5).

7.4.1.29 To supplement this, sediment concentrations of individual PAHs may also be compared against the Canadian Marine Sediment Quality Guidelines (Canadian Council of Ministers of the Environment (CCME), 1999). These guidelines use two biological effect thresholds: the Threshold Effect Level (TEL[8]) and the Probable Effect Level (PEL):

- Below the TEL - the minimal effect range within which adverse effects rarely occur;
- Between the TEL and PEL - the possible effect range within which adverse effects occasionally occur; and
- Above the PEL - the probable effect range within which adverse effects frequently occur.

[8] For clarity, the TEL is occasionally substituted by the term 'Interim Sediment Quality Guideline (ISQG)' in instances where there is insufficient toxicological or empirical data to reliably model biological effects. In this document, the lower threshold is referred to as the TEL.

7.4.1.30 Although these Canadian thresholds are not used for regulatory decision-making in the UK, they provide valuable biological context (Listed in Table 7-6).

Sediment Contamination – Regional Overview

7.4.1.31 Publicly available data from the UK's CSEMP provide valuable regional context on marine sediment contamination and background contaminant levels. Two CSEMP monitoring station were in close proximity to the study area:

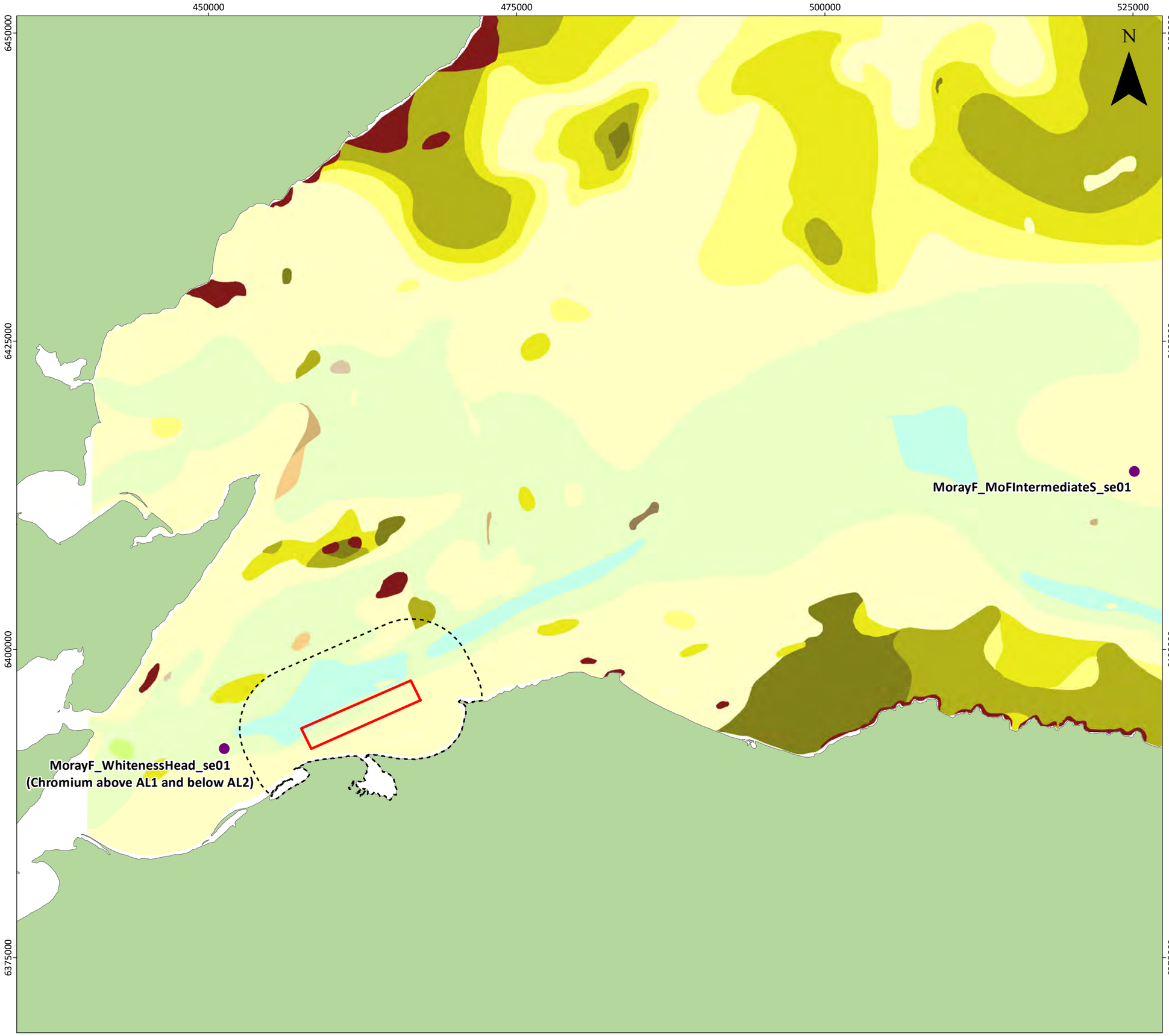
- MorayF_WhitenessHead_se01 - approximately 6.5 km from the Moray FLOW-Park Area; and
- MorayF_MoFIntermediateS_se01 – approximately 60.9 km from the Moray FLOW-Park Area.

7.4.1.32 These stations fall within the Moray Firth CSEMP reporting region, part of the Northern North Sea biogeographic area. The location of these monitoring stations is shown in Figure 7-5. These stations contribute to the wider CSEMP assessment framework, which supports understanding of contaminant status and trends across UK waters. Time-series data from coastal and offshore stations are synthesised to evaluate environmental conditions at both local and biogeographic regional scales.

7.4.1.33 Data from the identified stations have been included in this baseline analysis to provide indicative average ranges (minimum, maximum, and mean values) of contaminant concentrations in sediments to provide a regional overview. Values are expressed as $\bar{x}$ = mean (min, max), n = sample count.

7.4.1.34 A summary of average contaminant concentrations is presented in Table 7-5 for metals and Table 7-6 for PAHs, alongside sediment contamination guideline values. All average metal concentrations were below AL1 and AL2 thresholds, with the exception of chromium, which marginally exceeded AL1 but remained well below AL2. No average individual PAH concentrations exceeded TEL or PEL guideline values.

7.4.1.35 Similarly, a sediment quality assessment undertaken for the Ardersier Port redevelopment CWC Group, 2018a; 2018b), identified low contamination levels across all sampling stations. Metal concentrations, TBT, and PCBs were all below AL1, except for a single exceedance of Zinc, which remained below AL2. Only two of the 83 samples recorded individual PAH concentrations above AL1. The BPEO assessment concluded that the recorded contaminant levels were not expected to cause significant adverse effects on surrounding water quality during dredging operations, given the generally low contamination of the sediments. Overall, the data indicate that sediment contamination levels are low across the study area and wider region.



OFFSHORE SOLUTIONS GROUP | working on behalf of Flow Park Investment Ltd

Moray FLOW-Park
Inshore Scoping Report

Existing Surficial Sediment Characterisation in the Study Area and Location of Nearby CSEMP Monitoring Stations

Legend

- Moray FLOW-Park
- Zone of Influence (ZoI)
- CSEMP Monitoring Stations

Seabed Sediments (Folk, 1954) from EMODnet

- 1.2.1 sandy Mud
- 1.3.1 muddy Sand
- 1.3.2 (gravelly) muddy Sand
- 2.1.1 Sand
- 2.1.2 (gravelly) Sand
- 3.1.1 gravelly Sand
- 3.2.1 sandy Gravel
- 3.3.1 Gravel
- 4.1.1 gravelly Mud
- 4.2.1 muddy Gravel
- 4.3.1 gravelly muddy Sand
- 4.4.1 muddy sandy Gravel
- 5. Rock and Boulders



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 10 20 km

0 5 10 nm

Scale	Date	Drawn by	Checked by	Approved by
1:300,000 @A3	02/02/2026	EV	BPHB	CC

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Figure 7-5

Figure Reference: MFP_MWSQ_Fig7-5_SurficialSedimentsAndCSEMPMonitoringStations_v3

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Table 7-5: Summary of Metal Concentrations in Sediments Analysed from Monitoring Stations in the Moray Firth as part of the CSEMP Assessment (1999 - 2019) with AL1 and AL2 Threshold Values Included for Comparison. Green highlight indicates average concentration above AL1.

Metal	Unit	AL1	AL2	MorayF_WhitenessHead_se01	MorayF_MoFIntermediateS_se01
Arsenic	mg/kg	20	70	$\bar{x}$ = 7.63 (3.02, 10.30), n = 44	$\bar{x}$ = 4.02 (0.40, 7.64), n = 110
Cadmium	mg/kg	0.4	4	$\bar{x}$ = 0.18 (0.07, 1.46), n = 44	$\bar{x}$ = 0.10 (0.03, 0.24), n = 110
Chromium	mg/kg	50	370	$\bar{x}$ = 50.51 (25.10, 69.80), n = 44	$\bar{x}$ = 31.03 (9.60, 53.90), n = 110
Copper	mg/kg	30	300	$\bar{x}$ = 9.41 (6.85, 12.40), n = 44	$\bar{x}$ = 5.83 (1.35, 56.40), n = 110
Mercury	mg/kg	0.25	1.5	$\bar{x}$ = 0.09 (0.05, 0.29), n = 43	$\bar{x}$ = 0.02 (0.01, 0.03), n = 100
Nickel	mg/kg	30	150	$\bar{x}$ = 17.61 (13.40, 22.30), n = 44	$\bar{x}$ = 9.79 (3.20, 18.80), n = 110
Lead	mg/kg	50	400	$\bar{x}$ = 27.33 (20.60, 38.30), n = 44	$\bar{x}$ = 11.91 (5.90, 32.20), n = 110
Zinc	mg/kg	130	600	$\bar{x}$ = 58.72 (49.40, 71.50), n = 44	$\bar{x}$ = 25.23 (9.97, 68.60), n = 110

Table 7-6: Summary of PAH Concentrations in Sediments Analysed from Monitoring Stations in the Moray Firth as part of the CSEMP Assessment (1999 - 2019) with TEL and PEL Threshold Values Included for Comparison.

Individual PAH	Unit	TEL	PEL	MorayF_WhitenessHead_se01	MorayF_MoFIntermediateS_se01
Acenaphthene	ug/kg	6.71	88.9	$\bar{x}$ = 1.07 (0.14, 2.70), n = 38	$\bar{x}$ = 0.13 (0.04, 0.35), n = 100
Acenaphthylene	ug/kg	5.87	128	$\bar{x}$ = 0.25 (0.08, 0.80), n = 38	$\bar{x}$ = 0.09 (0.04, 0.40), n = 100
Anthracene	ug/kg	46.9	245	$\bar{x}$ = 3.44 (0.50, 8.20), n = 43	$\bar{x}$ = 0.39 (0.10, 1.54), n = 100
Benz(a)anthracene	ug/kg	74.8	693	$\bar{x}$ = 16.06 (2.70, 35.70), n = 43	$\bar{x}$ = 1.66 (0.16, 7.30), n = 100
Benzo(a)pyrene	ug/kg	88.8	763	$\bar{x}$ = 22.97 (4.00, 53.60), n = 43	$\bar{x}$ = 2.81 (0.37, 10.70), n = 100
Chrysene	ug/kg	108	846	$\bar{x}$ = 18.60 (3.40, 42.10), n = 43	$\bar{x}$ = 2.52 (0.36, 10.00), n = 100
Dibenz(a,h)anthracene	ug/kg	6.22	135	$\bar{x}$ = 4.15 (0.40, 11.00), n = 38	$\bar{x}$ = 0.97 (0.13, 3.69), n = 100
Fluorene	ug/kg	21.2	144	$\bar{x}$ = 1.37 (0.14, 4.80), n = 38	$\bar{x}$ = 0.30 (0.06, 1.16), n = 100
Fluoranthene	ug/kg	113	1494	$\bar{x}$ = 39.97 (6.40, 88.70), n = 43	$\bar{x}$ = 3.69 (0.43, 14.40), n = 100
Naphthalene	ug/kg	34.6	391	$\bar{x}$ = 3.22 (0.40, 7.90), n = 43	$\bar{x}$ = 0.58 (0.10, 2.33), n = 100
Phenanthrene	ug/kg	86.7	544	$\bar{x}$ = 16.57 (2.20, 36.00), n = 43	$\bar{x}$ = 2.08 (0.31, 9.21), n = 100
Pyrene	ug/kg	153	1398	$\bar{x}$ = 32.14 (5.50, 72.10), n = 43	$\bar{x}$ = 2.93 (0.44, 10.30), n = 100

Blue Carbon Storage in Sediment

7.4.1.36 Blue carbon is the term given to carbon sequestered by ocean and coastal ecosystems via biological metabolic processes which is subsequently buried in marine sediments. In Scotland, particular habitats and species contribute to blue carbon stores, including:

- Nearshore habitats including kelp and seagrass beds;
- Calcifying aggregations including maerl and native oysters; and
- Seabed sediments.

7.4.1.37 According to Smeaton et al. (2021), the Scottish sector of the UK EEZ hold the majority of the carbon stock estimated at 356.5 (± 72.2) Mt Organic Carbon (OC) and 2,264.8 (± 156.3) Mt Inorganic Carbon (IC) totalling 2,622 Mt C is held within the top 10 cm of seabed sediments (Smeaton et al., 202173).

7.4.1.38 Carbon burial rates vary by sediment type and location (Cunningham & Hunt, 2023). The Moray FLOW-Park Area is dominated by sandy, hydrodynamically active sediments, which typically have low OC due to limited organic matter accumulation and high resuspension, resulting in poor long-term carbon retention. In contrast, OC-rich muds in sheltered areas such as sea lochs generally store carbon more effectively (Luisetti et al., 2019).

7.4.1.39 The SNH Commissioned Report 761: Assessment of carbon budgets and potential blue carbon stores in Scotland's coastal and marine environment (Burrows et al., 2014) maps the predicted and observed extent of various blue carbon stores. In the Moray FLOW-Park Area it shows:

- Predicted kelp habitat cover and mapped records of *Zostera noltii* (seagrass) with regard to carbon budgets and blue carbon storage (as displayed on Scotland's NMPi), are present in the wider Moray Firth region but not anticipated in large volumes in the Moray FLOW-Park Area. Therefore, Project activities are not anticipated to interfere with these key blue carbon habitats or their associated carbon budgets; and
- The top 10 cm of superficial sediments across the Moray FLOW-Park Area is mapped with < 10 % carbonate content, indicating low IC storage potential. While small pockets within the broader study area show predicted carbonate levels of 11 to 20 %, these are limited in extent and still considered minimal in terms of overall blue carbon contribution.

7.4.1.40 Given the sandy sediment composition, dynamic nearshore environment, and the low predicted presence of key blue carbon habitats as supported by SNH Commissioned Report 761, blue carbon storage is not considered a primary environmental factor for the Project. Therefore, the limited sediment disturbance caused by the Project is not anticipated to result in a measurable release of carbon into the marine environment, as the substrate holds minimal long-term blue carbon stores.

7.4.2 Future Baseline

7.4.2.1 The baseline environmental conditions relevant to MW&SQ in the Moray Firth are dynamic and expected to evolve over time, irrespective of whether the Project takes place. Natural processes, ongoing anthropogenic influences, and climate-driven changes will drive variations in water quality, sediment characteristics and contaminant distributions in the study area.

7.4.2.2 Over decadal timescales, SPM, water clarity, and sediment transport are expected to shift under natural and climate-driven processes. The Moray Firth is a semi-enclosed estuary system with significant freshwater input from major rivers like the Spey, Lossie, Findhorn, and Ness. Changes in precipitation, river discharge, tidal dynamics, and local weather conditions will influence turbidity, sediment deposition, and resuspension, which in turn affect the distribution and fate of contaminants.

7.4.2.3 Contaminant concentrations in sediments and biota in the Northern North Sea biogeographic region, which includes the Moray Firth Scottish Marine Region, have generally shown declining or stable trends (OSPAR, 2017). This is attributed to reduced industrial emissions and improved regulatory controls. However, some metal inputs were high historically, and one assessment showed an increasing trend for mercury. Overall, contaminant levels are generally above background but below concentrations that would cause adverse effects. Levels of marine litter and microplastics are considered relatively low but are present, with beach litter showing decreasing trends for most categories, except those associated with fishing and shipping (Marine Scotland, 2021).

7.4.2.4 Climate change is projected to influence water quality and environmental conditions in the Moray Firth, with broad impacts on the marine environment. Sea surface temperatures in the Moray Firth region showed an average increase of +0.23°C per decade between 1988 and 2017. Ocean acidification, a key long-term trend for UK seas, is also gradually reducing the pH of the North Sea, which can affect calcifying organisms like shellfish. Projections for sea level rise suggest a 0.5 to 0.6 m increase by 2100 under the UK Climate Projections 2018 (UKCP18), while site-specific modelling under a high emissions scenario suggests a potential 0.82 m rise by 2100.

7.4.2.5 These climatological and oceanographic shifts may alter the chemical behaviour of contaminants. For instance, increasing temperatures can affect the transport, fate, and bioavailability of chemicals, influencing processes like adsorption, desorption, and bioaccumulation in marine organisms. While no material change to MW&SQ is expected by the time construction commences, broader environmental trends will be considered in future planning.

7.5 Embedded Mitigation

7.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 7-7 and in the Mitigation Register (Appendix A: Embedded Commitments Register) and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 7-7: The Proposed Mitigation Measures Relevant to Marine Water and Sediment Quality Receptors.

Reference no	Embedded Mitigation/Commitment
C2	Development of and adherence to a Construction Method Statement (CMS) setting out construction procedures and good working practices, roles and responsibilities and construction related mitigation to be delivered.
C7	Development of and adherence to an Environmental Management Plan (EMP). This will ensure that all construction and operation activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the Application, or as otherwise agreed, are fully implemented.
C8	Development of and adherence to a Vessel Management Plan (VMP) to mitigate the impact of vessels.
C14	Development of and adherence to an Invasive Non-Native Species (INNS) Mitigation Plan.

Reference no	Embedded Mitigation/Commitment
C23	Development of and adherence to a Project Environmental Monitoring Programme (PEMP) to ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.
C27	Development of and adherence to a Marine Pollution Contingency Plan (MPCP) to identify potential pollution sources and response / reporting procedures.
C29	All debris or waste materials arising during construction, operation and maintenance will be removed for disposal at an approved location above the tidal level of Mean High Water Spring tide.
C32	Return of the seabed to its original profile, or as close as reasonably practicable following completion of construction works.
C33	Provision of scour protection where there is potential for scour to develop around infrastructure (foundations, moorings).
C43	Development of and adherence to an Operation and Maintenance Programme (OMP) to safeguard environmental interests during operation and maintenance.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.
C47	All reasonable, appropriate and practicable steps will be taken at the end of the operational life of the Moray FLOW-Park to restore the site of the works to its original pre-construction condition, or to as close to its original condition as is reasonably practicable.

7.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

7.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon MW&SQ receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

7.6 Scoping of Impacts

7.6.1.1 An initial assessment of the likelihood of effects on MW&SQ receptors due to Project activities for the Scoping stage of the EIA process is presented in Table 6-4. This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Section 7.5, together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for MW&SQ effects associated with Project activities; relevant policy; and the professional judgement of qualified MW&SQ specialists.

7.6.1.2 Of note is that MW&SQ also provides an impact pathway for other marine receptors, so information relating to MW&SQ pathways will be used to inform other EIA topic assessments, as stated in paragraph 7.1.1.3.

Table 7-8: Scoping assessment for Marine Water and Sediment Quality.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction and Decommissioning			
Deterioration of water quality due to suspension of sediments	C2, C7, C23, C32, C46, C47	Scoped In	Construction and decommissioning activities, such as anchor installation or removal, may disturb consolidated sediments leading to resuspension and increased turbidity. This may temporarily reduce water clarity and light penetration, which can influence bacterial mortality rates and affect sensitive receptors, including designated Bathing Waters.
Release of sediment bound contaminants from disturbed sediments	C2, C7, C23, C32, C46, C47	Scoped Out	Construction and decommissioning activities, such as anchor installation or removal, may disturb seabed sediments, resulting in temporary resuspension and potential release of sediment-bound contaminants into the water column. The seabed sediments within the Moray FLOW-Park is composed predominantly of sandy material, which has a low capacity for contaminant accumulation and storage compared to finer-grained or more organic-rich sediments. Consequently, it is not anticipated that sediment-bound contaminants are present in significant concentrations. Furthermore, available baseline data presented in paragraphs 7.4.1.31 to 7.4.1.35 indicate that

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			contaminant concentrations in sediments across the study area are low and are unlikely to occur in volumes capable of adversely affecting water quality or resulting in exceedance of Maximum Allowable Concentration (MAC-EQS) or Annual Average (AA-EQS) thresholds for water quality within relevant waterbodies. Accordingly, potential effects associated with the release of sediment bound contaminants are considered small and it is proposed for this impact to be scoped out of the subsequent EIA. Site-specific sediment contamination sampling will nevertheless be undertaken, and the results will be considered in the WFD Compliance Assessment to confirm that potential effects on relevant receptors (e.g. benthic ecology, water quality) remain insignificant and that the Project will not result in deterioration of waterbody status.
Accidental spill or release of materials or chemicals	C2, C7, C8, C23, C27, C29, C46, C47	Scoped Out	There are no planned chemical discharges (either continuous or intermittent) for the Project which may be toxic to the receiving environment. There will be no ballasting or de-ballasting operations at the Moray FLOW-Park Area, therefore the risk of introducing water or pollutants through these activities is negligible.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			Any impacts associated with accidental release of construction or decommissioning materials or chemicals are anticipated to be short-lived and localised, as hydrocarbons would be rapidly dispersed or diluted. All vessels associated with the Project will be required to comply with strict environmental protocol set out in the PEMP, VMP and MPCP, which will minimise the initial risks and detail response procedures for dealing with spills and accidental releases (all relevant commitments are presented in Appendix A: Embedded Mitigation and Commitments Register). Due to the implementation of such controls, and the low quantities of hydrocarbons and chemicals, it is proposed for this impact to be Scoped Out of the subsequent EIA.
Potential disturbance of blue carbon stores	C2, C7, C23, C32, C46, C47	Scoped out	Given the sandy sediment composition, dynamic nearshore environment, and the absence or very limited presence of key blue carbon habitats in the Moray FLOW-Park Area (as mapped in SNH Commissioned Report 761; see paragraph 7.4.1.36 *et seq.*), blue carbon storage is not considered a significant environmental factor for the site. The Project footprint (18 km^2 for the FLOW-Park area) is small relative to the wider Moray Firth, and baseline mapping indicates minimal organic and inorganic carbon stores.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			Sandy, hydrodynamically active sediments are known to have poor long-term carbon retention, and no carbon hotspots have been identified within the Project area. Therefore, any sediment disturbance from construction, operation, maintenance, or decommissioning is unlikely to result in a measurable release of carbon, and this impact is proposed to be scoped out of the subsequent EIA.
O&M			
Deterioration of water quality due to suspension of sediments	C7, C23, C32, C33, C43	Scoped In	Some O&M activities, such as the connection and disconnection of FLOW foundations to moorings or the inspection and maintenance of seabed infrastructure, have the potential to disturb consolidated sediments in a highly localised manner but may occur repeatedly over the operational period. This resuspension may lead to temporary reductions in water clarity and light penetration, which can influence bacterial mortality rates and affect sensitive receptors, including designated Bathing Waters.
Release of sediment bound contaminants from disturbed sediments	C7, C23, C32, C33, C43	Scoped Out	Some project infrastructure O&M activities (e.g. connection or disconnection of FLOW foundations and inspection of subsea infrastructure) could locally disturb consolidated sediments, leading to a temporary and highly localised release of sediment-bound contaminants.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			However, given the small scale of seabed disturbance during O&M on the project infrastructure and the low contaminant concentrations recorded in the baseline sediment data (paragraphs 7.4.1.32 to 7.4.1.35), any release is expected to be negligible and well below thresholds that could adversely affect water quality or exceed MAC-EQS or AA-EQS thresholds within relevant waterbodies. Given the scale of seabed disturbance and the limited potential for contaminant mobilisation or bioavailability, deterioration of water quality is not anticipated. Accordingly, and consistent with the construction and decommissioning phases, this effect is proposed to be scoped out of the subsequent EIA.
Accidental spill or release of materials or chemicals	C7, C8, C23, C27, C29, C43	Scoped Out	See justification for 'Accidental spill or release of materials or chemicals' under construction and decommissioning. There will be no fuel or contaminants stored or contained within the Floating Foundations.
Potential disturbance of blue carbon stores	C7, C23, C32, C33, C43	Scoped Out	See justification for 'Potential disturbance of blue carbon stores' under construction and decommissioning.
Deterioration in water quality due to re-suspension and	C32, C33	Scoped Out	The Project infrastructure has the potential to cause localised seabed scouring, resulting in

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
redistribution of sediments from scour			bathymetric changes and localised alterations to sediment transport patterns. This is likely to occur around foundation anchors and clump weights that may be part of the mooring system. Given that the volume of suspended sediment released during operation via scour would be much lower than during construction or repair works, it is proposed that this impact will be scoped out from further consideration within the EIA. Furthermore, the effect will be highly localised and associated volumes of mobilised sediment (and associated contaminants) are considered to be within the range of natural variability.

7.7 Potential Cumulative Effects

7.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment. For MW&SQ, cumulative interactions may occur with projects or activities that are known to disturb or suspend sediment (e.g. disposal sites).

7.7.1.2 The MW&SQ study area is consistent with that presented in Chapter 6: Marine and Coastal Processes. This may be refined further during the EIA process, based on the outcomes of analysis of tidal excursions and sediment transport pathways, to present a further defined ZoI in the subsequent EIA. This ZoI approach will refine the CEA to be undertaken.

7.7.1.3 Impacts that are scoped into the assessment for the Project alone are generally spatially restricted to being within close proximity to the site of activity. However, some potential impacts - such as increase in SSC - have potential to be observed over a wider area. This wider reach can lead to interactions with other developments, resulting in cumulative effects. For MW&SQ, these cumulative interactions may include, but are not limited to, the following:

- Burghead Dredge Spoil Disposal Site;
- Burghead Longsea Outfall;
- Whiteness Sands B Spoil Disposal Site; or
- Whiteness Sands C Spoil Disposal Site.

7.7.1.4 There is potential for cumulative effects during the Project construction, project infrastructure O&M and decommissioning. The potential for these cumulative interactions is dependent upon the further assessment and modelling to be undertaken. Further information on the planned/present developments in the vicinity of the Project is presented in Chapter 19: Infrastructure and Other Users of this Inshore Scoping Report.

7.7.1.5 The CEA for MW&SQ will consider the Maximum Design Scenario for each of the projects, plans and activities in line with the methodology outlined in Chapter 4: EIA Methodology.

7.8 Potential Transboundary Effects

7.8.1.1 No transboundary impacts on MW&SQ pathways are anticipated to occur as a result of the Project activities during construction, O&M or decommissioning. Any predicted impacts on these pathways will largely be localised to within the study area and will not give rise to effects on the marine environment beyond UK waters. Therefore, it is proposed to scope out transboundary impacts with regards to MW&SQ.

7.9 Proposed Approach to EIA

7.9.1 Guidance

7.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of MW&SQ receptors will also comply with the following guidance documents where they are specific to this topic:

- Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards (Phase I) (Parker et al., 2025a);
- Use of Chemicals in Offshore Wind Farm Construction and Operation (Blake et al., 2022);
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011, A Practical Guide (SEPA, 2021b);
- Supporting Guidance (WAT-SG-53) Environmental Quality Standards and Standards for Discharges to Surface Waters (SEPA, 2020);
- Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications (MS-LOT, 2018);
- Guidance for Pollution Prevention (GPP) Note 5 – Works and Maintenance in or near Water (Natural Resources Wales, Northern Ireland Environment Agency, SEPA; 2018);
- Pre-disposal Sampling Guidance, Version 2 (Scottish Government, 2017);
- EIA for Offshore Renewable Energy Projects (British Standards Institution, 2015);
- Guidelines for Data Acquisition to Support Marine Environmental Assessments of Offshore Renewable Energy Projects (Cefas, 2012);
- Coastal Process Modelling for Offshore Wind Farm Environmental Impact Assessment: Best Practice Guidance (COWRIE; Lambkin et al., 2009); and
- OSPAR Assessment of the Environmental Impact of Offshore Wind-Farms (OSPAR, 2008a).

7.9.1.2 In regard to the WFD Compliance Assessment, the "Clearing the Waters for All" process (Environment Agency, 2016) will be used to form the basis of the assessment, along with, where applicable, Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive (Planning Inspectorate, 2024). This guidance helps outline how the impact(s) of activities on coastal and transitional waterbodies should be assessed, set out in three stages.

7.9.1.3 The forthcoming Scottish OWF EIA guidance on physical processes (covering both fixed-bottom and floating foundations) is expected to provide updated methodologies for assessing hydrodynamic and sediment transport processes. These processes are integral to understanding potential effects on MW&SQ. The guidance will be adopted as required for the Project EIAR.

7.9.1.4 The ORE Catapult's Joint Industry Project on seabed mobility is expected to provide updated technical guidance on the assessment of sediment transport and seabed dynamics. This will be directly relevant to evaluating potential changes to sediment resuspension and associated impacts on MW&SQ. The guidance will be applied if available during the preparation of this EIA.

7.9.2 Additional Data Sources

7.9.2.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Inshore Scoping Report. Project-specific survey outputs will be used to enhance the understanding of the baseline conditions. These may include the following across the Moray FLOW-Park Area:

- Geophysical surveys: completed on 29 October 2025; and
- Benthic subtidal sampling: planned to commence in Q2 to Q3 2026, with a maximum duration of 4 days.

7.9.3 Assessment Methodology

7.9.3.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

7.9.3.2 Specific to MW&SQ, the study area for the baseline in the EIA will be displayed as currently outlined in Section 7.2, but will be further refined based upon detailed assessment and environmental analysis (as mentioned in Section 7.9.2). The scope of the MW&SQ assessment is to characterise and understand the physical, chemical and biological conditions present within the study area, and how these could be impacted by the Project construction, O&M and decommissioning activities.

7.9.3.3 The MW&SQ assessment will consider the magnitude of the impact (see Section 7.9.4) and the sensitivity of the identified receptors (see Section 7.9.5). This assessment will draw on numerical modelling (Chapter 6: Marine and Coastal Processes) and supporting evidence, including site-specific survey data. By combining the magnitude and sensitivity criteria, the overall significance of effects on MW&SQ receptors will be determined and compared against the natural variability of the marine environment (e.g. natural storm events).

7.9.3.4 Consultation will be undertaken at pivotal points throughout the EIA process to ensure that the approach, including the application of the evidence base, satisfies the requirements of both stakeholders and regulators.

7.9.4 Magnitude of Impact

7.9.4.1 The magnitude criteria for MW&SQ are provided in Table 7-9. In determining magnitude, each assessment will consider the spatial extent, duration, frequency, and reversibility of impact and these are outlined within the magnitude section of each assessment of impact (e.g., a duration of hours or days would be considered for most receptors to be of short-term duration, which is likely to result in a low magnitude of impact).

Table 7-9: Impact Magnitude Criteria for MW&SQ.

Magnitude Value	Description
Negligible	Although there may be some impact upon water quality, activities are predicted to occur over a short period. Any change to water quality will be quickly reversed once activity ceases.
Low	Noticeable but not considered to be substantial changes to the water quality of the receiving water feature. Activity is not likely to alter local status to the extent that water quality characteristics change considerably and/ or EQS become compromised.
Medium	Medium scale change to key characteristics of the water quality of the receiving water feature. Water quality status is likely to take considerable time (e.g., a change in the annual average turbidity classification; UKTAG, 2014) to recover to baseline conditions. Ability to meet EQS becomes compromised.
High	Large scale change to key characteristics of the water quality of the receiving water feature. Water quality status degraded to the extent that a permanent or long-term change (i.e., a WFD reporting cycle) occurs. Inability to meet EQS as a result of the Project activities.

7.9.5 Sensitivity of the Receptor

7.9.5.1 The sensitivity criteria for MW&SQ receptors are provided in Table 7-10. The sensitivity of a receptor is a function of its capacity to accommodate change and reflects its ability to recover from MW&SQ impacts resulting from the Project. As such, sensitivity is defined based on adaptability, tolerance, recoverability and value considerations.

7.9.5.2 The proposed MW&SQ receptors include:

- Designated Bathing Water;
- Designated coastal waterbodies; and
- The wider marine environment.

Table 7-10: Receptor Sensitivity Criteria for MW&SQ.

Sensitivity Value	Description
Negligible	Specific water quality conditions of the receptor are likely to be able to tolerate change with very little or no impact upon the baseline conditions detectable.
Low	The water quality of the receptor supports or contributes towards the designation of an internationally or nationally important feature and has a high capacity to accommodate the proposed form of change to current water quality status. The proposed change to the receptor would be undetectable within one tidal cycle of the activity.
Medium	The water quality of the receptor supports or contributes towards the designation of an internationally or nationally important feature and has a moderate-to-low capacity to accommodate the proposed form of change to current water quality status.
High	The water quality of the receptor supports or contributes towards the designation of an internationally or nationally important feature and has a very low capacity to accommodate any change to current water quality status.

7.10 Scoping Questions

7.10.1.1 The following Scoping questions refer to the MW&SQ Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the study area(s) defined for MW&SQ?
- Do you agree with the use of those data listed in Section 7.3, and any additional anticipated data listed in Section 7.9, being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to MW&SQ have been identified?
- Do you agree that a full WFD Compliance Assessment is a requirement?
- Do you agree with the Scoping in and out of impact pathways in relation to MW&SQ?
- Do you agree with the assessment of transboundary effects in relation to MW&SQ?
- Do you agree with the assessment of cumulative effects in relation to MW&SQ?
- Do you agree with the proposed assessment methodology for MW&SQ?

8 Benthic Subtidal and Intertidal Ecology

8.1 Introduction

8.1.1.1 This Chapter of the Inshore Scoping Report identifies the Benthic Subtidal and Intertidal Ecology receptors of relevance and considers the potential impacts from the construction, O&M and decommissioning of the Moray FLOW-Park (hereafter referred to as the 'Project') on Benthic Subtidal and Intertidal Ecology receptors up to MHWS.

8.1.1.2 This Chapter should be read alongside the following other chapters:

- Chapter 3: Project Description
- Chapter 6: Marine and Coastal Processes;
- Chapter 7: Marine Water and Sediment Quality;
- Chapter 9: Fish and Shellfish Ecology; and
- Chapter 18: Climate.

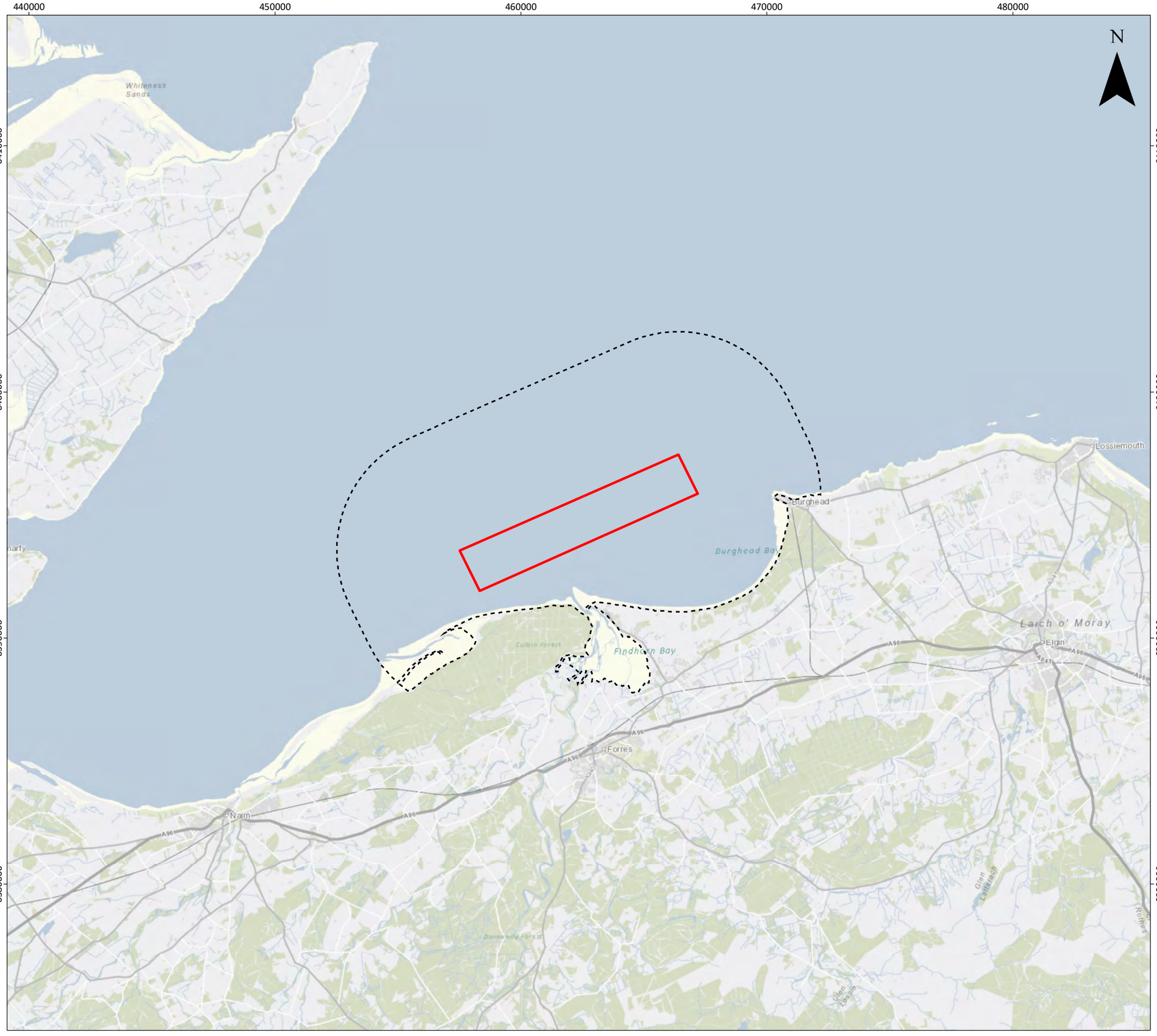
8.2 Study Area

8.2.1.1 The Benthic Subtidal and Intertidal Ecology study area is defined by the Moray FLOW-Park area, together with a wider ZoI to capture potential secondary impacts (Figure 8-1).

8.2.1.2 The Moray FLOW-Park area covers an area of 18 km^2, located approximately 1.06 km from the shore at its closest point. Water depths range from 7.95 m to 48 m LAT.

8.2.1.3 The secondary ZoI for the assessment of Benthic Subtidal and Intertidal Ecology encompasses the area over which suspended sediment might disperse following disturbance arising from the Project, resulting in increased SSC and deposition. For the purposes of scoping, this includes a precautionary buffer of 5 km around the Moray FLOW-Park Area which also extends into Findhorn Bay to account for benthic subtidal and intertidal receptors across the whole estuary. The buffer has been identified based on tidal ellipse data and expert judgement as a reasonable distance within which indirect effects resulting from increased SSC and deposition on Benthic Subtidal and Intertidal Ecology receptors could occur.

8.2.1.4 This study area may be further refined, as required, at post-scoping stages to reflect project-specific sediment plume modelling work that will be undertaken as part of Chapter 6: Marine and Coastal Processes, as well as outputs from stakeholder consultation and refinements to the project design. This will result in an adapted and refined study area for the EIAR which will be based on all activities carried out through the Project stages.



OFFSHORE SOLUTIONS GROUP | working on behalf of Flow Park Investment Ltd

Moray FLOW-Park
Inshore Scoping Report

Benthic Subtidal and Intertidal Ecology Study Area

Legend

- Moray FLOW-Park
- Secondary Zone of Influence (ZoI)



Notes

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Contains Ordnance Survey data © Crown copyright and database rights (2025). OS OpenData.

Coordinate System:
WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

Scale	Date	Drawn by	Checked by	Approved by
1:150,000 @A3	30/01/2026	EV	BPHB	CC

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GoBe APEMGroup

Figure 8-1

Figure Reference: MFP_BEN_Fig8-1_StudyArea_v2

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8.3 Data Sources to Inform the EIA Baseline Characterisation

8.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this Benthic Subtidal and Intertidal Ecology Chapter are presented in Table 8-1.

8.3.1.2 These data sources will be taken forward and used to inform the EIA, in addition to any site-specific data that will be collected for the Project.

8.3.2 Site-Specific Surveys

8.3.2.1 In addition to those data sources outlined in Table 8-1, site-specific survey data is being collected to inform the Inshore EIAR and enhance the understanding of the baseline conditions. The following site-specific surveys will be completed across the Project:

- Geophysical surveys to characterise the bathymetry, seabed characteristics and features, sediment classification and morphology; and
- Benthic surveys using a combination of grab sampling and Drop Down Video (DDV) to classify seabed sediments and characterise the benthic communities present by collecting samples for infauna analysis, PSA and contaminants analysis.

Table 8-1: Key sources of Benthic Subtidal and Intertidal Ecology data.

Source, Author and Year	Summary	Coverage of the Moray Firth-FLOW-Park
Existing Offshore Wind Farm (OWF) data		
Caledonia OWF EIAR: Volume 7B, Appendix 4-1: Environmental Baseline Report (Array Area) (Ocean Winds, 2024a)	A site-specific benthic survey report for the Caledonia OWF array area undertaken between March and June 2023. DDV was conducted at 42 stations. Grab sampling was undertaken at 35 stations using a 0.1 m^2 Day grab and analysed for infauna, PSA and sediment chemistry.	No direct coverage. Located approximately 73.9 km to the east of the Project in the Moray Firth.
Caledonia OWF EIAR: Volume 7B, Appendix 4-2: Environmental Baseline Report (Offshore Export Cable Corridor) (Ocean Winds, 2024b)	A site-specific benthic survey report for the Caledonia OWF offshore export cable corridor undertaken between March and June 2023. DDV was conducted at 64 stations. Grab sampling was undertaken at 40 stations using a 0.1 m^2 Day grab and analysed for infauna, PSA and sediment chemistry.	No direct coverage. Located approximately 73.9 km to the east of the Project in the Moray Firth.
Beatrice OWF Post-Construction Monitoring Year 2 (2021): Benthic Grab Survey Report (APEM, 2022)	A site-specific benthic survey report at the Beatrice OWF site undertaken in July 2021 as part of the year two post-construction surveys for the project. Grab samples were conducted at 12 locations within the Beatrice OWF array area using a 0.1 m^2 Hamon grab and analysed for infauna and PSA.	No direct coverage. Located approximately 61.6 km to the east of the Project in the Moray Firth.
Moray West OWF EIAR: Chapter 7: Benthic and Intertidal Ecology (Moray Offshore Windfarm (West) Limited, 2018)	Characterisation of the existing baseline of benthic subtidal and intertidal ecology across Moray West OWF and the wider North Sea.	No direct coverage. Located approximately 37.9 km to the east of the Project in the Moray Firth.
Moray Offshore Renewables Ltd. ES: Subtidal Ecology Characterisation (Moray East)	A site-specific subtidal survey report for the Moray East OWF characterising the subtidal benthic ecology of the proposed cable route corridor and transmission	No direct coverage. Located approximately 54.7 km to the east of the Project in the Moray Firth.

Source, Author and Year	Summary	Coverage of the Moray Firth-FLOW-Park
(Moray Offshore Renewables Ltd., 2014)	infrastructure. The survey involved seabed imagery via DDV for habitat assessment and 0.1 m^2 Day grab sample for PSA and chemical analyses.	
Moray Offshore Renewables Ltd. ES: Benthic Ecology Characterisation Survey (Moray East) (Moray Offshore Renewables Ltd., 2011)	A site-specific benthic ecology survey report for the Moray East OWF characterising and defining the benthic environment within the array area. The survey involved seabed imagery for habitat and epifaunal community assessment, 0.1 m^2 Hamon grab sampling for faunal analysis and PSA and 0.1 m^2 Day grab sampling for contaminants analysis.	No direct coverage. Located approximately 54.7 km to the east of the Project in the Moray Firth.
Publicly available datasets		
European Marine Observation and Data Network (EMODnet) broad-scale seabed habitat map for Europe (EUSeaMap) European Nature Information System (EUNIS) habitat types (EMODnet, 2023)	Broad-scale predictive seabed habitat map for Europe.	Full coverage of the Moray Firth-FLOW-Park.
OneBenthic faunal data points (Centre for Environment, Fisheries and Aquaculture Science (Cefas), 2019)[9]	Broad-scale faunal data point maps.	Partial coverage of the Moray Firth-FLOW-Park.
Cefas sediment modelling data (Cefas, 2015)[10]	Sediment modelling data for the North Sea up to approximately 58.44°N and the United Kingdom's parts of the English Channel and the Celtic Seas.	Full coverage of the Moray Firth-FLOW-Park.

[9] https://rconnect.cefas.co.uk/content/25/
[10] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0142502#sec019

Source, Author and Year	Summary	Coverage of the Moray Firth-FLOW-Park
British Geological Survey - Intertidal Substrate Foreshore (England and Scotland) (BGS, 2004)[11]	Beach composition classification collated as a desk study. Data created as part of FutureCoast.	Partial coverage of the Moray Firth-FLOW-Park.
Marine Protected Area (MPA) network (Special Protection Areas (SPAs), Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), MPAs) (Scottish Government, 2024)[12]	An overview of the Scottish MPA network.	Full coverage of the Moray Firth-FLOW-Park.
Literature		
Marine Evidence-Based Sensitivity Assessment (MarESA) – guidance manual (Tyler-Walters *et al.*, 2023)	MarESA assessment guidance.	N/A
Feature Activity Sensitivity Tool (FeAST) (FeAST, 2023)	A tool to investigate the sensitivity of marine features in Scottish waters.	N/A

[11] https://magic.defra.gov.uk/MagicMap.html
[12] https://marine.gov.scot/node/12790

8.4 Description of Baseline Environment

8.4.1.1 An initial desk-based review of literature and available data sources (see Table 8-1) has been undertaken to support this Inshore Scoping Report. The findings of this research are presented below in order to provide an understanding of the baseline environment and inform the Inshore Scoping process.

8.4.1.2 The key Benthic Subtidal and Intertidal Ecology receptors which will inform this Inshore Scoping Report and the subsequent EIAR include:

- Subtidal sediments;
- Subtidal benthic ecology; and
- Intertidal benthic ecology.

8.4.2 Subtidal Sediments

8.4.2.1 Figure 8-2 illustrates that the Moray FLOW-Park Area is predominantly characterised by sand and muddy sand in the inshore area, with bands of coarse sediment and mud and sandy mud to the north. There is also a very localised patch of mixed sediments (Cefas, 2015). Sandy seabed sediment is recorded across the Moray FLOW-Park Area within a geotechnical desk study carried out for the Project, with an increase in mud content evident with increasing water depth (Offshore Solutions Group Limited, 2025).

8.4.2.2 The EUSeaMap (2023) data (Figure 8-3) indicate that the Moray FLOW-Park Area is predominantly characterised by sand, sandy mud and muddy sand, with a small area of coarse substrate present in the northwestern corner.

8.4.2.3 The EUSeaMap (2023) data correspond closely with the Cefas (2015) sediment data indicating a high level of consistency in the broad-scale seabed characterisation across the Moray Firth. Both datasets identify the Moray Firth FLOW-Park Area as being primarily composed of sand and muddy sand, with localised areas of finer sediment, while southwest of the site is dominated by sandy substrates. Minor differences between the two datasets are likely to reflect variations in data resolution and classification methodologies rather than substantive changes in seabed composition.

8.4.2.4 EUNIS habitat survey point data exist for parts of the Moray FLOW-Park Area and for the inshore region of the study area (Figure 8-3). These data, derived from a range of site-specific surveys, provide a finer level of detail than that captured by broadscale habitat mapping datasets. Within the area further offshore, Sublittoral mud (A5.3) and Sublittoral mixed sediment (A5.4) occur. Sublittoral sand (A5.2) occurs frequently within the Moray FLOW-Park Area and to the southwest of the site. The inshore region supports a wider variety of habitats, including Littoral rock and other hard substrata (A1), Littoral sand and muddy sand (A2.2), Littoral mud (A2.3), Coastal saltmarshes and saline reedbeds (A2.5), Littoral sediments dominated by aquatic angiosperms (A2.6) and Littoral biogenic reefs (A2.7).

8.4.2.5 In the absence of site-specific benthic survey data for the Moray FLOW-Park at this scoping stage, relevant regional datasets from OWF developments within the wider Moray Firth have been reviewed to provide contextual information on seabed conditions, benthic habitats, and sediment quality. These datasets offer a robust regional baseline against which the likely benthic environment of the Moray FLOW-Park Area can be considered. The information is used to inform the preliminary characterisation of the benthic environment and to support the identification and scoping of potential impacts, recognising that site-specific surveys will be undertaken to refine the baseline and assessment.

8.4.2.6 Environmental baseline surveys carried out at Caledonia OWF (73.9 km east of the Project), comprising grab sampling and DDV, indicated that sediments within the array area and offshore export cable corridor ranged from muddy sand to sandy gravel, with the seabed predominantly categorised as slightly gravelly sand in the array area, and muddy sand along the corridor. Analysis of sediment samples suggested that contaminants concentrations were low, often below Limit of Detection (LoD) and typically below relevant assessment thresholds (e.g., ALs).

8.4.2.7 Benthic characterisation surveys undertaken at the neighbouring Moray West OWF site (37.9 km east of the Project), incorporating infaunal grab sampling, DDV surveys and contaminant analysis, identified seabed habitats predominantly comprising extensive areas of ripples sublittoral sands and muddy sands, with occasional stones and cobbles. In the eastern half of the site, several stations recorded mixed gravelly sediment, while coarser and more variable substrates (coarse/mixed sediments with sand or sandy gravel and patchy stones/cobbles) were observed along the eastern fringe. Localised areas of consolidated surface cobbles were also present, including a small area likely to qualify as stony reef (Moray Offshore Windfarm (West) Limited, 2018).

8.4.2.8 Results from the Moray West OWF benthic environment survey are consistent with those reported in the Beatrice OWF post-construction monitoring survey (APEM, 2022). Beatrice OWF, located approximately 61.6 km east of FLOW-park, was characterised by sediment dominated by sands, with mud and gravel representing a very small proportion of the total sediment composition. Similarly, across Moray East OWF, sandy sediments predominated, with coarser or mixed substrates (sand, sandy gravel, and patchy stones/cobbles) recorded towards the eastern margin. Localised areas of consolidated cobble were also present.

8.4.2.9 Contaminant analysis of sediment grab samples collected across the Moray West OWF site (Moray Offshore Windfarm (West) Limited, 2018) showed metal concentrations to be below relevant guideline values (where available), with no exceedances of UK limits or Dutch/Canadian standards. PAH concentrations were also low, generally falling below analytical LoDs. For Acenaphthene, Acenaphthylene, and Dibenzo(ah)anthracene, LoDs were slightly above Canadian threshold effect levels, though measured concentrations did not indicate concern. Similarly, the environmental assessment undertaken for Moray East OWF (Moray Offshore Renewables Ltd., 2014) concluded that sediment contaminant levels were below guideline values, and that no adverse effects on marine life would be expected as a result of the proposed development.

8.4.2.10 Site-specific surveys undertaken for the Moray East OWF (Moray Offshore Renewables Ltd., 2011) identified five distinct habitat biotopes within the array area, located approximately 54.7 km east of the Project. These comprised sublittoral sand and muddy sediments interspersed with areas of circalittoral coarse sediment, as well as cobble, boulder, and bedrock reef habitats.

8.4.2.11 Overall, the available regional datasets indicate that subtidal sediments across the Moray Firth are generally characterised by sandy and mixed sediments, and low contaminant concentrations. This information provides a robust basis for scoping the Benthic Subtidal and Intertidal Ecology assessment.

8.4.3 Subtidal Benthic Ecology

8.4.3.1 Figure 8-3 presents OneBenthic faunal point data (Cefas, 2019) and indicates that the following faunal clusters are present in the Benthic Subtidal and Intertidal Ecology study area:

- D2b - characterised by Spionidae, Amphiuridae, Nephtyidae, Lumbrineridae, Oweniidae, Cirratulidae, Capitellidae, Nemertea, Semelidae, Ampharetidae. D2b is widely found across the northern North Sea and Celtic Shelf, is typically associated with deep water, low bottom

temperature, muddy habitats with low bottom current flows, high salinity and low chlorophyll; and

- D2c - represented by a faunal assemblage that was characterised by polychaetes including Nephtyidae, Spionidae and Opheliidae. All of which are typically found in sands and muddy sands.

8.4.3.2 To inform the scoping of potential effects on benthic habitats and communities at the Moray FLOW-Park, existing benthic ecology data from OWF developments within the wider Moray Firth have been reviewed. These datasets provide regional context on the types and distribution of benthic biotopes, including the occurrence of PMFs, across comparable sedimentary environments. Although these developments are located offshore of the Moray FLOW-Park, the information provides a valuable reference for understanding the range of benthic communities present within the Moray Firth and supports the preliminary characterisation of receptors in the absence of site-specific survey data at this stage.

8.4.3.3 Seabed imagery collected within the Caledonia OWF site indicated that benthic fauna was generally sparse, with over one-third of images showing no visible organisms. Siphons of the ocean quahog (*Arctica islandica*) were recorded; this species is listed as a PMF in Scottish offshore waters and appears on the OSPAR List of Threatened and/or Declining Species and Habitats (Tyler-Walters and Sabatini, 2017). The following biotope and biotope complexes were identified across the Caledonia OWF site:

- *Nephtys cirossa* and *Bathyporeia* spp. in Atlantic infralittoral sand (EUNIS: MB5233);
- Faunal communities of full salinity Atlantic infralittoral sand (EUNIS: MB523);
- Faunal communities of Atlantic circalittoral mixed sediment (EUNIS: MC421);
- Faunal communities of Atlantic circalittoral sand (EUNIS: MC521);
- Faunal communities in Atlantic offshore circalittoral mixed sediment (EUNIS: MD421);
- Faunal communities in Atlantic offshore circalittoral sand (EUNIS: MD521); and
- Faunal communities on Atlantic offshore circalittoral mud (EUNIS: MD621).

8.4.3.4 The following biotopes (or slight variants of) were recorded across the Moray West OWF:

- *Morella* spp. with venerid bivalves in Atlantic infralittoral gravelly sand (PMF in Scottish waters) (EUNIS: MB3233);
- *Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in Atlantic infralittoral compacted fine muddy sand (EUNIS: MB5236);
- Sparse sponges, *Nemertesia* spp., and *Alcyonidium diaphanum* on Atlantic circalittoral mixed substrata (EUNIS: MC1217);
- *Mediomastus fragilis*, *Lumbrineris* spp. and venerid bivalves in Atlantic circalittoral coarse sand or gravel (EUNIS: MC3212);
- *Branchiostoma lanceolatum* in Atlantic circalittoral coarse sand with shell gravel (EUNIS: MC3215);
- *Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment (EUNIS: MC4214).
- Echinocyamus pusillus, Ophelia borealis and Abra prismatica in circalittoral fine sand (EUNIS: MC5212);
- Seapens and burrowing megafauna in Atlantic circalittoral fine mud (PMF in Scottish waters) (EUNIS: MC6216); and
- *Owenia fusiformis* and *Amphiura filiformis* in deep circalittoral sand or muddy sand (EUNIS: MD5212).

8.4.3.5 Benthic fauna and flora recorded within the Moray East OWF (Moray Offshore Renewables Ltd., 2011) included encrusting algae associated with cobble, boulder, and bedrock reef areas as well as seapens and burrowing megafauna within circalittoral fine mud habitats; this habitat is a recognised PMF in Scottish waters, a Habitat of Principal Importance, a UK Biodiversity Action Plan (BAP) habitat and appears on The OSPAR List of Threatened and/or Declining Species and Habitats (Hill *et al.*, 2023).

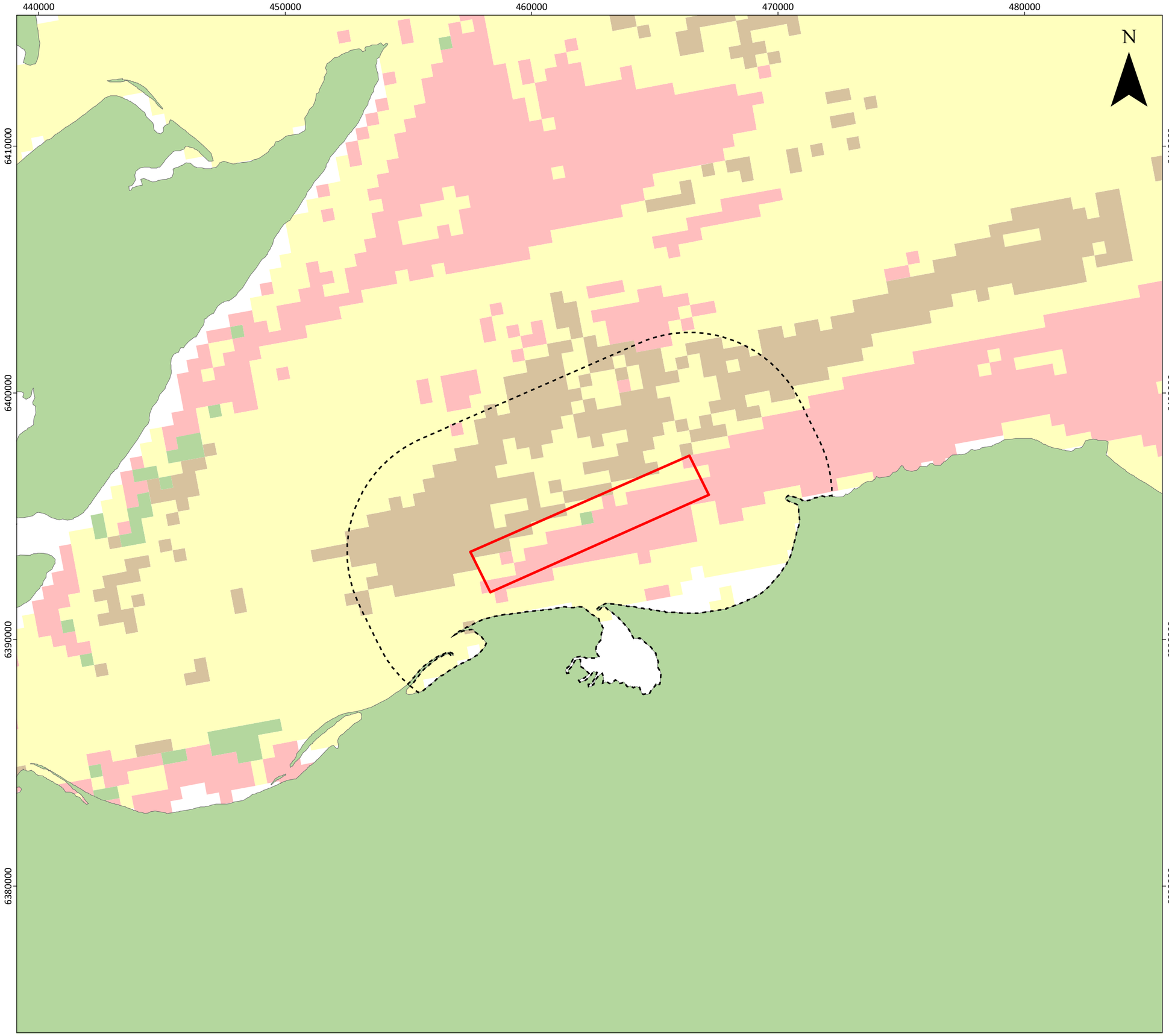
8.4.3.6 The post-construction survey at Beatrice OWF identified *Echinocyamus pusillus*, *Ophelia borealis* and *Abra prismatica* in circalittoral fine sand (EUNIS: MC5212) as the most widespread biotope (APEM, 2022). These findings demonstrate that benthic communities in the wider region are typical of dynamic sandy and mixed sediment environments and provide a useful baseline for conditions likely to occur at the FLOW-Park site.

8.4.3.7 Overall, the reviewed regional datasets indicate that benthic communities within the Moray Firth are predominantly associated with sandy and mixed sediment habitats, with biotopes characteristic of dynamic environments widely represented. While PMFs such as seapens, burrowing megafauna, and ocean quahog have been recorded locally within the wider Moray Firth, these features are generally associated with specific sediment types and conditions. This regional evidence suggests that the Moray FLOW-Park Area is likely to support benthic communities typical of the wider area. The information therefore provides an appropriate basis for scoping the Benthic Subtidal and Intertidal Ecology assessment, with site-specific surveys proposed to confirm baseline conditions.

8.4.4 Intertidal Benthic Ecology

8.4.4.1 The Project is located near Burghead Bay. The intertidal coastline between Burghead Bay and Nairn comprises a dynamic series of sandy mixed-sediment beaches, shingle bars, dune systems and intertidal flats influenced by strong tidal currents and wave exposure, with fine to medium sand and sandy-mud substrates dominating Burghead Bay, and broad sandflats and mudflats characterising Nairn. BGS (2004) data highlights that the majority of the stretch of coastline is characterised by a sand foreshore, interspersed with rock platforms and areas of sand and gravel, gravel, mud and man-made ground (Figure 8-4).

8.4.4.2 The intertidal sediments of this coastline support communities typical of northern Scottish estuarine and sandy shore systems. Historical and regional surveys (JNCC, 1997) describe assemblages dominated by polychaete worms (e.g., *Arenicola marina* and *Scoloplos armiger*), bivalves (e.g., *Macoma balthica* and *Cerastoderma edule*), amphipods and oligochaetes, indicative of well-oxygenated sands and stable intertidal flats. Vegetated saltmarsh and upper-intertidal habitats support halophytic plant communities including sea couch (*Elymus athericus*), glasswort (*Salicornia* spp.) and sea purslane (*Atriplex portulacoides*), contributing to habitat structural diversity and providing feeding grounds for intertidal invertebrates and migratory shorebirds (NatureScot, 2019).



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Moray FLOW-Park
Inshore Scoping Report

Sediment Modelling Data Across the Study Area (Cefas, 2015)

Legend

- Moray FLOW-Park
- Secondary Zone of Influence (ZoI)

Cefas Sediment Model (Cefas, 2015)

- Sand and Muddy Sand
- Mud and Sandy Mud
- Mixed Sediments
- Coarse Sediments



Notes

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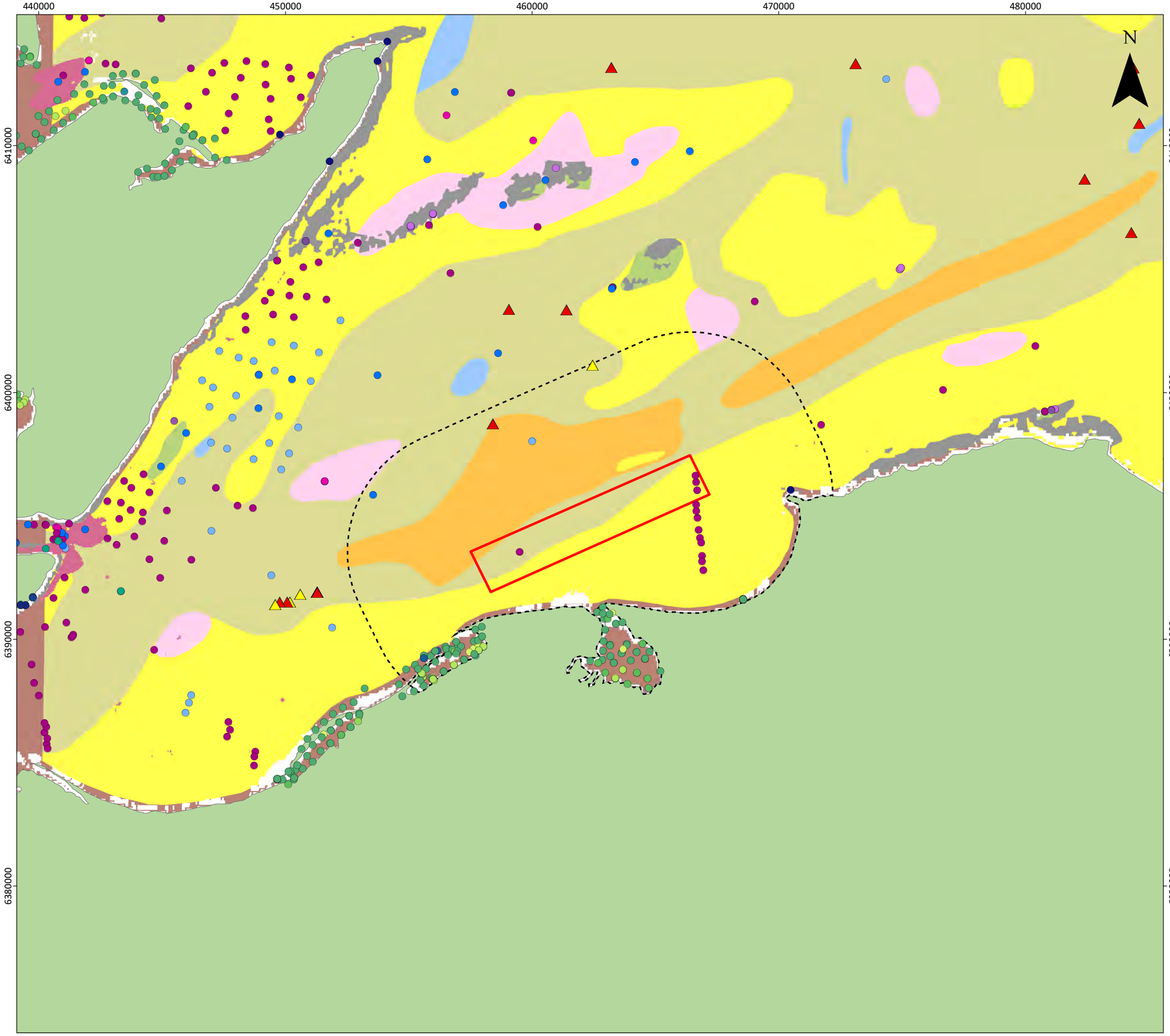
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Figure 8-2

Figure Reference: MFP_BEN_Fig8-2_SedimentModelling_v2

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Moray FLOW-Park
Inshore Scoping Report

Seabed Substrate Data, Overlayed Habitat Survey Point Data and OneBenthic Faunal Point Data Across the Study Area (EMODnet, 2023, 2021; Cefas, 2019)

Legend

- Moray FLOW-Park
- Secondary Zone of Influence (ZoI)

OneBenthic Faunal Data Points (Cefas, 2019)

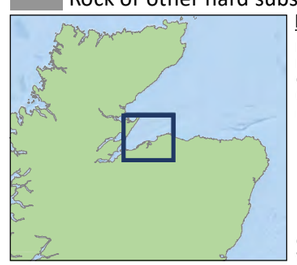
- D2b
- D2c

Habitat Survey Point Data (EUNIS) (EMODnet, 2021)

A1	A2.1	A3.1	A5.1
A1.1	A2.2	A3.2	A5.2
A1.2	A2.3	A3.3	A5.3
A1.3	A2.5	A4.1	A5.4
A1.4	A2.6	A4.2	A5.6
A2	A2.7	A4.7	B3.1

EUSeaMap 2023 (EMODnet, 2023)

- Sand
- Sandy mud
- Muddy sand
- Seabed
- Coarse substrate
- Sediment
- Mixed sediment
- Modiolus modiolus beds
- Rock or other hard substrata



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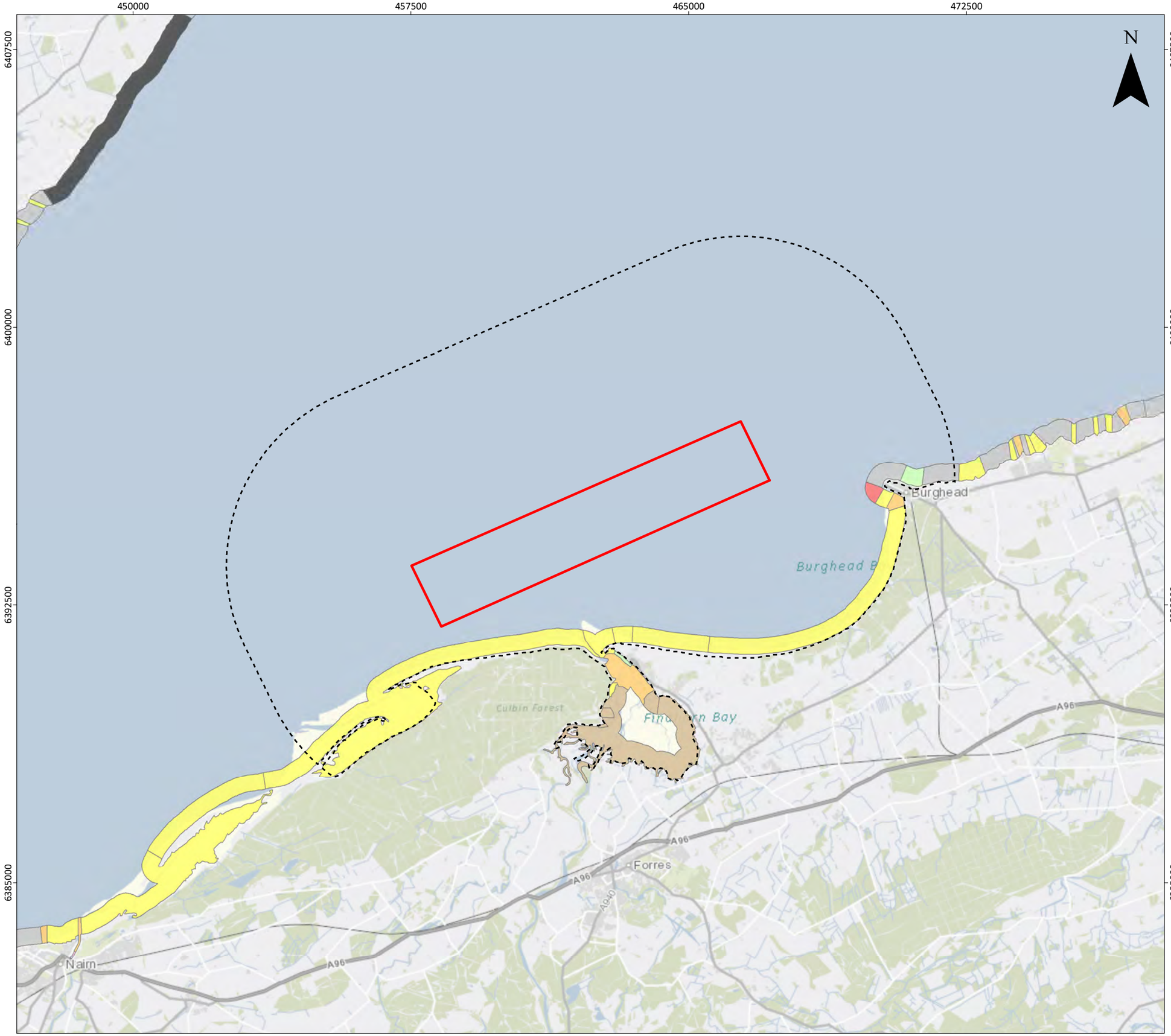
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Figure 8-3

Figure Reference: MFP_BEN_Fig8-3_SeabedSubstrate_v2

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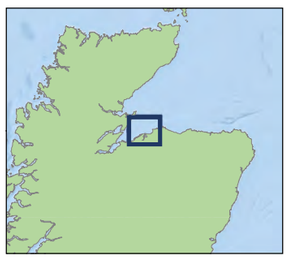
Intertidal Seabed Substrate Data (BGS, 2004)

Legend

- Moray FLOW-Park
- Secondary Zone of Influence (ZoI)

Intertidal Substrate Foreshore (BGS)

- Sand
- Sand and Gravel
- Mud
- Gravel
- Rock Platform
- Rock Platform with Boulders / Loose Rock
- Made Ground (Man Made)
- Not Present



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Figure 8-4

Figure Reference: MFP_BEN_Fig8-4_IntertidalSeabedSubstrate_v2

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8.4.5 Future Baseline

8.4.5.1 In the absence of the Project, the future benthic ecology within the Study Area is expected to change in response to both natural variation and external pressure such as climate and non-climatic influences. Long-term shifts are anticipated to result from a combination of climatic factors (e.g., increasing sea temperatures and ocean acidification) and non-climatic drivers (e.g., alterations in fishing activity and contamination. These factors may influence how benthic communities respond to environmental change, with outcomes depending on individual species' life-history characteristics.

8.4.5.2 Over the Project's operational lifetime, climate change may cause shifts in species distributions and population structures. Evidence suggests that rising sea temperatures could drive some species to migrate out of the North Sea or into deeper water, while warmer-water species from southern regions may expand northward, increasing biodiversity in the area. However, substantial ecological changes of this nature are unlikely to occur within the timeframe of Project installation.

8.4.6 Designated Sites

8.4.6.1 Several designated sites have been identified within the Benthic Subtidal and Intertidal Ecology study area, one of which directly overlaps. Sites designated for nature conservation within the study area have been illustrated in Figure 8-5. Only sites that have a qualifying feature related to benthic subtidal or intertidal ecology, which overlap with the study have been listed within Table 8-2.

8.4.6.2 Of the designated sites highlighted in Figure 8-5, the Moray Firth SPA and Moray and Nairn Coast SPA do not have any benthic designated features and therefore have not been discussed further. However, it is important to note that the benthic habitats within these SPAs provide important supporting habitat for the designated bird species.

8.4.6.3 The Moray Firth SAC directly overlaps with the Project (Figure 8-5), extending across much of the inner firth and has been designated for the Annex I habitat "Sandbanks which are slightly covered by seawater all the time" and the Annex II species bottlenose dolphin (*Tursiops truncatus*). The sandbank feature comprises subtidal sandy and gravelly sediment that support diverse benthic communities, including polychaete worms, bivalves and amphipods.

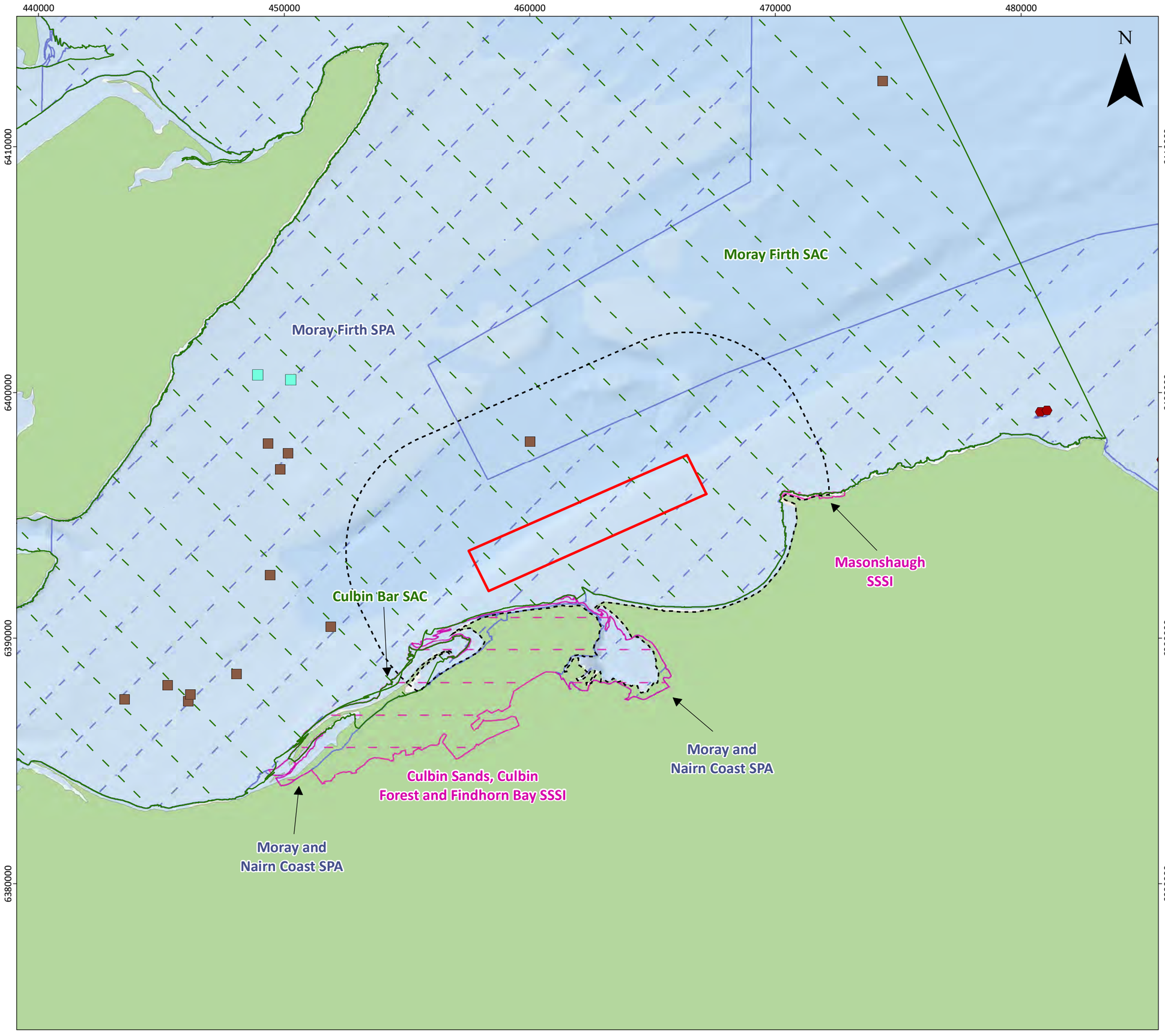
8.4.6.4 Culbin Bar SAC, Culbin Sands, Culbin Forest and Findhorn Bay SSSI, and Masonshaugh SSSI are all located within the Benthic Subtidal and Intertidal Ecology study area (Figure 8-5). These sites encompass a range of designated benthic and coastal features, including intertidal sand and mud flats, coastal saltmarsh, sand dunes, shingle spits, and coastal shingle and dune systems. Together, they represent dynamic sedimentary environments that support benthic invertebrate communities and contribute to the wider ecological function of the Moray Firth. All four sites are situated along the nearshore and intertidal zone, well inshore of the Project.

8.4.6.5 Scottish Ministers identified a list of 81 PMFs in 2014 in recognition of their significant ecological importance within Scottish marine ecosystems. Burrowed mud has been recorded within the secondary ZoI of the Benthic Subtidal and Intertidal Ecology study area. Burrowed mud habitats support diverse and characteristic species, including the tall seapen (*Funiculina quadrangularis*) and the fireworks anemone (*Pachycerianthus multiplicatus*), both of which are associated with stable, fine sediment environments in deeper or sheltered waters. The burrowed mud community "Seapens and burrowing megafauna in circalittoral fine mud" has also been recorded across the nearby Moray West OWF and Moray East OWF, indicating the wider regional presences of this important benthic community.

8.4.6.6 As noted in paragraph 8.4.3.2, the site-specific benthic surveys undertaken for the Caledonia OWF recorded the presence of the PMF ocean quahog. Ocean quahog is a large, slow-growing, and long-lived bivalve species characteristic of stable subtidal sand and muddy sand sediments throughout UK waters, with approximately 70% of population records occurring within Scottish seas. It is noted that these records are derived from surveys undertaken at a considerable distance from the Moray FLOW-Park and in deeper offshore waters and therefore provide contextual information on the wider Moray Firth rather than a direct representation of conditions at the Moray FLOW-Park. Records shown in Figure 8-5 indicate the presence of ocean quahog to the north of, but not within, the Benthic Subtidal and Intertidal Ecology study area.

Table 8-2: Designated sites relevant for Benthic Subtidal and Intertidal Ecology

Designated Site	**Benthic Subtidal and Intertidal Ecology Protected Feature(s)**
Moray Firth SAC	• Sandbanks which are slightly covered by sea water all the time
Culbin Bar SAC	• Perennial vegetation of stony banks • Shifting dunes along the shoreline with *Ammophila arenaria* • Fixed coastal dunes with herbaceous vegetation
Culbin Sands, Culbin Forest and Findhorn Bay SSSI	• Intertidal mud and sand flats • Coastal saltmarsh • Sand dunes and shingle features
Masonshaugh SSSI	• Intertidal flats • Coastal saltmarsh



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Moray FLOW-Park
Inshore Scoping Report

Sites Designated for Nature Conservation and PMFs Across the Study Area (Scottish Government, 2024)

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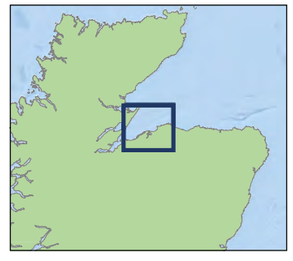
- Moray FLOW-Park
- Secondary Zone of Influence (ZoI)

Designations

- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Special Protection Area (SPA)

Priority Marine Features (Scottish Gov., 2024)

- Ocean Quahog (Arctica islandica)
- Burrowed Mud



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Figure 8-5

Figure Reference: MFP_BEN_Fig8-5_DesignatedSitesAndPMFs_v2

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8.5 Embedded Mitigation

8.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 7-7 and in the Mitigation Register (Appendix A: Embedded Commitments) and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 8-3: The proposed mitigation measures relevant to Benthic Subtidal and Intertidal Ecology receptors.

Reference	Embedded Mitigation / Commitment
C6	The final layout and positioning for FLOW foundations will be defined, as far as possible, to limit impacts to the qualifying features of the Moray Firth Special Area of Conservation (SAC) and the Moray Firth SPA and other environmental considerations. Units will also be stored sensitively to reduce environmental impacts.
C7	Development of and adherence to an Environmental Management Plan (EMP). This will ensure that all construction and operation activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the Application, or as otherwise agreed, are fully implemented.
C13	Development of and adherence to a Construction Programme (CoP) to confirm the timeline for construction.
C14	Development of and adherence to an Invasive Non-Native Species (INNS) Mitigation Plan (Biosecurity Plan).
C23	Development of and adherence to a Project Environmental Monitoring Programme (PEMP) to ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.
C27	Development of and adherence to a Marine Pollution Contingency Plan (MPCP) to identify potential pollution sources and response / reporting procedures.
C32	Return of the seabed to its original profile, or as close as reasonably practicable following completion of construction works.
C33	Provision of scour protection where there is potential for scour to develop around infrastructure (foundations, moorings).
C43	Development of and adherence to an Operation and Maintenance Programme (OMP) to safeguard environmental interests during operation and maintenance.

Reference	Embedded Mitigation / Commitment
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.
C47	All reasonable, appropriate and practicable steps will be taken at the end of the operational life of the Moray FLOW-Park to restore the site of the works to its original pre-construction condition, or to as close to its original condition as is reasonably practicable.

8.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

8.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon Benthic Subtidal and Intertidal Ecology receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

8.6 Scoping of Impacts

8.6.1.1 An initial assessment of the likelihood of effects on Benthic Subtidal and Intertidal Ecology due to Project activities for the Scoping stage of the EIA process is presented in Table 6-4. This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Section 8.5 and Appendix A, together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for Benthic Subtidal and Intertidal Ecology effects associated with Project activities; relevant policy; and the professional judgement of qualified Benthic Subtidal and Intertidal Ecology specialists.

Table 8-4: Scoping assessment for Benthic Subtidal and Intertidal Ecology.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction and Decommissioning			
Temporary habitat disturbance	C6, C7, C23, C46	Scoped In	There is potential for temporary, direct habitat disturbance during construction and decommissioning activities associated with the Project due to seabed preparation and installation of anchoring systems / buoys and construction vessel presence / anchoring.
Temporary increase in SSC and sediment deposition	C6, C7, C23, C46	Scoped In	Temporary elevations in SSC due to construction activities could in turn result in changes to the underlying seabed/coastal bed levels through deposition of the suspended material and changes to the surficial sediment type. Increases in SSC and associated deposition may have indirect, adverse impacts upon other receptor groups including, Fish and Shellfish Ecology (Chapter 9), Marine Mammals (Chapter 10) and Commercial Fisheries (Chapter 12).
Direct and indirect seabed disturbance leading to release of sediment contaminants	C6, C7, C23, C46	Scoped In	Seabed disturbance during construction could lead to mobilisation of existing sediment contaminants that could have an impact on the benthos. Effects on Benthic Subtidal and Intertidal Ecology because of changes in water quality will be informed by the conclusions of the marine and sediment quality assessments.
Increased risk of introduction and/or spread of INNS	C6, C14	Scoped In	There is potential for the introduction of INNS via vessel movements and the movement of equipment and infrastructure during construction and decommissioning, which may subsequently lead to impacts on biodiversity and the benthic ecology of the area.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Accidental pollution events during construction or decommissioning activity	C23	Scoped Out	Chemical and oil inventories on vessels working during construction and decommissioning stages will be small in size. In the event of an accidental chemical or oil spill, hydrocarbons would rapidly be dispersed or diluted. As well as this, all vessels on the project will be required to comply with strict environmental controls set out in the OMP which will minimise the risk and set out provisions for responding to spills during construction or decommissioning. Due to the implementation of control measures and small quantities of hydrocarbons and chemicals it is proposed to scope this impact out of further consideration within the EIA.
O&M			
Temporary habitat disturbance	C6, C7, C23	Scoped In	There is the potential for direct habitat disturbance of the seabed during planned and unplanned operation through, for example, vessel activity and movement associated with moving of Floating foundations. Or through maintenance of mooring / anchoring systems.
Permanent and/or long-term habitat loss/alteration due to the addition of infrastructure to the area	C6, C7, C23	Scoped In	Following the construction of the Project, there is potential for long-term habitat loss or alteration directly associated with the regular deposition and removal of Floating foundations and associated disturbance to moorings and anchoring.
Colonisation of hard substrates	C7, C23	Scoped In	The introduction of man-made substructures such as mooring and anchoring systems, floating foundations is expected to result in colonisation by marine organisms. This colonisation is

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			expected to result in an increase in local biodiversity and alterations to the near field benthic ecology of the area.
Changes in physical processes resulting from the presence of the Project's subsea infrastructure	C7	Scoped In	The presence of subsea infrastructure (part of the floating foundation, the mooring system and anchors along with buoys) can result in potential effects on benthic communities arising from scour effects, changes in sediment transport and wave regimes.
Increased risk of introduction and/or spread of INNS	C6, C14	Scoped In	There is potential for INNS to colonise hard structures (e.g. floating foundations), facilitating spread and increasing INNS impacts.
Accidental pollution events during O&M activity	C7	Scoped Out	See justification described for accidental pollution events during construction and decommissioning activity above.

8.7 Potential Cumulative Effects

8.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment. For Benthic Subtidal and Intertidal Ecology, cumulative interactions may occur with other projects and activities in the study area.

8.7.1.2 Impacts that are scoped into the assessment for the Project alone are generally spatially restricted to being within close proximity to the Moray FLOW-Park Area. However, certain potential impacts have the potential to affect the benthic subtidal communities over a wider area. It is proposed that impacts with limited spatial extent, which do not have an effect on a designated species, site or feature, are scoped out of any further assessment within the EIAR.

8.7.1.3 For this reason, only the following impact on Benthic Subtidal and Intertidal Ecology receptors is being proposed for further consideration within the EIAR, subject to study area refinement:

- Cumulative temporary increase in SSC and sediment deposition.

8.7.1.4 The CEA for Benthic Subtidal and Intertidal Ecology will consider the MDS for each of the projects, plans and activities in line with the methodology outlined in Chapter 4: EIA Methodology.

8.8 Potential Transboundary Effects

8.8.1.1 No transboundary impacts on Benthic Subtidal and Intertidal Ecology pathways are anticipated to occur as a result of the Project activities during construction, O&M or decommissioning. Any predicted impacts on these pathways will largely be localised to within the study area and will not give rise to effects on the marine environment beyond UK waters. Therefore, it is proposed to scope out transboundary impacts with regards to Benthic Subtidal and Intertidal Ecology.

8.9 Proposed Approach to EIA

8.9.1 Guidance

8.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of Benthic Subtidal and Intertidal Ecology receptors will also comply with the following guidance documents where they are specific to this topic:

- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018);
- Guidance document on wind energy developments and EU nature legislation (European Union, 2020);
- Strategic Review of Offshore Wind Farm Monitoring Data Associated with Food and Environmental Protection Act (FEPA) 1985 Licence Conditions (Cefas, 2010);
- Cumulative Impact Assessment Guidelines, Guiding Principles for Cumulative Impact Assessments in OWF (RenewableUK, 2013);
- Guidance Note for Environmental Impact Assessment in Respect of FEPA and Coastal Protection Act (CPA) 1949 Requirements (Cefas, 2004);
- Guidelines for Data Acquisition to Support Marine Environmental Assessments of Offshore Renewable Energy Projects (Judd, 2012);
- OSPAR Guidance on Environmental Considerations for Offshore Wind Farm Development (OSPAR, 2008b); and
- Sensitivity of features based upon the MarESA (Tyler-Walters *et al.*, 2023) framework and FeAST (FeAST, 2023) where possible.

8.9.2 Assessment Methodology

8.9.2.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

8.9.2.2 To enable the assessment of potential impacts of the Project on Benthic Subtidal and Intertidal Ecology to be assessed, a description of the existing baseline environment for benthic ecology will be provided, focusing particularly on any areas of conservation interest. Potential impacts on the subtidal and intertidal physical, chemical and biological environment arising from construction, O&M and decommissioning activities will then be identified, and the sensitivities of the identified receptors to these pressures will be assessed. Where necessary, mitigation measures will be identified and proposed to avoid or minimise significant adverse impacts. The criteria for determining the significance of effects will be a two-stage process involving defining the magnitude of the impacts and the sensitivity of the receptors.

8.9.2.3 In the event that the Project has a direct impact on any sites that are designated for conservation at the European (SAC or SPA; now forming part of the UK's National Site Network) or international level (Ramsar), as a result of qualifying habitats or species that they support, then the requisite information will be provided separately alongside the EIAR to assist the competent authority to carry out an AA. A separate Inshore HRA Screening Report has been produced and submitted alongside this Inshore Scoping Report which considers/evaluates the potential connectivity of European Sites within the assessment, and apportions the impacts identified back to the European Sites impacted.

8.9.2.4 Cumulative effects will be assessed by taking into consideration any other relevant plans or projects proposed or in construction, which are in the vicinity of the Project.

Magnitude of Impact

8.9.2.5 The magnitude of impact is defined by a series of factors, including the spatial extent of any interaction, the likelihood, frequency and duration of a potential impact, and reversibility of impact.

8.9.2.6 The definitions of magnitude used as the criteria for Benthic Subtidal and Intertidal Ecology are provided in Table 8-5. Potential impacts will be considered in terms of permanent or temporary, and adverse or beneficial effects. Where an effect could reasonably be assigned more than one level of magnitude, professional judgment will be used to determine which rating is applicable.

Table 8-5: Definitions of magnitude levels for Benthic Subtidal and Intertidal Ecology.

Sensitivity	Description
Negligible	Discernible, temporary change, or barely discernible change for any length of time, over a small area of the receptor, and/or slight alteration to key characteristics or features of the particular receptors character or distinctiveness.
Low	Discernible, temporary change, over a minority of the receptor, and/or limited or discernible alteration to key characteristics or features of the particular receptors character or distinctiveness.
Medium	Considerable, permanent/irreversible changes, over the majority of the whole receptor, and/or discernible alteration to key characteristics or features of the particular receptors character or distinctiveness.

Sensitivity	Description
High	Fundamental, permanent/irreversible changes, over the whole receptor, and/or fundamental alteration to key characteristics or features of the particular receptors character or distinctiveness.

Sensitivity of the Receptor

8.9.2.7 The sensitivities of different biotopes or species will be classified by the MarESA four-point scale (high – medium – low – not sensitive). The scale of sensitivity for a receptor is dependent on the specific environmental topic and receptor in question and considers the value of a receptors in the context of its resistance and ability to recover from impacts (resilience). Specific benchmarks (duration and intensity) will be defined for the different impacts for which sensitivity has been assessed (e.g., smothering, abrasion, habitat alteration etc.). Detailed information on the benchmarks used and further information on the definition of resistance and resilience can be found on the MarLIN website.

8.9.2.8 For the purposes of the assessment, four sensitivity categories will be used, each drawing on the four MarESA categories and the importance of the receptor as detailed in Table 8-6.

Table 8-6: Definitions of sensitivity levels for Benthic Subtidal and Intertidal Ecology.

Sensitivity	Description
Negligible	Equivalent to MarLIN MarESA sensitivity category 'Not Sensitive', whereby: • The habitat or species is noted as exhibiting 'High' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over short timescales, i.e., <2 years (resilience is 'High').
Low	Equivalent to MarLIN MarESA sensitivity category 'Low', whereby: • The habitat or species is noted as exhibiting 'Low' or 'Medium' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over < 2 years (resilience is 'High'); or • The habitat or species is noted as exhibiting 'High' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is

Sensitivity	Description
	expected to recover over medium to very long timescales, i.e. >2 years or up to 25 years or not at all (resilience is 'Medium', 'Low' or 'Very Low').
Medium	Equivalent to MarLIN MarESA sensitivity category 'Medium', whereby: • The habitat or species is noted as exhibiting 'None' or 'Low' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over medium timescales, i.e., > 2 or up to ten years (resilience is 'Medium'); or • The habitat or species is noted as exhibiting 'None' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over < 2 years (resilience is 'High'); or • The habitat or species is noted as exhibiting 'Medium' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over medium to very long timescales, i.e., >2 years or up to 25 years or not at all (resilience is 'Medium', 'Low' or 'Very Low').
High	Equivalent to MarLIN MarESA sensitivity category 'High', whereby: • The habitat or species is noted as exhibiting 'None' or 'Low' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover only over very extended timescales i.e., >25 years or not at all (resilience is 'Very Low'); or • The habitat or species is noted as exhibiting 'None' or 'Low' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover only over very extended timescales i.e., >10 or up to 25 years (resilience is 'Low').

8.10 Scoping Questions

8.10.1.1 The following Scoping questions refer to the Benthic Subtidal and Intertidal Ecology Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the study area(s) defined for Benthic Subtidal and Intertidal Ecology?
- Do you agree with the use of those data listed in Section 8.3 being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to Benthic Subtidal and Intertidal Ecology have been identified?
- Do you agree with the Scoping in and out of impact pathways in relation to Benthic Subtidal and Intertidal Ecology?
- Do you agree with the assessment of transboundary effects in relation to Benthic Subtidal and Intertidal Ecology?
- Do you agree with the assessment of cumulative effects in relation to Benthic Subtidal and Intertidal Ecology?
- Do you agree with the proposed assessment methodology for Benthic Subtidal and Intertidal Ecology?

9 Fish and Shellfish Ecology

9.1 Introduction

9.1.1.1 This Chapter of the Inshore Scoping Report identifies the Fish and Shellfish Ecology receptors of relevance to the Project and considers the potential impacts from the construction, O&M and decommissioning of the Project on Fish and Shellfish Ecology receptors up to MHWS.

9.1.1.2 This Chapter should be read alongside the following other chapters:

- Chapter 3: Project Description;
- Chapter 6: Marine and Coastal Processes;
- Chapter 7: Marine Water and Sediment Quality;
- Chapter 8: Benthic Subtidal & Intertidal Ecology;
- Chapter 10: Inshore and Intertidal Ornithology;
- Chapter 11: Marine Mammals;
- Chapter 12: Commercial Fisheries; and
- Chapter 18: Climate.

9.2 Study Area

9.2.1.1 The study area surrounds the Moray FLOW-Park, which is 18km^2 in size and located approximately 1.06 km from the shore at its closest point. Water depths vary from 7.95 m LAT to 48 m LAT.

9.2.1.2 The Fish and Shellfish Ecology study area is defined by the entire Moray FLOW-Park Area in addition to maximum ZoIs associated with the potential secondary impacts relating to increased SSC and deposition, and Underwater Noise (UWN). Specifically, the following ZoIs have been defined:

- A sedimentary ZoI has been defined to encompass the area over which suspended sediments might travel following disturbance as a result of the Project. For the purposes of scoping, this includes a precautionary buffer of 5 km around the Moray FLOW-Park Area which also extends into Findhorn Bay to account for fish and shellfish receptors across the whole estuary. The buffer has been identified based on tidal ellipse data and expert judgement as a reasonable distance within which indirect effects (for example, resulting from increased SSC and deposition) on Fish and Shellfish Ecology receptors could occur; and
- A precautionary 50 km buffer has been defined for UWN impacts on fish and shellfish receptors (UWN ZoI) to encompass potential subsea noise impact ranges from the Project. The extent of the UWN ZoI has been set based on experience from other projects in the wider region and expert judgement as

a reasonable distance within which effects from UWN on Fish and Shellfish Ecology receptors are likely to occur.

9.2.1.3 The study area consists of both the sedimentary ZoI and UWN ZoI and is presented in Figure 9-1.

9.2.1.4 The sedimentary ZoI will be reviewed and, as required amended, post-scoping to take account of site-specific sediment plume modelling carried out to inform the marine and coastal processes assessment (see Chapter 6: Marine and Coastal Processes). In addition, UWN modelling will be undertaken post-scoping to determine the range of potential impacts from UWN, the outputs of which will be used to refine the UWN ZoI if required.

9.2.1.5 Consultation with key stakeholders, as well as refinements of the Project activities, will also be considered when finalising the extent of the Fish and Shellfish Ecology study area. The results of the proposed sediment plume and UWN modelling studies will be considered in relation to the species and habitats found throughout the Moray Firth and wider North Sea, and data available on the spawning and nursery grounds within this area. The study area will therefore reflect the maximum ZoI, ensuring that potential impacts on species present within the relevant area are appropriately considered.

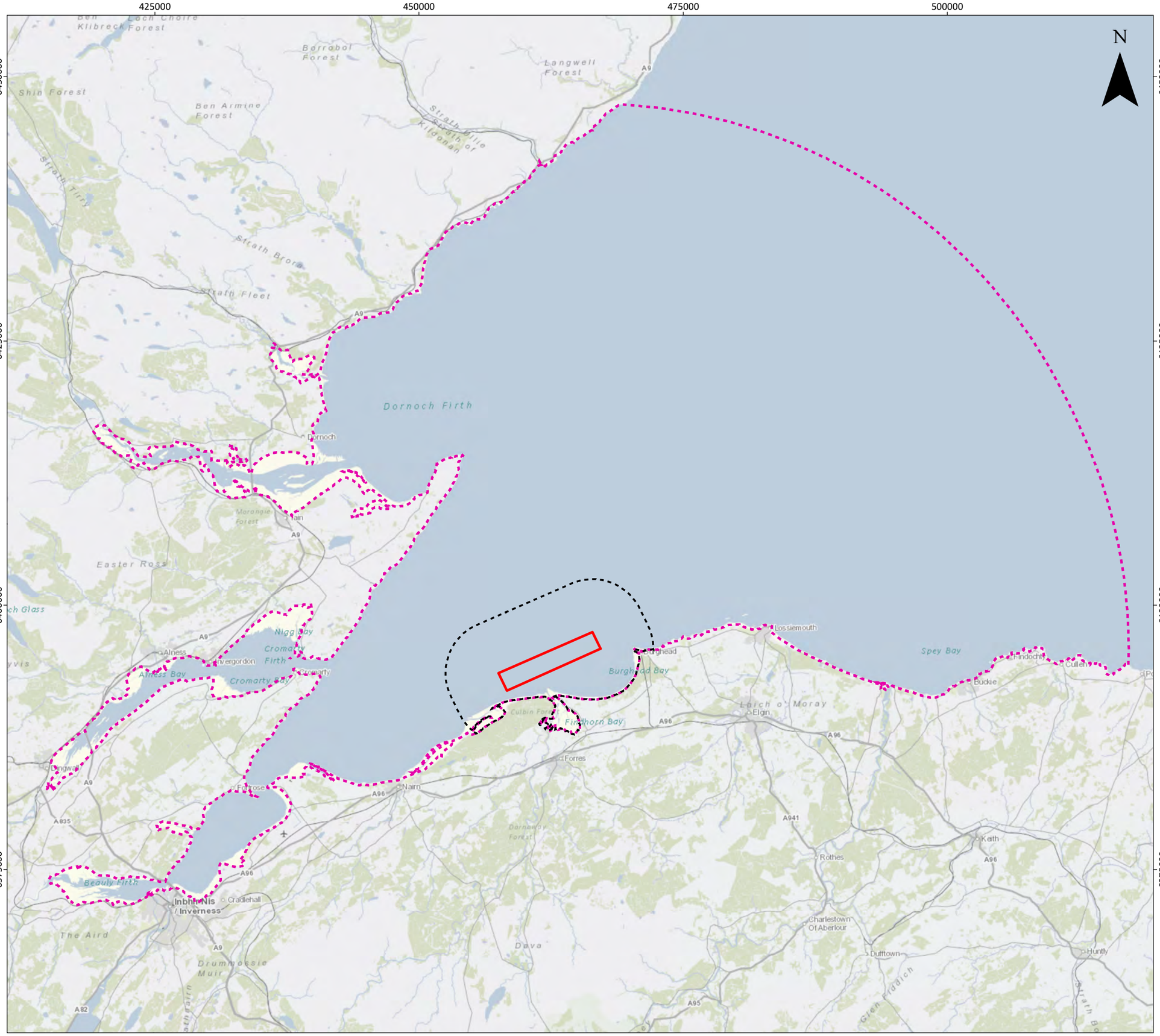


Figure Reference: MFP_FS_Fig9-1_StudyArea_v4

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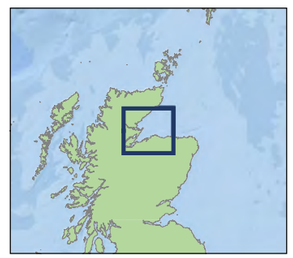
working on behalf of Flow Park Investment Ltd

Moray FLOW-Park
Inshore Scoping Report

Fish and Shellfish Ecology Study Area

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)



Notes

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Contains Ordnance Survey data © Crown copyright and database rights (2025). OS OpenData.

Coordinate System:
WGS 1984 UTM Zone 30N

0 10 20 km

0 5 10 nm

Scale	Date	Drawn by	Checked by	Approved by
1:350,000 @A3	30/01/2026	EV	BPHB	CC

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GoBe APEMGroup

Figure 9-1

9.3 Data Sources to Inform the EIA Baseline Characterisation

9.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this Fish and Shellfish Ecology Chapter are presented in Table 9-1. These data sources will be taken forward and used to inform the EIA, in addition to any site-specific data that will be collected for the Project.

9.3.1.2 Due to the high mobility of fish, datasets with extensive spatial coverage are particularly important for characterising fish and shellfish populations. The data available from existing literature and relevant surveys provide an appropriate evidence base for fish and shellfish populations within the study area, and across the wider region, sufficient for the purposes of EIA, and it is intended that these are utilised to identify the fish and shellfish receptors in the vicinity of the Project.

9.3.1.3 In addition to those data sources outlined in Table 9-1, data from site-specific surveys will be used to inform the EIA and enhance the understanding of the baseline conditions. These will include the following surveys across the Moray FLOW-Park:

- Geophysical surveys to characterise the bathymetry, seabed infrastructure, classification and morphology; and
- Benthic surveys comprising grab samples and DDV to classify the sediment types present across the study area, as well as monitor sediment bound contaminants and benthic communities present.

Table 9-1: Key Sources of Fish and Shellfish Ecology Baseline Data

Source, Author and Year	Summary	Coverage of the Study Area
Existing offshore wind farm (OWF) data		
Beatrice OWF Environmental Statement (ES): Chapter 11: Fish and Shellfish Ecology (Beatrice Offshore Windfarm Limited (BOWL), 2012) and Annex A, Fish and Shellfish Ecology Technical Report (BOWL, 2011)	Characterisation of the existing baseline of Fish and Shellfish Ecology across Beatrice OWF array area and the wider North Sea. This information has been used to help establish the baseline environment, identifying fish and shellfish species likely to be present within the northern North Sea.	Coverage of northern North Sea.
Beatrice OWF Pre-construction Baseline Sandeel Survey – Technical Report (BOWL, 2014)	Site-specific survey conducted within the Beatrice array area using a modified shellfish dredge (sandeel dredge). A total of 103 tows of approximately 500 m were conducted during night hours over one-week, spanning the end of February and the beginning of March 2014. Tow distribution was based on a 2.1 km^2 grid. Sample analysis included species abundance, catch rates per unit effort and per m^2, and length and weight of individuals. This information has been used to determine the presence and abundance of sandeel within the northern North Sea.	Coverage of northern North Sea.
Beatrice OWF Pre-construction Baseline Herring Larval Surveys Summary Technical Report (BOWL, 2016)	Site-specific survey conducted from August to September, over eight sampling weeks, in 2014 and 2015. Samples were taken at 25 stations within the Beatrice OWF and the wider vicinity, using a Gulf VII high speed plankton sampler. In line with the International Herring Larval Survey (IHLS) methodology, herring larval abundance below a square metre of sea was calculated. Sample analysis included species abundance and individual length of larvae. This information has been used to identify	Coverage of northern North Sea.

Source, Author and Year	Summary	Coverage of the Study Area
	herring spawning activity and spawning areas within the northern North Sea.	
Beatrice OWF Post-construction Cod Spawning Survey – Technical Report (BOWL 2021a)	Site-specific survey conducted in March 2021 during daylight hours. A total of 42 tows of 30 minutes duration were completed at 21 stations in two sampling trips. The stations were distributed across the Beatrice OWF and Moray East OWF array areas and surrounding environment. Sampling was undertaken using a commercial rock-hopper otter trawl with a 120 mm mesh cod-end, fitted with a 40 mm blinder. The length, sex and spawning condition of each cod was identified and recorded. This information has been used to identify cod spawning activity and spawning areas within the northern North Sea.	Coverage of northern North Sea.
Beatrice OWF Post-construction Sandeel Survey – Technical Report (BOWL, 2021b)	Site-specific survey conducted within the Beatrice array area, following the methodology and survey equipment used for the pre-construction survey (BOWL, 2014). However, sampling took place in December 2020, and some stations were moved to avoid wind farm infrastructure. Furthermore, only 61 stations were sampled to avoid safety issues – namely potential interactions with fishing gear. This information has been used to determine the presence and abundance of sandeel within the northern North Sea.	Coverage of northern North Sea.
Moray West OWF EIAR: Chapter 8, Fish and Shellfish Ecology (Moray Offshore Wind Farm (West) Limited, 2018a)	Characterisation of the existing baseline of fish and shellfish ecology across Moray West OWF array area, export cable corridor and the wider North Sea. This information has been used to help establish the baseline environment, identifying fish and shellfish species likely to be present within the study area.	Partial coverage of UWN ZoI.

Source, Author and Year	Summary	Coverage of the Study Area
Moray East OWF EIAR: Chapter 4.3 Fish and Shellfish Ecology (Moray Offshore Wind Farm (East) Limited, 2012)	Characterisation of the existing baseline of fish and shellfish ecology across Moray East OWF array area, export cable corridor and the wider North Sea. This information has been used to help establish the baseline environment, identifying fish and shellfish species likely to be present within the northern North Sea.	Coverage of northern North Sea.
Moray OWF (East) Herring Larvae Annual Review (Moray Offshore Wind Farm (East) Limited, 2018)	Characterisation of the existing baseline for herring within the area of the North Sea surrounding the Moray East array area. This information has been used to identifying herring spawning areas within the northern North Sea.	Coverage of northern North Sea.
Caledonia OWF EIAR: Volume 2, Proposed Development (Offshore), Chapter 5 Fish and Shellfish Ecology (Ocean Winds, 2024c), and Volume 7B, Proposed Development (Offshore) Appendices, Fish and Shellfish Ecology Technical Baseline Report (Ocean Winds, 2024b)	Characterisation of the existing baseline of fish and shellfish ecology across Caledonia OWF array area, export cable corridor and the wider North Sea. This information has been used to help establish the baseline environment, identifying fish and shellfish species likely to be present within the northern North Sea.	Coverage of northern North Sea.
Publicly available datasets		
International Council for the Exploration of the Sea (ICES) North Sea International Bottom Trawl Survey (IBTS) (ICES, 2014-2024a)	Long-term dataset (2014-2024) of fish community composition and distribution. Sampling is carried out annually using an otter trawl following a fixed station design, with sampling sites distributed throughout the North Sea. The survey targets a broad range of demersal fish species, with particular emphasis on commercially important stocks such as cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), and whiting (*Merlangius merlangus*) (ICES, 2021a). This information has been used to help establish the baseline environment,	Coverage of study area.

Source, Author and Year	Summary	Coverage of the Study Area
	identifying the fish and shellfish species likely to be present within the study area.	
ICES Beam Trawl Survey (BTS) (ICES, 2014-2024b)	Long-term dataset (2014-2024) of species distribution. Sampling is carried out annually using a 4 m commercial beam trawl and follows a fixed station design, with sampling sites across the North Sea, primarily chosen in areas fished for European plaice (*Pleuronectes platessa*) and various species of sole (Soleidae) (de Boois *et al.*, 2023). This information has been used to help establish the baseline environment, identifying fish and shellfish species likely to be present within the study area.	Coverage of study area.
ICES North Sea Sandeel Survey (NSSS) (ICES, 2014-2024c)	Long-term dataset (2014-2024) of sandeel distribution and abundance. Sampling is carried out annually using a specialised sandeel dredge, following a fixed station design with sampling sites located on known sandeel grounds throughout the North Sea (ICES, 2021b). The survey targets sandeel (*Ammodytes* spp.), providing data on their population size, spatial distribution, and age structure. This information has been used to help determine the presence and abundance of sandeel within the study area.	Coverage of study area.
Scottish Government NMPi map layers for blue mussel beds, horse mussel beds, burrowed mud and nephrops Functional Units (FU) (Scottish Government, 2025a,b,c,d)	An online Geographical Information System (GIS)-based mapping tool developed by Marine Scotland to support marine planning. It provides access to a wide range of spatial data layers relevant to Scotland's marine environment. This information has been used to help determine the presence of shellfish PMFs within the study area.	Coverage of study area.

Source, Author and Year	Summary	Coverage of the Study Area
Provisional Scottish Sea Fisheries Statistics 2024 (Scottish Government, 2025e)	Presents summary data on fish and shellfish landings by Scottish vessels, fleet size, employment, and quota uptake for the year 2024. This information has been used to help determine the presence of commercially important fish and shellfish species within the study area.	Coverage of study area.
United Kingdom (UK) sea fisheries annual statistics report 2023 – landings data (MMO, 2023)	Presents 2023 data on the quantity and value of sea fish landed by UK vessels, with analysis by species group, vessel nationality, and fleet characteristics. This information has been used to help determine the presence of commercially important fish and shellfish species within the study area.	Coverage of study area.
NatureScot SiteLink map of protected areas (NatureScot, 2025a)	Presents boundaries of marine protected areas in Scotland, including SACs, SPAs, Ramsar sites, SSSIs and MPAs. This information has been used to help establish the baseline environment, identifying fish and shellfish species of conservation importance likely to be present within the study area.	Coverage of study area.
Important Shark and Ray Areas (ISRA) spatial layers (area boundaries) (ISRA, 2025)	Presents boundaries of ISRAs. This information has been used to help establish the baseline environment, identifying elasmobranch species likely to be present within the study area.	Coverage of the study area.
Literature		
Scottish salmon and sea trout fishery statistics 2024 (Scottish Government, 2025f)	Summarises the salmon and sea trout fishery statistics, based on information from proprietors, occupiers and agents of fisheries throughout Scotland. The 2024 fishing season data is derived from 1,987 received forms. This information has been used to assess the potential presence and abundance of salmon and sea trout within the study area.	Coverage of study area.

Source, Author and Year	Summary	Coverage of the Study Area
Salmon fishing proposed river gradings for 2026 season – Moray Firth Region (Scottish Government, 2025g)	Evaluates the status of wild Atlantic salmon stocks in Scotland using data on returning adult salmon up to 2024. Rivers are graded into three categories—Grade 1 (good), Grade 2 (moderate), and Grade 3 (poor)—based on the likelihood that each stock meets its conservation limit, and these gradings determine whether salmon can be retained or must be released under the Conservation of Salmon (Scotland) Regulations 2016. This information has been used to assess the potential presence and abundance of salmon within the study area.	Coverage of study area.
Atlantic Salmon Trust Annual Review 2024 (Atlantic Salmon Trust 2024)	A brief summary of the findings of the Moray Firth Tracking Project, which was a multi-year, multi-river initiative (2019–2024). 1,960 smolts were tagged and 761 acoustic receivers were deployed in rivers, estuaries and at sea. The project was designed to understand the factors influencing smolt migration success rates in the region. This information has been used to identify the potential migratory routes of salmon within the study area.	Coverage of study area.
Review of Migratory Routes and Behaviour of Atlantic Salmon, Sea Trout and European Eel in Scotland's Coastal Environment: Implications for the Development of Marine Renewables (Malcolm *et al.*, 2010)	Synthesises existing knowledge on the migration routes, behaviour, and habitat use of these three diadromous fish species in Scottish coastal waters, with a focus on understanding potential risks from offshore renewable energy developments. Summarises findings from tagging studies, tracking experiments, fisheries data, and oceanographic research to describe broad-scale migration patterns, behaviour (including swimming depths and timing), and knowledge gaps for each species and life stage. This information has been used to assess the potential migratory routes of salmon within the study area.	Coverage of study area.

Source, Author and Year	Summary	Coverage of the Study Area
Atlantic Salmon *Salmo Salar* smolt movements in the Cromarty and Moray Firths, Scotland (Newton *et al.*, 2017)	A report produced for the Beatrice OWF's environmental monitoring requirements. 120 wild Atlantic salmon smolts were captured in the River Conon and had acoustic tags implanted before being released downstream. Their movements through the river, Cromarty Firth, and into the Moray Firth were tracked using a network of fixed acoustic receivers, with migration speed, survival, swimming depth, and behaviour analysed in relation to environmental variables and supplemented by range testing, active tracking trials, and hydrodynamic particle tracking models. This information has been used to assess the potential migratory routes of salmon within the study area.	Coverage of study area.
Summary reports for the 2019 River Ness, Spey, Shin, Oykel and Deveron 'Missing Salmon Project' (Cromarty Firth Fishery Board, 2019; The Deveron, Bogie and Isle Rivers Charitable Trust, 2019; Findhorn, Nairn and Lossie Fisheries Trust, 2019; Kyle of Sutherland Fisheries, 2019a,b; Ness District Salmon Fishery Board, 2019; Spey Fishery Board, 2019)	The first year of the wider Moray Firth Tracking Project, when over 340 acoustic receivers were deployed from the headwaters of the rivers out into the open sea within the Moray Firth. Fish were captured in seven river systems (Deveron, Spey, Findhorn, Ness, Conon, Oykel, Shin) which all flow into the Moray Firth. Three tagging teams successfully captured and tagged 850 migrating smolts. These reports are for the aforementioned rivers but also summarise the findings of the wider Moray Firth Tracking Project. This information has been used to assess the potential migratory routes of salmon within the study area.	Coverage of study area.
Mapping silver eel migration routes in the North Sea (Verhelst *et al.*, 2022)	A scientific paper which details the marine migration routes of European silver eels in the North Sea. The methodology involved tagging 320 silver eels in Belgium and Germany with pop-off archival data storage tags and satellite transmitters, which recorded depth and temperature as the eels migrated to sea. Migration tracks for 54 eels were reconstructed using	Coverage of the North Sea.

Source, Author and Year	Summary	Coverage of the Study Area
	advanced geolocation models that combined tidal, temperature, and bathymetric data, allowing analysis of migration routes, speeds, and environmental influences. This information has been used to assess the potential migratory routes of European eel within the northern North Sea.	
Salmon at Sea (SALSEA) Merge Project Final Report (SALSEA-Merge, 2012)	This is a summary report of the SALSEA Merge project, a major EU-funded initiative (2008–2011) that advanced understanding of Atlantic salmon during their oceanic post-smolt phase. The project developed and validated the Genetically-based Regional Assignment of Atlantic Salmon Protocol (GRAASP) genetic assignment tool, conducted extensive marine surveys, and integrated genetic, biological, and oceanographic data to map migration routes, assess growth and diet, and model ecological factors affecting survival. This information has been used to assess the potential migratory routes of salmon within the northern North Sea.	Coverage of the northern North Sea.
Elasmobranch distributions and interactions with fisheries (Régnier *et al.*, 2024)	This study aimed to support the development of a conservation and management strategy for elasmobranchs in Scottish waters by compiling survey and fisheries data. Species Distribution Models were used to estimate the habitat preferences and distributions of nine elasmobranch species, highlighting the influence of environmental factors and fishing gear types. These models were then compared with nephrops and scallop fishery distributions to identify biodiversity hotspots and potential bycatch areas for targeted management. This information has been used to help establish the baseline environment, identifying the elasmobranch and shellfish species likely to be present within the study area.	Coverage of study area.

9.4 Description of Baseline Environment

9.4.1.1 An initial desk-based review of literature and available data sources (see Table 9-1) has been undertaken to support this Inshore Scoping Report. The findings of this research are presented below in order to provide an understanding of the baseline environment and inform the Inshore Scoping process.

9.4.1.2 The key Fish and Shellfish Ecology receptors which will inform this Inshore Scoping Report and the subsequent EIAR include:

- Pelagic and demersal fish species;
- Elasmobranchs;
- Diadromous fish; and
- Shellfish.

9.4.2 Overview

9.4.2.1 This characterisation of the species found within the study area has been completed by drawing upon work that was undertaken in support of various OWF projects in the vicinity of the Project, as well as wider information from publicly available sources (these data sources are summarised in Table 9-1). The distribution of fish and shellfish in the North Sea is variable and seasonal, with many species using the North Sea for spawning, feeding, nursery and migratory purposes. A summary of the likely fish and shellfish species to be present within the study area is presented in Table 9-6.

9.4.3 Pelagic and Demersal Fish Species

9.4.3.1 The study area supports a diverse area of pelagic fish species, including blue whiting *Micromesistius poutassou*, common squid *Alloteuthis subulata*, haddock, hake *Merluccius merluccius*, herring *Clupea harengus*, horse mackerel *Trachurus trachurus*, mackerel *Scomber scombrus*, Norway pout *Trisopterus esmarkii*, saithe *Pollachius virens*, sandeel (Ammodytidae spp.), sprat *Sprattus sprattus* and veined squid *Loligo forbesii* (Coull *et al.*, 1998; Ellis *et al.*, 2012; ICES, 2024a,b,c,d; NBN Atlas, 2025). While sandeel species and herring are typically considered pelagic, they may also exhibit demersal behaviour depending on life stage and environmental conditions (Frost and Diele, 2022; Scottish Government, 2025h).

9.4.3.2 The study area also supports a diverse assemblage of demersal fish species, including American plaice *Hippoglossoides platessoides*, cod, common dab *Limanda*, common dragonet *Callionymus lyra*, Dover sole *Solea solea*, European plaice, greater argentine *Argentina sphyraena*, grey gurnard *Eutrigla gurnardus*, lemon sole *Microstomus kitt*, ling *Molva molva*, monkfish *Lophius piscatorius*, poor cod *Trisopterus minutus*, reticulated dragonet *Callionymus reticulatus*, righteye flounder *Glyptocephalus cynoglossus*, sand goby *Pomatoschistus minutus*, scaldfish *Arnoglossus laterna*, seabass *Dicentrarchus labrax,* spotted dragonet *Callionymus maculatus*, thickback sole *Microchirus variegatus,* turbot *Scophthalmus maximus* and whiting (Ellis *et al.*, 2012; ICES, 2024a,b; NBN Atlas, 2025).

9.4.4 Diadromous Fish

9.4.4.1 Migratory fish are species that spend part of their life cycle in freshwater and part in seawater; such species are termed diadromous (migrate between freshwater and saltwater) and can be anadromous (migrating up rivers from the sea to spawn) or catadromous (migrating from rivers to the sea to spawn).

9.4.4.2 Several migratory fish species have the potential to occur in the study area, migrating to and from rivers and other freshwater bodies with connectivity to the study area, or transiting the study area as part of their foraging activity. Migratory fish species that have the potential to traverse the study area and exist in the nearby rivers and estuaries include Atlantic salmon, sea trout, European eel *Anguilla Anguilla*, twaite shad *Alosa fallax*, allis shad *Alosa alosa*, river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus*. Atlantic salmon, sea trout and lampreys spend most of their adult lives in the oceans but return to freshwater to reproduce (anadromous). European eel are also migratory diadromous fish, but their lifestyle differs from anadromous fish; adult eels migrate out to sea to spawn, and their larvae make the return journey (catadromous).

Atlantic salmon

9.4.4.3 There is a high potential for Atlantic salmon to be within / transit through the study area during migration.

9.4.4.4 Atlantic salmon are listed under Appendix II of the Bern Convention, which provides protection for species requiring strict conservation measures across Europe. In the UK, freshwater populations of Atlantic salmon are protected under the Conservation of Habitats and Species Regulations 2017, where they are recognised as a species of interest, particularly in SACs designated for salmon. Three SACs relevant to Atlantic Salmon lie within the study area. The River Spey SAC lies approximately 26.26 km from the Moray FLOW-Park and has Atlantic salmon listed as a primary reason for the selection of the site. The River Oykel lies approximately 38.43 km from the Moray FLOW-Park and has Atlantic salmon listed as a qualifying feature, but not a primary reason for site selection. The River Evelix SAC lies approximately 28.72 km from the Moray FLOW-Park and has freshwater pearl mussel listed as a primary reason for site selection. Whilst Atlantic salmon is not a designated feature, it is a host species of the freshwater pearl mussel, and as such, maintaining the distribution of Atlantic salmon is a Conservation Objective (CO) of this SAC.

9.4.4.5 One SAC relevant to Atlantic salmon lies outside of the study area. These are considered due to the potential for Atlantic salmon to travel across the study area from and/or to the SACs. The River Moriston SAC lies approximately 58.95 km from the Moray FLOW-Park and has Atlantic salmon listed as a qualifying feature, but not a primary reason for site selection. The relevant designated sites, relevant qualifying feature/s, and COs are summarised in Table 9-5 below and shown relative to the Project in Figure 9-12.

9.4.4.6 As aforementioned, Atlantic salmon are known to be present in several rivers which have been given SAC designation. Additionally, Atlantic salmon are known to be present in several non-designated rivers and water bodies which enter the Moray Firth. To support the Conservation of Salmon (Scotland) Regulations 2016, the conservation status of Scottish salmon stocks in individual rivers is assessed each year, and gradings applied depending on the outcomes. This process is used to apply restrictions (such as catch and release) where stocks are in poor condition. Those rivers assessed as being of ‘good’ (grade 1), ‘moderate’ (grade 2) and ‘poor’ (grade 3) status, reflecting the vulnerability of the salmon stocks, are shown in Figure 9-2 below.

9.4.4.7 Rivers of 'poor' status (and therefore highest vulnerability) are characterised by a probability of less than 60% to achieve their conservation limit, which is based on the chance that the salmon stock reached its egg requirement during each of the last five years. Rivers of moderate and good status are characterised by a probability of 60-80% and at least 80% to achieve their conservation limit, respectively. The allocation of a 'poor' status to a river, leads to the enforcement of mandatory catch and release regulations as a measure to support COs within these river systems (Scottish Government, 2025i).

9.4.4.8 Access points of the following rivers are located within the study area (proposed river gradings for the 2026 season are shown in brackets): River Spey (grade 1), River Lossie (grade 3), River Findhorn (grade 1), River Nairn (grade 1), River Ness (grade 2), River Beauly (grade 1), River Conon (grade 1), River Glass (grade 3), River Alness (grade 2) and River Balnagowan (grade 3). The Water of Philworth (grade 3), River Deveron (grade 2) and River Moriston (grade 2) lie outside of the study area; however, salmon may transit through the study area to enter/leave and these rivers (Scottish Government, 2025h).

9.4.4.9 Figure 9-2 shows all rivers known for the presence of Atlantic salmon (Scottish Government, 2008) as well as graded rivers relative to the Project (Scottish Government, 2025h).

9.4.4.10 Given that the proposed Moray FLOW-Park will be located approximately 1.06 km from the coast, it lies in nearshore coastal waters that Atlantic salmon are highly likely to transit during their migrations between river systems and the open sea.

400000 425000 450000 475000 500000 525000 550000

6450000 6425000 6400000 6375000 6350000 6325000

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River Alness
Balnagown River
River Glass
River Conon
River Beauly
River Ness
River Nairn
River Findhorn
River Moriston
River Lossie
River Spey
River Deveron
Water of Philorth

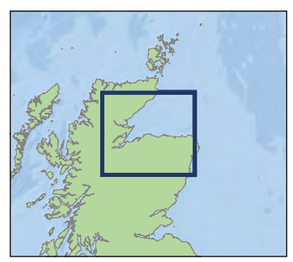
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Salmon Conservation Grading System River Grades Within the Study Area

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)
- Rivers
- Salmon Present (Scottish Government, 2008)
- Salmon Likely Present (Scottish Government, 2008)



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 20 40 km

0 10 20 nm

Scale	Date	Drawn by	Checked by	Approved by
1:550,000 @A3	30/01/2026	EV	BPHB	CC

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Figure 9-2

Figure Reference: MFP_FS_Fig9-2_SalmonConservationGradingSystem_v4

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Sea Trout

9.4.4.11 Sea trout are the anadromous form of brown trout, and are found throughout Scotland, inhabiting headwater streams, lowland rivers, estuaries and coastal marine waters (Scottish Wildlife Trust, 2018). There is, therefore, a high potential for sea trout to be within, or transiting the study area.

9.4.4.12 Sea trout typically spend a number of years in fresh water before migrating out to sea. The adoption of an anadromous life-history strategy is considered to be influenced by both genetic and environmental factors.

9.4.4.13 Following smoltification (the process whereby sea trout undergo physiological changes to adapt to saltwater environments), juveniles begin their downstream migration towards coastal waters, where they spend variable periods of time before reaching maturity, and moving offshore (Malcolm *et al.*, 2010) (in this context, 'offshore' refers to movements beyond the immediate coastal zone).

9.4.4.14 Available netting and tracking data indicate that post-smolt sea trout (fish at sea up until the end of the first winter) typically remain within nearshore areas for several weeks or months after entering the marine environment (Malcolm et al., 2010) (in this context, nearshore refers to the shallow, inshore coastal waters used by sea trout post-smolts during their initial marine phase). Tagging studies show that post-smolts typically remain within a few kilometres of their release locations, indicating limited dispersal during their marine phase, with only sparse evidence for longer-distance movements during this phase (Malcolm et al., 2010).

9.4.4.15 Some post-smolts return to freshwater relatively quickly after migration to sea, to over-winter; fish that return in the same year they migrated to sea are commonly termed 'finnock' or 'whitling'.

9.4.4.16 For adults, offshore dispersal can extend into open coastal water and, in some cases, hundreds of kilometres from the Scottish coast, as indicated by recaptures at Dogger Bank (~190 miles offshore) and along continental European coasts (Malcolm et al., 2010). Observed migratory patterns of adult sea trout show considerable variability. While some studies from Scotland's west coast suggest movements are confined to local areas, others indicate broader migratory behaviour, supported by tagging recaptures and historical offshore fishing vessel catches that imply offshore dispersal and long-range migration (Malcolm et al., 2010). Adult sea trout may spend variable periods in the marine environment before returning to freshwater to spawn. Sea trout are likely to transit through the same rivers as salmon (see paragraph 9.4.4.3 *et seq.*) due to similar habitat preferences (Malcolm *et al.*, 2010). Sea trout have been confirmed as present in the River Spey (Spey Fishery Board, 2019), River Findhorn (Findhorn, Nairn and Lossie Fisheries Trust, 2019) and River Oykel (Kyle of Sutherland Fisheries, 2019), access points of which all lie within the study area. Sea trout have also been confirmed as present within the River Deveron (The Deveron, Bogie and Isle Rivers Charitable Trust, 2019) which lies outside of the study area; however, sea trout may transit through the study area to enter/leave this river.

9.4.4.17 Given that the Moray FLOW-Park will be located approximately 1.06 km from the coast, it lies within the nearshore zone typically used by post-smolt sea trout during their initial marine phase and will likely be transited by adult sea trout during their migrations between marine and freshwater environments.

European eel

9.4.4.18 There is a high potential for European eel to be within or transit through the study area. European eel are listed as critically endangered on the International Union for Conservation of Nature (IUCN) Red List and are UK BAP priority fish species. In addition, the Scottish Eel Management Plan was established in 2010 in response to the Eel Recovery Plan (formed under European Commission Council Regulation No 1100/2007) with the aim of improving the European eel stocks (Defra, 2010).

9.4.4.19 European eel are catadromous, feeding in freshwater and spawning at sea. The migratory movements of juvenile European eels from their spawning grounds in the Sargasso Sea are believed to be largely influenced by prevailing ocean currents. It is generally assumed that proximity to Atlantic currents correlates with higher eel abundance (Malcolm *et al.*, 2010). Due to the position and flow of the North Atlantic Drift, juveniles are thought to migrate southward along the coastline, and when approaching Scottish rivers move landward through coastal waters, with glass eels and elvers entering estuaries from the inshore zone rather than from offshore. This indicates that coastal waters form an important component of their migratory pathway. Additional evidence from wider European studies supports this nearshore behaviour, with glass eels consistently using coastal corridors, boundary currents and tidal transport to move landward (Tesch, 2003; McCleave & Kleckner, 1982).

9.4.4.20 Once matured in freshwater, eels undergo metamorphosis into silver eels and begin their seaward spawning migration. Silver eels often follow coastal margins before entering deeper offshore waters (Aarestrup et al., 2009; Righton et al., 2016), although Malcolm et al. (2010) highlight considerable uncertainty surrounding adult migration routes. Silver eels departing east-coast Scottish rivers may therefore traverse the Moray Firth as part of their outward migration, although some individuals may take alternative routes via the English Channel or north of Scotland.

9.4.4.21 Given that the proposed Moray FLOW-Park will be located approximately 1.06 km from the coast, it lies in nearshore coastal waters that juvenile eels are likely to occupy during their transition from marine to estuarine environments. The Moray FLOW-Park and wider study area may therefore function as a potential migration corridor for glass eels entering local rivers. In addition, the uncertainty surrounding adult migration routes means that silver eels departing east-coast Scottish rivers may also utilise the Moray Firth during their seaward migration.

Allis and Twaite Shad

9.4.4.22 There is a potential for allis and twaite shad to be within or transit through the study area. Allis shad and the twaite shad are both anadromous fish species found in the northeast Atlantic Ocean, including the North Sea and coastal waters of Scotland. The habitat requirements of twaite shad are not fully understood, but they are known to spawn at night in shallow areas near deeper pools, with their eggs sinking into the spaces between coarse gravel and cobble substrates (JNCC, 2021a). Allis shad also have poorly understood habitat needs, spending most of their adult lives in coastal waters and estuaries before migrating into rivers to spawn, sometimes traveling up to 800 km upstream in continental Europe. Allis shad spawn at night, releasing their eggs into the current where they settle among gaps in gravelly substrates, with shallow, gravelly areas adjacent to deep pools thought to represent optimal spawning habitat (JNCC, 2021b). Little is known about the adult distribution of allis shad and twaite shad in Scottish waters, although sparse records from the National Biodiversity Network (NBN) Atlas (NBN Atlas, 2025), indicate the presence of twaite shad within the Moray Firth and its connecting rivers.

9.4.4.23 Given that the proposed Moray FLOW-Park will be located approximately 1.06 km from the coast, it lies in nearshore coastal waters that these species are likely to occupy during their marine phase, and during migration to spawning rivers.

River and Sea Lamprey

9.4.4.24 There is a high potential for river and sea lamprey to be within or transit the study area. River lamprey and sea lamprey are designated under Appendix III of the Bern Convention, The Conservation of Habitats and Species Regulations (2017), Schedule 5 of the Wildlife and Countryside Act and are on the Scottish Biodiversity List.

9.4.4.25 River lamprey is widespread in the UK, typically occurring close to the coast (Barnes, 2008a). River lamprey is an anadromous species which grows to maturity in estuaries around Britain and then move into freshwater to spawn in clean rivers and streams. The larvae spend several years in silt beds before metamorphosing and migrating downstream to estuaries (Maitland, 2003). Although their wider marine distribution is poorly understood, river lamprey are known to use estuaries and adjacent coastal waters during their marine feeding phase.

9.4.4.26 Sea lamprey is a primary reason for the selection of the River Spey SAC, which lies within the UWN ZoI, 26.26 km to the east of Moray FLOW-Park. Assessments of condition show that sea lamprey as a qualified feature of the River Spey SAC are in "favourable maintained" condition (NatureScot, 2020a).

9.4.4.27 Sea lamprey occur throughout the UK, migrating upstream of rivers to spawn (Barnes, 2008b). Spawning in British rivers usually occurs in late May or June. After hatching, the larvae drift downstream, distributing themselves among suitable silt beds. The larvae spend several years in silt beds before metamorphosing and migrating downstream. Relatively little is known about them after they reach the sea, where they have been found in both shallow coastal waters and deep offshore waters (Maitland, 2003). In this context 'offshore' refers to waters beyond the immediate coastal zone, although records have shown evidence of occasional presence of sea lamprey much further offshore, with records from midwater in the Atlantic Ocean (Lelek 1973, as cited in Maitland, 2003).

9.4.4.28 Given that the Moray FLOW-Park will be located approximately 1.06 km from the Moray Firth coastline, it lies within the inshore coastal waters that river lamprey (which mature in estuaries and adjacent coastal waters) and sea lamprey are expected to use during their downstream migration, and their subsequent return migration to spawning rivers. As the Moray FLOW-Park is located close to the Moray Firth coastline, any potential interaction would be expected to occur only during these inshore migratory movements, rather than in deeper offshore habitats where sea lamprey are occasionally recorded.

9.4.5 Elasmobranchs

9.4.5.1 Elasmobranchs, which include sharks and rays, are particularly vulnerable receptors due to their slow growth and low reproductive rates. Several species that occur in the Greater North Sea are recognised as being threatened and/or declining and so are protected by the Convention for the Protection of the Marine Environment of the North-East Atlantic (the OSPAR Convention) (OSPAR, 2025). These species include angel shark *Squatina squatina,* basking shark *Cetorhinus maximus,* blue skate *Dipturus batis,* leafscale gulper shark *Centrophorus squamosus,* porbeagle *Lamna nasus,* Portuguese dogfish *Centroscymnus coelolepis,* spotted ray *Raja montagui,* spurdog *Squalus acanthias,* thornback ray *Raja clavata* and white skate *Rostroraja alba*.

9.4.5.2 Some of the elasmobranch species protected by the OSPAR Convention are also designated PMFs in Scotland: basking shark, leafscale gulper shark, porbeagle, Portuguese dogfish and spurdog, in addition to flapper skate *Dipturus intermedius,* blue skate and sandy ray *Leucoraja circularis* (NatureScot, 2020b).

9.4.5.3 Elasmobranch species that have been recorded within the study area are predominantly demersal, including skates and rays such as the blue skate, cuckoo ray *Leucoraja naevus*, spotted ray and thornback ray (ICES 2024a,b).

9.4.5.4 Benthopelagic and pelagic shark species have also been recorded within the study area, including basking shark, lesser spotted dogfish *Scyliorhinus canicula*, spurdog and starry smooth-hound *Mustelus asterias* (ICES 2024 a,b; NBN Atlas, 2025).

9.4.5.5 The Moray Firth is recognised as an Important Shark and Ray Area (ISRA) to protect the basking shark and flapper skate (ISRA, 2025). While ISRAs are not protected by legislation, they highlight ecologically important areas for elasmobranch species.

9.4.5.6 As detailed in Section 9.4.9, and presented in Figure 9-10 and Figure 9-11 relative to the Project, nursery grounds for spurdog, thornback ray and spotted ray interact with the wider study area (Ellis *et al.*, 2012).

9.4.5.7 Given that the proposed Moray FLOW-Park is located approximately 1.06 km from the Moray Firth coastline, it lies within inshore waters used by several elasmobranch species for feeding and, in some cases, as nursery habitat. While highly mobile pelagic species such as basking shark and porbeagle may transit through the area, demersal species like thornback ray and spotted ray are more likely to occur regularly in shallow coastal waters (ICES 2024a,b; Ellis et al., 2012). Notably the depth range within the Moray FLOW-Park (7.95–48 m LAT) corresponds with depths commonly occupied by these demersal rays, which typically occur between approximately 10–60 m for thornback ray and 8–120 m for spotted ray (ICES 2024a,b; Ellis et al., 2012; Régnier, 2024).

9.4.6 Shellfish

9.4.6.1 The study area supports a wide variety of shellfish species, including Aesop shrimp *Pandalus montagui*, Allmann's shrimp *Crangon allmanni*, angular crab *Goneplax rhomboides*, circular crab *Atelecyclus rotundatus*, common hermit crab *Pagurus bernhardus*, flying crab *Polybius holsatus*, harbour crab *Polybius depurator*, King scallop *Pecten maximus*, nephrops *Nephrops norvegicus*, prickly cockle *Acanthocardia echinata*, Prideaux's hermit crab *Pagurus prideaux*, Queen scallop *Aequipecten opercularis*, rough squat lobster *Munida rugosa* and spiny shrimp *Pontophilus spinosus* (ICES, 2024a,b).

9.4.6.2 The Southern Trench NCMPA, which lies 32.51 km to the east of Moray FLOW-Park, is designated to protect burrowed mud which provides key habitat for angular crab, burrowing shrimp *Calocaris macandreae*, ghost shrimp *Callianassa subterranea,* nephrops and squat lobster *Munida* sp. (NatureScot, 2025b).

9.4.6.3 The freshwater pearl mussel is a primary reason for the selection of The River Oykel SAC and River Spey SAC which lie within the study area (Figure 10-12).

9.4.6.4 Blue mussel *Mytilus edulis* and horse mussel *Modiolus modiolus* beds are PMFs in Scotland and have been recorded within the study area (Scottish Government, 2025c,d). Similarly, the PMF of burrowed mud, a habitat for nephrops, overlaps with the Moray FLOW-Park Area and is present within the wider study area (Scottish Government, 2025e).

9.4.7 Spawning Grounds

9.4.7.1 Spawning grounds for several fish and shellfish species are known to interact with the study area (Coull *et al.*, 1998; Ellis *et al.*, 2010; 2012). Their respective spawning periods are provided in Table 9-2. Spawning grounds for cod, lemon sole, sandeel, European plaice and nephrops interact with the study area, as shown in Figure 9-3 and Figure 9-4, and extend over large areas of the North Sea (Coull *et al.*, 1998; Ellis *et al.*, 2012).

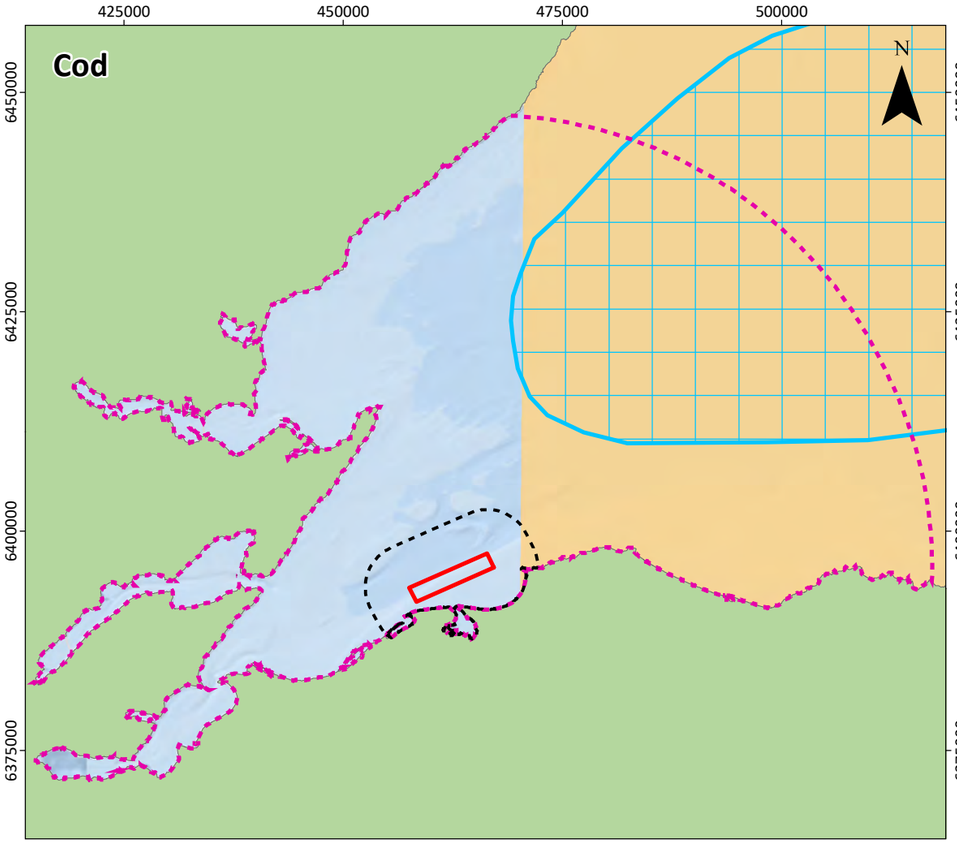
9.4.7.2 The study area overlaps with a low intensity cod spawning ground, as determined by Ellis *et al.*, (2012), and an area of undetermined spawning density, as determined by Coull *et al.* (1998) (Figure 9-3). This species is of particular importance due to its sensitivity to noise (cod possess a swim bladder that is involved in hearing) (Popper *et al.*, 2014).

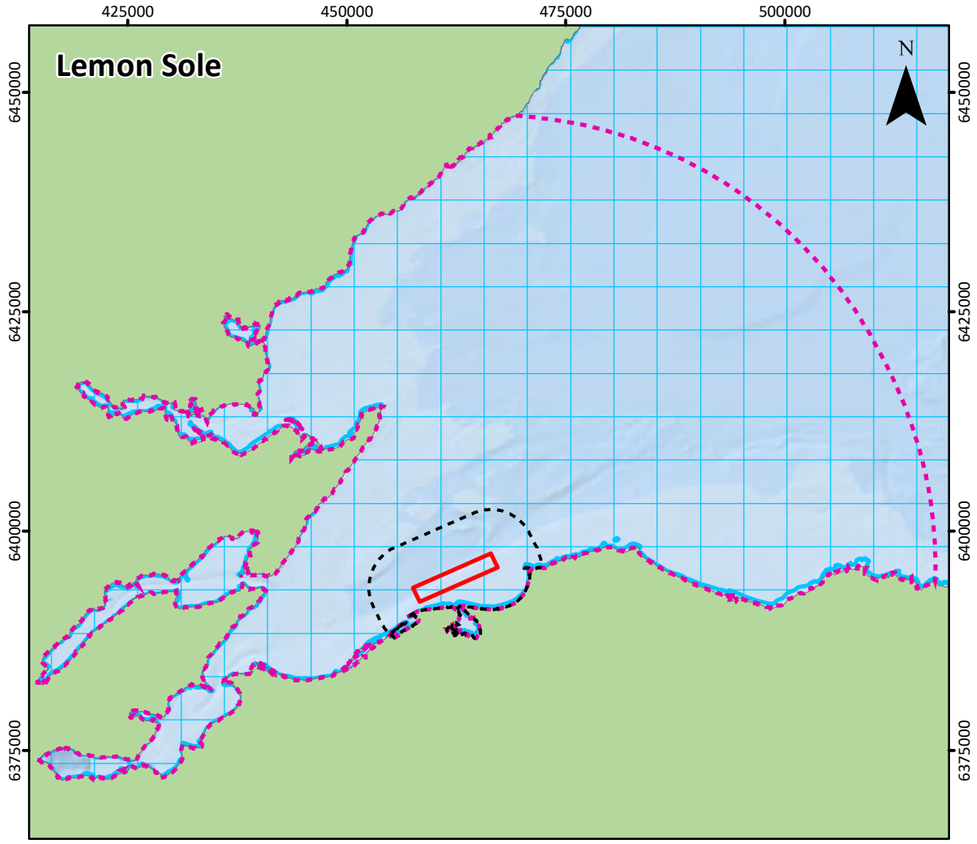
9.4.7.3 The study area also overlaps with a high intensity sandeel spawning ground, as determined by Ellis *et al.*, (2012), and an area of undetermined spawning density, as determined by Coull et al. (1998) (Figure 9-5). Additional consideration and assessment have been given to sandeel, due to their reliance of specific sediment types associated to their demersal spawning behaviour, and subsequent sensitivity to habitat disturbance. This has been detailed separately in Section 9.4.8.

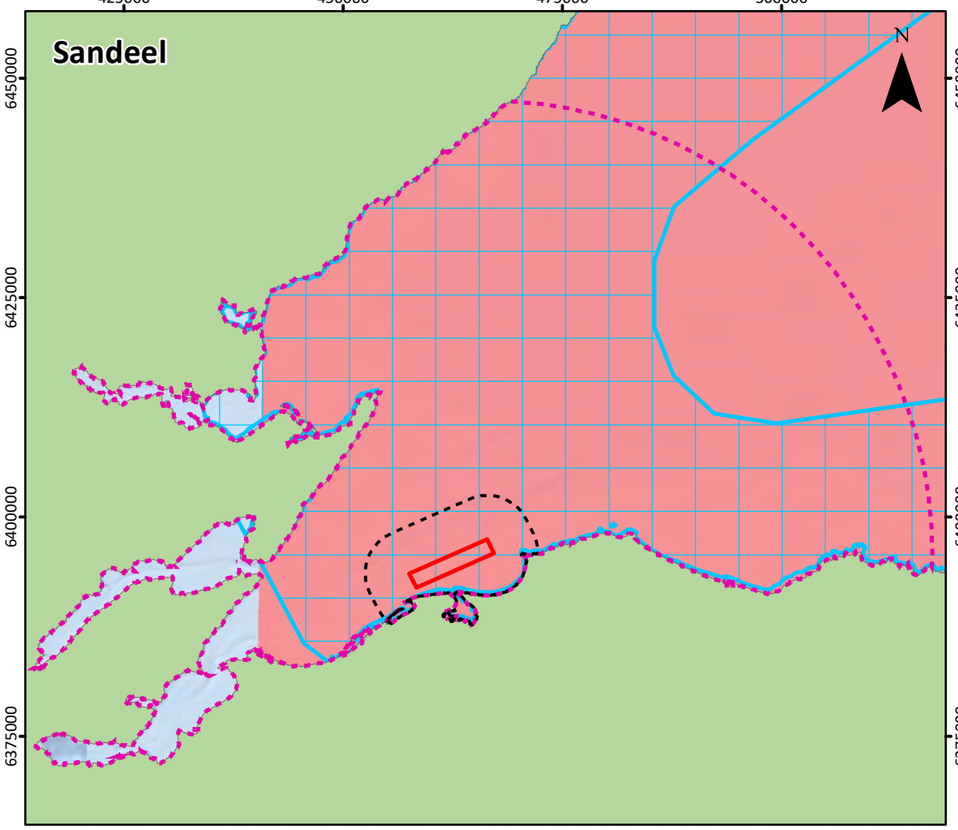
9.4.7.4 The study area also overlaps with spawning ground of lemon sole and nephrops (intensity undetermined; Coull *et al.* 1998) and low intensity spawning ground of European plaice (Ellis *et al.*, 2012) (Figure 9-3 and Figure 9-4). Spawning grounds of lemon sole, sandeel, European plaice and nephrops overlap with the Moray FLOW-Park Area (Coull *et al.*, 1998; Ellis *et al.*, 2012) (Figure 9-3 and Figure 9-4).

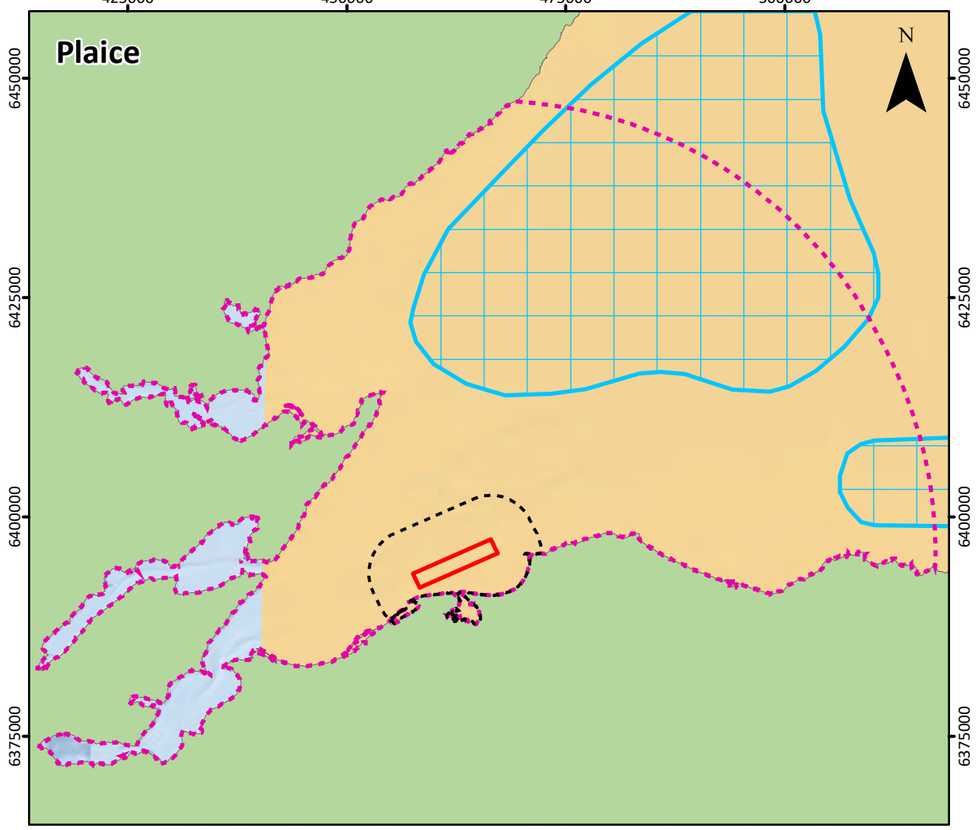
Table 9-2: Summary of Monthly Spawning Timings (Coull et al.*, 1998) in the Northern North Sea for Fish Species Known to Have Spawning Grounds in the Study Area (Light Grey Cells Indicate Spawning Period and Dark Grey Cells Indicate Peak Spawning Period)*

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cod												
Lemon sole												
Sandeel												
European plaice												
Nephrops												









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Spawning Grounds Within the Study Area (Cod, Lemon Sole, Sandeel, Plaice) (Coull *et al.*, 1998; Ellis *et al.*, 2012)

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)

Spawning Grounds (Coull *et al.*, 1998)

- Undetermined Intensity

Spawning Grounds (Ellis *et al.*, 2012) - Intensity

- Higher
- Lower



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 25 50 km

0 10 20 nm

Scale	Date	Drawn by	Checked by	Approved by
1:700,000 @A3	30/01/2026	EV	BPHB	CC

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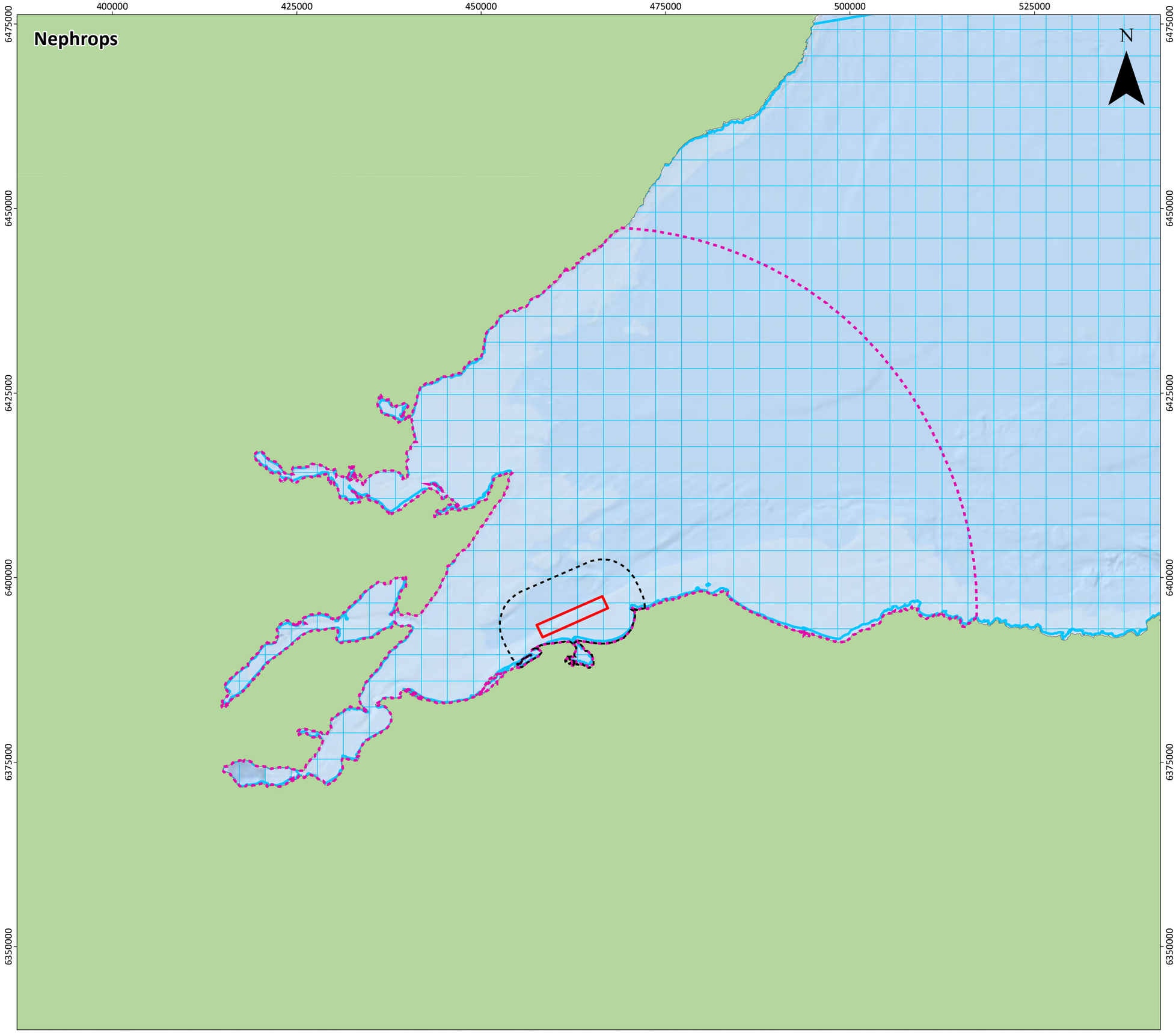
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Figure 9-3

Figure Reference: MFP_FS_Fig9-3_SpawningGrounds1_v5

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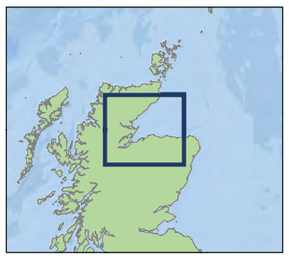
Spawning Grounds Within the Study Area (Nephrops) (Coull *et al.*, 1998)

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)

Spawning Grounds (Coull *et al.*, 1998)

- Undetermined Intensity



Notes

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Coordinate System:
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0 10 20 km

0 5 10 nm

Scale	Date	Drawn by	Checked by	Approved by
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Figure 9-4

Figure Reference: MFP_FS_Fig9-4_SpawningGrounds2_v5

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9.4.8 Sandeel Spawning Grounds

9.4.8.1 Sandeels are of high ecological importance since they are widely recognised as key forage species in the northern North Sea, providing a vital trophic link between zooplankton and higher predators such as piscivorous fish, seabirds and marine mammals. Their ecological significance has led to their listing as a Species of Principal Importance under the UK Post-2010 Biodiversity Framework (Defra, 2022).

9.4.8.2 As shown in Figure 9-3, there is a large sandeel spawning ground which interacts with the study area (Ellis *et al.*, 2012). Sandeel species exhibit substrate dependency, with a preference for sandy substrates on which to spawn. Optimal sediment contains a fines component of ≤2%, while areas with more than 4% fines become largely unsuitable for sandeel habitation (Holland *et al.*, 2005). Females lay demersal eggs and after several weeks, planktonic larvae hatch (Macer, 1965; Langham, 1971). After spawning (from May to August (Table 9-2), sandeel remain buried in the sand (Winslade, 1974). Their reliance on specific sediment characteristics, combined with their benthic spawning behaviour, makes sandeel particularly vulnerable to habitat disturbance impacts, particularly during the spawning period (Milligan, 2011; Hawkins *et al.*, 2015).

9.4.8.3 Recent ICES advice for sandeel (ICES, 2025), recommends that to maintain sustainable stock levels, in the northern and central North Sea, any activity leading to the degradation of sandeel habitat should be avoided. Figure 9-5 shows areas of spawning habitat classified as “unsuitable”, “suitable”, “sub-prime” and “prime” (as defined using the Reach *et al.*, (2024) classifications, originally described in Latto *et al.*, (2013)) (Table 9-3). BGS PSA data (BGS, 2015) have been categorised to ground truth the EMODnet (2022) data (which is partly derived from interpolation and modelling of multiple sources) to facilitate data interpretation at a more refined scale. The EMODnet (2022) data depicts areas of prime spawning habitat within the southeastern portion of the Moray Flow Park, with unsuitable spawning substrates across the northwestern portion of the area. Prime spawning habitats are also located throughout the southern section of the sedimentary ZoI, and within the north, west and southern sections of the UWN ZoI, with discrete areas of sub-prime and marginal spawning habitat distributed across the study area. The BGS data is largely consistent with the EMODnet (2022) data, indicating the presence of large areas of prime spawning habitat within the sedimentary and UWN ZoIs and a channel of unsuitable spawning habitat running from southwest to northeast, through the mid-section of the UWN ZoI.

Table 9-3: Sandeel Spawning Habitat Categories as Defined by Reach et al. *(2024) (Originally Defined by Latto* et al.*, 2013)*

Habitat description	Sediment type (Folk Classification, as per Folk (1954))	Spawning habitat suitability confidence
Prime	Sand, slightly gravelly sand, gravelly sand (subset with <30% gravel, <10% mud)	Higher confidence: most suitable for spawning
Sub-prime	Gravelly sand and sandy gravel (30–50% gravel, <10% mud)	Moderate confidence: suitable for spawning but less optimal than Prime habitat
Suitable	Entire sand, slightly gravelly sand, gravelly sand divisions (<50% gravel, <10% mud)	Moderate confidence: suitable for spawning but less optimal than Sub-prime habitat
Unsuitable	Muddy sands, gravels, silts, clays (>10% mud or >80% gravel)	Lower confidence: not suitable for spawning

425000 450000 475000 500000

6450000 6425000 6400000 6375000

N

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Sandeel Substrate Suitability Relative to the Study Area

Legend

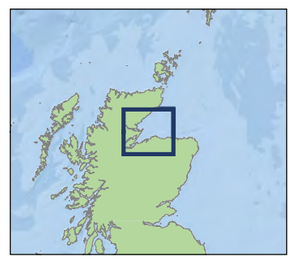
- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)

Sandeel Habitat Suitability (Latto *et al.*, 2013) based on BGS (2015)

- Prime
- Sub-Prime
- Suitable
- Unsuitable

Sandeel Habitat Suitability (Latto *et al.*, 2013) based on EMODnet (2022)

- Prime
- Sub-Prime
- Suitable
- Unsuitable



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Figure 9-5

Figure Reference: MFP_FS_Fig9-5_SandeelSubstrateSuitability_v4

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9.4.8.4 Areas of sandeel spawning potential have been further identified using a heatmapping methodology outlined by Reach et al. (2024) (as adapted from Latto et al., 2013) through the interpretation of: broadscale habitat mapping (EMODnet, 2022), fishing activity data / Vessel Monitoring System (VMS) data (2007-2020) (MMO, 2020), identified spawning grounds (Coull et al., 1998), the OneBenthic sandeel presence layer (Cefas 2025) and sandeel fishing grounds (Wright et al., 2019) (Figure 9-6). The greater the number of overlapping data layers the greater the 'heat' mapped. Areas of higher 'heat' therefore indicate a higher confidence that the seabed may be suitable for sandeel. The entirety of the Moray FLOW-Park Area and the study area overlap with spawning habitat assigned low to medium confidence (0.75-0.1). Approximately 50% of the Moray FLOW-Park Area (in the southeast) overlaps with spawning habitat assigned medium spawning potential confidence (0.2-0.1). The other 50% of the Moray FLOW-Park Area (in the northwest) overlaps with spawning habitat assigned lower confidence (0.75-0.5). Similarly, the sedimentary ZoI and UWN ZoI are split into large areas of medium (0.2-0.1) and lower (0.75-0.2) confidence, with areas assigned a medium confidence largely in the south section of the sedimentary ZoI and the north, west and south sections of the UWN ZoI.

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6450000 6425000 6400000 6375000

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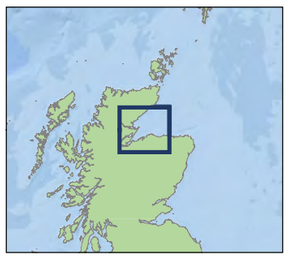
Sandeel Spawning Potential Heat Map Within the Study Area

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)

Potential Supporting Sandeel Habitat Confidence (Reach *et al.*, 2024)

- 0.013 - 0.02 (Higher)
- 0.02 - 0.03
- 0.03 - 0.04
- 0.04 - 0.05
- 0.05 - 0.075
- 0.075 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75 (Lower)



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Figure 9-6

Figure Reference: MFP_FS_Fig9-6_SandeelSpawningHeatMap_v5

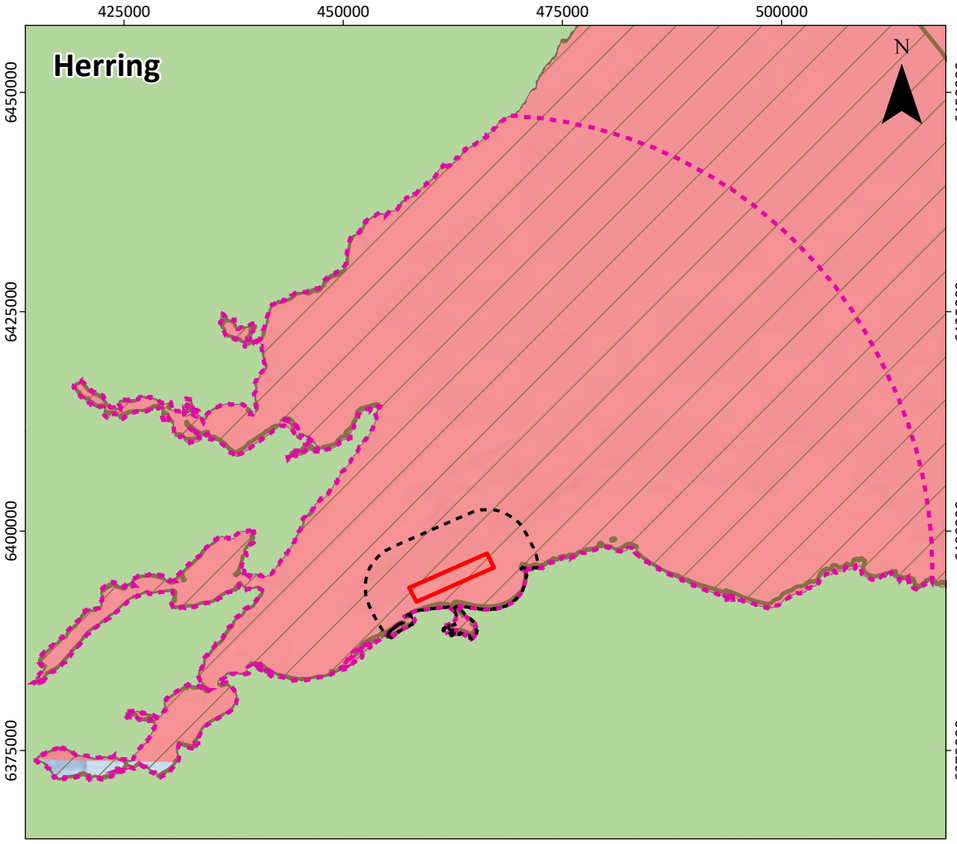
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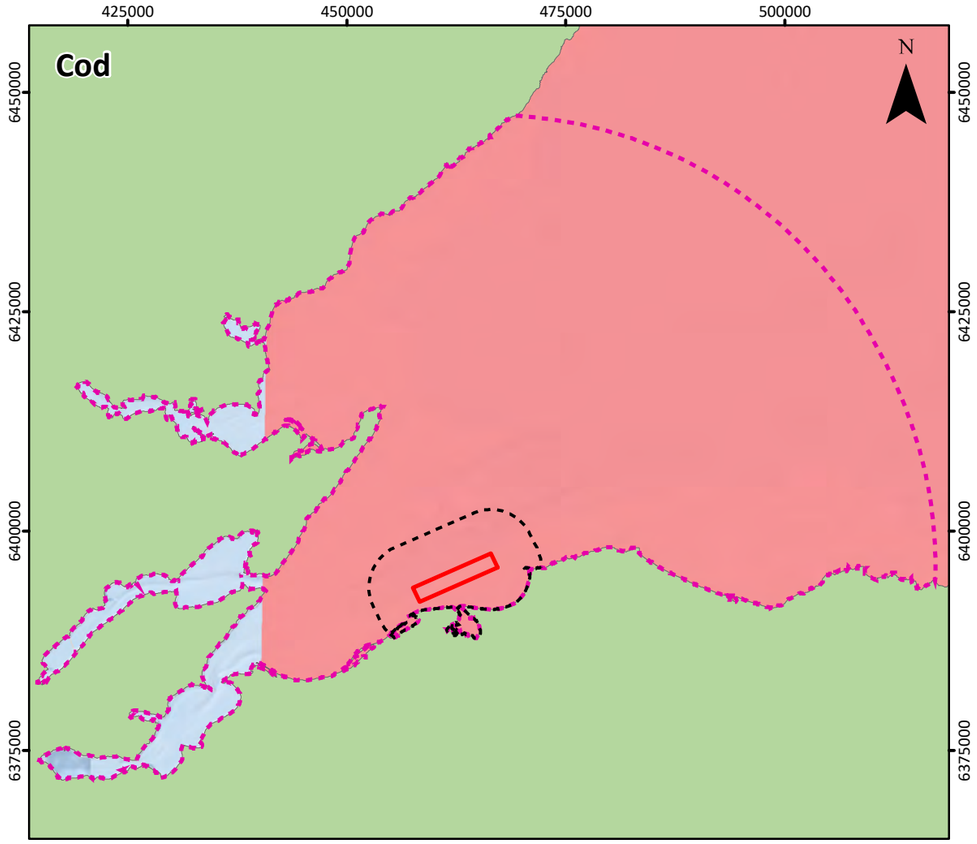
9.4.9 Nursery Grounds

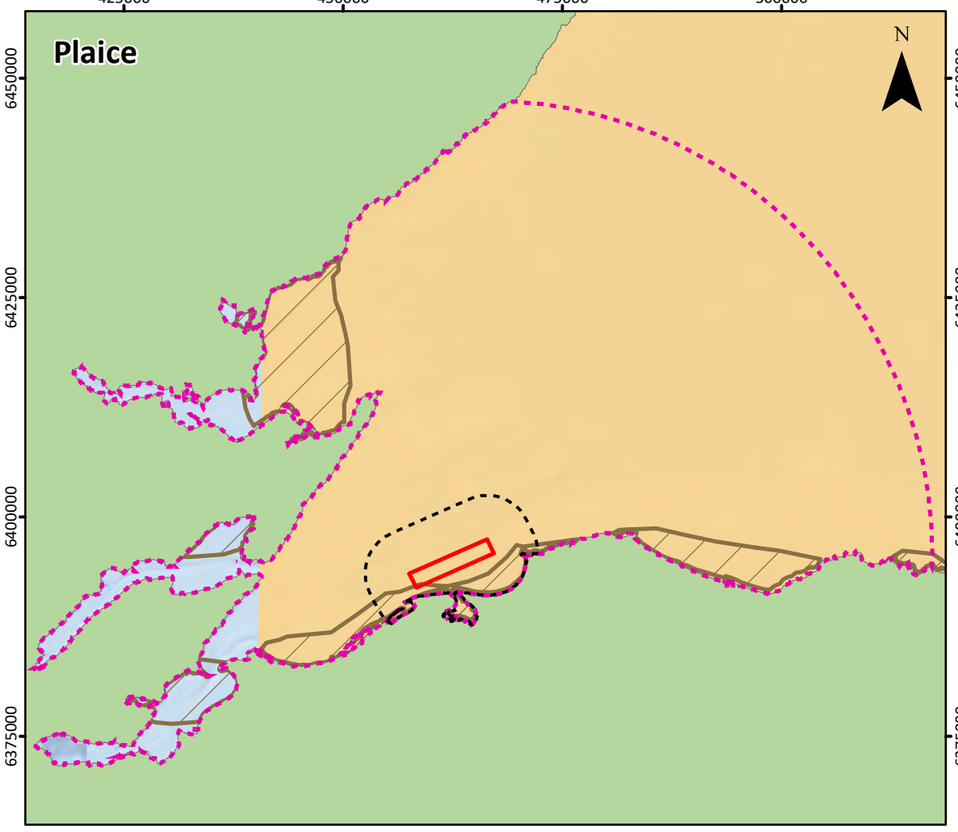
9.4.9.1 There are high intensity nursery grounds for herring, cod, whiting and monkfish that overlap with the sedimentary ZoI and UWN ZoI as shown in Figure 9-6, Figure 9-9 and Figure 9-10 (Ellis *et al.*, 2012). These high intensity nursery grounds also overlap with the entirety of the Moray FLOW-Park Area.

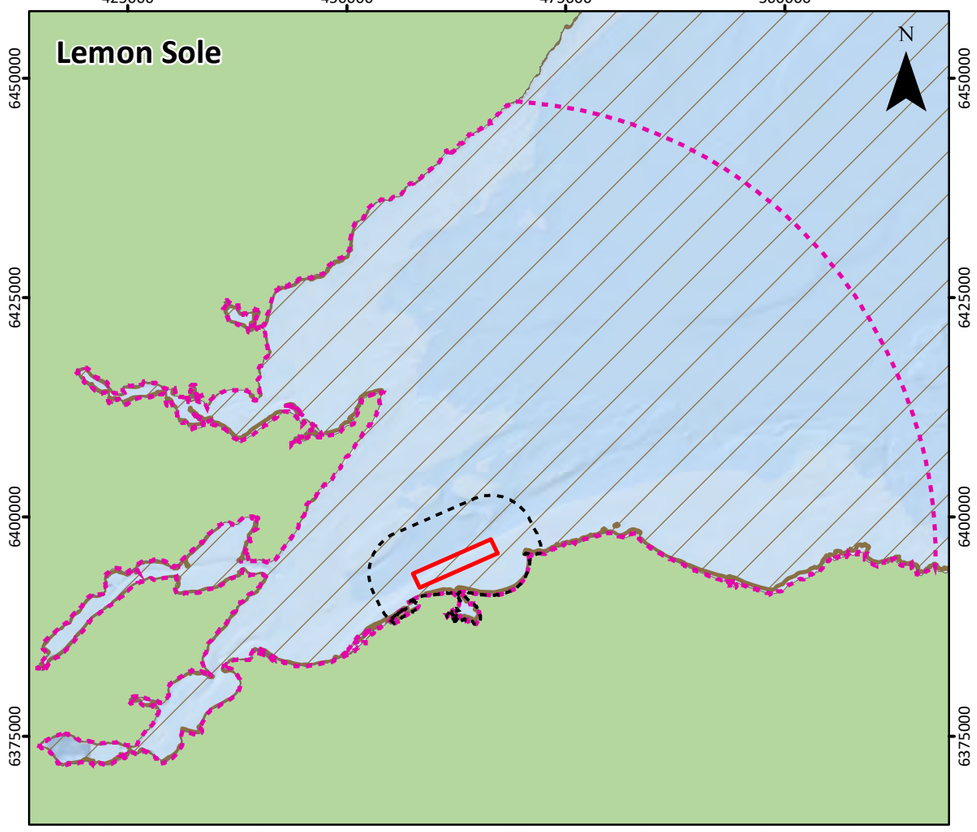
9.4.9.2 There are low intensity nursery grounds for European plaice, sandeel, spurdog, blue whiting, ling, hake, mackerel, thornback ray and spotted ray (Ellis *et al.*, 2012) that overlap with the sedimentary ZoI and UWN ZoI as shown in Figure 9-7, Figure 9-8, Figure 9-9, Figure 9-10 and Figure 9-11. The low intensity spawning grounds for European plaice, sandeel, spurdog, blue whiting, ling, hake mackerel and thornback ray overlap with the entirety of the Moray FLOW-Park Area. The low intensity spawning grounds for spotted ray do not interact with the Moray FLOW-Park Area and overlap with a small proportion of the east section of the sedimentary ZoI, and the eastern section of the UWN ZoI (Figure 9-11).

9.4.9.3 Nursery grounds of lemon sole, sprat, nephrops and saithe (with intensity underdetermined; Coull *et al.*, 1998) also overlap with the entirety of Moray FLOW-Park Area, sedimentary ZoI and UWN ZoI (Figure 9-7, Figure 9-8 and Figure 9-9). Nursery grounds of haddock (with undetermined spawning intensity; Coull *et al.*, 1998) overlap with a large proportion of the UWN ZoI, mostly in the north and central sections, but do not interact with the sedimentary ZoI, or the Moray FLOW-Park Area (Figure 9-8).









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Nursery Grounds Within the Study Area (Herring, Cod, Plaice, Lemon Sole) (Coull *et al.*, 1998; Ellis *et al.*, 2012)

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)
- Nursery Grounds (Coull *et al.*, 1998)

Nursery Grounds (Ellis *et al.*, 2012) - Intensity

- Higher
- Lower



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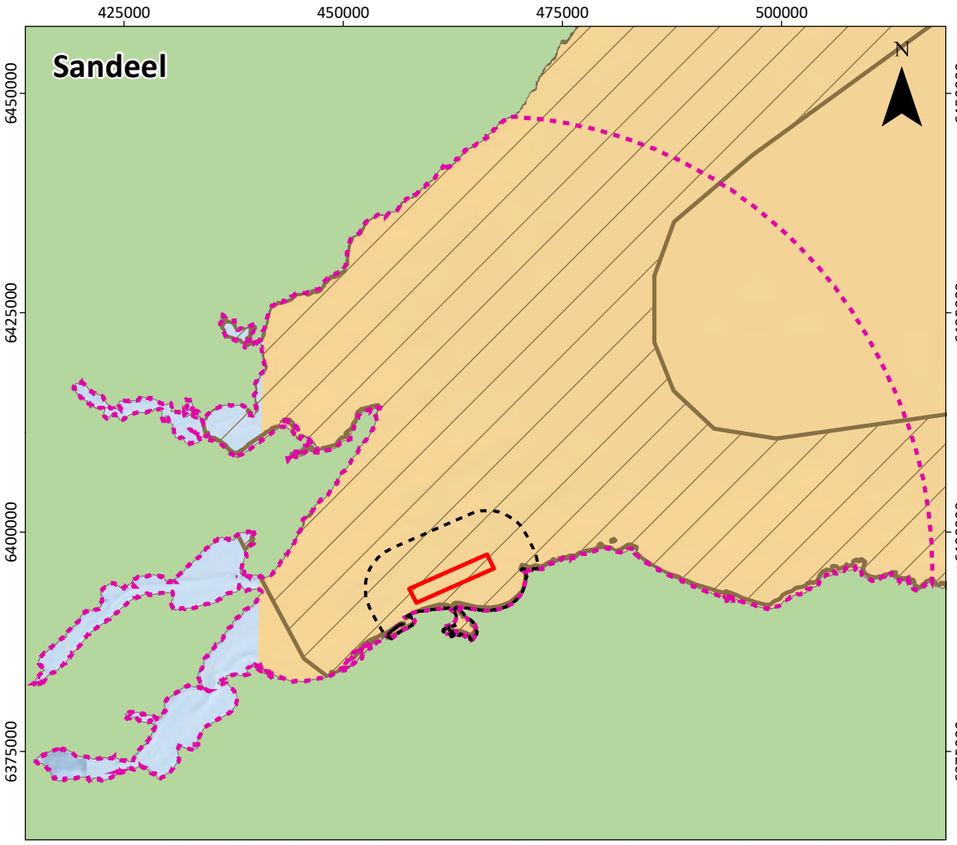
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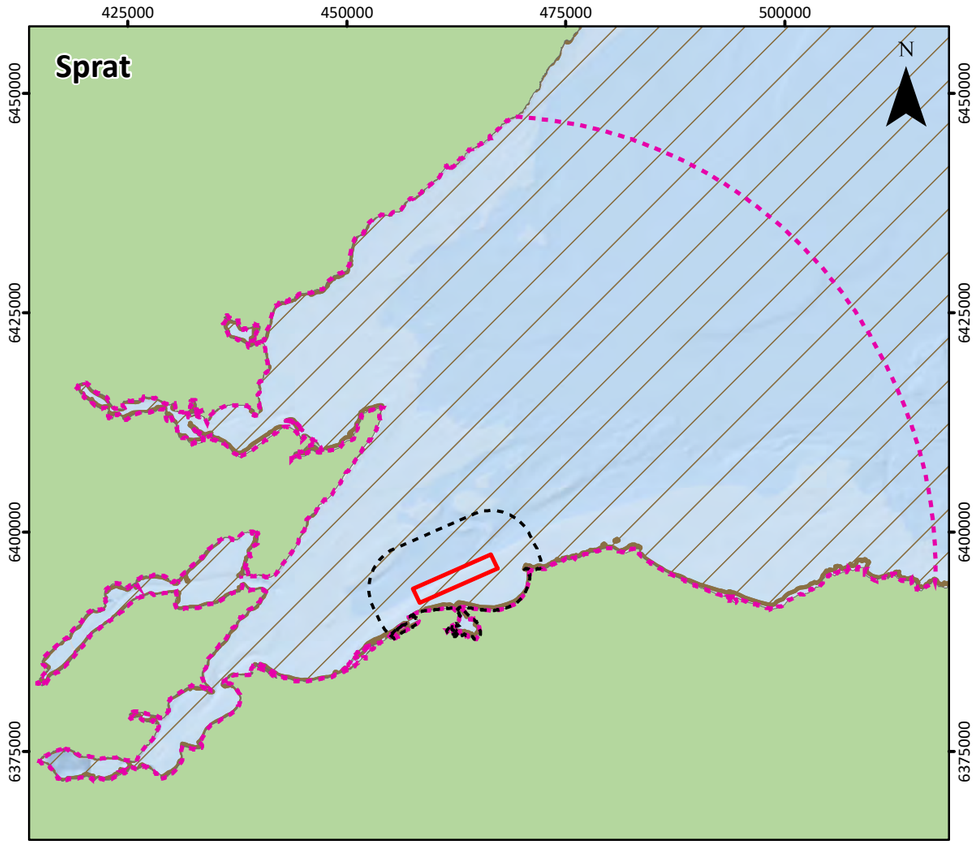
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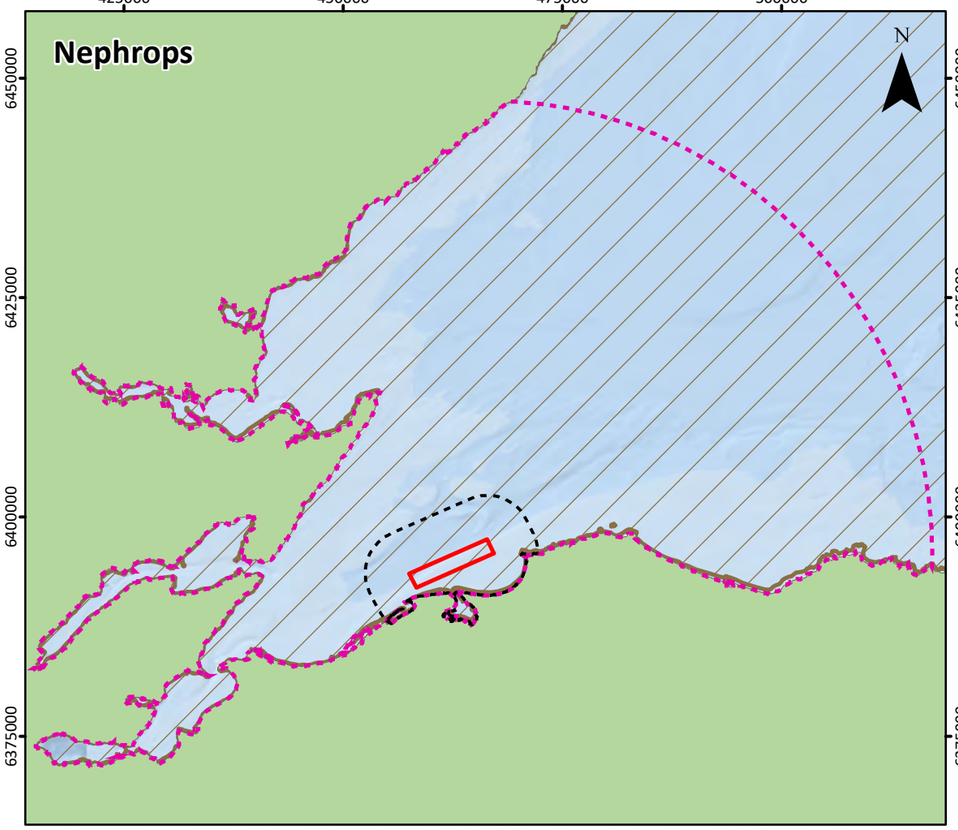
Figure 9-7

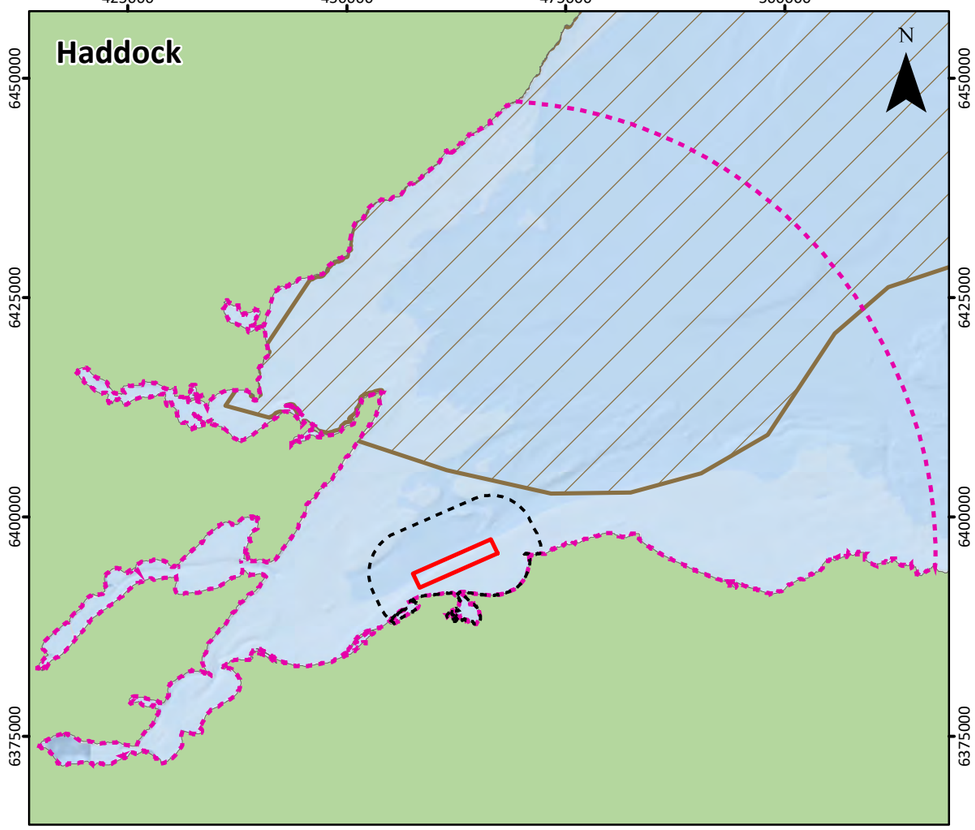
Figure Reference: MFP_FS_Fig9-7_NurseryGrounds1_v5

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Nursery Grounds Within the Study Area (Sandeel, Sprat, Nephrops, Haddock) (Coull *et al.*, 1998; Ellis *et al.*, 2012)

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)
- Nursery Grounds (Coull *et al.*, 1998)

Nursery Grounds (Ellis *et al.*, 2012) - Intensity

- Higher
- Lower



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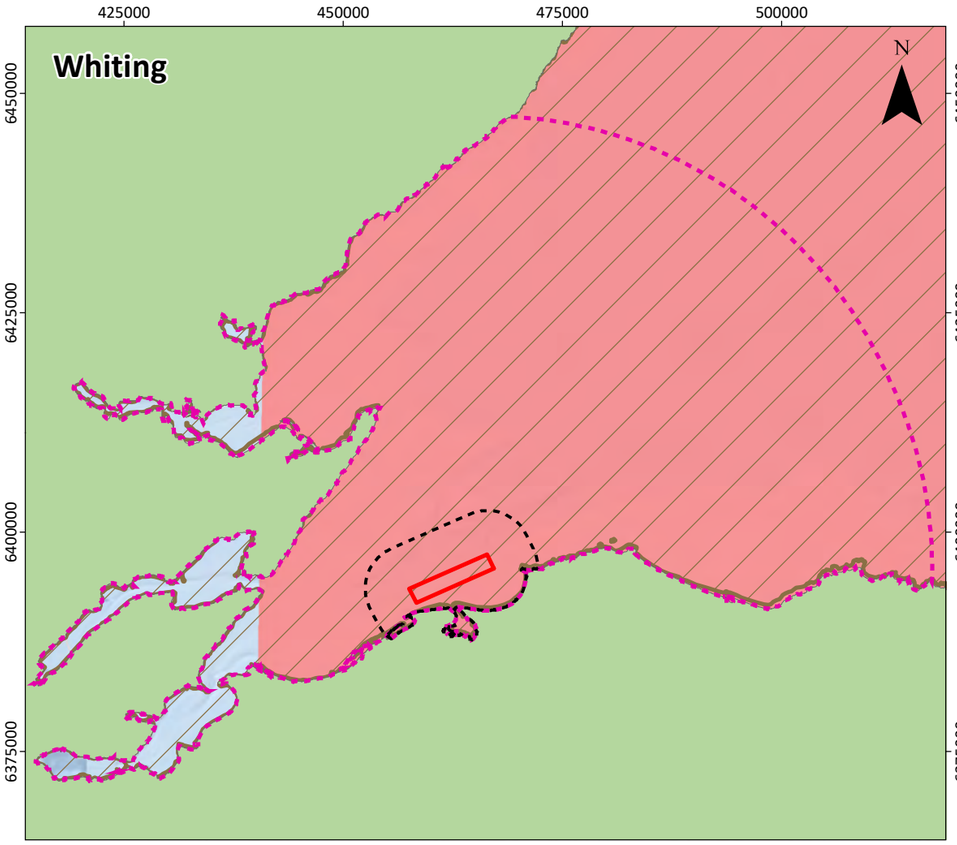
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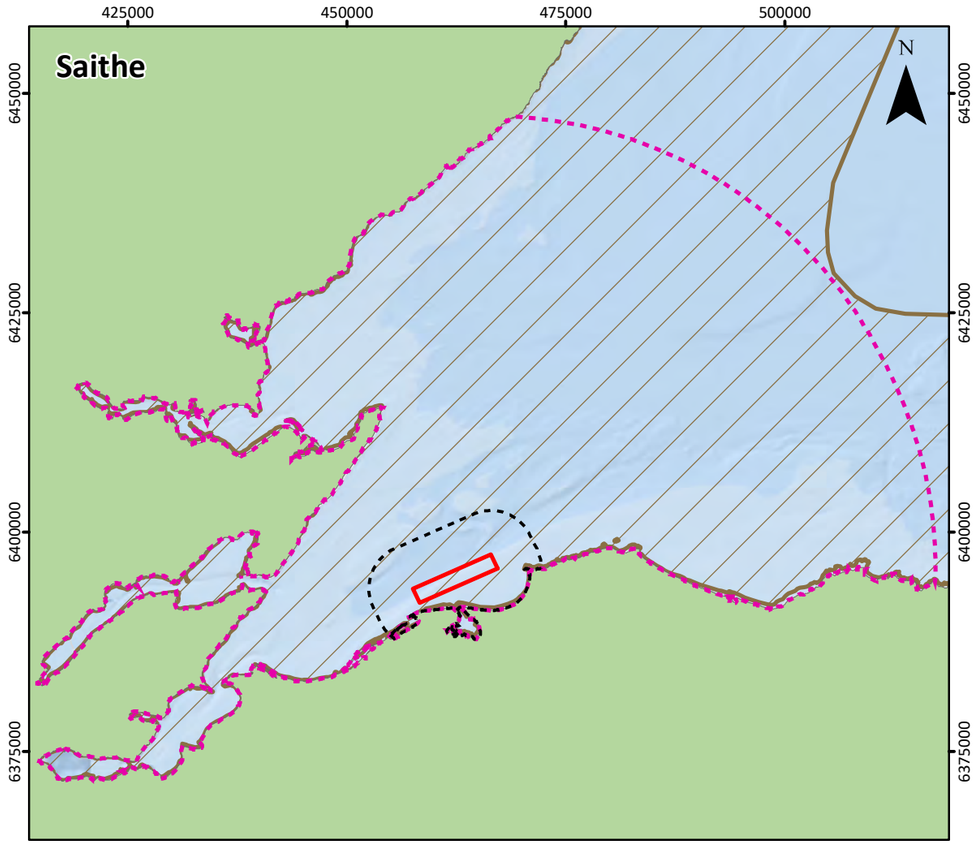
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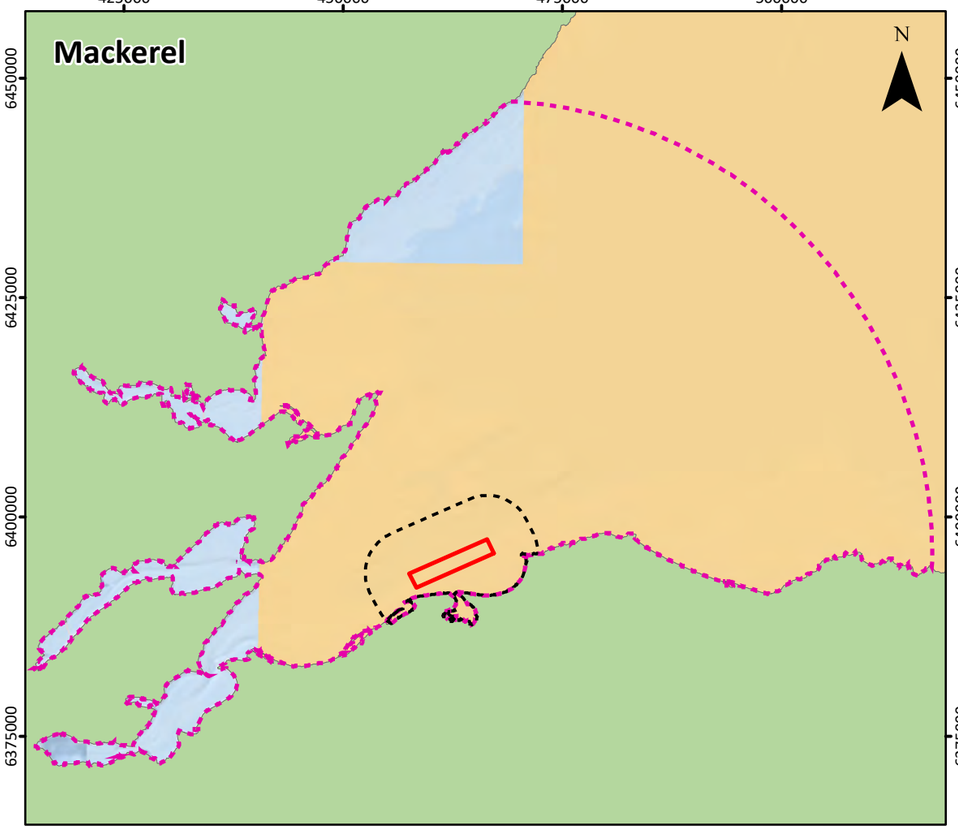
Figure 9-8

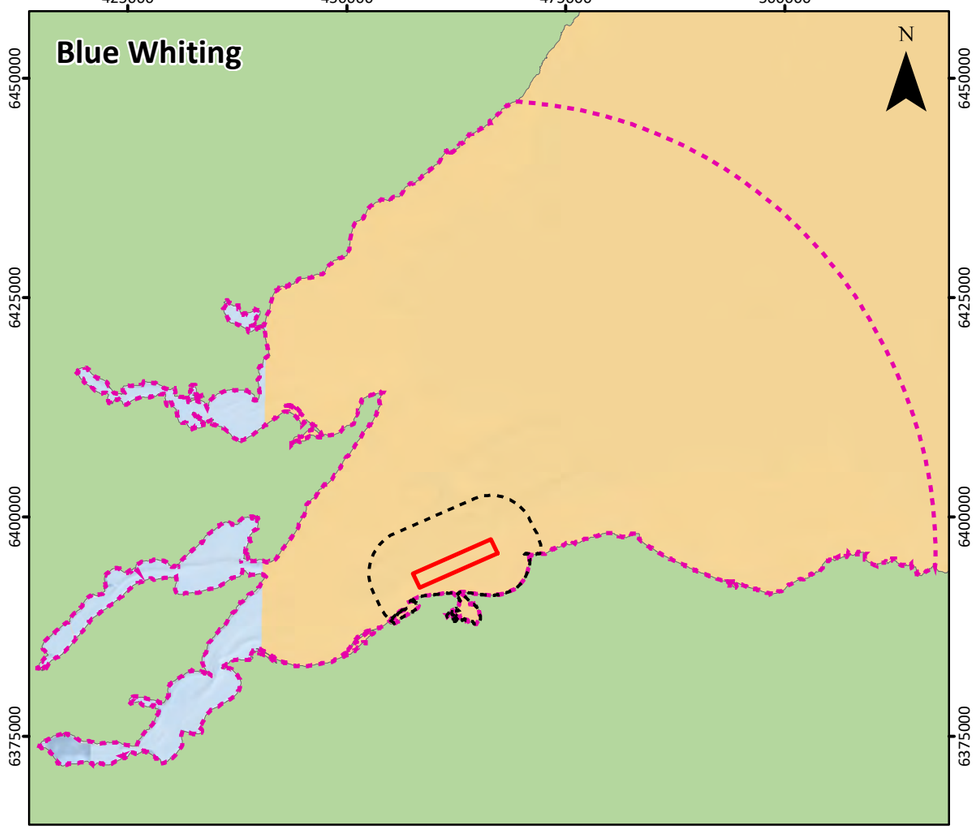
Figure Reference: MFP_FS_Fig9-8_NurseryGrounds2_v5

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Nursery Grounds Within the Study Area (Whiting, Saithe, Mackerel, Blue Whiting) (Coull *et al.*, 1998; Ellis *et al.*, 2012)

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)
- Nursery Grounds (Coull *et al.*, 1998)

Nursery Grounds (Ellis *et al.*, 2012) - Intensity

- Higher
- Lower



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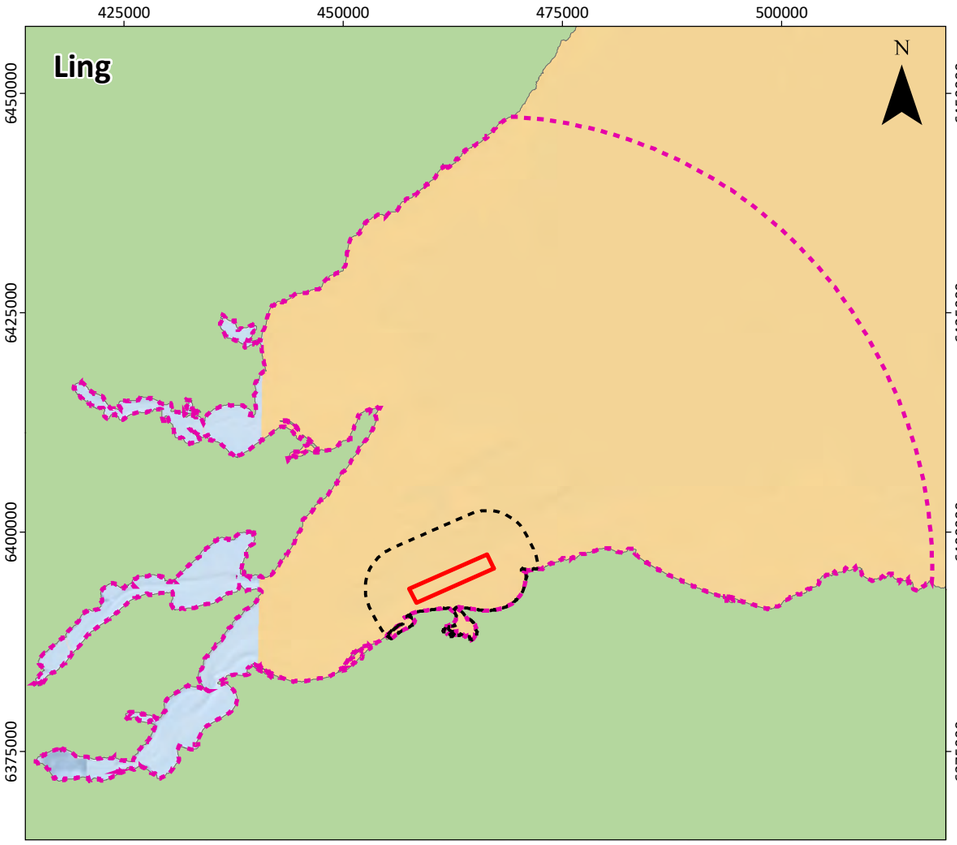
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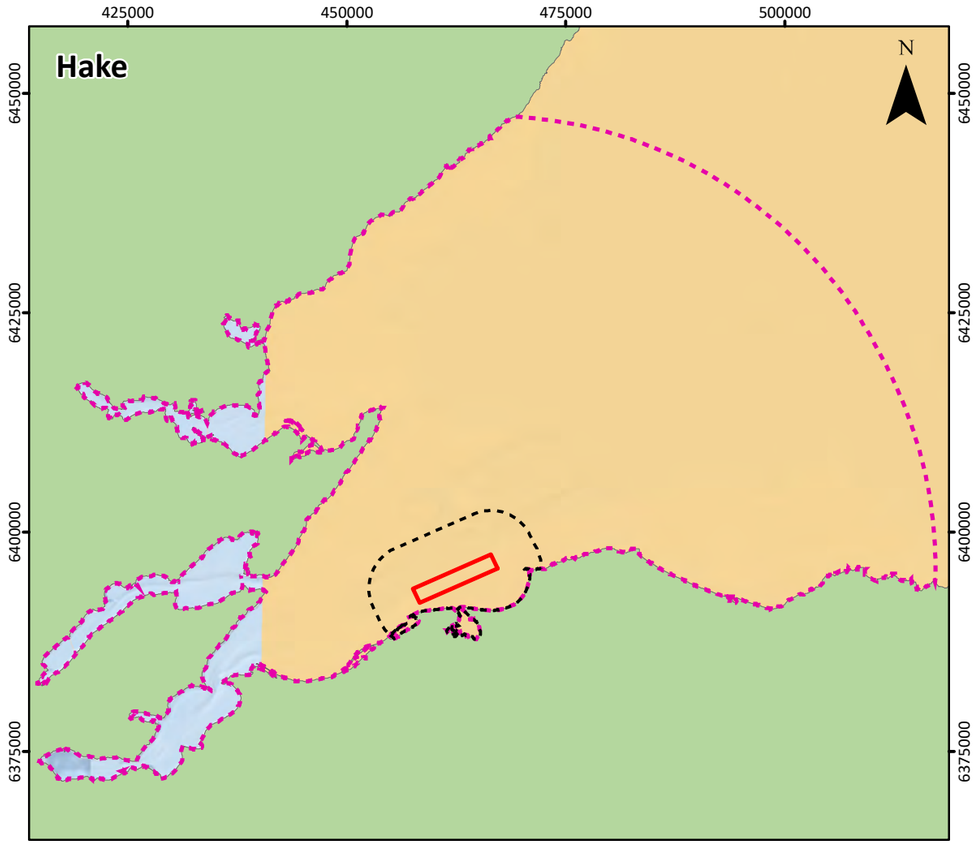
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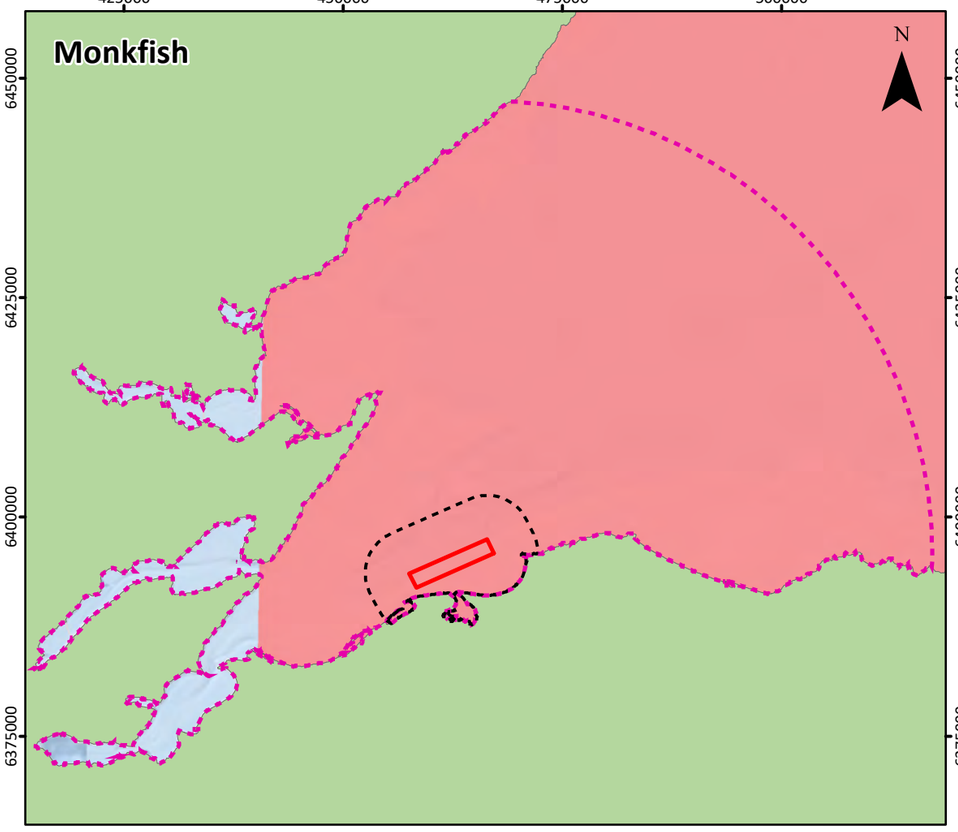
Figure 9-9

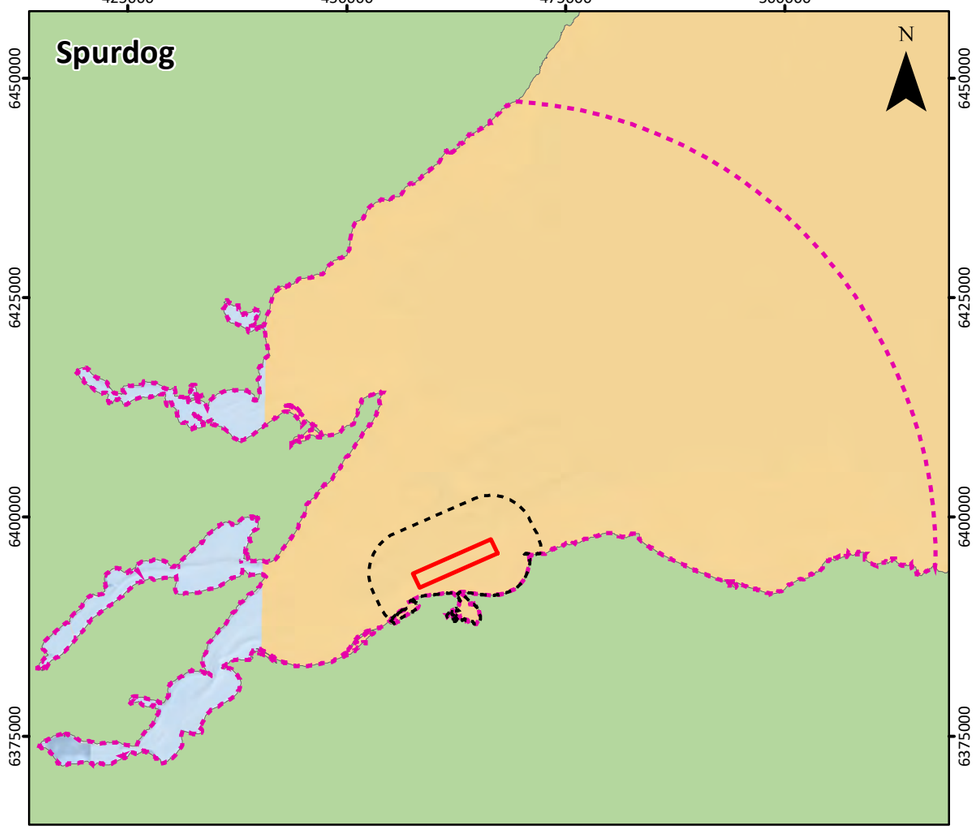
Figure Reference: MFP_FS_Fig9-9_NurseryGrounds3_v5

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Nursery Grounds Within the Study Area
(Ling, Hake, Monkfish, Spurdog)
(Coull *et al.*, 1998; Ellis *et al.*, 2012)

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)

Nursery Grounds
(Ellis *et al.*, 2012) - Intensity

- Higher
- Lower



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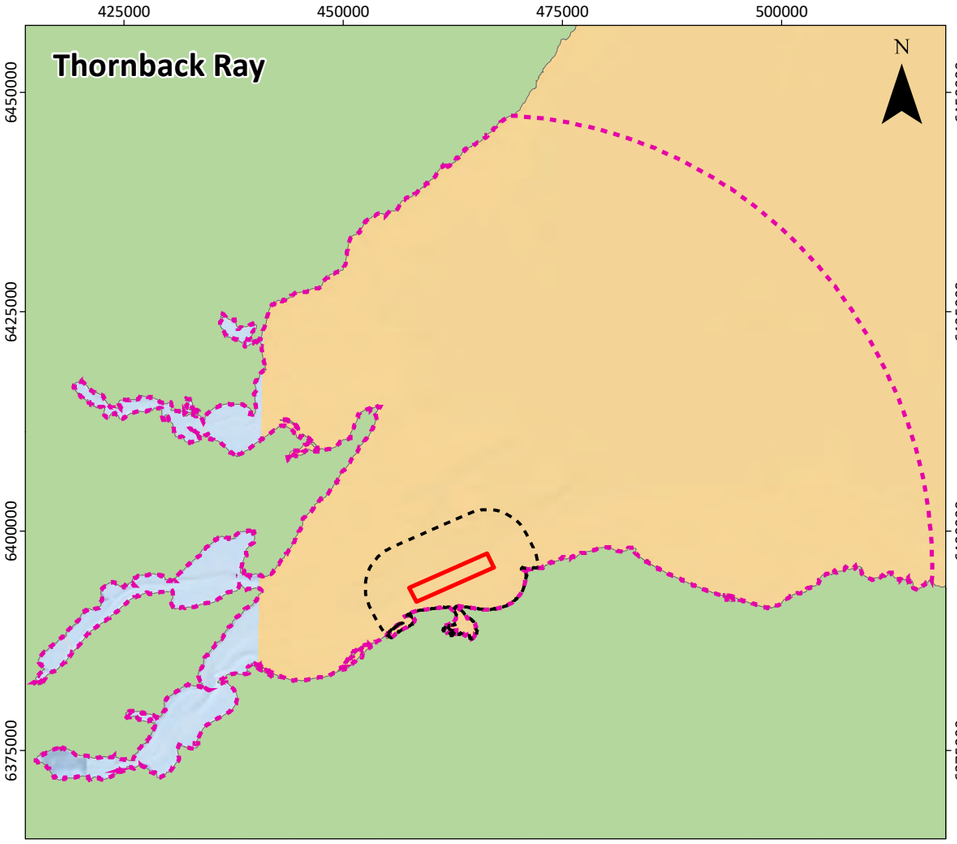
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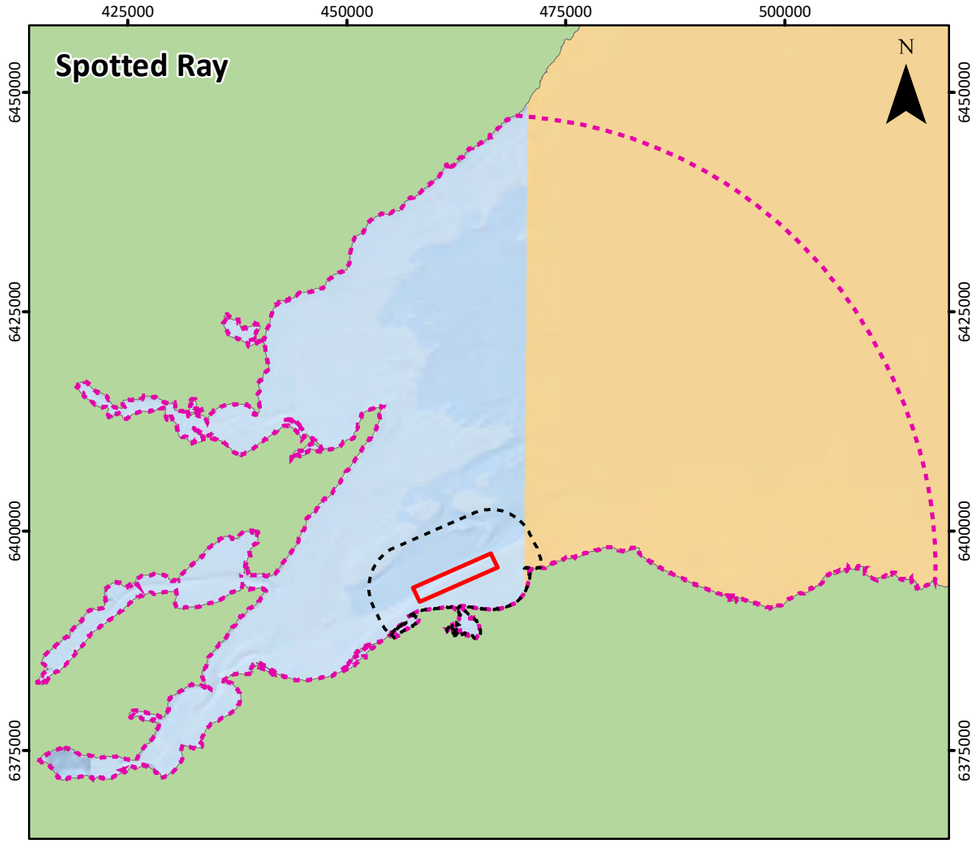
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Figure 9-10

Figure Reference: MFP_FS_Fig9-10_NurseryGrounds4_v5

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Nursery Grounds Within the Study Area (Thornback Ray, Spotted Ray) (Coull *et al.*, 1998; Ellis *et al.*, 2012)

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)

Nursery Grounds

(Ellis *et al.*, 2012) - Intensity

- Higher
- Lower



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9.4.10 Species of Commercial Importance

9.4.10.1 Detailed information on species of commercial importance is provided in Chapter 12: Commercial Fisheries of the Inshore Scoping Report, Section 19.4. As identified by the Chapter, the key species landed within the UWN study area include nephrops, ballan wrasse *Labrus bergylta*, brown crab *Cancer pagurus*, scallop, velvet crab, whelk, lobster, squid (mainly the veined squid) and octopi, mackerel, monkfish, cod, whiting, European plaice and haddock. Sandeel are not currently landed as the North Sea sandeel fishery is closed due to low estimated recruitment and low Spawning Stock Biomass (SSB) (ICES, 2025c).

9.4.10.2 The Provisional Scottish Sea Fisheries Statistics for 2024 show that Scottish vessels landed 517,000 tonnes of sea fish and shellfish (Scottish Government, 2025g). Of this, mackerel was the most valuable species, worth £281 million and representing 40% of the total value of Scottish vessels' landings (Scottish Government, 2025g). Haddock was the most valuable demersal species, worth £42 million and representing 6% of the total value of Scottish vessels' landings (Scottish Government, 2025e). Nephrops was the most valuable shellfish species, worth £76 million and representing 11% of the total value of Scottish vessels' landings (Scottish Government, 2025g).

9.4.10.3 The UK Sea Fisheries Annual Statics for 2023 show that Scottish-registered fishing vessels landed 500,900 tonnes of sea fish and shellfish, marking a 16% increase in tonnage from the previous year (MMO, 2023). Specifically, the pelagic landings experienced an 18% increase in tonnage in 2023. Mackerel remains the most important stock for the Scottish fishing fleet, with Scottish vessels landing 18% more mackerel by weight in 2023 compared to the previous year. Of the mackerel landed by Scottish vessels, more than half was landed in Scotland, with the remainder landed overseas (MMO, 2023). Tonnage also increased for blue whiting, by 55%, although declined for herring, by 7%. Demersal landings in 2023 experienced a 21% increase in tonnage. Tonnage of cod, haddock and whiting increased by 46%, 27% and 11%, respectively. Whereas tonnage of monkfish decreased by 2%.

9.4.10.4 The shellfish sector saw a 10% increase in tonnage in 2023 compared to the previous year. Tonnage increased for whelks, scallops, lobsters, squid and nephrops, by 38%, 28%, 8%, 6% and 5%, respectively. Tonnage decreased for crabs by 1% (MMO, 2023).

9.4.10.5 Fishing activity is influenced by a range of factors, and landings often fluctuate significantly over time. Since 2020, one of the most substantial influences on sea fisheries has been the UK's departure from the European Union, which affected the availability of fish stocks accessible to the UK fleet in subsequent years (MMO, 2023).

9.4.10.6 The Moray Firth, including the study area and Moray FLOW-Park Area, lies within nephrops FU 9 (Scottish Government, 2025f). FUs are specific areas defined by ICES for assessing nephrops stocks, based on the distribution of suitable muddy sediment habitats and fishing activity.

9.4.11 Species of Conservation Importance

9.4.11.1 Within the northern North Sea region, there are records of several marine and estuarine species protected under national, European, and international legislation.

9.4.11.2 Species of conservation importance that have the potential to be present within the Fish and Shellfish Ecology study area are listed below in Table 9-4 alongside their associated designations.

9.4.11.3 On account of the conservation importance of these species to the region, all species are considered sensitive receptors to the Project and, therefore, potential impacts on these species from the Project will be taken into consideration in the fish and shellfish ecology assessment.

Table 9-4: Species of Conservation Importance Potentially Present within the Study Area

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
Pelagic species							
Black scabbardfish					Black scabbardfish		
Blue whiting		✓	✓	✓	Least Concern (Europe)		
Hake			✓	✓	Least Concern (Europe, Global)		
Herring		✓	✓	✓	Least Concern (Global, Europe)		
Horse mackerel		✓		✓	Least Concern (Europe);		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
					Vulnerable (Global)		
Lesser sandeel		✓	✓	✓	Data Deficient (Europe, Global)		
Mackerel		✓	✓	✓	Least Concern (Europe, Global)		
Norway pout		✓	✓		Least Concern (Europe, Global)		
Orange roughy	✓	✓	✓	✓	Vulnerable (Europe)		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
Raitt's sandeel		✓	✓		Least Concern (Europe)		
Saithe		✓			Least Concern (Europe)		
Sparling		✓	✓	✓	Least Concern (Europe, Global)		
Demersal species							
Atlantic halibut		✓	✓	✓	Vulnerable (Europe); Near Threatened (Global)		
Blue ling		✓	✓		Vulnerable (Europe)		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
Cod	✓	✓	✓	✓	Least Concern (Europe), Vulnerable (Global)		
Dover sole			✓	✓	Least Concern (Europe)		
European plaice			✓	✓	Least Concern (Europe, Global)		
Greenland halibut		✓	✓	✓	Near Threatened (Europe, Global)		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
Ling		✓	✓	✓	Least Concern (Europe)		
Long-snouted seahorse	✓		✓	✓	Data Deficient (Europe, Global)		
Monkfish		✓	✓	✓	Least Concern (Europe, Global)		
Round-nose grenadier		✓	✓	✓	Endangered (Europe); Critically Endangered (Global)		
Sand goby		✓			Least Concern		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
					(Europe, Global)		
Seabass					Near Threatened (Europe, Global)		
Turbot					Vulnerable (Europe); Least Concern (Global)		
Whiting		✓	✓	✓	Least Concern (Europe, Global)		
Diadromous fish							
Allis shad	✓		✓	✓	Critically Endangered	✓	✓

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
					(Europe, Global)		
Atlantic salmon	✓	✓	✓	✓	Vulnerable (Europe); Near Threatened (Global)	✓	
European eel	✓	✓	✓	✓	Critically Endangered (Europe, Global)		
River lamprey		✓	✓	✓	Near Threatened (Europe, Global)	✓	
Sea lamprey	✓	✓	✓	✓	Least Concern	✓	

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
					(Europe, Global)		
Sea trout		✓	✓	✓	Least Concern (Europe, Global)		
Twaite shad	✓		✓	✓	Near Threatened (Europe); Least Concern (Global)	✓	✓
Elasmobranchs							
Angel shark	✓		✓		Critically Endangered (Europe, Global)		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
Basking shark	✓	✓	✓	✓	Endangered (Europe, Global)		✓
Birdbeak dogfish					Endangered (Europe); Near Threatened (Global)		
Black skate					Near Threatened (Europe); Endangered (Global)		
Blonde skate					Near Threatened (Europe, Global)		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
Blue shark			✓	✓	Near Threatened (Europe, Global)		
Blue skate	✓	✓	✓	✓	Critically Endangered (Global)		
Common stingray					Vulnerable (Europe, Global)		
Cuckoo ray					Near Threatened (Global)		
Flapper skate		✓			Critically Endangered (Global)		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
Leafscale gulper shark	✓	✓	✓	✓	Endangered (Europe, Global)		
Long-nose skate					Vulnerable (Global)		
Nursehound					Near Threatened (Europe); Vulnerable (Global)		
Porbeagle	✓	✓	✓	✓	Critically Endangered (Europe); Vulnerable (Global)		
Portuguese dogfish	✓	✓	✓	✓	Endangered (Europe); Near		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
					Threatened (Global)		
Sandy ray	✓	✓	✓		Vulnerable (Europe, Global)		
Shagreen ray					Vulnerable (Europe, Global)		
Spotted ray	✓				Least Concern (Europe, Global)		
Spurdog	✓	✓	✓	✓	Endangered (Europe), Vulnerable (Global)		
Starry smooth hound					Near Threatened		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
					(Europe, Global)		
Thornback ray	✓		✓		Least Concern (Europe, Global)		
Thresher shark					Endangered (Europe); Vulnerable (Global)		
Tope shark			✓	✓	Vulnerable (Europe); Critically Endangered (Global)		
Velvet belly lanternshark					Near Threatened (Europe);		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
					Vulnerable (Global)		
White skate	✓				Critical (Europe); Endangered (Global)		
Shellfish species							
Blue mussels (forming beds/reefs)		✓	✓	✓	Species not assessed		
Burrowed mud (with Nephrops being part of burrowing megafauna community)		✓			Not applicable		

Species	OSPAR threatened and/or declining species (OSPAR, 2025)	Scottish Priority Marine Features (PMFs) (NatureScot, 2020b)	Species of Principal Importance in Scotland (NatureScot, 2020c)	Species of Principal Importance in England (Defra, 2022)	IUCN Red List status (IUCN, 2025)	EU Habitats Directive (92/43/EEC) – Annex II species	Wildlife and Countryside Act 1981, as amended in Scotland (including the Nature Conservation (Scotland) Act 2004) – Schedule 5 species
European flat oyster	✓	✓	✓	✓	Species not assessed		
Horse mussels (forming beds/reefs)		✓	✓		Species not assessed		
Freshwater pearl mussel					Critically Endangered (Europe); Endangered (Global)	✓	✓

9.4.12 Designated Sites

9.4.12.1 Designated sites within the study area and within the wider vicinity of the study area, which are designated for the protection and conservation of marine habitats of relevance to Fish and Shellfish Ecology, are provided in Table 9-5Table 6-2 and presented in Figure 9-12.

9.4.12.2 The River Oykel SAC, River Spey SAC and River Evelix SAC (which lie within the study area) and River Moriston SAC (which lies outside of the study area) are designated to protect fish and shellfish receptors, including salmon, freshwater pearl mussel and sea lamprey. The COs of these SACs are to maintain or restore population viability and suitable habitat of the qualifying features.

9.4.12.3 The majority of the designated sites identified have qualifying features (such as bird or marine mammal qualifying features) that are dependent on fish or shellfish receptors, for example, for prey availability. The Southern Trench NCMPA is designated for burrowed mud, which is typically inhabited by nephrops and various crab species.

9.4.12.4 Some SPAs are also Ramsar sites as denoted in Table 9-5. As these Ramsar sites share the protected features and COs of overlapping designated areas, separate analyses are not presented for Ramsar sites.

Table 9-5: Designated Sites Relevant for Fish and Shellfish Ecology

Designated Site	Distance from Moray FLOW-Park (km)	Fish and Shellfish Ecology Protected Feature(s) and Conservation Objectives (COs)
Southern Trench NCMPA	32.51	Forage fish species (e.g., herring, mackerel, sandeel and sprat) are essential for supporting the qualifying feature of minke whale *Balaenoptera acutorostrata*. The qualifying feature of burrowed mud provides key habitat for nephrops, angular crab, squat lobsters, burrowing shrimp and ghost shrimp. For minke whale, a CO of this NCMPA is to ensure continued access to resources provided by the MPA for, but not restricted to, feeding. Specifically, feeding resources are their prey (forage fish) and particular areas of the NCMPA that may be used during feeding. It is highlighted that access to resources could be restricted by i) large-scale physical barriers or ii) significant disturbance which alters their distribution within the site or disrupts feeding and other behaviours.
Moray Firth SAC	0 (overlaps)	Forage fish species (e.g., Atlantic salmon, sea trout, flatfish (Pleuronectiformes), mackerel, cod, saithe, whiting, haddock, and squid and octopi) are essential for supporting the qualifying feature of Bottlenose dolphin *Tursiops truncatus*. A CO of this SAC is to ensure the supporting habitats and processes relevant to bottlenose dolphin and the availability of prey for bottlenose dolphin are maintained.
Moray Firth SPA	0 (overlaps)	Forage fish (e.g., herring, sandeel, and sprat) and/or shellfish species (e.g., mussels, clams, and crustaceans) are essential for supporting the qualifying features of this site. A CO for this SPA is that the supporting habitats and processes relevant to qualifying features and their prey resources are maintained, or where appropriate restored.
East Caithness Cliffs NCMPA and SPA	43.71	Forage fish species are essential for supporting the qualifying features of this SPA. A CO for this SPA is that the supporting habitats and processes relevant to qualifying features and their prey resources are maintained, or where appropriate restored.
Dornoch Firth and Loch Fleet SPA (also a Ramsar)	18.06	Forage fish and/or shellfish species are essential for supporting the qualifying features of the SPA.

Designated Site	Distance from Moray FLOW-Park (km)	Fish and Shellfish Ecology Protected Feature(s) and Conservation Objectives (COs)
Dornoch Firth and Morrich More SAC	28.23	Forage fish species are essential for supporting the qualifying features of this site (otter *Lutra lutra* and harbour seal *Phoca vitulina*). A CO for this SAC is to ensure supporting habitats and processes relevant to harbour seal and otter are maintained, including prey resources for otter.
Cromarty Firth SPA (also an SSSI and Ramsar)	18.25	Forage fish and/or shellfish species are essential for supporting the qualifying features of this site.
Inner Moray Firth SPA (also a Ramsar, and overlaps with Beauly Firth SSSI)	16.79	Forage fish and/or shellfish species are essential for supporting the qualifying features of this site.
Moray and Nairn Coast SPA (also a Ramsar)	0.92	Forage fish and/or shellfish species are essential for supporting the qualifying features of this site.
River Oykel SAC	44.47	The protected features of this SAC are Atlantic salmon and the freshwater pearl mussel. The COs of this SAC are to maintain or restore population viability and suitable habitat of the qualifying features.
River Evelix SAC	31.06	Salmonids (young salmon or trout) are essential for supporting the qualifying feature of freshwater pearl mussel since they act as host species. The mussel larvae attach to the gills of salmonids. A CO for this SAC is to maintain the distribution and viability of freshwater mussel host species and their supporting habitats.
River Spey SAC	26.26	The protected features of this SAC are salmon, freshwater pearl mussel and sea lamprey. Additionally, forage fish species are essential for supporting the qualifying feature, otter.

Designated Site	Distance from Moray FLOW-Park (km)	Fish and Shellfish Ecology Protected Feature(s) and Conservation Objectives (COs)
		COs of this SAC are to maintain or restore population viability and suitable habitat of the qualifying features. Additionally, a CO is to maintain or restore the supporting processes on which the habitats of the qualifying features rely.
River Moriston SAC	37.59 km (the distance to the mouth of the River Ness, which the River Moriston flows into)	The protected features of this SAC are Atlantic salmon and the freshwater pearl mussel. The COs of this SAC are to maintain or restore population viability and suitable habitat of the qualifying features.

400000
450000
500000
550000
6450000
6400000
6350000

N

Berriedale and Langwell Waters SAC
East Caithness Cliffs NCMPA
River Oykel SAC
River Evelix SAC
Moray Firth SAC
Dornoch Firth and Morrich More SAC
Southern Trench NCMPA
River Spey SAC
River Moriston SAC

OFFSHORE SOLUTIONS GROUP | working on behalf of Flow Park Investment Ltd

Moray FLOW-Park
Inshore Scoping Report

Sites Designated for Nature Conservation

Legend

- Moray FLOW-Park
- Sedimentary Zone of Influence (ZoI)
- Underwater Noise ZoI (50 km)

Designations

- Special Area of Conservation (SAC)
- Nature Conservation Marine Protected Area (NCMPA)



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 20 40 km
0 10 20 nm

Scale	Date	Drawn by	Checked by	Approved by
1:600,000 @A3	30/01/2026	EV	BPHB	CC

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GoBe APEMGroup

Figure 9-12

Figure Reference: MFP_FS_Fig9-12_DesignatedSites_v4

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9.4.13 Future Baseline

9.4.13.1 In assessing the potential impacts on Fish and Shellfish Ecology, consideration must be given to the future baseline, recognising that the marine environment is subject to natural change over time. Factors such as climate variability and changes in sediment dynamics may alter species distributions and habitat quality, regardless of construction, O&M and decommissioning activity. The assessments will therefore evaluate impacts relative to the anticipated future environmental condition at the time construction, O&M and decommissioning occurs, ensuring a realistic understanding of potential effects.

9.4.14 Summary of Scoped-in Receptors

9.4.14.1 A summary of species recorded and other species that are known to be present in the study area are detailed in Table 9-6. At this stage, all the species detailed in Table 9-6 have been scoped in into the assessment. This list of species will later be reviewed for the EIA assessment considering site-specific survey data.

Table 9-6: Fish and Shellfish Species Recorded, or Potentially Present within the Study Area

Common name	Species name
Pelagic Species	
Black scabbardfish	*Aphanopus carbo*
Blue whiting	*Micromesistius poutassou*
Greater sandeel	*Hyperoplus lanceolatus*
Haddock	*Melanogrammus aeglefinus*
Hake	*Merluccius merluccius*
Herring	*Clupea harengus*
Horse mackerel	*Trachurus trachurus*
Lesser sandeel	*Ammodytes tobianus*
Mackerel	*Scomber scombrus*
Norway pout	*Trisopterus esmarkii*
Orange roughy	*Hoplostethus atlanticus*
Raitt's sandeel	*Ammodytes marinus*
Saithe	*Pollachius virens*
Sparling	*Osmerus eperlanus*
Sprat	*Sprattus sprattus*
Veined squid	*Loligo forbesii*
Demersal Species	
American plaice	*Hippoglossoides platessoides*
Atlantic halibut	*Hippoglossus hippoglossus*
Blue ling	*Molva dypterygia*
Cod	*Gadus morhua*
Common dab	*Limanda limanda*
Dover sole	*Solea solea*

Common name	Species name
European plaice	*Pleuronectes platessa*
Greenland halibut	*Reinhardtius hippoglossoides*
Grey gurnard	*Eutrigla gurnardus*
Lemon sole	*Microstomus kitt*
Ling	*Molva molva*
Long-snouted seahorse	*Hippocampus guttulatus*
Monkfish	*Lophius piscatorius*
Poor cod	*Trisopterus minutus*
Righteye flounder	*Glyptocephalus cynoglossus*
Round-nose grenadier	*Coryphaenoides rupestris*
Sand goby	*Pomatoschistus minutus*
Seabass	*Dicentrarchus labrax*
Thickback sole	*Microchirus variegatus*
Turbot	*Scophthalmus maximus*
Whiting	*Merlangius merlangus*
Diadromous Fish	
Allis shad	*Alosa alosa*
Atlantic salmon	*Salmo salar*
European eel	*Anguilla anguilla*
River lamprey	*Lampetra fluviatilis*
Sea lamprey	*Petromyzon marinus*
Sea trout	*Salmo trutta*
Twaite shad	*Alosa fallax*
Elasmobranchs	
Angel shark	*Squatina squatina*
Basking shark	*Cetorhinus maximus*
Birdbeak dogfish	*Deania calcea*
Blackmouth dogfish	*Galeus melastomus*
Black skate	*Dipturus nidarosiensis*
Blonde skate	*Raja brachyura*
Blue shark	*Prionace glauca*
Blue skate	*Dipturus batis*
Common stingray	*Dasyatis pastinaca*
Cuckoo ray	*Leucoraja naevus*
Flapper skate	*Dipturus intermedius*
Leafscale gulper shark	*Centrophorus squamosus*
Lesser spotted dogfish	*Scyliorhinus canicula*
Long-nose skate	*Dipturus oxyrinchus*
Nursehound	*Scylorhinus stellaris*
Porbeagle	*Lamna nasus*
Portuguese dogfish	*Centroscymnus coelolepis*
Sandy ray	*Leucoraja circularis*
Shagreen ray	*Leucoraja fullonica*

Common name	Species name
Spotted ray	*Raja montagui*
Spurdog	*Squalus acanthias*
Starry smooth-hound	*Mustelus asterias*
Thornback ray	*Raja clavata*
Thresher shark	*Alopias vulpinus*
Tope shark	*Galeorhinus galeus*
Velvet belly lanternshark	*Etmopterus spinax*
White skate	*Rostroraja alba*
Shellfish species	
Aesop shrimp	*Pandalus montagui*
Blue mussel	*Mytilus edulis*
Brown crab	*Cancer pagurus*
European flat oyster	*Ostrea edulis*
Freshwater pearl mussel	*Margaritifera margaritifera*
Horse mussel	*Modiolus modiolus*
Lobster	*Homarus gammarus*
Nephrops	*Nephrops norvegicus*
Queen scallop	*Aequipecten opercularis*
Velvet crab	*Necora puber*
Whelk	*Buccinum undatum*

9.5 Embedded Mitigation

9.5.1.1 As the design of the Project has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 7-7 and in the Embedded Commitments Register (Appendix A of the Inshore Scoping Report) and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 9-7: The Proposed Mitigation Measures Relevant to Fish and Shellfish Ecology Receptors

Mitigation Code	Mitigation Measure
C3	Development of and adherence to a Piling Strategy (PS) to mitigate the underwater noise impacts arising from piling activity.
C6	The final layout and positioning for FLOW foundations will be defined, as far as possible, to limit impacts to the qualifying features of the Moray Firth Special Area of Conservation (SAC) and the Moray Firth SPA and other environmental considerations. Units will also be stored sensitively to reduce environmental impacts.
C7	Development of and adherence to an Environmental Management Plan (EMP). This will ensure that all construction and operation activities are carried out in a manner that minimises their impact on

Mitigation Code	Mitigation Measure
	the environment, and that mitigation measures contained in the Application, or as otherwise agreed, are fully implemented.
C12	Appointment of an independent Environmental Clerk of Works (ECoW) to ensure effective monitoring and compliance of environmental mitigation and management measures.
C14	Development of and adherence to an Invasive Non-Native Species (INNS) Mitigation Plan (Biosecurity Plan)
C23	Development of and adherence to a Project Environmental Monitoring Programme (PEMP) to ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.

9.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the design of the Project. These measures will be included in the EIA.

9.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon Fish and Shellfish Ecology receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

9.6 Scoping of Impacts

9.6.1.1 An initial assessment of the likelihood of effects on Fish and Shellfish Ecology due to Project activities for the Scoping stage of the EIA process is presented in Table 9-8. This assessment is based on a combination of the following:

- the definition of the Project at the Scoping stage;
- embedded mitigation (as presented in Section 9.5, together with the means by which it will be secured);
- the level of understanding of the baseline at the present Scoping stage;
- the existing evidence base for Fish and Shellfish Ecology effects associated with Project activities;
- relevant policy; and
- the professional judgement of qualified Fish and Shellfish Ecology specialists.

Table 9-8: Scoping Assessment for Fish and Shellfish Ecology

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Mortality, injury, behavioural impacts and auditory masking arising from noise and vibration	C3, C6	Scoped In	The potential impacts of UWN from construction activities such as pile driving of foundation anchors or Unexploded Ordinance (UXO) clearance have the potential to result in physical and behavioural impacts to the fish and shellfish communities within the study area.
Temporary increases in SSC and deposition	C6, C7, C12, C23	Scoped In	Temporary, localised increases in SSC and associated sediment deposition and smothering are expected to occur during boulder clearance, seabed levelling and foundation anchor and mooring installation works. During the construction phase, sediment will be disturbed and released into the water column. This will give rise to suspended sediment plumes and localised changes in seabed levels as material settles out of suspension. Elevations in SSC and subsequent deposition of disturbed sediments have the potential to result in adverse and indirect impacts on fish and shellfish receptors and key habitats.
Direct and indirect seabed disturbance leading to release of sediment contaminants	C6, C7, C12, C23	Scoped In	Seabed disturbance during construction caused by boulder clearance and foundation anchor and mooring installation could lead to the mobilisation of sediments; whilst in suspension, there is the potential for sediment-bound contaminants, such as metals, hydrocarbons and organic pollutants, to be released into the water column, which can lead to an effect on fish and shellfish receptors.
Temporary habitat disturbance	C6, C7, C12, C23	Scoped In	Temporary habitat loss and disturbance will be a likely occurrence from installation of foundation anchors the use of a small jack-up vessel (JUV) and the anchoring of vessels such as a small spread-moored barge. These construction activities have the potential to impact on fish and shellfish ecology through direct loss/disturbance

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			to individuals and the temporary disturbance of essential habitats for survival (for example, spawning, nursery and feeding habitats).
Increased risk of introduction and/or spread of (INNS)	C6, C14	Scoped In	There is potential for the increased risk of introduction and/or spread of INNS at all stages of the Project. The primary pathway for this is INNS from vessel traffic going to and from the Proposed Inshore Development and the movement of / towing of in-water floating foundations of the FLOW foundations.
Direct damage (for example crushing) and disturbance to mobile demersal and pelagic fish and shellfish species arising from construction activities.	C6, C7, C12, C23	Scoped Out	Most fish and shellfish species (even the slowest swimming/moving) are likely to be mobile and can move away from direct damage (for example crushing) and disturbance (Cantrell *et al.*, 2023). It is therefore proposed that this impact is scoped out of the EIA.
Increased risk of introduction and/or spread of (INNS)	C6, C14	Scoped In	There is potential for the increased risk of introduction and/or spread of INNS at all stages of the Project. The primary pathway for this is INNS from vessel traffic going to and from the Proposed Inshore Development and the movement of / towing of in-water floating foundations of the FLOW foundations.
Long-term habitat loss/disturbance	C6, C7, C12, C23	Scoped In	Long-term habitat loss associated with the presence of foundation anchor systems, foundation moorings and scour protection, and the strimming effect of mooring lines, have the potential to impact fish and shellfish ecology by the removal or degradation of essential habitats such as spawning, nursery and feeding habitats.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Colonisation of hard substrates	C7, C12, C23	Scoped In	The introduction of subsea infrastructure, including foundation anchors, foundation moorings, safety and security buoys, and scour protection, and floating foundations of the FLOW foundations, can provide potential novel hard substrate for colonisation by species within the study area. The introduction of hard infrastructure may alter previously soft sediment habitat areas, attract new species with a preference for hard substrate, and increase the habitat complexity biodiversity of the area. Subtidal infrastructure can serve as novel habitats for various fish and shellfish species, functioning as artificial reefs. The introduction of such hard infrastructure transforms previously soft sediment habitats, attracting new species and enhancing habitat complexity and biodiversity in the area (Degraer *et al.*, 2020).
Accidental pollution events during the construction phase resulting in potential effects on fish and shellfish receptors	C23	Scoped Out	The magnitude of an accidental spill will be limited by the size of chemical or oil inventory on construction vessels. In addition, released hydrocarbons would be subject to rapid dilution, weathering and dispersion and would be unlikely to persist in the marine environment. The likelihood of an incident will also be reduced by implementation of a PEMP (C18) (Table 7-7). Additionally, there will be no chemicals, fuels or contaminants stored on the FLOW foundations. It is proposed that this impact is therefore scoped out of the EIA.

9.7 Potential Cumulative Effects

9.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment. For Fish and Shellfish Ecology, cumulative interactions may occur with planned OWFs as well as other activities in the study area. The CEA for Fish and Shellfish Ecology will consider the MDS for the project, plans and activities in line with the methodology outlined in Chapter 4: EIA Methodology.

9.7.1.2 A 100 km buffer around the Project has been used to screen in projects for the CEA; this is a precautionary buffer defined to encapsulate potential cumulative impacts from UWN (UWN represents the largest potential cumulative ZoI for fish and shellfish receptors). A full appraisal of projects to include within the CEA will be undertaken as part of the EIAR.

9.7.1.3 For Fish and Shellfish Ecology, cumulative interactions may occur with:

- Cumulative mortality, injury and behavioural changes resulting from UWN; and
- Cumulative temporary increase in suspended sediment and sediment deposition.

9.8 Potential Transboundary Effects

9.8.1.1 Transboundary impacts related to Fish and Shellfish Ecology are not anticipated to arise from construction, O&M, or decommissioning stages of the Project. Any impacts on Fish and Shellfish Ecology receptors will be restricted to within the study area; the Project is more than 200 km from the nearest adjacent EEZ of another state and, therefore, it is considered that transboundary impacts will not occur and will therefore be scoped out from further consideration within the EIA.

9.8.1.2 Please refer to Chapter 4: EIA Methodology for further detail on potential transboundary effects.

9.9 Proposed Approach to EIA

9.9.1 Guidance

9.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of Fish and Shellfish Ecology receptors will also comply with the following guidance documents where they are specific to this topic:

- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018);
- Guidance note for Environmental Impact Assessment in respect of Food and Environment Protection Act (FEPA) 1985 and Coast Protection Act (CPA) requirements (Cefas *et al.*, 2004);
- Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave, and Tidal Energy Applications (Scottish Government, 2018b);
- Review of Fish and Fisheries Research to Inform ScotMER evidence Gaps and Future Strategic Research in the UK (Scottish Government, 2022c);
- Strategic Review of Offshore Windfarm Monitoring Data Associated with FEPA Licence Conditions (Cefas, 2010);
- Guidelines for Data Acquisition to Support Marine Environmental Assessments of Offshore Renewable Energy Projects (Judd, 2012);
- Cumulative impact assessment guidelines, guiding principles for cumulative impacts assessments in OWF (RenewableUK, 2013);
- Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report (Popper *et al.*, 2014);
- A sound approach to assessing the impact of underwater noise on marine fishes and invertebrates (Hawkins and Popper, 2017);
- Information gaps in understanding the effects of noise on fishes and invertebrates (Hawkins *et al.*, 2015);
- Monitoring Guidance for Underwater Noise in European Seas, Part II Monitoring Guidance Specifications (Dekeling *et al.*, 2014);
- Offshore Wind Marine Environmental Assessments, Best Practice Advice for Evidence and Data Standards – Phase I (Natural England, 2021a);
- Offshore Wind Marine Environmental Assessments, Best Practice Advice for Evidence and Data Standards – Phase III (Natural England, 2021b);
- National Policy Statement (NPS) for Renewable Energy Infrastructure (EN-3) (Offshore Wind Farm Impacts – Fish) (Department for Energy Security & Net Zero (DESNZ), 2023);
- The protection of Marine European Protected Species from injury and disturbance: Guidance for Inshore Waters (Marine Scotland, 2020b);
- Joint Nature Conservation Committee (JNCC) guidelines for minimising the risk of injury to marine mammals from unexploded ordnance (UXO) clearance in the marine environment (JNCC, 2025a);

- JNCC guidelines for minimising the risk of injury to marine mammals from explosive use in the marine environment (JNCC, 2025b); and
- JNCC Report 768: Cumulative effects assessments to support marine plan development (Willsteed *et al.*, 2024).

9.9.2 Assessment Methodology

9.9.2.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

9.9.2.2 To enable the potential impact of the Project to be assessed, a description of the existing fish and shellfish populations, focusing particularly on any species and sites of conservation interest, will be produced. Potential impacts that may occur on fish and shellfish ecology as a result of the planned construction, O&M, and decommissioning will then be identified. The sensitivities of the fish and shellfish populations to the types of impact expected from construction, O&M, and decommissioning will be assessed, and where necessary, measures will be proposed to mitigate the impacts.

9.9.2.3 In the event that the Project has an impact on any sites that are designated for conservation at the European (SAC; now forming part of the UK's National Site Network) or national level (NCMPA), as a result of qualifying habitats or species that they support, then the requisite information will be provided alongside the EIAR to assist the Competent Authority to carry out an AA. A separate Inshore HRA Screening Report has been produced and submitted alongside this Inshore Scoping Report which considers/evaluates the potential connectivity of European Sites (including SACs with migratory fish features) within the assessment, and apportions the impacts identified back to the European Sites impacted.

9.9.2.4 Cumulative impacts will be assessed by taking into consideration any similar developments, proposed or existing, that are in the vicinity of the development zone.

9.9.3 Criteria for Assessment

9.9.3.1 The process for determining the significance of effects is a two-stage process that involves defining the magnitude of the potential impacts and the sensitivity of the receptors. This section describes the criteria that will be applied to assign values to the magnitude of potential impacts and the sensitivity of the receptors.

Magnitude of Impact

9.9.3.2 The magnitude criteria for Fish and Shellfish Ecology are provided in Table 9-9. In determining the magnitude of impact, each assessment will consider the spatial extent, duration, frequency, and reversibility of impact and these will be outlined within the magnitude section of each assessment of impact (e.g., a duration of hours or days would be considered for most receptors to be of short-term duration, which is likely to result in a low magnitude of impact).

Table 9-9: Impact Magnitude Criteria for Fish and Shellfish Ecology

Magnitude Value	Description
Negligible	Discernible, temporary change, or barely discernible change for any length of time, over a small area of the receptor, and/or slight alteration to key characteristics or features of the particular receptors character or distinctiveness.
Low	Discernible, temporary change, over a minority of the receptor, and/or limited but discernible alteration to key characteristics or features of the particular receptors character or distinctiveness.
Medium	Considerable, permanent/irreversible changes, over the majority of the receptor, and/or discernible alteration to key characteristics or features of the particular receptors character or distinctiveness.
High	Fundamental, permanent/irreversible changes, over the whole receptor, and/or fundamental alteration to key characteristics or features of the particular receptors character or distinctiveness.

Sensitivity

9.9.3.3 The sensitivities of fish and shellfish ecology receptors have been classed as ‘High’, ‘Medium’, ‘Low’ or ‘Negligible’. These are based on the Marine Evidence based Sensitivity Assessment (MarESA) four-point scale (Tyler-Walters et al. 2023). The scale of sensitivity for a receptor is dependent on the specific impact and receptor in question and considers the value of a receptor in the context of its resistance and ability to recover from impacts (resilience). Specific benchmarks (duration and intensity) are defined for the different impacts for which sensitivity has been assessed (e.g., smothering, habitat loss/damage etc.). The assessment of the protected features will also consider the FeAST tool, which evaluates the sensitivity of protected features to pressures associated with development activities (NatureScot, 2025d), alongside the MarESA sensitivity assessments.

9.9.3.4 For the purposes of this assessment, four sensitivity categories have been defined, each drawing on the four MarESA categories and the importance of the receptor. Sensitivity/importance of the environment is defined in Table 9-10.

Table 9-10: Receptor Sensitivity Criteria for Fish and Shellfish Ecology

Sensitivity Value	Description
Negligible	Receptor is not vulnerable to impacts regardless of value/importance. Locally important receptors with low vulnerability and medium to high recoverability.
Low	Locally important receptors with medium to high vulnerability and low recoverability. Regionally important receptors with low vulnerability and medium recoverability. Nationally important receptors with low vulnerability and medium to high recoverability. Internationally important receptors with low vulnerability and high recoverability.
Medium	Regionally important receptors with high vulnerability and no ability for recovery. Internationally or nationally important receptors with medium to high vulnerability and low to medium recoverability.
High	Internationally or nationally important receptors with high vulnerability and no ability for recovery.

9.10 Scoping Questions

9.10.1.1 The following Scoping questions refer to the Fish and Shellfish Ecology Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the study area(s) defined in in Section 9.2 for Fish and Shellfish Ecology?
- Do you agree with the use of those data listed in Table 9-1 being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to Fish and Shellfish Ecology have been identified?
- Do you agree with the Scoping in and out of impact pathways in relation to Fish and Shellfish Ecology?
- Do you agree with the assessment of transboundary effects in relation to Fish and Shellfish Ecology?
- Do you agree with the assessment of cumulative effects in relation to Fish and Shellfish Ecology?
- Do you agree with the proposed assessment methodology for Fish and Shellfish Ecology?

10 Ornithology

10.1 Introduction

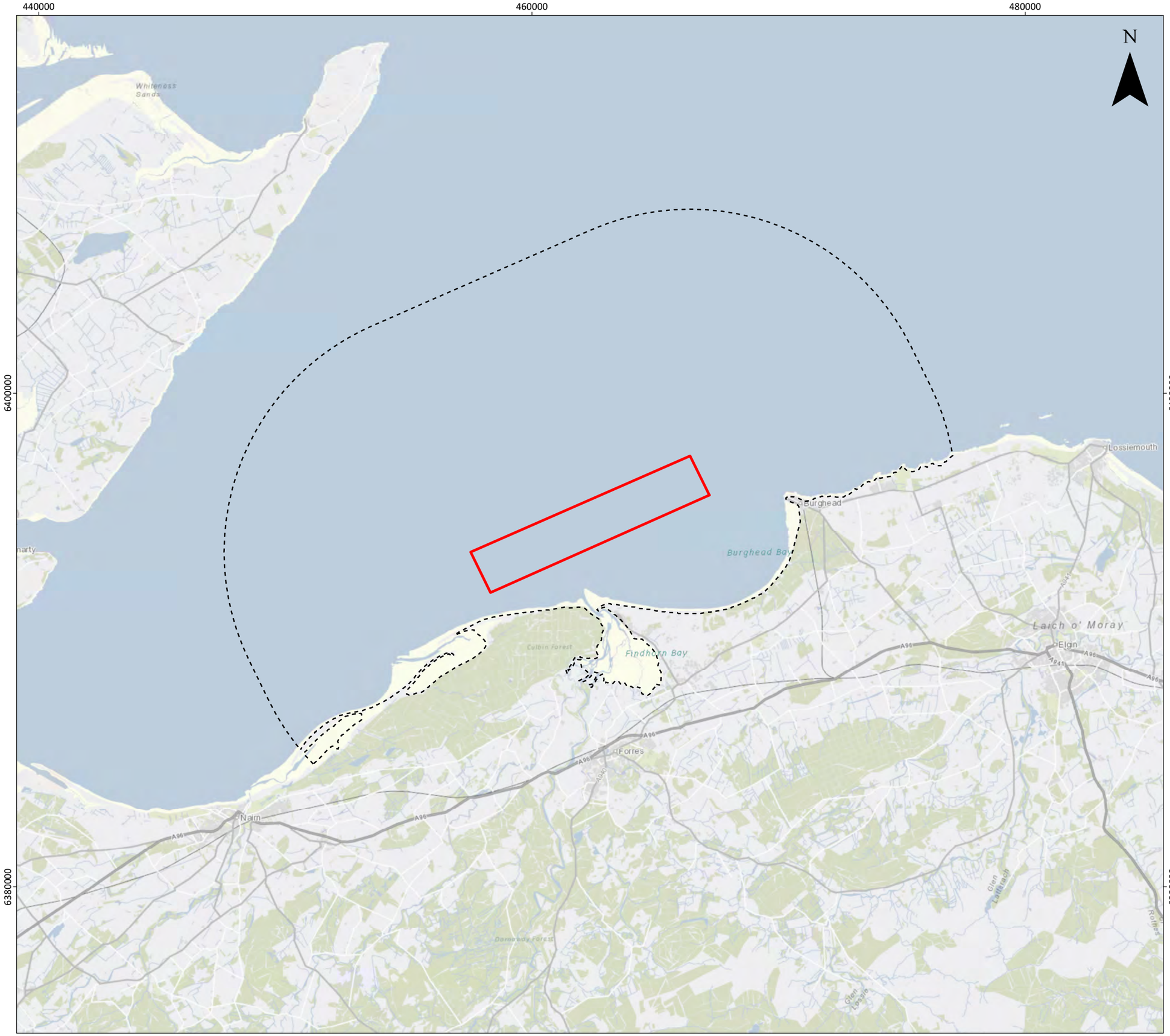
10.1.1.1 This Chapter of the Inshore Scoping Report identifies the Ornithology receptors of relevance to the Project and considers the potential impacts from the construction, O&M and decommissioning of the Project on ornithological receptors up to MHWS.

10.1.1.2 This Chapter should be read alongside the following other chapters:

- Chapter 3: Project Description;
- Chapter 4: EIA Methodology;
- Chapter 6: Marine and Coastal Processes;
- Chapter 7: Marine Water and Sediment Quality;
- Chapter 8: Benthic Subtidal and Intertidal Ecology;
- Chapter 9: Fish and Shellfish Ecology;
- Chapter 11: Marine Mammals;
- Chapter 12: Commercial Fisheries; and
- Chapter 18: Climate.

10.2 Study Area

10.2.1.1 The Inshore study area is defined by the Moray FLOW-Park and buffer zones (of 10 km around each area. This study area is presented in Figure 10-1Figure 6-1. A 10 km buffer is used in line with the guidance presented in NatureScot Guidance Note 2, which states that a buffer of 10 km is required if sensitive species such as sea ducks and divers are likely to be present (NatureScot, 2023a).



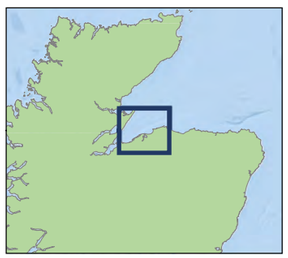
OFFSHORE SOLUTIONS GROUP | working on behalf of Flow Park Investment Ltd

Moray FLOW-Park
Inshore Scoping Report

Site-Specific Inshore Marine Ornithology Study Area

Legend

- Moray FLOW-Park
- Moray FLOW-Park 10km Buffer



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 5 10 km

0 2 4 nm

Scale	Date	Drawn by	Checked by	Approved by
1:150,000 @A3	18/12/2025	EV	BPHB	CC

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Figure 10-1

Figure Reference: MFP_ORN_Fig10-1_StudyArea_v3

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10.3 Data Sources to Inform the EIA Baseline Characterisation

10.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this Ornithology Chapter are presented in Table 10-1. These data sources, in addition to any site-specific data that will be collected for the Project, will be taken forward and used to inform the EIA.

10.3.1.2 Further data are being collected to inform the baseline conditions and support the EIA process. This data is not yet available but will include:

- Digital Aerial Surveys (DAS); and
- Vantage Point (VP) surveys.

10.3.2 DAS

10.3.2.1 Within the survey area, the 24-month DAS program is to begin in Q4 2026. The DAS data will be collected across the Moray FLOW-Park plus a 10 km buffer.

10.3.2.2 Following the successful completion of a validation exercise, begun with NatureScot in October 2025, the DAS data is to be collected primarily through the use of unmanned survey drones. Two DAS flights have already been undertaken using manned aircraft to provide initial data to support this validation exercise.

10.3.2.3 The final design of the drone surveys, to provide equivalent data to a manned aircraft DAS, will be agreed with NatureScot prior to commencing. For example, DAS will comprise of transects in the northwest-southeast direction spaced an agreed distance apart, with 20% coverage using 1.5 cm Ground Sampling Distance (GSD).

10.3.2.4 The DAS surveys will collect data on bird species (or species groups where identification to species level is not possible), including the abundance, distribution, location, sex and age (where feasible) as well as flight height and direction.

10.3.3 Vantage Point Surveys

10.3.3.1 VP surveys are also planned to start in Q4 2026, taking place within the Survey Area between December and February for two consecutive years. The VP survey locations and methods have been informed by the NatureScot Research Report 1281 - Approaches to monitoring wintering waterfowl in Marine Protected Areas - Moray Firth pilot study winter 2019/20 (Graham and Thompson, 2023). Four VPs have been chosen to provide even coverage of the coastline and bays in the area.

10.3.3.2 The surveys will census and map the waterbirds and other species of interest present within the intertidal zone between the mean low-water and mean high-water marks and any significant roosts above the high-water mark, as well as those present in the nearshore waters up to 2 km from the coast using a high specification telescope. The data captured will comprise the species present, their location, the number present, age (where possible), and their behaviour, as well as any disturbance events including the type/nature of disturbance (including number of vessels), intensity of the disturbance stimuli, and the response of the birds, using the methods outlined in Briggs (2007).

10.3.3.3 The DAS and VP data will help to inform the baseline environment within the Survey Area, determining the species that will be assessed within the EIA.

Table 10-1: Key sources of Ornithology data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Data from Offshore Wind Farm (OWF) projects		
Caledonia OWF Digital Aerial Surveys Report 2024	APEM Limited (Ltd) conducted DAS within the Caledonia OWF survey area. The results provide insight on species abundance, distribution, density and flight direction of birds across the survey area of that project.	North and east of the Study Area in the outer Moray Firth.
Moray East OWF Pre-construction Aerial Survey Report 2018	APEM Ltd conducted DAS commissioned by Moray East OWF Ltd. The results provide insight on species abundance, distribution, density and flight direction of birds across the survey area of that project.	North and east of the Study Area.
Beatrice OWF Beatrice OWF Pre-Construction Aerial Survey Report 2016	HiDef, commissioned by Beatrice OWF Ltd, conducted DAS to survey for marine wildlife. The results provide insight on species abundance, distribution, density and flight direction of birds across the survey area of that project.	Area to the north-east of the FLOW-Park study area, in the outer Moray Firth.
Beatrice OWF Year 1 (2021) & Year 2 (2023) Post-construction Ornithological Monitoring Report	Post-construction DAS undertaken for monitoring purposes in 2019.	Area to the north-east of the FLOW-Park study area, in the outer Moray Firth.
Publicly available data and grey literature		
Designated Sites	Publicly available website to view information pertaining to designated sites in Scotland - NatureScot SiteLink: https://sitelink.nature.scot/home.	Whole site.
Seabirds Count national colony census data	Publicly available datasets on seabird breeding distribution and colony census. Seabird Monitoring Programme (SMP) database (BTO, 2025); Burnell *et al.* (2023).	Whole site.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Seabird Tracking Data	Publicly available data on tagged seabird distribution based on telemetry data from individuals tagged in the North Atlantic (SEATRACK, n.d.; BirdLife International, 2023).	Whole site
Literature: Potential impacts of offshore windfarms on birds	Peer reviewed scientific literature regarding the potential impacts from OWFs: Band (2012); Cook et al. (2012); Cook et al. (2014); Dierschke et al. (2017); Drewitt and Langston (2006); Furness and Wade (2012); Furness et al. (2013); Garthe and Hüppop (2004); Goodale and Milman (2020); Jarrett et al. (2018); Johnston et al. (2014); Langston (2010); Leopold and Verdaat (2018); Mendel et al. (2019); Speakman et al. (2009); Stienen et al. (2007); Trinder et al., (2024); Wright et al. (2012)	Various locations.
Literature: Bird distribution	Publicly available reports of seabird distribution: Waggitt *et al.,* (2019); Scott *et al.,* (2023); Davies *et al.* (2023); Evans and Waggitt (2023).	Various locations.
Literature: Bird migration and foraging movements	Publicly available literature on bird movements and foraging trips during the breeding season: Furness *et al*. (2018); Thaxter *et al*. (2012); Wakefield *et al.* (2013; 2017); Wernham *et al*. (2002); Woodward *et al*. (2019); Wright *et al.* (2012); Woodward et al. (2023).	Various locations.
Publicly available site-specific data sources		
Moray Firth Special Protection Area (SPA) wintering bird distribution, Scott *et al.,* 2023.	Study (including surveys) on abundances and distribution of wintering waterfowl across Moray Firth SPA.	Whole site.

10.4 Description of Baseline Environment

10.4.1.1 An initial desk-based review of literature and available data sources to date (see Table 10-1) has been undertaken to support this Inshore Scoping Report. The findings of this research are presented below in order to provide an understanding of the Project environment and inform the Inshore Scoping process.

10.4.2 The Moray Firth

10.4.2.1 The Moray Firth is a nationally and internationally important estuarine system in northern Scotland and is characterised primarily by shallow, sandy marine benthic habitats that in turn supports important numbers of finfish species such as sandeel *Ammodytes* species for seabirds. A range of habitats relevant for birds are present in the Moray Firth, including smaller bays and inlets, saltmarsh communities and cliff habitats that birds utilise for foraging, roosting and breeding (Marine Scotland, 2020c).

10.4.2.2 This area plays a vital role in supporting populations of non-breeding and migratory bird species. It regularly hosts non-breeding and migratory species of European importance, such as seaducks, divers and grebes. Additionally, it sustains internationally significant numbers of wintering waders in intertidal areas, many of which travel thousands of miles from breeding grounds in northern Europe and western Siberia (Marine Scotland, 2020c). The Moray Firth coastline provides essential nesting habitat for seabirds during the breeding season, with species such as northern gannet, common guillemot, and black-legged kittiwake returning annually in spring and summer (RSPB, 2014). Reflecting these ornithological values, several designated conservation sites are located around the Moray Firth, including the Moray Firth SPA, which overlaps the Study Area.

10.4.3 The Study Area

10.4.3.1 As outputs from DAS and VP surveys are not yet available, site-specific data for the Study Area is currently unavailable. Therefore, information from the data sources presented in Table 10-1 are used to identify the potential Important Ornithological Features (IOFs) for the Project. NatureScot's DAS study on wintering waterbirds (Scott *et al.*, 2023) was used to inform species presence where available (see Table 10-2 for totals of all species recorded in this survey). However, the study only provides a snapshot of two survey dates in January and March. The list of species may be updated based on the findings from the DAS and VP surveys. Further information on the potential IOFs is set out below.

10.4.4 Auks

10.4.4.1 Auks include Atlantic puffin *Fratercula arctica*, black guillemot *Cepphus grylle*, common guillemot *Uria aalge*, little auk *Alle alle* and razorbill *Alca torda*.

10.4.4.2 The above auks are recorded in the Moray Firth with common guillemot being the most commonly occurring. All breed colonially within the Moray Firth on cliffs (e.g. Troup Head), with the exception of the little auk, a high-arctic breeder which winters in the North Sea. Black guillemot, common guillemot and razorbill inhabit the Moray Firth year-round.

10.4.4.3 All five auks species were recorded as non-target species during the DAS surveys conducted by Scott *et al*. 2023's on the winter qualifying features of Moray Firth SPA. Spatially, common guillemot and razorbill exhibit high winter density overlapping with the FLOW Park Area, while other auk species being recorded elsewhere in the Moray Firth (Table 10-2) (Scott *et al.,* 2023). Common guillemot, razorbill, Atlantic puffin and black guillemot have a high chance of being regularly present in the FLOW-Park Area either in the breeding or non-breeding periods. It is expected that further survey work as part of the FLOW-Park baseline survey regime will clarify these assumptions.

10.4.4.4 Due to their vulnerability to displacement, Atlantic puffin, black guillemot, common guillemot and razorbill have been identifies as IOFs, with the former two species included precautionarily due to lack of current data regarding their presence. Due to their apparent low numbers in the Moray Firth area, little auk are not considered as IOFs.

10.4.5 Divers and grebes

10.4.5.1 Black-throated diver *Gavia arctica*, great crested grebe *Podiceps cristatus,* great northern diver *G. immer*, red-throated diver *G. stellata* and Slavonian grebe *P. auritus* are species that are known to occur in the Moray Firth.

10.4.5.2 Divers and grebes are waterbirds that utilise freshwater habitats for breeding and frequent the marine environment in the non-breeding season, usually in sheltered situations such as firths and bays along the Moray Firth, although some divers can inhabit more open marine waters.

10.4.5.3 A report for surveys of inshore wintering waterfowl across Moray Firth SPA conducted in 2020 indicates that great northern and red-throated divers are widespread across the Moray Firth, including within the Study Area (Scott *et al.,* 2023), and these species are known to be vulnerable to displacement impacts from infrastructure and vessel movements. Great crested grebe were recorded only during the first visit, in relatively low density and number, although some overlap with the FLOW Park Study Area was noted. White-billed diver *G. adamsii* were also observed (Table 10-2) (Scott *et al*., 2023). Further survey work will likely provide more clarification on the winter presence of these species.

10.4.5.4 Due to their vulnerability to displacement, all species in this category are included as IOFs given their designation as Qualifying Interests within Moray Firth SPA.

10.4.6 Gulls and terns

10.4.6.1 Arctic tern *Sterna paradisaea*, black-headed gull *Chroicocephalus ridibundus*, black-legged kittiwake Rissa tridactyla, common gull *Larus canus*, common tern *S. hirundo*, great-black-backed gull *L. marinus*, herring gull *L. argentatus*, lesser black-backed gull *L. fuscus*, little gull *Hydrocoloeus minutus,* little tern *Sternula albifrons* and Sandwich tern *Thalasseus sandvicensis*.

10.4.6.2 Gulls and turns are widespread across the Moray Firth, with Arctic tern, common tern, black-legged kittiwake, common gull, great black-backed gull and herring gull regularly breeding in the Moray Firth in various habitats, including in inland and urban areas, marshes and coastal rocky cliffs. Gulls are found in all seasons whereas terns are present in the breeding season only.

10.4.6.3 During NatureScot's winter DAS programme, all gull species mentioned above (other than little gull) were recorded, with overlap within the FLOW Park Area (Table 10-2) (Scott *et al.,* 2023). Gull and tern species are considered likely to be present in the FLOW Park Area either as winter visitors or due to locally breeding populations nearby and are thus likely to utilise the marine habitats within the FLOW Park Area.

10.4.6.4 These species are known to be impacted primarily by collision risk, and as collision is considered unlikely for the FLOW-Park project (as explained in Table 10-1), all species in this category are concluded to not be impacted by this. Gulls and terns are, however, potentially impacted by other impact pathways such as indirect impacts to prey resulting from FLOW-Park. As such, all species are proposed to be IOFs other than little gull.

10.4.7 Seaducks

10.4.7.1 Common eider *Somateria mollissima*, common goldeneye *Bucephala clangula*, common scoter *Melanitta nigra*, goosander *Mergus mergus,* greater scaup *Aythya marila,* long-tailed duck *Clangula hyemalis*, red-breasted merganser *Mergus serrator* and velvet scoter *Melanitta fusca* are all present across the Moray Firth in varying numbers.

10.4.7.2 Seaducks are marine diving ducks. Most seaducks only winter in the marine environment, however common eider, potentially the most widespread and common of the seaducks within the Moray Firth, is found in the marine environment year-round and breeds on the coast in habitats with direct access to the sea.

10.4.7.3 A report for surveys of inshore wintering waterfowl across the Moray Firth SPA conducted in 2020 indicates that common eider, common scoter, long-tailed duck and velvet scoter overlap with the FLOW Park Area (Scott *et al.,* 2023) and are widespread across the SPA's waters (for common scoter, common eider and long-tailed duck). Sporadic numbers of the other species are also recorded across the SPA and may conceivably be present in the Study Area. Most of these species (other than goosander) are designated features of Moray Firth SPA; goosander is, however, designated for the Inner Moray Firth SPA. A single king eider *Somateria. spectabilis* was also recorded during visit 1, overlapping the FLOW Park Area) (Table 10-2) (Scott *et al.,* 2023).

10.4.7.4 Due to their vulnerability to displacement, all species in this category are concluded as IOFs, with the exception of king eider, which are usually regarded as a vagrant in the Moray Firth.

10.4.8 Seabirds with large foraging ranges

10.4.8.1 European storm petrel *Hydrobates pelagicus*, great skua *Stercorarius skua*, Manx shearwater *Puffinus puffinus*, northern fulmar *Fulmarus glacialis* and northern gannet *Morus bassanus* are pelagic species that are known to forage widely, potentially including areas within the Moray Firth.

10.4.8.2 Northern fulmar and northern gannet are known to breed on the coasts of the Moray Firth (such as at Troup Head) and are present year round. Both species were recorded in NatureScot's winter waterbird DAS data of the Moray Firth SPA, with low overlap of the Flow Park Area (Table 10-2) (Scott *et al.*, 2023). Although these species may occasionally occur within the FLOW Park Area, their highly dynamic and far-reaching foraging and winter distributions indicate that they are unlikely to be reliant on the supporting habitats present within the FLOW Park Area.

10.4.8.3 Species in this category show a sensitivity to various pressures, including collision risk (e.g. northern gannet, great skua) and artificial lighting (e.g. European storm petrel). However, all species are concluded as not IOFs due to the lack of evidence that these will occur regularly in this part of the Moray Firth, or a general low likelihood that activities at FLOW Park will be detrimental to them through a lack of sensitivity to disturbance in combination with the nearshore setting of the Study Area.

10.4.9 European shag *Gulosus aristotelis* and great cormorant *Phalacrocorax carbo*

10.4.9.1 European shag and great cormorant are generally nearshore, pursuit-diving piscivorous birds and are both resident in British waters, likely to be represented as a breeding and wintering species across the Moray Firth (Scott *et al.,* 2023).

10.4.9.2 Breeding populations of both European shag and great cormorant are present and within connectivity of the FLOW Park project (Burnell *et al,* 2023). Therefore, it is expected that both species are regularly present at the FLOW Park Area.

10.4.9.3 European shag are a designated feature of Moray Firth SPA and are hence considered an IOF. However great cormorant shows some attraction rather than displacement to, for example, OWFs and the same is likely to be the case with FLOW park. As such, great cormorant is also proposed to be an IOF.

10.4.10 Other waterfowl

10.4.10.1 A great diversity of other waterfowl not mentioned in the categories above, including geese, swans and ducks (wildfowl), herons and waders are potentially present in the waters within the FLOW Park Area at any time of year.

10.4.10.2 Some evidence from Scott *et al*. (2023) suggests a number of species are present or occasionally present, although no information is given as to whether these represent individuals in flight or otherwise utilising the marine or intertidal habitats of the Moray Firth. The following are included as an indication to which taxa are likely to be present, however, this is not exhaustive (Table 10-2). Of the wildfowl present across the Moray Firth, greylag goose *Anser anser*, pink-footed goose *A. brachyrhynchus*, mute swan *Cygnus olor*, common shelduck *Tadorna tadorna*, Eurasian wigeon *Mareca penelope*, mallard *Anas platyrhynchus* and Eurasian teal *A. crecca* were recorded. Of the waders, Eurasian oystercatcher *Haematopus ostralegus*, grey plover *Pluvialis squatarola*, Eurasian curlew *Numenius arquata*, bar-tailed godwit *Limosa lapponica*, sanderling *Calidris alba* and dunlin *C. alpina* are recorded in the Moray Firth (Scott *et al.,* 2023).

10.4.10.3 All of the aforementioned species, apart from greylag goose, pink-footed goose, mute swan and mallard show some overlap with the FLOW Park Study Area.

10.4.10.4 All species are considered IOFs due to susceptibility to disturbance and displacement effects potentially caused by vessel activity in the winter period.

10.4.11 Migratory (flying) species

10.4.11.1 This group includes a wide range of migratory species, such as seabirds (many of which are discussed above), waders, wildfowl, and land birds, which could conceivably pass over the FLOW Park Study Area.

10.4.11.2 Many of these species are considered IOFs for potential displacement impacts. However, collision and barrier effects during migration are not considered relevant pathways for this site, particularly for those individuals migrating from more distant locations. In such cases, a single avoidance event, where birds alter their route to bypass the area, is unlikely to result in significant ecological consequences (Masden *et al.,* 2009). This approach reflects the potential for displacement for birds using the site regularly, while recognising that other impact pathways are not expected to be significant.

Table 10-2 Bird species totals recorded from DAS across the Moray Firth SPA (which overlaps with the FLOW-Park Area) from Scott et al. *(2023).*

Species	Visit 1 count (19th January 2020)	Visit 2 count (8th March 2020)
Target species (Moray Firth SPA designated features)		
Greater scaup	1	0
Common eider	642	550
Long-tailed duck	280	728
Common scoter	1,694	433
Velvet scoter	13	2
Common goldeneye	9	18
Red-breasted merganser	8	61
Unidentified duck spp.	72	14
Red-throated diver	43	148
Great northern diver	31	126
Unidentified diver spp.	23	9
European shag	0	296
Unidentified cormorant/shag spp.	0	0
Slavonian grebe	5	4
Unidentified grebe spp.	0	1
Total (target species)	2,821	2,390
Total (unidentifiable groups)	-95	-24
Non-target species		
Greylag goose	14	0
Pink-footed goose	0	1299
Mute swan	0	1
Common shelduck	8	18
Eurasian wigeon	107	19
Mallard	27	0
Eurasian teal	0	1
King Eider	1	0
Feral pigeon *Columba livia*	0	1
Great crested grebe	5	0
Eurasian oystercatcher	111	0
Grey plover	0	6
Eurasian curlew	7	52
Bar-tailed godwit	0	11
Sanderling	14	110
Dunlin	1,592	311

Species	Visit 1 count (19th January 2020)	Visit 2 count (8th March 2020)
Black-legged kittiwake	53	274
Black-headed gull	51	6
Common gull	584	70
Great black-backed gull	66	44
Herring gull	542	318
Lesser black-backed gull	0	3
Little auk	0	1
Common guillemot	332	1552
Razorbill	155	786
Black guillemot	62	33
Atlantic puffin	0	7
Black-throated diver	0	3
White-billed diver	0	1
Northern fulmar	30	101
Northern gannet	0	5
Great cormorant	3	6
Total (non-target species)	3,764	5,039

10.4.12 Future Baseline

10.4.12.1 In assessing the potential impacts on Ornithology, consideration must be given to the future baseline, recognising that the marine environment is subject to natural change over time. Factors such as climate variability and changes in sediment dynamics may alter species distributions, migration behaviour and habitat quality, regardless of construction, O&M and decommissioning activity. The assessments will therefore evaluate impacts relative to the anticipated future environmental condition at the time construction, O&M and decommissioning occurs, ensuring a realistic understanding of potential effects.

10.4.12.2 The future baseline may also consider anticipated changes from other developments that may influence bird behaviour and habitat use, alongside evolving conservation strategies and marine planning measures that could alter site management and ecological conditions.

10.4.13 Designated Sites

10.4.13.1 Relevant designated sites in the vicinity of the study area, which are designated for the protection and conservation of marine habitats of relevance to Ornithology are provided in Table 10-3.

10.4.13.2 Conservation objectives for the Inner Moray Firth designated sites have been presented below as an example, due to its proximity to the study area and the relevance of their qualifying ornithological features to the proposed development. The key conservation objectives from the Inner Moray Firth SPA are to (NatureScot, n.d.):

- Maintain the population and distribution of qualifying species as viable components of the site;
- Avoid significant disturbance and deterioration of supporting habitats; and
- Preserve the structure, function, and processes of habitats supporting these species.

Table 10-3: Designated Sites Relevant for Ornithology.

Designated Site	Distance to Site (km)[13]	Ornithology Protected Feature(s)
Moray Firth SPA	0	• Common eider (non-breeding); • Common goldeneye (non-breeding); • Common scoter (non-breeding); • European shag (breeding / non-breeding); • Great northern diver; • Greater scaup (non-breeding); • Long-tailed duck (non-breeding); • Red-breasted merganser (non-breeding); • Red-throated diver (non-breeding); • Slavonian grebe (non-breeding); and • Velvet scoter (non-breeding). • Seabird assemblage; and • Waterfowl assemblage.
Moray and Nairn Coast SPA	0.92	• Bar-tailed godwit; • Dunlin; • Greylag goose; • Osprey *Pandion haliaetus*; • Eurasian oystercatcher; • Pink-footed goose; • Red-breasted merganser; • Common redshank *Tringa tetanus*; • Eurasian wigeon; and • Waterfowl assemblage

[13] From 10km buffer to SPA boundary (at the closest point).

Designated Site	Distance to Site (km)[13]	Ornithology Protected Feature(s)
Inner Moray Firth SPA	16.79	• Bar-tailed godwit; • Common tern; • Great cormorant; • Eurasian curlew; • Common goldeneye; • Goosander; • Greylag goose; • Osprey; • Eurasian oystercatcher; • Red-breasted merganser; • Common redshank; • Greater scaup; • Eurasian teal; • Eurasian wigeon; and • Waterfowl assemblage
Dornoch Firth and Loch Fleet SPA	18.09	• Bar-tailed godwit; • Eurasian curlew; • Dunlin; • Greylag goose; • Osprey; • Eurasian oystercatcher; • Common redshank; • Greater scaup; • Eurasian teal; • Eurasian wigeon; and • Waterfowl assemblage

Designated Site	Distance to Site (km)[13]	Ornithology Protected Feature(s)
Cromarty Firth SPA	18.25	• Bar-tailed godwit; • Common tern; • Eurasian curlew; • Dunlin; • Greylag goose; • Red knot *Calidris canutus*; • Osprey; • Eurasian oystercatcher; • Northern pintail *Anas acuta*; • Red-breasted merganser; • Common redshank; • Greater scaup; • Whooper swan *Cygnus cygnus*; • Eurasian wigeon; and • Waterfowl assemblage
East Caithness Cliffs SPA	43.63	• Black-legged kittiwake (breeding); • Common guillemot (breeding); • European shag (breeding); • Great black-backed gull (breeding); • Great cormorant (breeding); • Herring gull (breeding); • Northern fulmar (breeding); • Razorbill (breeding); and • Seabird assemblage.

Designated Site	Distance to Site (km)[13]	Ornithology Protected Feature(s)
Troup, Pennan and Lion's Head SPA	70.87	• Black-legged kittiwake (breeding); • Common guillemot (breeding); • Herring gull (breeding); • Northern fulmar (breeding); and • Razorbill (breeding).
North Caithness Cliffs SPA	93.26	• Atlantic puffin (breeding); • Black-legged kittiwake (breeding); • Common guillemot (breeding); • Northern fulmar (breeding); and • Razorbill (breeding).

10.5 Embedded Mitigation

10.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 10-4, and in the Mitigation Register, and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 10-4: The proposed mitigation measures relevant to Ornithology receptors.

Reference	Embedded Commitment/Mitigation
C6	The final layout and positioning for FLOW foundations will be defined, as far as possible, to limit impacts to the qualifying features of the Moray Firth Special Area of Conservation (SAC) and the Moray Firth SPA and other environmental considerations. Foundations will also be stored sensitively to reduce environmental impacts.
C8	Development of and adherence to a Vessel Management Plan (VMP) to mitigate the impact of vessels.
C12	Appointment of an independent Environmental Clerk of Works (ECoW) to ensure effective monitoring and compliance of environmental mitigation and management measures.
C13	Development of and adherence to a Construction Programme (CoP) to confirm the timeline for construction.
C16	Development of and adherence to a Lighting and Marking Plan (LMP). This will ensure navigational safety and the safe marking and lighting of the Development.
C23	Development of and adherence to a Project Environmental Monitoring Programme (PEMP) to ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.
C27	Development of and adherence to a Marine Pollution Contingency Plan to identify potential pollution sources and response / reporting procedures.
C37	No fully integrated turbines will be installed within the site therefore removing bird strike risk.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.

10.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

10.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon ornithology receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

10.6 Scoping of Impacts

10.6.1.1 An initial assessment of the likelihood of effects on IOFs due to Project activities for the Scoping stage of the EIA process is presented in Table 6-4. This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Section 10.5 together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for ornithology effects associated with Project activities; relevant policy; and the professional judgement of qualified ornithology specialists.

10.6.1.2 No works are anticipated within 500 m of the intertidal zone at any stage of the project, aside from vessel movements in and around ports. As such, potential impacts to intertidal habitats are scoped out on the basis of spatial separation and lack of direct interaction (Goodship and Furness, 2022).

10.6.1.3 The impacts listed in Table 10-5 are divided into two distinct categories: *Construction/decommissioning* and *Operation and Maintenance*. The former phase is defined as the stage at which moorings with three to four piles per FLOW foundation are constructed and turbines installed. Metocean Security Buoys are also to be installed. Decommissioning is defined as the end stage of a project where elements are dismantled and transported away.

10.6.1.4 The Operational phase is defined as the primary period of use within the Project's run-time, which is mainly during the winter months. Floating foundations need to be 'parked', ready for movement to separate integration ports / yards .

10.6.1.5 When not being used the FLOW-Park will only be visible by the safety and security buoys provide environmental monitoring to aid inshore research and even an emergency support capability for maritime users in distress (emergency comms etc.)' (Offshore Solutions Group, 2025). All remaining mooring systems will be submerged or on seabed to remove any risk to navigation and sea users when the FLOW-Park is not in use.

Table 10-5: Scoping assessment for Ornithology.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction and Decommissioning			
Accidental pollution	C27	Scoped out	Accidental pollution events during construction and decommissioning, such as spills or leakages from vessels or equipment, could potentially result in injury or mortality of birds, or affect prey availability and quality. However, any such events are expected to be limited in scale and duration, with effects confined to the local area. The likelihood of a major incident occurring that could impact bird populations at a significant level is considered extremely low and does not warrant further consideration in the EIA. Furthermore, all vessel operations will comply with the Annex I Regulations for the Prevention of Pollution by Oil under the MARPOL Convention, which ensures that the risk of pollution is extremely small and effectively negligible for all species.
Direct temporary habitat loss/disturbance (including visual, lighting and auditory).	C6, C13, C16	Scoped in	Increased vessel activity from construction activities may result in direct displacement of roosting or foraging birds from the Inshore Project Boundary.
Disturbance and displacement	C6	Scoped in	The presence of the foundation structures in the Moray-FLOW-park Area may result in direct displacement of birds that are using the area for foraging, roosting, or loafing.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Indirect impacts via effects on prey	C6	Scoped in	As set out in Chapter 9: Fish and Shellfish Ecology, scoped-in impacts that may occur to seabird prey (marine fish and invertebrate species) include: Mortality, injury, behavioural impacts and auditory masking arising from noise and vibration; Temporary increases in suspended sediments and deposition; Direct and indirect seabed disturbance leading to release of sediment contaminants; Temporary habitat disturbance; Increased risk of introduction and/or spread of (Invasive Non-native Species); Long-term habitat loss; and Colonisation of hard substrates. These may in turn result in seabird prey species being impacted at all stages of the project.
Impacts from artificial lighting	C16	Scoped out	Shearwaters and storm petrels are typically the species most vulnerable to artificial lighting impacts. Evidence from past surveys undertaken indicate these taxa are unlikely to feature in the inner Moray Firth regularly, so this activity is proposed to be scoped out of future assessments.
Vessel disturbance	C8	Scoped in	Increased vessel activity and underwater noise from construction activities may result in direct displacement of roosting or foraging birds from the Inshore Project Boundary.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
O&M			
Accidental pollution	C27	Scoped out	Accidental pollution events such as spills or leakages from vessels could potentially result in injury or mortality of birds, and/or affect prey availability and quality. However, any such events are expected to be limited in scale and duration, with effects confined to the local area. The likelihood of a major incident occurring that could impact bird populations at a significant level is considered extremely low and does not warrant further consideration in the EIA. Furthermore, all vessel operations will comply with the Annex I Regulations for the Prevention of Pollution by Oil under the MARPOL Convention, which ensures that the risk of pollution is extremely small and effectively negligible for all species. Foundations and equipment installed will not store/contain any pollutants.
Barrier effects from FLOW foundations	C6	Scoped out	There will only be FLOW foundations anchored in the FLOW-Park therefore this effect has been scoped out of further assessment. Masden *et al*. (2010; 2012) and Speakman *et al*. (2009) calculated that the costs of one-off avoidances during migration were small, accounting for less than 2% of available fat reserves. Therefore, the impacts on birds that only migrate through the Moray-FLOW-Park Area (including seabirds, waders and waterbirds on passage) are considered negligible and therefore scoped out, as no standing WTGs will be stored at the Moray FLOW-Park area.
Collision risk from wet storage FLOW Foundations	C37	Scoped out	As any there will be no WTGs stored in the Project Area , no collision effects to birds are considered possible. This is in agreement with NatureScot.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Disturbance and displacement (physical presence of FLOW Foundations)	C6	Scoped in	The presence of the foundation structures in the Moray-FLOW-park Area may result in direct displacement of birds that are using the area for foraging, roosting, or loafing.
Entanglement (direct)	C7, C23, C27	Scoped out	Entanglement with mooring lines is highly unlikely due to the size and visibility of the lines.
Secondary entanglement	C7, C23, C27	Scoped in	The possibility exists for pursuit diving birds to become entangled lost or 'ghost' fishing gear that becomes entangled with mooring/anchoring lines and other equipment in the development footprint.
Impacts from artificial lighting	C16	Scoped out	Shearwaters and storm petrels are typically the species most vulnerable to artificial lighting impacts. Evidence from past surveys undertaken indicate these taxa are unlikely to feature in the Moray Firth regularly, so this activity is proposed to be scoped out of future assessments.
Indirect impacts via effects on prey	C6, C12	Scoped out	This same impact is scoped in the construction phase. There is unlikely to be any impacts to prey in the operational and maintenance phase, so this impact is proposed to be scoped out at this stage.
Vessel disturbance	C8	Scoped in	Increased vessel activity and underwater noise from operational maintenance activities may result in direct displacement of roosting or foraging birds from the Inshore Project Boundary.

10.7 Potential Cumulative Effects

10.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment.

10.7.1.2 In inshore projects, there is a potential for cumulative impacts on birds to occur resulting from the combined presence of other consented projects (usually OWFs). As bird populations are highly mobile, the same populations may be impacted by these other projects. Of particular relevance to the cumulative assessment will be operational wind farms in the North Sea and any further ScotWind projects which may enter the consenting process during the period of the EIA stage of the Project.

10.7.1.3 Cumulative impacts will be species-specific as these are dependent on the tolerances/sensitivities of these species, migration patterns and foraging behaviour.

10.7.1.4 The cumulative impact assessment for ornithology will consider potential operational disturbance and displacement, as well as indirect effects on prey availability for seabird receptors. The overall contribution from the FLOW Park is expected to be low, given its limited spatial footprint and operational duration. Additionally, the likelihood of significant cumulative effects arising from other plans or projects during construction is considered low, as construction activities associated with the ScotWind leasing round are spatially dispersed and unlikely to coincide temporally with the FLOW Park. These factors reduce the potential for overlapping disturbance or displacement effects at a population level.

10.7.1.5 A Cumulative Effects Framework (CEF) tool is currently in development for projects in Scotland. If available within the project timeframe, the CEF tool will be utilised to guide the approach of the CEA on ornithological impacts. As cumulative impacts are subject to change over the FLOW-Park project's timeframe, it would be premature to summarise these as part of this Scoping Report.

10.8 Potential Transboundary Effects

10.8.1.1 Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications sets out that transboundary impacts relate primarily to projects that "may affect mobile species, to projects that are located close to the national boundaries or to areas administered by other relevant authorities", and that MD-LOT expect to see transboundary impacts considered throughout the EIA from the scoping phase.

10.8.1.2 Based on the location of the Project, impacts on bird populations from other countries are highly unlikely during the breeding season given the large distances to non-UK seabird colonies. In the non-breeding season, birds from non-UK colonies may be found within the Project. Impacts relating to seabird populations from other countries during the non-breeding season are unlikely given the large distances, but as the magnitude of effects is not known at this stage, transboundary effects will be subject to further consideration in the EIA (Scottish Government, 2018b).

10.8.1.3 The Biologically Defined Minimum Population Scales (BDMPS) seabird populations used in the non-breeding assessments that will ultimately inform the EIA include a proportion of birds originating from non-UK colonies (Furness *et al.,* 2015). As such, consideration of transboundary impacts is inherently incorporated within the assessments.

10.9 Proposed Approach to EIA

10.9.1 Guidance

10.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of Ornithology receptors will also comply with the following guidance documents where they are specific to this topic:

- NatureScot Guidance Note series: 'Advice on marine renewables development' [14];
- ScotMer research projects; past present and ongoing projects[15];
- Offshore Renewables Joint Industry Programme (ORJIP)[16]; and
- Relevant JNCC and Statutory Nature Conservation Bodies (SNCBs) guidelines (e.g. JNCC/SNCBs, 2017; JNCC *et al.,* 2024).

[14] https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/renewable-energy/marine-renewables/advice-marine-renewables-development
[15] https://www.gov.scot/policies/marine-renewable-energy/science-and-research/
[16] http://www.orjip.org.uk/

10.9.2 Additional Data Sources

10.9.2.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Inshore Scoping Report. Project-specific survey outputs will be used to enhance the understanding of the baseline conditions. These may include the following across the Moray FLOW-Park Area:

- The most recent results from the site-specific DAS will be used to develop the baseline report. These surveys will collect data of bird species (or species groups where identification to species level is not possible), including the abundance, distribution, location, sex and age (where feasible) as well as flight height and direction. This will inform the EIA by characterising how birds use the site throughout the year, identifying seasonal patterns and key activities such as foraging, overwintering, and migration, to assess the site's importance relative to the wider area.
- The results from the VP surveys will be used to bolster the DAS data collected, by assessing the presence of wintering/non-breeding birds in the Moray FLOW-Park, particularly in the evening when DAS coverage is likely to be limited or absent. Behavioural responses will also be noted during the surveys to identify any potential impact of activities within the area and understand the seasonal use of the site.
- Future reports or assessment for ornithology will be reviewed.
- Any additional data sources and publications identified by stakeholders during consultation workshops.

10.9.3 Assessment Methodology

10.9.3.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

10.9.3.2 A separate HRA Screening Report has been prepared alongside this Scoping Report. This report evaluates the potential connectivity between the Project and relevant European Sites, including those within the UK's National Site Network (Special Protection Areas and Ramsar sites). The report considers these connections within the assessment and attributes any identified impacts to the specific European Sites potentially affected.

10.9.3.3 The EIA assessment approach will use a 'source-pathway-receptor' model, identifying the likely impacts on IOFs resulting from the proposed construction, O&M and decommissioning of the Project. The parameters of this model are defined as follows:

- Source – the origin of a potential impact (noting that one source may have several pathways and receptors) (for example, an activity such as cable installation and a resultant effect such as re-suspension of sediments);

- Pathway – the means by which the effect of the activity could impact an IOF (for example, for the example above, re-suspended sediment could settle and smother the seabed); and
- Receptor – the element of the receiving environment that is impacted; (for example, for the above example, bird prey species living on or in the seabed are unavailable to foraging birds.

10.9.3.4 The species identified as IOFs will be assessed against the impact pathways presented in Table 10-5.

10.9.3.5 A baseline report will be developed to provide the characterisation of the existing environment with respect to the ornithological receptors, following NatureScot guidance (NatureScot, 2023). The main data sources for this report are described above in Section 10.9.2 - Additional Data Sources.

10.9.3.6 A disturbance and displacement report will be produced to provide details of the displacement assessment and predicted impacts on the IOFs. It is proposed that the Joint Statutory Nature Conservation Body (SNCB) recommended matrix approach is used (JNCC *et al.,* 2022; NatureScot, 2023d), presenting the displacement and mortality rates for each species assessed. The seasonal mean peak number of birds recorded within the DAS will be used for assessing the potential impact through displacement. Due to the nature of the project, and the current available guidance, suitable displacement and mortality rates will be discussed and agreed during consultation. This document will include a narrative on the results of the VP surveys, describing any behavioural responses or activity in the area to note.

10.9.3.7 Table 10-6 sets out proposed displacement rates and buffers, and mortality rates for various bird groupings. As no standing/operating WTGs are planned to be present at FLOW-Park, these rates have been proposed based on disturbance and displacement buffer data not specific to presence of WTGs in operation and are derived from guidance documents (Goodship and Furness, 2022; JNCC *et al.,* 2022; NatureScot, 2023d).

10.9.3.8 While black-legged kittiwake and northern gannet are recommended for inclusion in NatureScot Guidance Note 8 (NatureScot, 2023d) when assessing distributional responses and displacement in marine developments, their relevance to the Moray FLOW-Park is considered limited. This is due to the lack of WTGs, the comparatively smaller scale of the Project and its inshore location within the more enclosed area of the Moray Firth. As such, it is unlikely that these species regularly frequent the Project area, and any distributional or displacement effects are expected to be negligible and not exceed background levels.

Table 10-6: Proposed displacement and mortality rates for FLOW Park.

Species	Buffer	Displacement rate	Mortality rate
Northern gannet	-	N/A	N/A
Black-legged kittiwake	-	N/A	N/A
Auks	2km	60%	1%
Red-throated diver	2km	90%	1%
Other divers, grebes and seaducks	2km	90%	1%
Other wildfowl and waders	600m	90%	1%

10.9.3.9 Based on the assessment outcomes, where required, Population Viability Analysis (PVA) will be carried out to determine the population level effects of any predicted impacts of the Project or cumulative impacts. The assessment will be carried out using the Natural England Seabird PVA tool (Searle *et al.,* 2019; Mobbs *et al.,* 2020) following the user guide. As stated in NatureScot OWF guidance (NatureScot, 2023), PVA will be undertaken when the assessed effect exceeds a change to the adult annual survival rate of 0.02 % point change. The model will be run for 25 years and 50 years, plus the indented operation period of the Project. Density dependant models are expected to be used as these models are more biologically realistic based on available evidence (e.g., Horwill *et al.,* 2017). The most up to date population sizes will be used within the model, collated from the SMP database. Depending on what species require assessment, Horswill and Robinson (2015) demographic rates will be used, which are pre-formulated within the PVA tool.

10.9.4 Magnitude of impact

10.9.4.1 The magnitude criteria for Ornithology are provided in Table 10-7. In determining magnitude, each assessment considered the spatial extent, duration, frequency, and reversibility of impact and these will be outlined within the magnitude section of each assessment of impact.

Table 10-7: Impact Magnitude criteria definitions for Inshore and Intertidal Ornithology.

Magnitude value	Description
Negligible	A very slight change from the size, extent or distribution of the relevant population. Recovery to baseline levels from that change predicted to be rapid (i.e. no more than circa six months) following cessation of the Project.
Low	A small change in the size, extent or distribution of the relevant biogeographic population that is sufficiently small-scale or of short duration to cause no long-term harm to the feature/population. Recovery to baseline levels from that change predicted to be achieved in the short term (i.e. no more than one year) following cessation of the Project.
Medium	A medium change in the size, extent or distribution of the relevant population that occurs in the short and long term, but which is not predicted to alter the long-term viability of the population and/or the integrity of the protected site. Recovery to baseline levels from that change predicted to be achieved in the medium term (i.e. no more than five years) following cessation of the Project.
High	A large change in the size, extent or distribution of the relevant population that is predicted to irreversibly alter the population in the short-to-long term and to alter the long-term viability of the population and/or the integrity of the protected site. Recovery to baseline levels from that change predicted to be achieved in the long term (i.e. more than five years) following cessation of the Project.

10.9.5 Receptor sensitivity

10.9.5.1 The importance and sensitivity of each receptor will be assessed using expert judgement and described with a standard semantic scale using the terms negligible, low, medium and high as presented in Table 10-8.

Table 10-8: Receptor Sensitivity criteria definitions for Inshore and Intertidal Ornithology.

Sensitivity value	Description
Negligible	Receptor has very low vulnerability to the impact with high potential for recovery, and has low conservation value (e.g., BOCC 5a Green Listed (Stanbury et al., 2024)).
Low	Receptor has low vulnerability to the impact with high potential for recovery, and has low to medium conservation value (e.g., BOCC 5a Green to Amber Listed (Stanbury et al., 2024)).
Medium	Receptor has medium vulnerability to the impact with some potential for recovery, and has medium to high conservation value (e.g., BOCC 5a Amber to Red Listed (Stanbury et al., 2024)).
High	Receptor has high vulnerability to the impact with limited potential for recovery, and has high conservation value (e.g., BOCC 5a Red Listed (Stanbury et al., 2024)).

10.10 Scoping Questions

10.10.1.1 The following Scoping questions refer to the Ornithology Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the study area(s) defined for Ornithology?
- Do you agree with the use of those data listed in Section 10.3, and any additional anticipated data listed in Section 10.9, being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to Ornithology have been identified?
- Do you agree with the impacts which have been scoped in and out of the Inshore EIA?
- Do you agree with the assessment of transboundary effects in relation to Ornithology?
- Do you agree with the assessment of cumulative effects in relation to Ornithology?
- Do you agree with the proposed assessment methodology for Ornithology?
- Do you agree with the proposed displacement and mortality rates?

11 Marine Mammals

11.1 Introduction

11.1.1.1 This Chapter of the Inshore Scoping Report identifies the marine mammal receptors of relevance to the Project and considers the potential impacts from the construction, O&M and decommissioning of the Project on marine mammal receptors up to MHWS.

11.1.1.2 This Chapter should be read alongside the following other chapters:

- Chapter 3: Project Description;
- Chapter 4: EIA Methodology;
- Chapter 6: Marine and Coastal Processes;
- Chapter 7: Marine Water and Sediment Quality;
- Chapter 8: Benthic Subtidal and Intertidal Ecology; and
- Chapter 9: Fish and Shellfish Ecology (including Megafauna).

11.2 Study Area

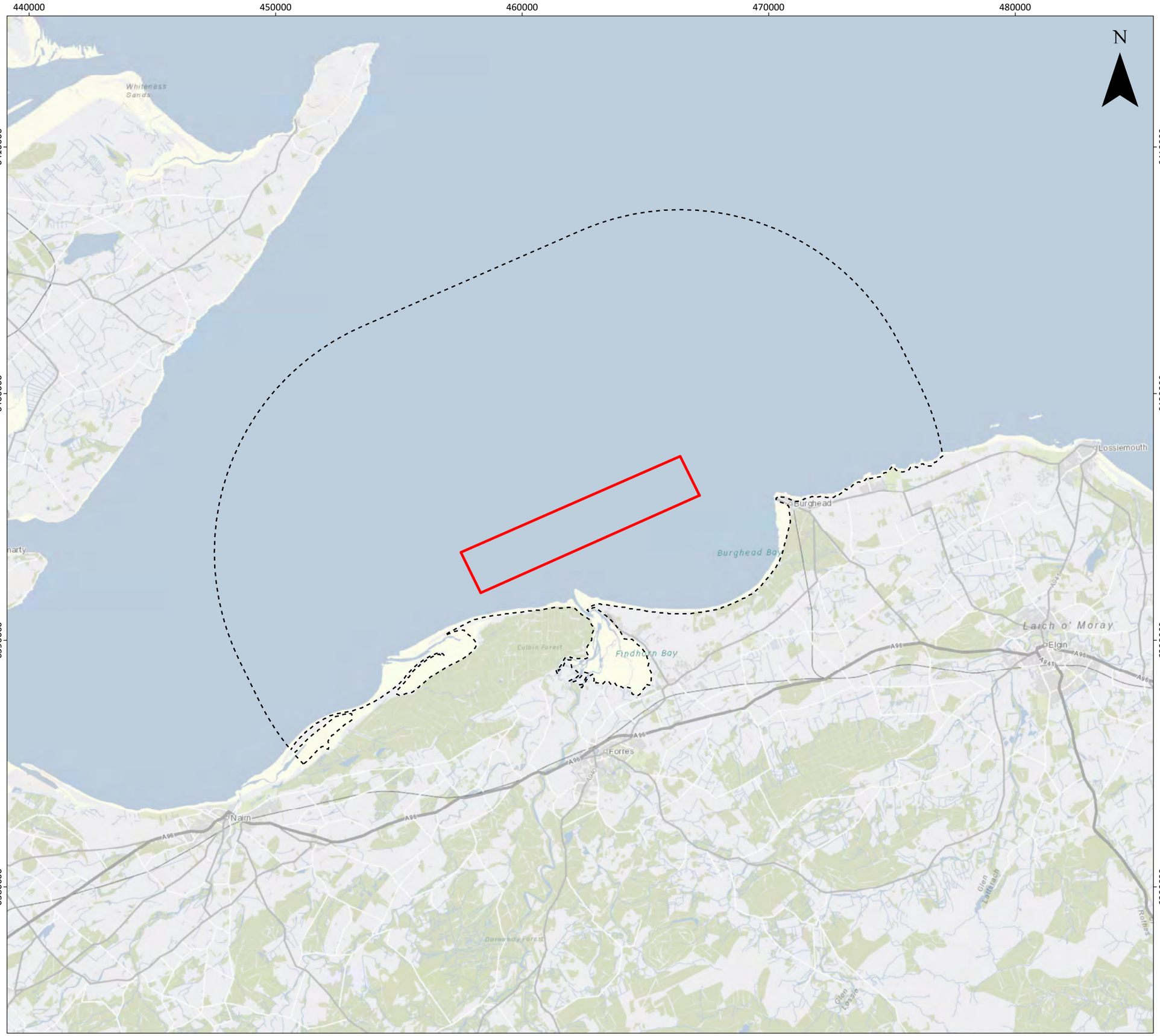
11.2.1.1 The marine mammal study area is defined by the Moray FLOW-Park Area which is then extended over a wider area to account for the scale of movement and population structure for each species as appropriate.

11.2.1.2 As marine mammals are all typically highly mobile and wide-ranging species, the study area is considered at two separate scales, a site-specific scale and a broader regional scale.

11.2.1.3 The site-specific scale for marine mammals is defined by the Project's DAS area, which is the Moray FLOW-Park area and a surrounding 10 km buffer area (the Survey Area; Figure 11-1). This Survey Area applies consistently across all marine mammal species.

11.2.1.4 Following the successful completion of a validation exercise, begun with NatureScot in October 2025, the DAS data is to be collected primarily through the use of unmanned survey drones. Two DAS flights have already been undertaken using manned aircraft to provide initial data to support this validation exercise.

11.2.1.5 The final design of the drone surveys, to provide equivalent data to a manned aircraft DAS, will be agreed with NatureScot prior to commencing. For example, DAS will comprise of transects in the northwest-southeast direction spaced an agreed distance apart, with 20% coverage using 1.5 cm GSD.



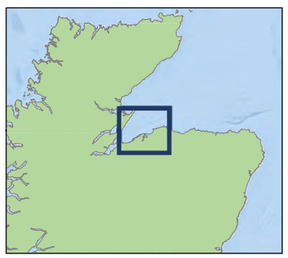
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Site-Specific Marine Mammal Study Area

Legend

- Moray FLOW-Park
- Moray FLOW-Park 10km Buffer



Notes

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Coordinate System:
WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

Scale	Date	Drawn by	Checked by	Approved by
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Figure 11-1

Figure Reference: MFP_MM_Fig11-1_SiteSpecificStudyArea_v3

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11.2.1.6 For each cetacean species (whales, dolphins and porpoises), the broader regional scale study area is largely defined by the appropriate species Management Unit (MU) defined by the Inter-Agency Marine Mammal Working Group (IAMMWG) (IAMMWG, 2023). A MU typically refers to a geographical area in which the animals of a particular cetacean species are found, to which management of human activities is applied. It may be smaller than what is believed to be a 'population[17]', to reflect spatial differences in human activities and their management (IAMMWG, 2023).

11.2.1.7 Using MUs in the assessment of cetacean species allows consideration of the scale of movement of a species and its respective populations, whilst taking account of jurisdictional boundaries and the management of human activities. At the broad MU scale the Project is located within the following MUs (Figure 11-2).

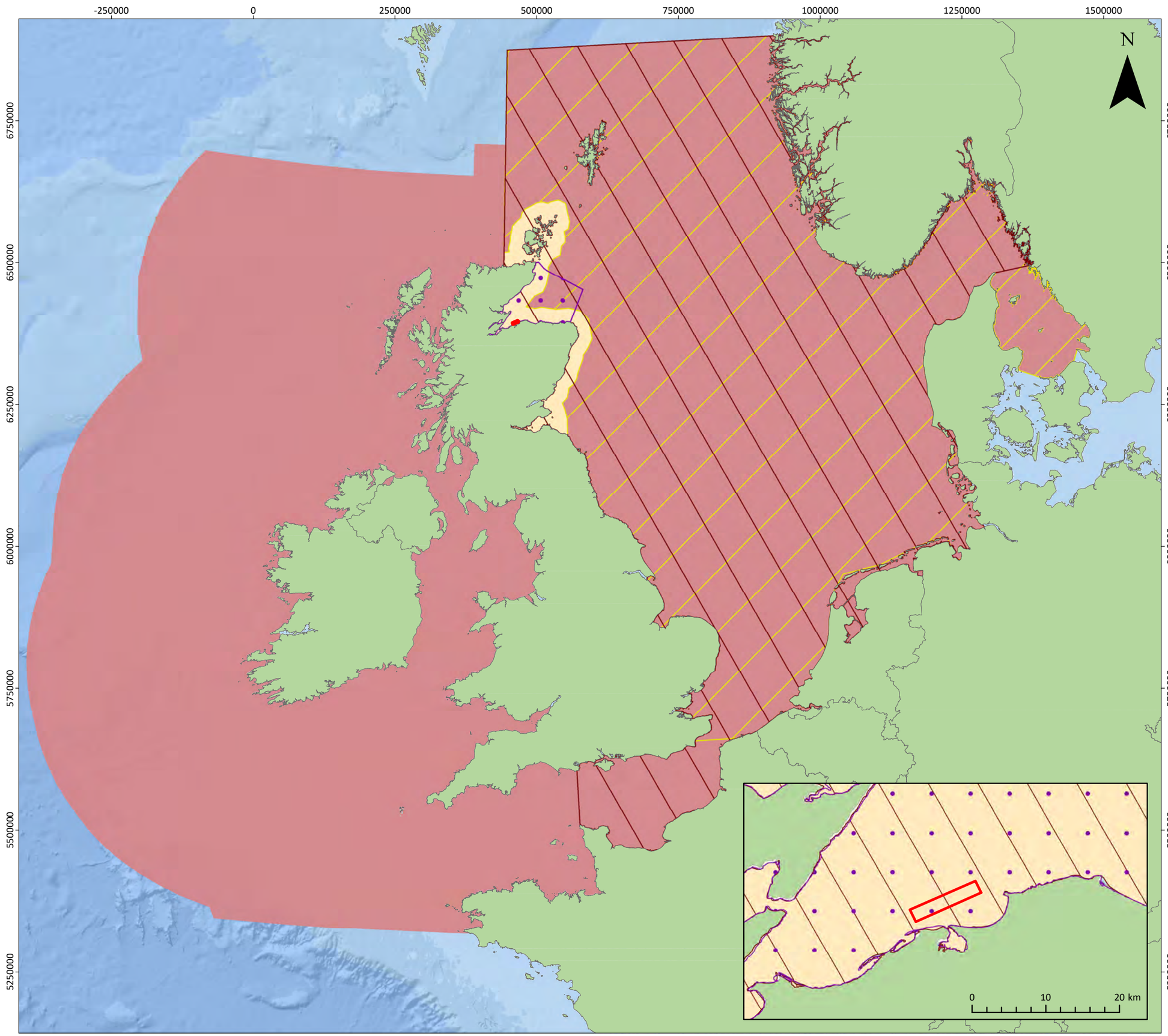
- Harbour porpoise (*Phocoena phocoena*): North Sea MU;
- Bottlenose dolphin (*Tursiops truncatus*): Coastal and East Scotland (CES) MU and Greater North Sea (GNS) MU;
- White-beaked dolphin (*Lagenorhynchus albirostris*): Celtic and Greater North Sea (CGNS) MU;
- Risso's dolphin (*Grampus griseus*): CGNS MU; and
- Minke whale (Balaenoptera acutorostrata): CGNS MU.

11.2.1.8 For seals, Seal Management Areas (SMA) also refer to a geographical area which are defined based on the distribution of seal haul-out sites, for pragmatic reasons such as the ability to survey a SMA within one season, and the locations of jurisdictional boundaries (Special Committee on Seals (SCOS), 2022). SMAs are not explicit management divisions and should be combined appropriately when management is considered. The broad scale study area for seals is:

- Grey seal (*Halichoerus grypus*): Moray Firth SMA; and
- Harbour seal (*Phoca vitulina*): Moray Firth SMA

11.2.1.9 The study area for both seal species is also presented in Figure 11-2.

[17] Defined as a collection of individuals of the same species found in the same area, where genetic variation occurs within the population and between other populations.



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Regional Marine Mammal Study Area

Legend

Moray FLOW-Park

Grey Seal and Harbour Seal

Moray Firth

Harbour Porpoise

North Sea

Bottlenose Dolphin

Coastal East Scotland

Greater North Sea

White-beaked Dolphin, Risso's Dolphin and Minke Whale

Celtic and Greater North Sea



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 200 400 km

0 100 200 nm

Scale	Date	Drawn by	Checked by	Approved by
1:6,500,000@A3	18/12/2025	EV	BPHB	CC

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Figure 11-2

Figure Reference: MFP_MM_Fig11-2_RegionalStudyArea_v4

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11.3 Data Sources to Inform the EIA Baseline Characterisation

11.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this marine mammal chapter are presented in Table 11-1. These data sources will be taken forward and used to inform the EIA, in addition to any site-specific data that will be collected for the Project.

11.3.1.2 Site-specific DAS are being conducted between October 2026 and September 2028 inclusive. DAS will comprise of 24 consecutive surveys, with a transect design to be confirmed with NatureScot following drone validation exercise. The survey will cover the Moray FLOW-Park area plus a 10 km buffer. For data analysis purposes a 10% coverage of the Survey Area will be analysed. Data collected through these surveys will provide estimates of local marine mammal species densities within the defined area. However, as site-specific surveys are yet to commence, there was no survey data available at the time of writing to inform this scoping report.

Table 11-1: Key sources of marine mammal data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Spatial models of cetacean density in European Atlantic waters based on Small Cetaceans in European Atlantic waters and the North Sea (SCANS)-IV summer 2022 survey data (Gilles et al., 2025)	Report summarises results of predictive habitat-based models of cetacean density for seven species and two species groups using survey effort and sighting data from the SCANS-IV surveys conducted during summer 2022.	SCANS-IV survey block CS-K covers the Moray Firth FLOW-Park area.
Estimates of cetacean abundance in European Atlantic waters in summer 2022 from the SCANS-IV aerial and shipboard surveys (Gilles et al., 2023)	Report provides estimates of cetacean abundance in European Atlantic waters in summer 2022 using the SCANS-IV aerial and shipboard surveys.	SCANS-IV survey block CS-K covers the Moray Firth FLOW-Park area.
Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys (Hammond et al., 2021)	Report provides estimates of cetacean abundance in European Atlantic waters in summer 2016 using the SCANS-III aerial and shipboard surveys.	SCANS-III survey block S covers the Moray Firth FLOW-Park area.
Modelled density surfaces of cetaceans in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys (Lacey et al., 2022)	Report utilises density models based on spatially linked environmental variables to produced surface density estimates for nine cetacean species, using survey effort and sighting data from the SCANS-III surveys conducted during summer 2016.	SCANS-III survey block S covers the Moray Firth FLOW-Park area.
Regional baselines for marine mammal knowledge across the North Sea and Atlantic areas of Scottish waters (Hague et al., 2020)	Report collates information on marine mammal abundance in the Scottish Northern North Sea region and Scottish Atlantic waters with a focus on Draft Plan Option sites which may be leased for commercial scale offshore renewable development.	Study area covers all Scottish waters which, in turn covers the Moray Firth FLOW-Park area.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Updated abundance estimates for cetacean MUs in United Kingdom (UK) waters (IAMMWG, 2023)	Report provides abundance estimates for the seven most common cetacean species found in UK waters. MU were defined across UK waters and abundance estimates were calculated for each species within their respective MU.	The relevant MUs for the Moray Firth FLOW-Park area are: NS MU for harbour porpoise; CES and GNS MUs for bottlenose dolphin; and CCNS MU for white-beaked dolphin, Risso's dolphin, white-sided dolphin and minke whale.
Scientific Advice on Matters Related to the Management of Seal Populations: 2024 (SCOS, 2024)	Report provides formal advice in response to questions raised in 2024 from Scottish Government, Defra and Natural Resource Wales. It outlines the current status of both harbour and grey seals in the UK, as well as counts for both species and grey seal pup production in Scotland.	The relevant SMA for both the Moray Firth FLOW-Park area is: Moray Firth SMA for both harbour seal and grey seal.
Updated habitat-based at-sea distribution maps for harbour and grey seals in Scotland (Carter et al., 2025)	Update at-sea distribution maps for both harbour and grey seals hauling out in Scotland with improvements to existing methods in Carter et al. (2022).	Study area covers all Scottish waters which, in turn covers the Moray Firth FLOW-Park area.
Sympatric Seals, Satellite Tracking and Protected Areas: Habitat-Based Distribution Estimates for Conservation and Management (Carter et al., 2022)	Study models the at-sea distribution of all grey and harbour seals hauling out in the UK and Ireland, calculated using satellite tracking and abundance data (haul out counts).	Study area covers UK waters which, in turn covers the Moray Firth FLOW-Park area.
Moray Firth Strategic Marine Mammal Monitoring Plan - Moray East Offshore Wind Farm (OWF) and Beatrice OWF (Graham et al., 2015, 2016, 2020, 2021)	Reports produced as part of Moray Firth Strategic Marine Mammal Monitoring Plan.	Study area is Moray Firth but no direct overlap with the Moray Firth FLOW-Park area.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Existing OWFs in Moray Firth (Bailey, 2017; Beatrice Offshore Wind Farm Ltd, 2012; Caledonia Offshore Wind Farm Ltd, 2024; Moray Offshore Windfarm (West) Limited, 2018)	EIAs and supplementary marine mammal baselines for OWFs in the Moray Firth.	Study area is Moray Firth but no direct overlap with the Moray Firth FLOW-Park area.
ORCA Whale and dolphin sightings (ORCA, 2025)	Database of all the sighting records of whale and dolphin species made by ORCA's citizen scientists over nearly 30 years. Sightings were originally focused on the Northeast Atlantic but data is now global.	ORCA provides data of sightings globally. This includes sightings within the Moray Firth and Project area.
Sea Watch Foundation Recent Sightings (Sea Watch Foundation, 2025)	Database of the latest sightings records of marine mammal species collected by citizen scientists across UK and Irish waters[18].	The Project is covered within the 'NE Scotland' region database.
Preliminary DAS of the Moray Firth FLOW-Park and surrounding area.	Digital aerial surveys were conducted across two months (October and November 2025).	Study area has full coverage of the Moray FLOW-Park area, as well as the surrounding area.
Site-specific DAS for the Moray Firth-FLOW-Park.	Digital aerial surveys are being conducted monthly between October 2026 and September 2028, totalling 24 consecutive surveys, across the Moray FLOW-Park area plus a 10 km buffer.	Study area has full coverage of the Moray FLOW-Park area, as well as the surrounding area.
Vantage point surveys	Vantage point surveys are being conducted from eight locations from December to February for two years, starting in December 2026. Any marine mammal sightings will be recorded.	Study area is Moray Firth but no direct overlap with the Moray FLOW-Park area.

[18] The available data from the Sea Watch Foundation is limited to period-specific recent sightings, thus this scoping report only considers sightings from June to September 2025.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Moray Firth Regional Advisory Group (MFRAG) marine mammal monitoring (Scottish Government, 2025l)	Reports and notes highlight key information on marine mammal species in the Moray Firth through ongoing research and surveys. Attendees include Marine Directorate – Licensing Operations Team, MD-SEDD, NatureScot, JNCC, WDC, University of Aberdeen and relevant offshore wind farm developers.	Study area is Moray Firth but no direct overlap with the Moray Firth FLOW-Park area.
East Coast Marine Mammal Acoustic Study (ECOMMAS) (Brookes, 2017)	Acoustic recorders (C-PODs) at 30 locations off the east coast of Scotland, with broadband acoustic recorders at 10 of these locations to record ambient noise levels.	Study area covers east coast of Scotland and Moray Firth but no direct overlap with the Moray Firth FLOW-Park area.
Bottlenose dolphins in Scottish waters (Arso Civil et al., 2019, 2021; Cheney et al., 2012, 2012, 2014, 2024)	Numerous studies focussing on the distribution, abundance and behaviour of the resident population of bottlenose dolphins found in the Moray Firth with studies also indicating connectivity to other sites across the UK and Ireland. These reports cover data for bottlenose dolphin protected in the Moray Firth SAC and CES MU. Reports include Condition monitoring of bottlenose dolphin within the Moray Firth SAC; Reports from photo-identification (photo-ID) surveys and Passive Acoustic Monitoring (PAM) surveys; Moray Firth Marine Mammal Monitoring Programme developed in 2014 (studies of reproduction, survival rates, assessments of trends in abundance and patterns of distribution); and Wider east coast of Scotland population inclusive of photo-ID data in the Firth of Forth and Firth of Tay.	Study areas cover both the CES MU and the Moray Firth SAC, which includes overlap with the Moray Firth FLOW-Park area.

11.4 Description of Baseline Environment

11.4.1.1 This Scoping Report includes an assessment of marine mammals, specifically cetaceans and pinnipeds (seals). An initial desk-based review of literature and available data sources (see Table 11-1) has been undertaken to support this Inshore Scoping Report. The findings of this research is presented below to provide an understanding of the Projects environment and inform the Inshore Scoping process.

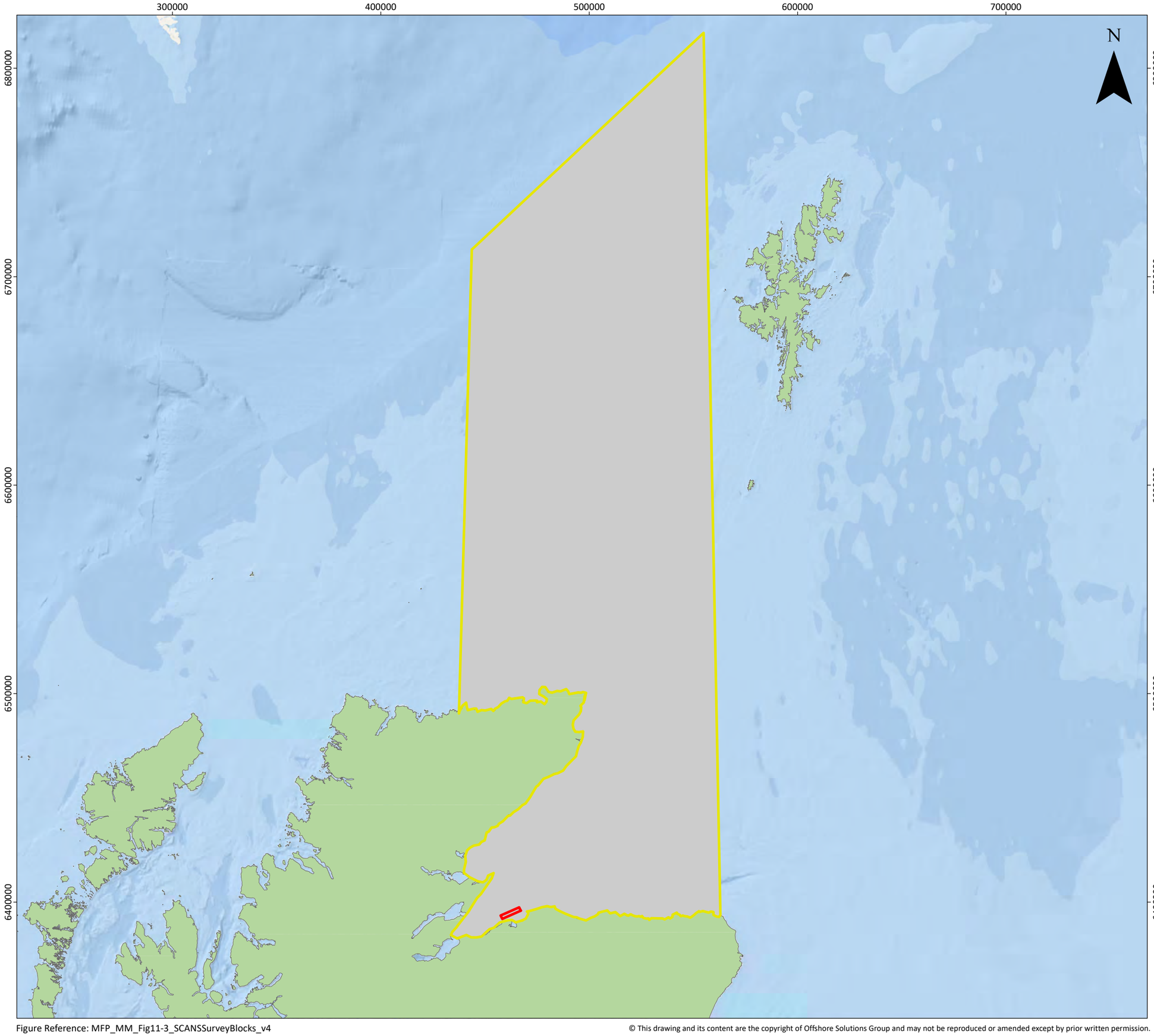
11.4.1.2 Of the 28 marine mammal species recorded in UK waters, 17 are known to occur in the North Sea (Hague *et al.,* 2020; Sea Watch Foundation, 2020; IAMMWG, 2023). Both grey seals and harbour seals inhabit the region, alongside several odontocete (toothed whale) species. The minke whale, a mysticete species, is frequently observed in both inshore and offshore areas of the North Sea.

11.4.1.3 The study area overlaps with SCANS-IV survey block CS-K (Gilles *et al.*, 2023) and SCANS-III survey block S (Hammond *et al.*, 2021) (see Figure 11-3). In addition to formal survey data, records from citizen science initiatives and public sightings compiled by ORCA (2025) and the Sea Watch Foundation (2025) have been considered.

11.4.2 Cetaceans

11.4.2.1 The cetacean species most commonly expected within the Project area include harbour porpoise, bottlenose dolphin, white-beaked dolphin, Risso's dolphin and minke whale (Hammond *et al.*, 2021; Gilles *et al.*, 2023).

11.4.2.2 While additional species have been recorded along Scotland's east coast and throughout the broader North Sea, available baseline data suggest these species occur only sporadically. Such infrequent visitors include humpback whale, killer whale (*Orcinus orca*), and Atlantic white-sided dolphin (*Lagenorhynchus acutus*) (Hammond *et al.*, 2021; Gilles *et al.*, 2023).



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Moray FLOW-Park
Inshore Scoping Report

Relevant SCANS-IV and SCANS-III Survey Blocks for Marine Mammals

Legend

- Moray FLOW-Park
- SCANS-III Survey Block S
- SCANS-IV Survey Block CS-K



Notes

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Coordinate System:
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Figure 11-3

Figure Reference: MFP_MM_Fig11-3_SCANSSurveyBlocks_v4

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Harbour porpoise

11.4.2.3 The harbour porpoise is the most widely distributed and frequently recorded cetacean species in the North Sea (Evans *et al.*, 2003). It is currently classified as Least Concern on the IUCN Red List (Braulik *et al.*, 2023). However, its conservation status within the UK remains uncertain due to a lack of comprehensive data (JNCC, 2019a).

11.4.2.4 Population estimates from the SCANS-IV survey indicate a density of 0.2813 individuals/km^2 and an abundance of approximately 11,357 individuals within survey block CS-K (Gilles *et al.*, 2023). These figures are broadly consistent with those from the earlier SCANS-III survey, which reported a density of 0.152 individuals/km^2 and an estimated 6,147 individuals in block S (Hammond *et al.*, 2021).

11.4.2.5 The Project lies within the North Sea MU for harbour porpoise, which covers a significantly larger area than the SCANS survey blocks. The estimated abundance within the UK portion of this MU is 159,632 individuals, with a coefficient of variation (CV) of 0.12 and a 95% confidence interval (CI) ranging from 127,442 to 199,954 (IAMMWG, 2023).

11.4.2.6 Publicly available DAS data from the closest offshore wind farms (Caledonia, Moray East, and Moray West), located outside of Scottish territorial seas (>12 nm) but within the wider offshore region, indicate the presence of harbour porpoise in their respective survey areas. Reported sightings include 141 individuals at Caledonia (APEM, 2024), 835 at Moray East (Moray Offshore Wind Farm (East) Limited, 2012), and 189 at Moray West (Moray Offshore Windfarm (West) Limited, 2018).

11.4.2.7 In addition to formal survey data, frequent sightings of harbour porpoise have been reported through citizen science initiatives, including those compiled by ORCA and the Sea Watch Foundation[19]. Both databases also include records of unidentified dolphin and cetacean species, some of which may have been harbour porpoise (ORCA, 2025; Sea Watch Foundation, 2025).

[19] The Sea Watch Foundation reports cetacean sightings across the UK, with the North-East Scotland region encompassing the area relevant to the Project. Sightings are submitted by both individual observers and conservation organisations, including the Hebridean Whale and Dolphin Trust and Whale and Dolphin Conservation. While general locations such as Spey Bay and the Moray Firth are recorded, precise positional data is not available.

Bottlenose dolphin

11.4.2.8 Two distinct ecotypes of bottlenose dolphin are found in UK waters: a inshore ecotype and an offshore ecotype (Cheney *et al.,* 2012; IAMMWG, 2023). Individuals from the inshore population have been confirmed to move between designated SACs, including the Moray Firth (Scotland), Cardigan Bay (Wales), and the Shannon Estuary (Ireland) SACs (Robinson *et al.*, 2012). Regular sightings of calves and juveniles off Scotland's east coast suggest the presence of a resident breeding population (Arso Civil *et al.*, 2021). Bottlenose dolphins are currently listed as Least Concern on the IUCN Red List (Wells *et al.*, 2019), although their UK conservation status remains unknown due to limited data (JNCC, 2019b).

11.4.2.9 The Project lies within the CES MU, which includes the Moray Firth SAC. As such, individuals from this population may inhabit or transit through the Project area. The estimated abundance within the CES MU is 226 individuals, with a CV of 0.028 and a 95% confidence interval of 214–239 (Cheney *et al.*, 2024). In the broader offshore region, the UK portion of the GNS MU is estimated to support approximately 1,885 bottlenose dolphins (CV = 0.8; 95% CI = 476–7,461) (IAMMWG, 2023).

11.4.2.10 SCANS-III survey data reported a density of 0.0037 individuals/km^2 and an abundance of 151 dolphins within survey block S (Hammond *et al.*, 2021). No density or abundance estimates were available from SCANS-IV for block CS-K due to lack of sightings (Gilles *et al.*, 2023).

11.4.2.11 Publicly available DAS data from the closest offshore wind farms (Caledonia, Moray East, and Moray West), located outside of Scottish territorial seas (>12 nm) but within the wider offshore region, indicate the presence of bottlenose dolphin in their respective survey areas. Reported sightings include two individuals at Caledonia (APEM, 2024) and one at Moray East (Moray Offshore Wind Farm (East) Limited, 2012), however none were recorded at Moray West (Moray Offshore Windfarm (West) Limited, 2018).

11.4.2.12 Citizen science data from ORCA and the Sea Watch Foundation indicate frequent sightings of bottlenose dolphins in the vicinity of the Project. Both databases also include records of unidentified dolphin and cetacean species, some of which may have been bottlenose dolphins (ORCA, 2025; Sea Watch Foundation, 2025).

White-beaked dolphin

11.4.2.13 White-beaked dolphins are present year-round in Scottish waters, with sightings peaking during the summer months (Hague *et al.*, 2020). They are among the most abundant cetacean species in the Scottish shelf seas and are currently listed as Least Concern on the IUCN Red List (Kiszka & Braulik, 2018). However, their conservation status within the UK remains undetermined due to insufficient data (JNCC, 2019c).

11.4.2.14 Recent SCANS-IV survey data estimated a density of 0.1352 individuals/km^2 and an abundance of approximately 5,460 dolphins within survey block CS-K (Gilles *et al.*, 2023). These figures represent a notable increase compared to the SCANS-III survey, which reported a density of 0.021 individuals/km^2 and an estimated 868 individuals in block S (Hammond *et al.*, 2021).

11.4.2.15 The Project lies within the CGNS MU for white-beaked dolphins. The estimated abundance within the UK portion of this MU is 34,025 individuals, with a CV of 0.28 and a 95% confidence interval ranging from 20,026 to 57,807 (IAMMWG, 2023).

11.4.2.16 Publicly available DAS data from the closest offshore wind farms (Caledonia, Moray East, and Moray West), located outside of Scottish territorial seas (>12 nm) but within the wider offshore region, indicate the presence of white-beaked dolphin in their respective survey areas. Reported sightings include 64 individuals at Caledonia (APEM, 2024) and 18 at Moray East (Moray Offshore Wind Farm (East) Limited, 2012), however none were recorded at Moray West (Moray Offshore Windfarm (West) Limited, 2018).

11.4.2.17 Sightings of white-beaked dolphins have been reported in citizen science datasets compiled by ORCA and the Sea Watch Foundation. However, these sightings were generally located offshore and not in close proximity to the inshore Project site (ORCA, 2025; Sea Watch Foundation, 2025). Both databases also include records of unidentified dolphin and cetacean species, some of which may have been white-beaked dolphins.

Risso's dolphin

11.4.2.18 Risso's dolphins are present within Scottish waters with sightings occurring most commonly in the inshore waters of Western Scotland (JNCC, 2019e). Risso's dolphins are recorded in the inshore waters around northeast Scotland, and these waters have been suggested as critical habitats for the species (Hodgins *et al.*, 2024). Frequent sightings of mothers with dependant calves indicate that these shallow inshore waters provide nursery grounds for the population. The Risso's dolphin is listed as a species of Least Concern on the IUCN Red List (Kiszka & Braulik, 2025). The conservation status for the Risso's dolphin in the UK is currently unknown due to insufficient data (JNCC, 2019d).

11.4.2.19 Recent SCANS-IV survey data estimated a density of 0.0376 individuals/km^2 and an abundance of approximately 1,519 dolphins within survey block CS-K (Gilles *et al.*, 2023). There were no density or abundance estimates provided for Risso's dolphin from the SCANS-III survey of block S, due no sightings (Hammond *et al.*, 2021). The abundance estimate for Risso's dolphins within the UK portion of the MU for CGNS is 8,687 individuals (CV=0.63; 95% CI=2,810-26,852) (IAMMWG, 2023).

11.4.2.20 Publicly available DAS data from the closest offshore wind farms (Caledonia, Moray East, and Moray West), located outside of Scottish territorial seas (>12 nm) but within the wider offshore region, indicate the presence of Risso's dolphin in their respective survey areas. Reported sightings include seven individuals at Caledonia (APEM, 2024) and one at Moray East (Moray Offshore Wind Farm (East) Limited, 2012), however none were recorded at Moray West (Moray Offshore Windfarm (West) Limited, 2018).

11.4.2.21 Further, there have been no sightings of Risso's dolphins reported by ORCA within the Moray Firth (ORCA, 2025), and very few reported within the 'NE Scotland' region by the Sea Watch Foundation database, with nearest sightings since April 2025 to the Project occurring within the outer Moray Firth (Lybster) (Sea Watch Foundation, 2025).

Minke whale

11.4.2.22 Minke whales are the most abundant baleen whale species within Scottish waters and occur throughout the northeast of Scotland (Robinson *et al.*, 2009). The minke whale is listed as a species of Least Concern on the IUCN Red List (Cooke, 2018) and is a feature of the Southern Trench Marine Protected Area (MPA). The UK conservation status for the minke whale is currently unknown due to insufficient data (JNCC, 2019f).

11.4.2.23 Density and abundance estimate from the SCANS-IV survey indicate a density of 0.0116 individuals/km^2 and an abundance of approximately 467 individuals within survey block CS-K (Gilles *et al.*, 2023). These figures are broadly consistent with those from the earlier SCANS-III survey, which reported a density of 0.0095 individuals/km^2 and an estimated 383 individuals in block S (Hammond *et al.*, 2021).

11.4.2.24 The Project lies within the CGNS MU for minke whale, which covers a significantly larger area than the SCANS survey blocks. The estimated abundance within the UK portion of this MU is 10,288 individuals, with a CV of 0.26 and a 95% confidence interval ranging from 6,210 to 17,042 (IAMMWG, 2023).

11.4.2.25 Publicly available DAS data from the closest offshore wind farms (Caledonia, Moray East, and Moray West), located outside of Scottish territorial seas (>12 nm) but within the wider offshore region, indicate the presence of minke whale in their respective survey areas. Reported sightings include 12 individuals at Caledonia (APEM, 2024) and 49 at Moray East (Moray Offshore Wind Farm (East) Limited, 2012), however none were recorded at Moray West (Moray Offshore Windfarm (West) Limited, 2018).

11.4.2.26 Sightings of minke whale have been reported to ORCA and the Sea Watch Foundation. With 25 minke whales reported to ORCA within the Moray Firth since August 2021 (ORCA, 2025) and the Sea Watch Foundation reporting 30 individuals since June 2025 within the 'NE Scotland' region (Sea Watch Foundation, 2025). Both databases also include records of unidentified whale species, some of which may have been minke whales.

11.4.3 Pinnipeds

11.4.3.1 Two pinniped species are regularly seen within Scottish waters, the harbour seal and grey seal, with both regularly occurring along the east coast of Scotland (Carter *et al.*, 2022; SCOS, 2022). Both species have been listed as Least Concern on the IUCN Red List (Bowen, 2016; Lowry, 2016).

Grey seal

11.4.3.2 Grey seals are present year-round on the east coast of Scotland and are the more abundant seal species in this region. Foraging ranges of up to 448 km from haul-out sites have been reported (Carter *et al.*, 2022). However, typically, foraging distances tend to be shorter, with McConnell *et al* (1999) reporting that 88% of trips undertaken by grey seals were within 65 km of the haul-out site and Carter *et al.* (2022) reporting an average foraging distance of 100 km. Grey seals regularly haul-out to rest, breed, and moult. The breeding season for grey seals occurs between August and December, while the annual moult occurs between December and April (SCOS, 2022; 2024).

11.4.3.3 The most recent August counts of grey seals at haul-outs within the Moray Firth SMA was 1,657 in 2016 to 2019 (SCOS, 2024). This is lower than the 2011-2015 annually averaged count of 1,917, however both are higher than any previous year counts. The UK conservation status for grey seals has been assessed as favourable with an improving overall trend (JNCC, 2019g).

11.4.3.4 Publicly available DAS data from the closest offshore wind farms (Caledonia, Moray East, and Moray West), located outside of Scottish territorial seas (>12 nm) but within the wider offshore region, indicate the presence of grey seal within their respective survey areas. Reported sightings include 26 individuals at Caledonia (APEM, 2024) and 178 at Moray East (Moray Offshore Wind Farm (East) Limited, 2012), however none were recorded at Moray West (Moray Offshore Windfarm (West) Limited, 2018).

11.4.3.5 The Sea Watch Foundation database reported 14 sightings of a grey seal in the 'NE Scotland' region since June 2025 (Sea Watch Foundation, 2025). There were no grey seal sightings reported by ORCA, as they only publish sightings of cetaceans.

Harbour seal

11.4.3.6 Harbour seals will haul-out to give birth to their pup in June and July and will moult in August. Outside these times they will haul-out regularly to rest. Foraging ranges of up to 273 km from a haul-out site have been reported (Carter *et al.*, 2022). However, typically, harbour seals will forage within 50 km of their haul-out site and show high site fidelity. Harbour seals have been assessed as having an unfavourable-inadequate conservation status in the UK (JNCC, 2019h).

11.4.3.7 The most recent August count of harbour seals at haul-out sites within the Moray Firth SMA was 1,077 in 2016 to 2019 (SCOS, 2024). This indicates an increase in harbour seals hauled out compared to previous survey, with 745 individuals counted in 2011-2015 surveys, and 776 individuals counted in 2007-2009 surveys. Further, within the Moray Firth there is a SAC dedicated to harbour seals, the Dornoch Firth and Morrich More SAC.

11.4.3.8 Publicly available DAS data from the closest offshore wind farms (Caledonia, Moray East, and Moray West), located outside of Scottish territorial seas (>12 nm) but within the wider offshore region, indicate the presence of harbour seal within only the Moray East surveys. The total number of sightings was six individuals at Moray East (Moray Offshore Wind Farm (East) Limited, 2012).

11.4.3.9 There were eight sightings of harbour seals reported in the 'NE Scotland' region in the Sea Watch Foundation database since June 2025 (Sea Watch Foundation, 2025). There were no harbour seal sightings reported by ORCA, as they only publish sightings of cetaceans.

11.4.4 Summary of Scoped-in receptors

11.4.4.1 The key marine mammal receptors which will inform this Inshore Scoping Report and the subsequent Environmental Impact Assessment Report (EIAR) include:

- Harbour porpoise
- Bottlenose dolphin
- White-beaked dolphin
- Risso's dolphin
- Minke whale
- Grey seal
- Harbour seal

11.4.5 Future Baseline

11.4.5.1 Project construction is anticipated to commence no earlier than 2028, with an expected operational lifespan of at least 25 years. Risks associated with both construction, O&M and decommissioning are detailed in Table 11-4Table 6-4. Given the multi-phase nature of the Project over an extended timeframe, it is essential to consider the future baseline for marine mammals. This baseline reflects anticipated changes at the Moray FLOW-Park area in the absence of the Project or prior to development activities.

11.4.5.2 Currently, no other Projects are known which could influence the marine mammal baseline. It is assumed that marine mammal populations will generally align with regional and national trends, provided there are no significant local impacts. Natural population fluctuations between now and the start of construction are unlikely to be quantifiable. Potential changes may arise from climatic factors, such as variations in sea temperature and their influence on species distribution; however, these typically occur gradually over long-term trends. Other natural phenomena, such as disease outbreaks (for example, morbillivirus; Duignan *et al.,* 2014), may have more immediate but less predictable effects. Additionally, some anthropogenic pressures could act as supplementary stressors. Consequently, baseline conditions are expected to exhibit some degree of change over time.

11.4.6 Designated Sites

11.4.6.1 Designated sites relevant to the protection and conservation of marine habitats associated with marine mammals in the vicinity of the study area are listed in Table 11-2 and shown in Figure 11-4. At this stage, a precautionary approach has been adopted for scoping in protected sites, considering the relevant MU and SMAs for all marine mammal species scoped in. This includes all MPAs and SACs within the broader regional study area.

11.4.6.2 As part of this precautionary approach, several designated seal haul-out sites have also been scoped in due to their proximity to the Project, with the closest (Findhorn) located approximately 0.71 km from the nearest point of the site (see Table 11-2).

Cetaceans

11.4.6.3 Under the EU Habitats Directive (Council Directive 92/43/EEC) and its transposition into UK domestic legislation, a network of European sites (primarily SACs) have been established to protect habitats and species of European importance. These sites are designated to conserve species listed in Annex II of the Directive, which includes those considered to be of interest and requiring the designation of protected areas.

11.4.6.4 In UK waters, two cetacean species are listed under Annex II: the harbour porpoise and the bottlenose dolphin. These species are afforded enhanced protection through the designation of SACs specifically aimed at protecting critical habitats, such as breeding, foraging, and transit areas. The Moray Firth SAC designated for bottlenose dolphins overlaps with the Project area (Figure 11-4; Table 11-2).

11.4.6.5 Under the Marine (Scotland) Act and the UK Marine and Coastal Access Act, MPAs can be designated to protect features of importance in Scotland. There are no MPAs designated for cetaceans that overlap with the Project (Figure 11-2). The closest domestic MPA for cetaceans to the Project is the Southern Trench MPA, which is designated for minke whales (Table 11-2) and is located 33.16 km (at the closest point) from the Project.

Pinnipeds

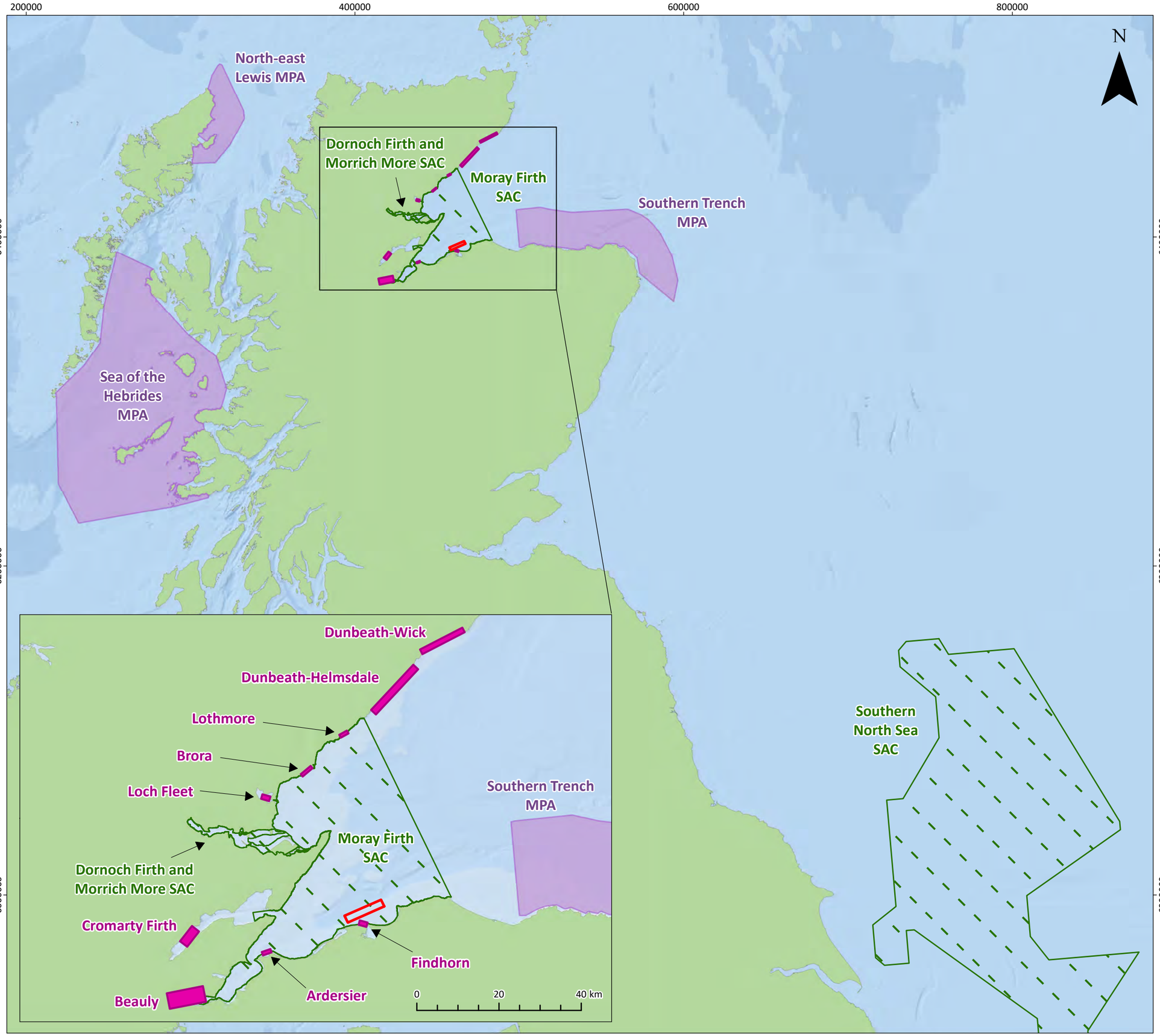
11.4.6.6 Both harbour seals and grey seals are Annex II species for which SACs can be designated for their protection. There are no designated SACs for either grey seal or harbour seal that overlap with the Project. The closest SAC to the Project for seals is the Dornoch Firth and Morrich More SAC designated for harbour seals (Figure 11-4), which is located 28.23 km (at the closest point) from the Project, and within the Moray Firth SMA (Table 11-2). The closest SAC to the Project for grey seals is the Faray and Holm of Faray SAC, which is located 179.21 km (at the closest point) from the Project, and is outside of the Moray Firth SMA, hence is not considered further.

11.4.6.7 Under the Marine (Scotland) Act, designated seal haul-out sites have been selected to protect seals when they are hauled out. As designated seal haul-outs only cover onshore areas, there are none that overlap with the Project. The closest designated seal haul out is Findhorn (Figure 11-2), located 0.71 km (at the closest point) from the Project (Table 11-2).

Table 11-2: Designated sites relevant for marine mammals

Designated Site name	Type of designated site	Distance to nearest point of the Project (km)	Marine and Coastal Processes Protected Feature(s)
Findhorn	Seal haul-out site	0.71	Harbour and grey seal
Ardersier	Seal haul-out site	19.71	Harbour and grey seal
Beauly	Seal haul-out site	40.17	Harbour seal
Cromarty Firth	Seal haul-out site	36.48	Harbour seal
Lock Fleet	Seal haul-out site	37.48	Harbour seal
Brora	Seal haul-out site	35.60	Harbour and grey seal
Lothmore	Seal haul-out site	40.66	Harbour and grey seal
Dunbeath-Helmsdale	Seal haul-out site	45.18	Grey seal
Dunbeath-Wick	Seal haul-out site	60.64	Grey seal

Designated Site name	Type of designated site	Distance to nearest point of the Project (km)	Marine and Coastal Processes Protected Feature(s)
Moray Firth	SAC	0.00	Bottlenose dolphin
Dornoch Firth and Morrich More	SAC	28.23	Harbour seal
Southern Trench	MPA	33.16	Minke whale
North-east Lewis	MPA	280.34	Risso's dolphin
Sea of the Hebrides	MPA	384.92	Minke whale
Southern North Sea	SAC	392.58	Harbour porpoise



OFFSHORE SOLUTIONS GROUP | working on behalf of Flow Park Investment Ltd

Moray FLOW-Park
Inshore Scoping Report

Marine Mammal Designated Sites

Legend

- Moray FLOW-Park

Designations

- Special Area of Conservation (SAC)
- Marine Protected Area (MPA)
- Seal Haul-Out Sites



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors
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Coordinate System:
WGS 1984 UTM Zone 30N

0 75 150 km

0 25 50 nm

Scale	Date	Drawn by	Checked by	Approved by
1:2,250,000@A3	18/12/2025	EV	BPHB	CC

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Figure 11-4

Figure Reference: MFP_MM_Fig11-4_DesignatedSites_v4

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11.5 Embedded Mitigation

11.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 11-3 and in the Mitigation Register (Appendix A) and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 11-3: The proposed mitigation measures relevant to marine mammal receptors

Mitigation Code	Embedded Commitment/Mitigation
C1	Adherence to the Scottish Marine Wildlife Watching Code during construction, Operation and Maintenance.
C3	Development of and adherence to a Piling Strategy (PS) to mitigate the underwater noise impacts arising from piling activity.
C6	The final layout and positioning for FLOW foundations will be defined, as far as possible, to limit impacts to the qualifying features of the Moray Firth Special Area of Conservation (SAC) and the Moray Firth SPA and other environmental considerations. Foundations will also be stored sensitively to reduce environmental impacts.
C7	Development of and adherence to an Environmental Management Plan (EMP). This will ensure that all construction and operation activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the Application, or as otherwise agreed, are fully implemented.
C8	Development of and adherence to a Vessel Management Plan (VMP) to mitigate the impact of vessels.
C12	Appointment of an independent Environmental Clerk of Works (ECoW) to ensure effective monitoring and compliance of environmental mitigation and management measures.
C23	Development of and adherence to a Project Environmental Monitoring Programme (PEMP) to ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.
C27	Development of and adherence to a Marine Pollution Contingency Plan to identify potential pollution sources and response / reporting procedures.
C31	Appointment of a Marine Mammal Observer (MMO) to maintain a record of any sightings of marine mammals and maintain a

Mitigation Code	Embedded Commitment/Mitigation
	record of the action taken to avoid any disturbance caused to marine mammals during noisy activities.
C40	Adherence to JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys (JNCC, 2017) and piling noise (JNCC, 2010b).
C41	Development of and adherence to MMMP, including the investigation and use of low noise anchor solution where technically viable.
C43	Development of and adherence to an Operation and Maintenance Programme (OMP) to safeguard environmental interests during operation and maintenance.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.

11.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

11.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects to marine mammal receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

11.6 Scoping of Impacts

11.6.1.1 An initial assessment of the likelihood of effects on marine mammal due to Project activities for the Scoping stage of the EIA process is presented in Table 11-4. This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Section 11.5, together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for marine mammal effects associated with Project activities; relevant policy; and the professional judgement of qualified marine mammal specialists.

Table 11-4: Scoping assessment for Marine Mammals.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction			
Increased underwater noise from piling[20]	C3, C7, C12, C23, C31	Scoped In	Piling activities during the construction phase of the Project may generate high-intensity impulsive underwater noise. This type of noise has the potential to cause significant impacts on marine mammals, including behavioural changes, habitat avoidance, and disruption of essential life functions such as foraging and communication. In more severe cases, exposure may lead to auditory injury, Permanent Threshold Shift (PTS). Acknowledging the Project's location within the Moray Firth SAC, the Developer is committed to minimising underwater noise impacts during construction as far as technically feasible. If piling is considered, the Project will work to adopt low noise installation methods such as helical or micro piling over conventional impact piling. Given the sensitivity of marine mammals to impulsive noise and the scale of the Project, this impact pathway is scoped in for detailed assessment.
Increased underwater noise from unexploded ordnance (UXO) clearance	C3, C7, C12, C23, C31	Scoped In	UXO clearance, if required during the Project's construction phase, involves detonations that produce intense acoustic energy capable of causing direct physical trauma, auditory shift (Temporary Threshold Shift (TTS) or PTS), and behavioural disturbance in marine mammals (von Benda-Beckmann et al., 2015). These effects may occur at considerable distances from the detonation site.

[20] The increased underwater noise from piling impact pathway will only be considered if pile anchors are used. The Project is also evaluating suction and gravity anchors, which generate significantly less underwater noise.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			Although mitigation measures recommended by JNCC (2025) will be implemented, the potential severity of impacts necessitates inclusion in the assessment.
Increased underwater noise from other construction activities	C3, C7, C12, C23, C31	Scoped In	Additional construction activities such as geophysical surveys, and dredging associated with the Project can generate continuous or intermittent underwater noise. While typically lower in intensity than piling, these sources may still cause temporary hearing loss, behavioural changes, and displacement, particularly if occurring over extended periods or in sensitive habitats. These impacts are considered relevant and are therefore scoped in.
Increased vessel activity; resulting in greater levels of disturbance, and increased risk of collision	C1, C8, C23	Scoped In	The Project will involve increased vessel activity across all phases, which may lead to elevated ambient noise levels and physical disturbance. Marine mammals may respond with avoidance behaviour, altered surfacing patterns, or disrupted foraging (Pirotta *et al.*, 2015). Additionally, there is a risk of vessel collision, and as such collisions can result in serious injury or mortality (Maxwell *et al.*, 2022). Given these risks, this pathway is scoped in.
Indirect effects of underwater noise on marine mammal prey species	C3, C23	Scoped In	Underwater noise generated by the Project may affect the distribution and behaviour of fish species that serve as prey for marine mammals. Noise-sensitive species such as cod, herring, sprat, and whiting may exhibit avoidance behaviour or reduced feeding efficiency, which in turn could impact the foraging success of predators. These indirect ecological effects are important to consider and are scoped in.
Changes in water quality	C27	Scoped out	The Project will implement robust environmental management measures, including an OEMP and a Marine Pollution Contingency Plan, to prevent and respond to pollution events. Any accidental release is expected to be

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
from accidental pollution			localised, short-lived, and unlikely to result in population-level impacts. Therefore, this pathway is scoped out.
Changes in water quality from activities in the Project	C27	Scoped out	Activities such as sediment disturbance during construction or maintenance may temporarily affect water quality. However, these effects are anticipated to be minor, spatially limited, and short in duration. Given the low likelihood of significant ecological impact, this pathway is scoped out.
O&M			
Increased vessel activity; resulting in greater levels of disturbance, and increased risk of collision	C1, C8, C23	Scoped In	The Project will involve increased vessel activity across all phases, which may lead to elevated ambient noise levels and physical disturbance. Marine mammals may respond with avoidance behaviour, altered surfacing patterns, or disrupted foraging (Pirotta *et al.*, 2015). Additionally, there is a risk of vessel collision, and as such collisions can result in serious injury or mortality (Maxwell *et al.*, 2022). Given these risks, this pathway is scoped in.
Entanglement (direct)	C7, C23, C27	Scoped In	The Project's floating infrastructure introduces mooring and anchoring lines into the marine environment, which may pose an entanglement risk to marine mammals. While the likelihood of entanglement is considered low, the scale of the Project and its proximity to the coastline introduce uncertainties regarding potential interactions with marine mammals. These interactions are not yet fully understood due to limited data available on the impact of specific moorings. Entanglement can lead to drowning, injury, impaired mobility, and secondary infections as a result from cuts or tears to the flesh (MacLennan *et al.*, 2021).

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Entanglement (secondary)	C7, C18, C22	Scoped In	Marine debris such as ghost nets may become entangled in infrastructure, increasing entanglement risk (Maxwell *et al.*, 2022). This pathway is scoped in on a precautionary basis.
Collision risk with floating structures	C6, C7, C23	Scoped In	Although current evidence suggests that collision risk between marine mammals and floating structures is low, available data on the potential for interaction with this type of floating structure is limited. Given the scale of the Project, and the introduction of floating foundation infrastructure combined with its close proximity to the shore, this impact pathway is scoped in to address knowledge gaps and ensure precautionary evaluation.
Barrier effects due to physical structures	C6, C7, C23	Scoped In	The presence of floating infrastructure, mooring lines, and cables may act as physical or behavioural barriers as well as potentially disrupting movement of marine mammals, leading to a reduction of access to possible key areas. Such displacement or exclusion from preferred habitats could have ecological consequences. Further, while cetaceans and seals are known to utilize fixed wind farm areas, it would be assumed these species will display similar behavioural patterns for floating wind farms. However, potential impacts on baleen whales remain particularly uncertain as the effects are poorly studied and understood. Due to limited understanding of these effects, this pathway is scoped in for further investigation.
Changes in water quality from accidental pollution	C27	Scoped out	The Project will implement robust environmental management measures, including an OEMP and a Marine Pollution Contingency Plan, to prevent and respond to pollution events. All pollutants will be stored exclusively onboard supporting vessels, with none on the FLOW foundations, thereby significantly reducing the risk of a pollution event.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			Any accidental release is expected to be localised, short-lived, and unlikely to result in population-level impacts. Therefore, this pathway is scoped out.
Changes in water quality from activities in the Project	C27	Scoped out	Activities such as sediment disturbance during construction or maintenance may temporarily affect water quality. However, these effects are anticipated to be minor, spatially limited, and short in duration. Given the low likelihood of significant ecological impact, this pathway is scoped out.
Indirect effects of underwater noise on marine mammal prey species	C3, C23	Scoped out	Underwater noise is not anticipated to be produced during the operational phase due to the nature of the Project. This approach aligns with the scoping assessment presented in Chapter 9: Fish and Shellfish Ecology.
Decommissioning			
Increased vessel activity; resulting in greater levels of disturbance, and increased risk of collision	C1, C8, C23	Scoped In	The Project will involve increased vessel activity across all phases, which may lead to elevated ambient noise levels and physical disturbance. Marine mammals may respond with avoidance behaviour, altered surfacing patterns, or disrupted foraging (Pirotta *et al.*, 2015). Additionally, there is a risk of vessel collision, and as such collisions can result in serious injury or mortality (Maxwell *et al.*, 2022). Given these risks, this pathway is scoped in.
Indirect effects of underwater noise on marine mammal prey species	C3, C23	Scoped In	Underwater noise generated by the Project may affect the distribution and behaviour of fish species that serve as prey for marine mammals. Noise-sensitive species such as cod, herring, sprat, and whiting may exhibit avoidance behaviour or reduced feeding efficiency, which in turn could

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			impact the foraging success of predators. These indirect ecological effects are important to consider and are scoped in.
Changes in water quality from accidental pollution	C27	Scoped out	The Project will implement robust environmental management measures, including an EMP and a Marine Pollution Contingency Plan, to prevent and respond to pollution events. All pollutants will be stored exclusively onboard supporting vessels, with none on the FLOW foundations, thereby significantly reducing the risk of a pollution event. Any accidental release is expected to be localised, short-lived, and unlikely to result in population-level impacts. Therefore, this pathway is scoped out.
Changes in water quality from activities in the Project	C27	Scoped out	Activities such as sediment disturbance during construction or maintenance may temporarily affect water quality. However, these effects are anticipated to be minor, spatially limited, and short in duration. Given the low likelihood of significant ecological impact, this pathway is scoped out.

11.7 Potential Cumulative Effects

11.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment. For the purposes of this assessment, only projects located within the relevant regional study areas, defined by species-specific management zones, MUs and SMAs, as well as being situated in Scottish waters will be considered. To ensure temporal relevance, only those projects with construction timelines that overlap with the Project's construction window (including one year before and after) will be included.

11.7.1.2 For marine mammals, cumulative effects are most likely to arise from underwater noise generated during construction activities associated with other inshore and offshore developments. The primary sources of such noise include impact pile driving, UXO clearance, and increased vessel traffic. These activities have the potential to cause behavioural disturbance, displacement, and in some cases, auditory injury to sensitive species.

11.7.1.3 The nearest OWFs to the Project that are not currently operational are Caledonia, Stromar, Broadshore, Scaraben and Sinclair, the screening process will not be limited to these. It will also consider OWF developments within the species-specific management zones, projects located in Scottish waters, and any other marine projects with construction timelines overlapping with the Project (as outlined in Paragraph 11.7.1.1). If the Project's construction period overlaps with other developments that meet the screening criteria, these will be included in the cumulative impact assessment. In addition, the assessment will consider other relevant marine activities, such as wave and tidal energy projects, subsea cables and seismic surveys associated with oil and gas exploration, where relevant.

11.7.1.4 For each project included in the CEA, the number of marine mammals potentially affected per day will be estimated based on the spatial extent of the activity and known species densities. For each year in which inshore construction is planned, the assessment will present the maximum number of individuals potentially impacted, alongside the proportion of the population within the relevant management areas. This will help determine the significance of cumulative effects in relation to population-level impacts.

11.7.1.5 The CEA for marine mammals will consider the Maximum Design Scenario (MDS) for each of the projects, plans and activities in line with the methodology outlined in Chapter 4: EIA Methodology.

11.8 Potential Transboundary Effects

11.8.1.1 There is potential for transboundary impacts on marine mammals during the construction, O&M, and decommissioning phases of the Project. Although the site is located within Scottish territorial waters, many marine species are highly mobile, often exhibiting wide-ranging foraging behaviours and undertaking long-distance migrations for key life cycle events such as breeding and calving.

11.8.1.2 In the UK, cetacean populations are managed using MUs, which are defined spatial areas that reflect the biological range of a species rather than political boundaries (IAMMWG, 2023). For some species, these MUs extend across multiple national jurisdictions. For example, the North Sea MU for harbour porpoise spans the territorial waters of the UK, Norway, Denmark, Germany, the Netherlands, Belgium, and France.

11.8.1.3 As such, depending on the nature and significance of potential impacts identified through EIA, including outputs from underwater noise modelling and the CEA, transboundary effects may need to be considered. The assessment of these effects will be informed by the identification of Zones of Influence (ZoI) for key impact pathways. These ZoIs will be defined during the EIA process, using data from underwater noise modelling and other relevant sources to determine the spatial extent of potential effects.

11.9 Proposed Approach to EIA

11.9.1 Guidance

11.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of marine mammal receptors will also comply with the following guidance documents where they are specific to this topic:

- European Union Guidance on wind energy developments on Natura 2000 legislation (European Commission, 2021);
- Evidence base for application of Acoustic Deterrent Devices (ADDs) as marine mammal mitigation (Version 5: February 2025) (Phillips *et al.*, 2025);
- Guidance on mitigation protocols to minimise the risk of injury to marine mammals from piling noise (JNCC, 2010);
- Guidance on the Offence of Harassment at Seal Haul-Out Sites (Marine Scotland, 2014)
- Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2024; IEEM, 2010);

- JNCC guidelines for minimising the risk of injury to marine mammals from unexploded ordnance (UXO) clearance in the marine environment (JNCC, 2025);
- JNCC guidance for the use of Passive Acoustic Monitoring in UK waters for minimising the risk of injury to marine mammals from offshore activities (JNCC, 2023);
- JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys (seismic survey guidelines) (JNCC, 2017);
- Marine licensing – unexploded ordnance clearance: application guidance. Guidance on marine licensing application requirements for unexploded ordnance (UXO) clearance (Marine Directorate, 2025);
- UK Government Policy paper: Marine environment: unexploded ordnance clearance joint position statement (U.K. Government, 2025);
- Marine mammal PTS-onset noise exposure criteria (Southall *et al.*, 2019);
- Position statement from the Joint Statutory Nature Conservation Bodies in relation to the use of Acoustic Deterrent Devices (ADDs) for marine mammal mitigation during offshore wind farm construction (JNCC, 2016);
- Scottish Marine Wildlife Watching Code (Scottish Natural Heritage, 2017).

11.9.2 Additional Data Sources

11.9.2.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Inshore Scoping Report (Section 11.3 and Table 11-1). Project-specific survey outputs will be used to enhance the understanding of the baseline conditions. These may include the following across the Moray FLOW-Park area:

- The most recent results from site-specific DAS will be presented, including the number of sightings recorded, as well as monthly and annual estimates of relative density where data are sufficient. Where possible, absolute density estimates will also be provided to support a more robust understanding of species presence and distribution within the Project area;
- Future SCOS annual reports;
- Reports and supplementary assessments related to large-scale cetacean surveys will be reviewed, with particular focus on the most recent survey campaigns. This includes any additional data and analyses released from the latest phase of the SCANS programme; and
- Any additional data sources and publications identified by stakeholders during consultation workshops.

11.9.3 Assessment Methodology

11.9.3.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

11.9.3.2 The evaluation of potential impacts on marine mammals will draw upon both site-specific DAS data and publicly available datasets (see Table 11-1). These sources will be reviewed and consulted during the EIA process.

11.9.3.3 The EIA will assess potential effects across all phases of the Project (construction, O&M, and decommissioning) as outlined in Table 11-4. This assessment will be informed by professional expertise and established best practice methodologies.

11.9.3.4 To determine the significance of any impact, the EIA will consider both the sensitivity of the species (Table 11-5) and the magnitude of the effect (Table 11-6). The assessment will also incorporate embedded mitigation measures designed to minimise environmental harm, alongside the application of recognised best practice. Where necessary, additional consents or licences will be discussed and acquired.

11.9.3.5 Underwater noise is a key factor in assessing potential impacts on marine mammals. Acoustic modelling will be undertaken to predict the spatial extent and intensity of any noise generated during installation, O&M, and decommissioning activities. Activities that generate underwater noise include piled anchors (if selected as the anchor installation method, noting that suction or gravity anchors are also being considered), as well as geophysical surveys, UXO clearance, vessel operations, and other construction and operational activities.

11.9.3.6 The most up-to-date research, which is currently accepted on auditory thresholds for marine mammals (the currently accepted thresholds being Southall *et al.,* 2019) will be used to identify where levels may exceed thresholds for permanent hearing damage (PTS).

11.9.3.7 Risk of injury will be assessed using both cumulative sound exposure level (SEL_{cum}) and peak sound pressure level (SPL_{peak}). SEL_{cum} estimates frequency-weighted sound exposure over a 24-hour period, while SPL_{peak} assesses unweighted sound levels, typically associated with impulsive sources such as impact piling. Outputs from noise modelling will be compared with species density estimates to predict the number of individuals likely to be disturbed, and those at risk of experiencing PTS, either immediately or cumulatively.

Sensitivity

11.9.3.8 The sensitivity of marine mammals to potential impacts will be evaluated based on documented behavioural and ecological responses to various pressures. This assessment will rely on professional judgment, taking into account available evidence on how distinct species react to specific types of effects (such as underwater noise) and whether their ecology makes them particularly susceptible to potential impacts.

11.9.3.9 Sensitivity will be determined using the criteria set out in Table 11-5, with consideration given to species-specific behaviour and ecological characteristics.

11.9.3.10 The value of the receptor is not incorporated into the criteria used to assess the sensitivity of marine mammals. All marine mammals are considered to be of very high value, as they are either listed under Annex II of the Habitats Directive as species of Community Interest or under Annex IV as EPS requiring strict protection.

Table 11-5: Definition of the level of sensitivity for marine mammal receptors

Sensitivity	Definition
High	A receptor with high sensitivity is one that cannot avoid or adapt to the anticipated impact. It exhibits no tolerance for the proposed change, meaning even minor alterations could result in significant adverse effects. Furthermore, any impact is expected to be permanent, with the receptor having no capacity for recovery. This level of sensitivity typically applies to receptors that are highly specialised or legally protected, where any disturbance could lead to irreversible consequences.
Medium	A receptor of medium sensitivity has only limited ability to avoid or adapt to the proposed impact. Its tolerance to change is similarly restricted, making it vulnerable to sustained or significant alterations. While recovery is possible, it is expected to be slow and incomplete, with effects persisting over the long term. This category often includes receptors that are somewhat adaptable but still face considerable risk from prolonged or intense pressures.
Low	A receptor with low sensitivity demonstrates a reasonable capacity to avoid or adapt to the proposed impact. It can tolerate a degree of change without experiencing severe consequences. Any effects are likely to be temporary or short- to medium-term, and the receptor is expected to recover fully once the pressure is removed. This classification generally applies to receptors that are resilient and adaptable to environmental variability.

Sensitivity	Definition
Negligible	A receptor of negligible sensitivity is highly adaptable and capable of avoiding or accommodating the proposed change with minimal disruption. It exhibits strong tolerance to the anticipated impact, and any effects are expected to be temporary and reversible. Full recovery is anticipated within a short timeframe, indicating that the receptor is robust and unlikely to experience significant harm under the proposed conditions.

Magnitude

11.9.3.11 The magnitude of impacts on marine mammals reflects both the scale and duration of the effect. Wherever feasible, this will be evaluated using quantitative data. For habitat features, magnitude is defined by the extent of habitat area affected within the Project footprint. For marine mammal populations, it refers to the anticipated number of individuals impacted. Each impact will be classified into one of four magnitude levels, as described in Table 11-6.

11.9.3.12 Determining the appropriate magnitude level involves expert judgment, drawing upon a wide range of evidence sources. These include relevant guidance documents (refer to Section 11.9.1), peer-reviewed scientific literature, current research findings, and established descriptive terminology.

Table 11-6: Definition of the level of magnitude for marine mammal receptors

Magnitude	Definition
High	A change in the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site that is predicted to irreversibly alter the population in the short-to-long term and to alter the long-term viability of the population and/or the integrity of the protected site. Recovery to baseline levels from that change predicted to be achieved in the long term (i.e. more than five years) following cessation of the Project.
Medium	A change in the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site that occurs in the short and long term, but which is not predicted to alter the long-term viability of the population and/or the integrity of the protected site. Recovery to baseline levels from that change predicted to be achieved in the medium term (i.e. no more than five years) following cessation of the Project.
Low	A change in the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site that is sufficiently small-scale or of short duration to cause no long-term harm to the feature/population.

Magnitude	Definition
	Recovery to baseline levels from that change predicted to be achieved in the short term (i.e. no more than one year) following cessation of the Project.
Negligible	A very slight change from the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site. Recovery to baseline levels from that change predicted to be rapid (i.e. no more than circa six months) following cessation of the Project.

Significance

11.9.3.13 The determination of whether an effect is considered significant will be based on a combined assessment of the receptor's overall sensitivity and the magnitude of the impact. This evaluation will follow a matrix-based methodology, as outlined in Chapter 4: EIA Methodology: Table 4.1. Consistent with established EIA conventions, only those effects rated as moderate or major in significance will be regarded as significant or potentially significant.

11.10 Scoping Questions

11.10.1.1 The following Scoping questions refer to the marine mammal chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the study area(s) defined for marine mammals?
- Do you agree with the use of those data listed in Section 11.4, and any additional anticipated data listed in Section 11.9.2, being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to marine mammals have been identified?
- Do you agree with the list of designated sites for marine mammals that have been identified?
- Do you agree with the Scoping in and out of impact pathways in relation to marine mammals?
- Do you agree with the assessment of transboundary effects in relation to marine mammals?
- Do you agree with the assessment of cumulative effects in relation to marine mammals?
- Do you agree with the proposed assessment methodology for marine mammals?

- Do you consider the inclusion of only the Moray Firth SMA for both seal species to be appropriate, given the Project's inshore location and the distance to other SMAs exceeding 50 km?
- Do you agree with the use of Southall *et al.* (2019) as the basis for marine mammal acoustic exposure thresholds, or do you consider a more recent review, such as the National Marine Fisheries Service (2024), to be more appropriate?

12 Commercial Fisheries

12.1 Introduction

12.1.1.1 This Chapter of the Inshore Scoping Report identifies the commercial fisheries receptors of relevance to the Moray FLOW-Park (hereafter referred to as the 'Project') and considers the potential impacts from the construction, O&M and decommissioning of the Project on commercial fisheries receptors up to MHWS.

12.1.1.2 This Chapter should be read alongside the following other chapters:

- Chapter 2: Legislation and Policy;
- Chapter 3: Project Description;
- Chapter 4: EIA Methodology;
- Chapter 6: Marine and Coastal Processes;
- Chapter 7: Marine Water and Sediment Quality;
- Chapter 8: Benthic Subtidal and Intertidal Ecology;
- Chapter 9: Fish and Shellfish Ecology;
- Chapter 13: Shipping and Navigation; and
- Chapter 17: Socio-economics, Tourism and Recreation.

12.2 Study Area

12.2.1.1 The Project is located in the inner Moray Firth, at its nearest point approximately 1.06 km from the Findhorn coastline, within the UK EEZ, and inside the 6 nautical mile (nm) inshore limit, as defined in the Scottish Fisheries Act (1984). For statistical and fisheries management purposes, the Moray Firth region falls within the ICES Division IVa (northern North Sea), which is subdivided into standardised statistical rectangles measuring 30 minutes of latitude by 1 degree of longitude equating to approximately 30 nm^2, or 103 km^2 per rectangle. These divisions facilitate consistent data collection and reporting across Member States operating in the region.

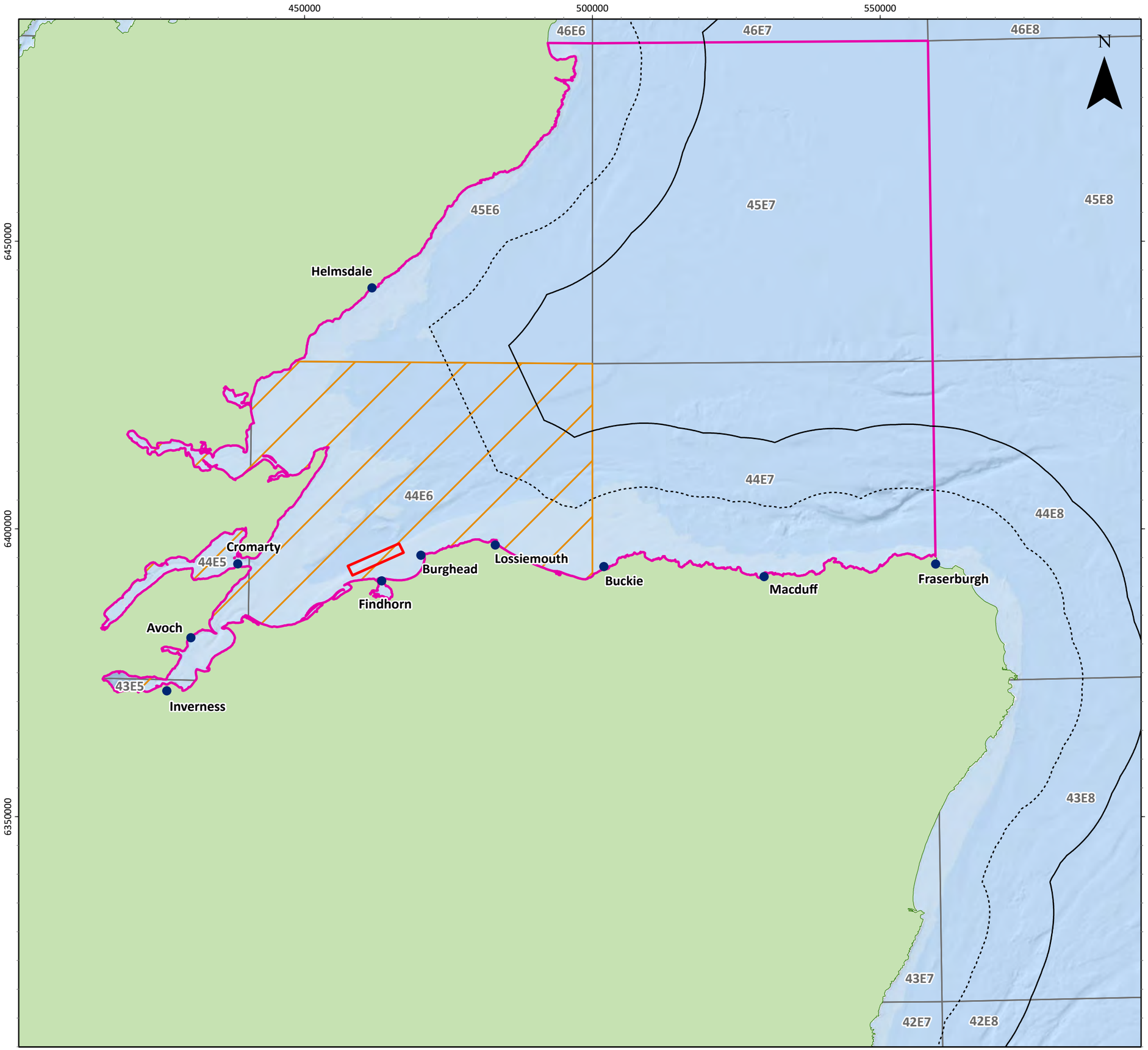
12.2.1.2 Under the Inshore Fishing (Scotland) Act 1984, Scottish waters are designated into inshore (within 6 nautical miles of the coast) and offshore (beyond 6 nautical miles). This distinction is important because different regulatory frameworks apply. Inshore waters are subject to specific local management measures aimed at protecting smaller-scale fisheries and coastal ecosystems, while offshore waters fall under broader national and international quota systems.

12.2.1.3 For the purposes of this Scoping chapter, two commercial fisheries study areas have been defined; local and regional. The Project footprint, comprising Moray FLOW-Park Area is located within ICES rectangle 44E6 and covers an area of 18 km^2. ICES rectangle 44E6 covers an area of 3,316 km^2, therefore the total footprint of the Project equates to 0.54% of the total ICES rectangle area. ICES rectangles 43E5 and 44E5 are considered isolated areas due to their restricted position far up the firth away from the main fishing grounds with limited connectivity to surrounding regions.

12.2.1.4 This area is commonly associated with local fishing activity, often involving smaller vessels of 10 m and under, however its proximity to major Scottish ports such as Buckie underscores its importance to the commercial fisheries sector. Therefore, ICES rectangles 43E5, 44E5 and 44E6 delimit the local study area for the purposes of this commercial fisheries chapter.1

12.2.1.5 In order to understand fishing activity in waters adjacent to the Project, a commercial fisheries regional study area has been defined to include the commercial fisheries local study area together with the surrounding ICES rectangles. Analysis of data at the scale of the commercial fisheries regional study area takes into consideration that most commercial fish and shellfish receptor populations are distributed at a wider spatial scale, ensuring that potential implications of displacement of fishing activity can be adequately assessed. Therefore, for the purposes of this commercial fisheries chapter, the regional study area will encompass ICES rectangles 43E5, 44E5, 44E6 (local study area), 44E7, 45E6, 45E7. The local and regional study areas are presented in Figure 12-1.

12.2.1.6 The study area will be reviewed and amended in response to such matters as refinement of the Project design parameters, the identification of additional impact pathways and, where appropriate, in response to feedback from stakeholder consultation through the PAC.



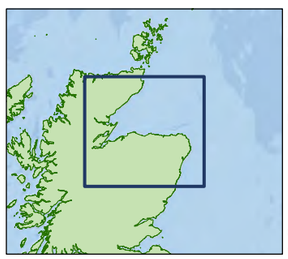
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Moray FLOW-Park
Inshore Scoping Report

Commercial Fisheries Study Area

Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit
- Port/Harbour



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors Contains Ordnance Survey data © Crown copyright and database rights (2022). OS OpenData.

Coordinate System: WGS 1984 UTM Zone 30N

0 20 40 km

0 10 20 nm

Scale	Date	Drawn By	Checked By	Approved By
1:650,000 @ A3	19/02/2026	EV	BPHB	CC

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Figure 12-1

Figure Reference: MFP_CF_Fig12-1_StudyArea_v4

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12.3 Data Sources to Inform the EIA Baseline Characterisation

12.3.1 Baseline Environment

12.3.1.1 For the purposes of this Inshore Scoping Report, the characterisation of commercial fisheries found within the study area has been completed by drawing upon information received through consultation with local fisheries stakeholders, as well as wider spatial and scientific data from publicly available sources. The data sources that have been used to inform this commercial fisheries chapter are presented in Table 12-1. These data sources will be taken forward and used to inform the Environmental Impact Assessment Report (EIAR), in addition to any site-specific data that will be collected for the Project.

12.3.1.2 Consultation with fisheries stakeholders, including fishers and representatives of fishermen's associations and organisations has already been initiated and will continue to be undertaken to corroborate the findings of desk-based baseline data analysis and to provide insight into specific fishing grounds and activity of any vessels active in the area. Consultation provides a better understanding of gear specifications for vessels active in the immediate Project area, providing insight on how different vessels and different gear configurations may be affected by the Project.

12.3.1.3 Variations and trends in commercial fisheries activity are an important aspect of the baseline assessment and are the principal reason for considering up to five years of key baseline data. Given the time periods considered in this scoping exercise (2019 to 2023), existing baseline data may to some extent capture potential changes in commercial fisheries activity resulting from the COVID-19 pandemic, which is understood to have temporarily affected market demand and supply chains and changes in fishing patterns resulting from the withdrawal of the UK from the EU.

Table 12-1: Key sources of commercial fisheries data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Fisheries Liaison Officer (FLO) Moray FLOW Park Fishing Activity Report, Blackhall and Powis (2026)	This summary captures fishing activity in the Inner Moray Firth, including the project area and key concerns raised by fishers, alongside local insights that fill gaps left by official datasets.	The characterisation focuses on the Inner Moray Firth, covering the proposed FLOW Park area and surrounding waters.
Vessel Monitoring System (VMS) data, Defra Data Services Platform, MMO, 2020-2022.	VMS data for UK registered vessels 15 m and over in length. Note that UK vessels 12 m and over in length have VMS on board, however, to date, the MMO provides amalgamated VMS datasets for 15 m and over vessels only. VMS data sourced from MMO displays the first sales value (£) of catches.	National dataset encompassing the commercial fisheries local and regional study areas. VMS data illustrates spatial patterns of fishing activity by UK vessels over 12 metres in length. For the Moray Firth, it includes positional estimates based on VMS pings, categorised by gear type, vessel length, and estimated time spent in specific grid squares. This helps infer fishing intensity and distribution, though with limitations due to reporting intervals and gear-specific movement patterns.
Swept Area Ratio (SAR) data for EU registered vessels ≥12 m, European Marine Observation and Data Network (EMODnet) Human Activities (fishing effort) in collaboration with ICES, 2019-2022.	VMS data for EU registered vessels 12 m and over in length. VMS data sourced from ICES and available through EMODnet displays the surface SAR of catches by different gear types and covers EU (including UK) registered vessels 12 m and over in length. Surface SAR indicates the number of times in an annual period that a demersal fishing gear contacts (or sweeps) the seabed surface. Surface SAR provides a proxy for fishing intensity.	International dataset encompassing the commercial fisheries local and regional study areas. Surface SAR data, derived from VMS and logbook records for EU registered vessels 12 m and over, provides a spatially explicit measure of demersal fishing intensity across European waters, including the Moray Firth. In this region, SAR values reflect how frequently bottom-contact fishing gears interact with the seabed over an annual period.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Marine Scotland NMPi portal, Marine Scotland, Scottish Government, 2019-2023.	Marine Scotland's NMPi covers commercial fisheries in the Moray Firth and across Scottish waters. It provides spatial data layers that map fishing effort, vessel activity, gear types, and designated fishing grounds, alongside regulatory zones such as Marine Protected Areas (MPAs) and seasonal closures. These layers help stakeholders visualise where commercial fishing occurs, assess overlaps with conservation or energy development zones, and support evidence-based decision-making for sustainable fisheries management. For the Moray Firth, NMPi enables detailed exploration of fleet dynamics, gear-specific pressure, and interactions with ecologically sensitive habitats.	National dataset encompassing the commercial fisheries local and regional study areas. Marine Scotland's NMPi enables a better understanding of commercial fisheries in the Moray Firth through spatial data on fishing effort, gear types, vessel activity, and designated fishing grounds. Data held in NMPi has been cross referenced with MMO landings and spatial data to ensure all fishing activity in the commercial fisheries study area has been captured.
FiSMaDiM (Fisheries Sensitivity Mapping and Displacement Modelling) data, Cefas data hub, Centre for Environment, Fisheries and Aquaculture Science (Cefas), 2023.	These datasets are used to model and understand how fishing activities might be affected by marine developments and how fishing effort could be redistributed as a result.	National dataset encompassing the commercial fisheries local and regional study areas. The Cefas FiSMaDiM dataset models the spatial distribution of fishing activity based on gear type, vessel behaviour, and environmental conditions in the Moray Firth. By simulating where fishing is likely to occur, FiSMaDiM helps identify areas of concentrated effort, potential ecological pressure, and interactions with protected habitats or other marine users.
Fishing vessel route density data, European Maritime Safety Agency (EMSA), via European Marine	Fishing vessel route density, based on vessel Automatic Information System (AIS) positional data. AIS is required to be fitted on fishing vessels 15 m and over in length.	International dataset encompassing the commercial fisheries local and regional study areas. This dataset visualises route density of fishing vessels based on AIS data, showing

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Observation and Data Network (EMODnet), 2024.		spatial patterns of vessel movement across European waters and supporting analysis of fishing pressure in the Moray Firth.
UK Sea Fisheries Statistics, MMO, 2019-2023.	Landings statistics data for UK-registered vessels, with data query attributes for: landing year; landing month; vessel length category; ICES rectangle; vessel/gear type; port of landing; species; live weight (tonnes); and value (£).	National dataset encompassing the commercial fisheries local and regional study areas. MMO publishes comprehensive UK fisheries statistics annually with insights into fleet composition, fishing activity and landings. In the Moray Firth region, these data illustrate patterns in commercial fishing, including the volume and species of fish landed, effort expended at sea, and the role of local ports.
Key commercial fisheries stock assessments (where available), ICES and Marine Scotland, 2019-2023.	While stock assessments are typically conducted at broader regional scales, for example North Sea or West of Scotland, several key commercial species relevant to the Moray Firth are regularly assessed by ICES and reported in Scottish marine assessments. Herring: North Sea autumn-spawning herring (ICES Subarea 4 (North Sea)); Haddock: North Sea, West of Scotland, Skagerrak (ICES Subarea 4); Cod: North Sea cod (ICES Subarea 4 (North Sea)); Whiting: North Sea (ICES Subarea 4); Saithe: North Sea saithe (ICES areas 3.a (Skagerrak), 4 (North Sea), and 6 (West of Scotland)); and Monkfish: North Sea, Rockall, West of Scotland, Skagerrak (ICES Subareas 4 and 6, Division 3.a).	Regional and national encompassing the commercial fisheries local and regional study areas. These assessment areas extend beyond the Moray Firth itself but include it within broader regional evaluations.

12.4 Description of Baseline Environment

12.4.1.1 An initial desk-based review of literature and available data sources (see Table 12-1) has been undertaken to support this Inshore Scoping Report. To support characterisation of the baseline environment, a summary of the FLO Fishing Activity Report has been included. The findings of this research are presented below in order to provide an understanding of the Project baseline environment and inform the Inshore Scoping process.

12.4.1.2 The key commercial fisheries receptors which have informed this Inshore Scoping Report, and the subsequent EIAR include:

- Key target species of socio-economic importance;
- Fleet composition and vessel size;
- Fishing grounds and intensity of use;
- Access and navigational safety; and
- Key fleet metiers operating within the study area.

12.4.2 Moray FLOW Park Fishing Activity Report Summary

12.4.2.1 This summary provides an overview of the patterns of activity and the types of vessels that commercially harvest fish and shellfish within the Inner Moray Firth. It draws on detailed local knowledge from experienced fishers who have operated trawl vessels within the Moray Firth, including areas proposed for FLOW Park infrastructure, and who have served as Fisheries Industry Representatives across multiple projects in the wider region. Their long-standing involvement in local fisheries offers valuable insight into the fleets active in the area, their operational practices, and the fishermen, vessels, and gear types that characterise the region's commercial fishing activity.

12.4.2.2 This summary serves to address gaps that can arise when using publicly available fisheries statistics. In particular, activity by smaller inshore vessels not required to carry AIS may be absent from official datasets, meaning some fishing effort is not captured through standard vessel-monitoring systems. Local knowledge is therefore essential to ensure an accurate and complete understanding of commercial fishing activity within the Inner Moray Firth. Table 12-2 provides an overview of the key information captured during consultation with local fishers.

Table 12-2 Summary of key stakeholder engagement information.

Fishing Methods	Key Information
Prawn Vessels	Local effort: 8 vessels active from Inner Firth harbours. Most effort on north side of box Very few have AIS on their vessels – would not appear on statistical rectangles data platforms. Prawns all year round Preferred sediment - sandy mud/ soft mud. Nomadic vessels: 14 seasonal nomadic trawlers from West Coast (Minches) from Feb-Late May
Squid Vessels	Come from all over. Historically, a good fishery, but has taken a downturn in recent years Higher level of effort during productive years Mostly Scottish, at least two English Squid late Aug-early Nov Normally starts when water temps reach 12° Preferred sediment - Clean bottom-sand Water depth 5m – 35m
Static Gear Vessels targeting Crab, Lobster, and Velvet crab	No static gear in the north/east box Closest 3-4 miles to the east of Burghead Fish out of Burghead Static gear vessels active 12 months per year. Preferred sediment - sand, pebbles, stones, and Rock

12.4.2.3 The Fishing Activity Report indicates that commercial fishing activities relevant to the proposed FLOW Park area, within the inner Moray Firth primarily includes mobile trawl fishing and static creel/pot fishing activity. Vessels participating in these fisheries and gear types comprise the predominant fishing effort at present. However, the area has historically supported a notable pelagic pair-trawl sprats fishery. There has also historically been effort by vessels from Findhorn, Lossiemouth, Helmsdale and Cobble, targeting whitefish using seine-nets and trawls. the area has historically supported a salmon/sea trout fishery, however there is currently very little fishing effort. The trawl fishing vessels predominantly target Nephrops (prawns), as well as squid. The vessels that participate in these fisheries include mostly local trawlers, based in Burghead and Buckie. There is also effort by trawlers from the outer Moray Firth, from ports including Helmsdale, Macduff, and Fraserburgh.

12.4.2.4 In addition, there are recreational charter-based fishing businesses targeting species including cod, haddock, and skates. Number of vessels fluctuates annually and is dependent on anticipated tourist numbers.

12.4.3 Desk Based Study

12.4.3.1 The commercial fisheries baseline has been mainly characterised by publicly available MMO fisheries statistics data for ICES rectangles 43E5, 44E5 and 44E6 (iFISH, 2025) which comprise the local study area The Moray FLOW-Park area is located within ICES rectangle 44E6. ICES rectangles 43E5 and 44E5 are considered isolated areas due to their restricted position far up the firth away from the main fishing grounds with limited connectivity to surrounding regions.

12.4.3.2 These data are presented in the following paragraphs and provide a sufficient representation of the UK fishery within ICES rectangles 43E5, 44E5 and 44E6 as they include information on various parameters, for example, first sales value, landed weight, vessel length group and gear type. The commercial fisheries regional study area has also been characterised to support the assessment of wider displacement effects as a result of the Project, providing context for the analysis of fishing activity in ICES rectangles 43E5, 44E5 and 44E6. These MMO data are for UK vessels only, however, VMS data from EU vessels (including the UK) between 2019 and 2022 have been analysed to take account of international fisheries operating within the study area:

- VMS data from EU vessels (12 m and over in length) in terms of average total fishing effort and average SAR.

12.4.4 Key Target Species and Socio-economic Importance

Local Study Area

12.4.4.1 Commercial fisheries contribute significantly to the local economy in northeast Scotland, generating landings value and supporting employment and supply chains. Ports such as Buckie rely on shellfish and demersal landings from vessels operating within the local study area. Displacement or disruption could have downstream effects on processors, transport and community resilience, particularly for small-scale operators.

12.4.4.2 This section presents a comparative analysis of landed weight and first sales value for commercial fisheries, examining differences and trends between the defined local and regional commercial fisheries study areas. For the purposes of this baseline description, focus is given to the most recent data sets across a five-year period (2019-2023).

12.4.4.3 On average, landed weight equating to 746 tonnes with a first sales value of £2.9 million was landed from the Commercial Fisheries local study area, encompassing ICES rectangles 43E5, 44E5 and 44E6, based on 5-years landings data between 2019 to 2023. Peak landings occurred in 2019 with 1,138 tonnes landed at a first sales value of £4.1 million. The lowest landings in the 5-year reporting period were recorded in 2021 with 527 tonnes landed at a first sales value of £2 million. Individually, on average, 8.4 tonnes with a first sales value of £85,878 was landed from ICES rectangle 43E5, 75 tonnes with a first sales value of £148,227 was landed from ICES rectangle 44E5 and 662 tonnes with a first sales value of £2.65 million was landed from ICES rectangle 44E6 in the same reporting period. Peak landings occurred in 43E5 in 2021 with 14 tonnes landed at a first sales value of £178,915, in 44E5 in 2019 with 117 tonnes landed at a first sales value of £208,210 and in 44E6 in 2019 with 1,015 tonnes landed at a first sales value of £3.85 million.

12.4.4.4 Trends in landings from the local study area show an appreciable drop from 2019 (1,138 tonnes at a first sales value of £4.1 million) to 2020 (545 tonnes at a first sales value of £1.64 million), through to 2021 (527 tonnes at a first sales value of £2 million). Landing statistics indicate initial recovery in 2022 (683 tonnes at a first sales value of £2.96 million) continuing into 2023 (836 tonnes at a first sales value of £3.7 million). It is noted that the period of the baseline data analysis includes years impacted by COVID-19, specifically 2020 and 2021 when restrictions affected normal business operations and market trade. Landings at a national level were seen to decline over this period. For example, the total first sales value of commercial landings by Scottish vessels across all Scottish territorial waters decreased from £735 million in 2016, to £520 million in 2020 due to the impacts of COVID-19. The total value landed by Scottish vessels has since increased to £617 million in 2022. Figure 12-2 illustrates the average first sales value of landings between 2019 to 2023 in the local Commercial Fisheries study area ICES rectangles.

12.4.4.5 Figure 12-2 illustrates the variation in first-sales value of landings across local ports between 2019 and 2023 in the local commercial fisheries study area, highlighting consistently higher landed values at Buckie and Burghead, which dominate the dataset throughout the data reporting period. In contrast, Lossiemouth, Macduff and Fraserburgh show comparatively lower and more variable annual values, while Avoch, Cromarty, Inverness, and Helmsdale exhibit only small-scale landings with minimal year-to-year fluctuation. Overall, the data indicate that landings in the study area are concentrated in just a few key ports, with smaller harbours contributing relatively modest values across the reporting period.

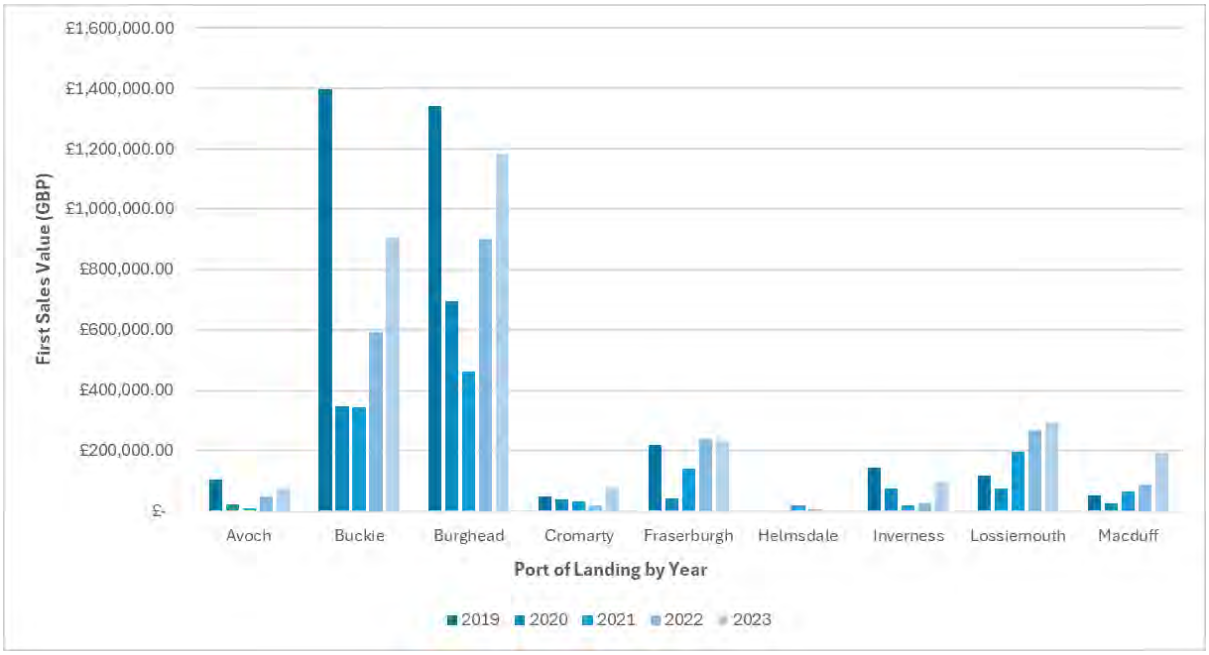


Figure 12-2: Average first sales value of landings by port between 2019 and 2023 in the local commercial fisheries study area ICES rectangles.

12.4.5 ICES Rectangle 43E5

12.4.5.1 In ICES rectangle 43E5 (Beauly Firth), on average, *Nephrops* dominated landed weight and first sales value with an average of 3.8 tonnes landed at first sales value of £41,006 across the 5-year reporting period. In 2019, 2020, and 2021 *Nephrops* landings equated to 1.7 tonnes with a 2019 first sales value of £12,270, 0.9 tonnes with a first sales value of £8,116 in 2020, and 1.96 tonnes with a first sales value of £14,306 in 2021. *Nephrops* were the second highest landed species by weight next to brown crabs (2019 and 2021) and scallops (2020). However, in 2022 and 2023, *Nephrops* landings increased substantially to 9.3 tonnes with a first sales value of £121,825 and 4.85 tonnes at a first sales value of £48,515 respectively.

12.4.5.2 Ballan wrasse were only landed in 2019 and 2021, however the first sales value for the species in 2021 equated to £154,029 making them the second most valuable landed species in the rectangle. Scallops were only landed in 2020 and 2021, with weights of 3.97 tonnes and 0.69 tonnes respectively, demonstrating their economic importance when actively targeted by fishing activity. Brown crabs (1.95 tonnes at first sales value of £4,942), Velvet crabs (0.84 tonnes at first sales value of £2,399), lobsters (0.13 tonnes at first sales value of £2,057) and whelks (0.37 tonnes at first sales value of £372) are consistently landed year-on-year across the 5-year reporting period and alongside the species discussed in paragraph 12.4.5.1, comprise the majority of landed weight and first sales value within ICES rectangle 43E5.

12.4.5.3 Landings of other key species remained relative stable in comparison. Finfish and other species, although targeted within this rectangle, represent a small proportion individually overall of average landed weight and first sales value within ICES rectangle 43E5. Fisheries Statistics indicate that the majority of demersal and pelagic fish landed by UK vessels were caught using demersal trawls. Shellfish species were caught using beam trawls, dredges, demersal trawls, and pots and traps. Figure 12-3 and Figure 12-4 present the results of this analysis.

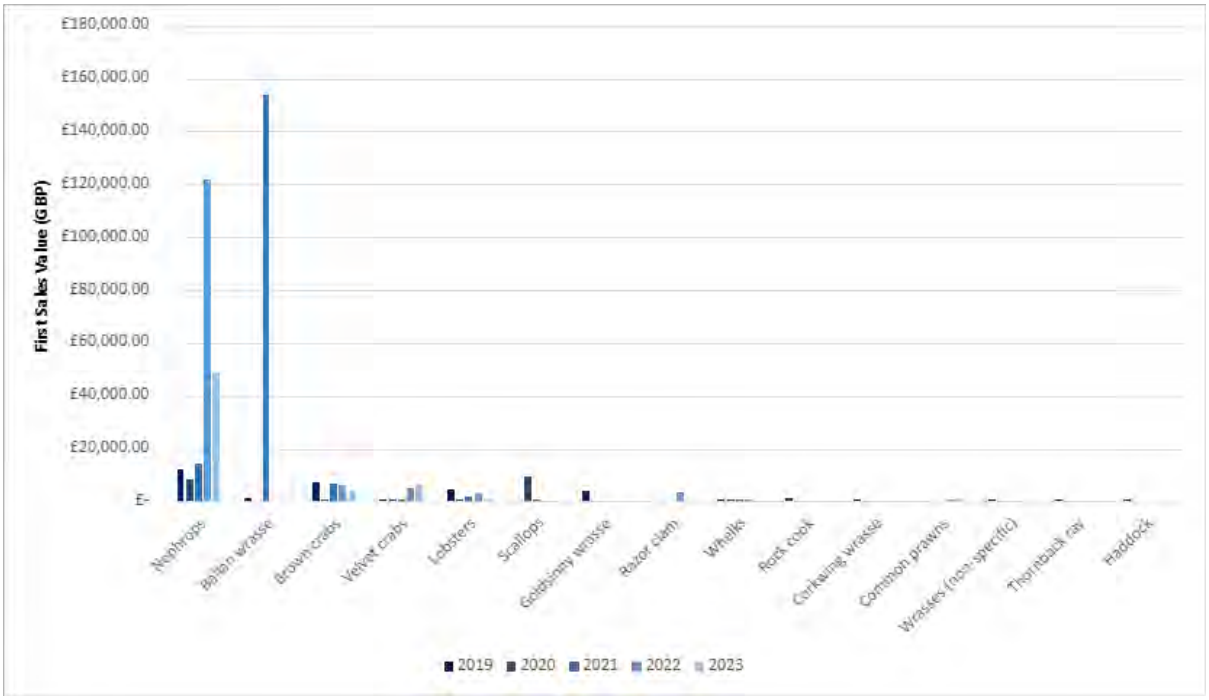


Figure 12-3: Average annual landed value of species from ICES rectangle 43E5, based on 5-year average from 2019 to 2023 (MMO, 2023a).

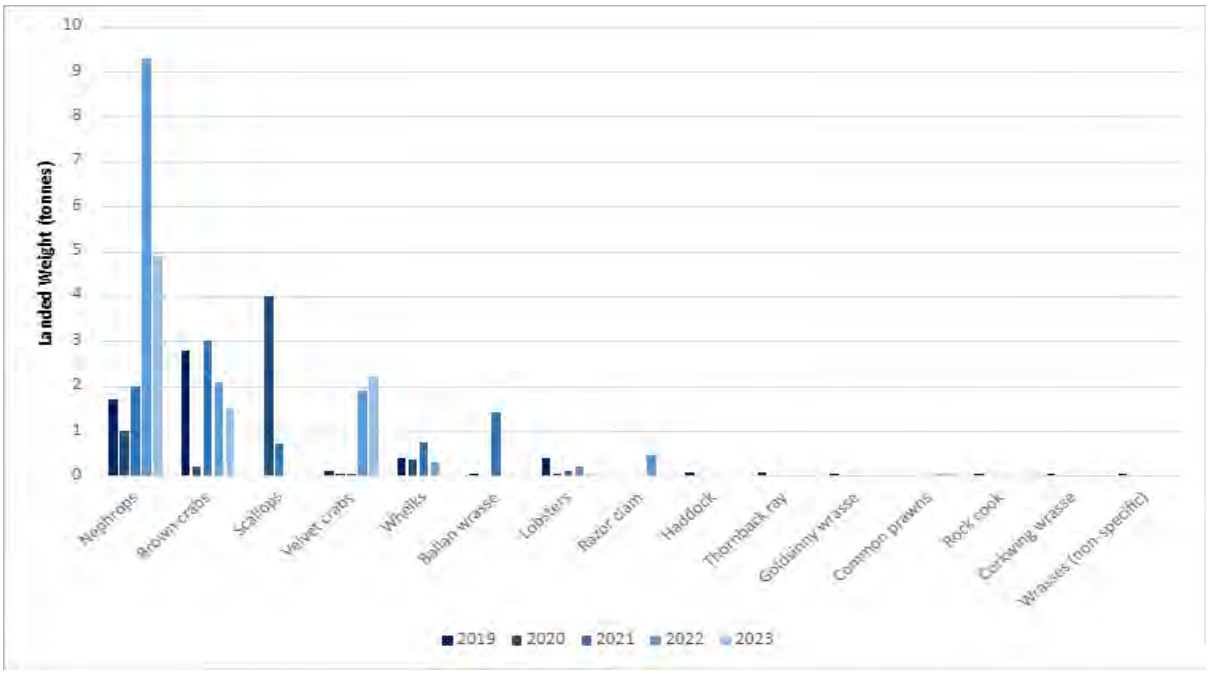


Figure 12-4: Average annual landed weight of species from ICES rectangle 43E5, based on 5-year average from 2019 to 2023 (MMO, 2023a).

12.4.6 ICES Rectangles 44E5

12.4.6.1 In ICES rectangle 44E5 (Beauly, Cromarty and Dornoch Firths), whelk dominated landed weight and first sales value between 2019 and 2020, and in 2023. Landed weight values range from 102.3 tonnes with a first sales value of £120,656 in 2019, 66.1 tonnes with a first sales value of £76,205 in 2020 and 61.1 tonnes with a first sales value of £68,475 in 2023. Landed weight of whelks dropped significantly in 2021 and 2022 to 12.9 tonnes at a first sales value of £12,999 and 36.3 tonnes at a first sales value of £35,409 in 2022. Brown crabs dominated landed weight and first sales value in 2021 with 13.8 tonnes landed at a first sales value of £33,226 and continued to dominate first sales value in 2022 at £72,272 although landed weight was below that of whelks at 27.4 tonnes.

12.4.6.2 *Nephrops* are consistently landed year-on-year across the reporting period, however landings and first sales value fluctuate from a peak in landings in 2022 of 10.96 tonnes with a first sales value of £66,601 to a low of 1.1 tonnes in 2021 with a first sales value of £12,525. Ballan wrasse were only landed in 2019 to 2021, and although represent a small proportion of average landed weight by species in the rectangle (0.04 tonnes), had an average first sales value of £3,113 in the reporting period. Similarly, corkwing wrasse (landed in 2019 to 2021) represent low landed weight figures (0.02 tonnes), however have a first sales value of £1,560. Although reported in landings statistics as commercially fished in 2021 and 2022 (landed weight of 0.06 tonnes with a first sales value of £2,129), crawfish typically referring to *Palinurus* species or freshwater crayfish are not commercially targeted or landed within the Moray Firth region. Any references to crawfish in fisheries statistics datasets likely reflect mislabelling or confusion with other crustaceans such as lobster or nephrops. Lobsters (0.59 tonnes at a first sales value of £9,221), velvet crabs (1.4 tonnes at a first sales value of £4,752) and scallops (4 tonnes at a first sales value of £8,538) are consistently landed year-on-year across the 5-year reporting period and alongside the species discussed in paragraph 12.1.2.14, comprise the majority of landed weight and first sales value within ICES rectangle 44E5.

12.4.6.3 Landings of other key species remained relative stable in comparison. Finfish and other species, although targeted within this rectangle, represent a small proportion individually overall of average landed weight and first sales value within ICES rectangle 44E5. Fisheries Statistics indicate that the majority of demersal and pelagic fish landed by UK vessels were caught using demersal trawls. Shellfish species were caught using beam trawls, dredges, demersal trawls, and pots and traps. Figure 12-5 and Figure 12-6 present the results of this analysis.

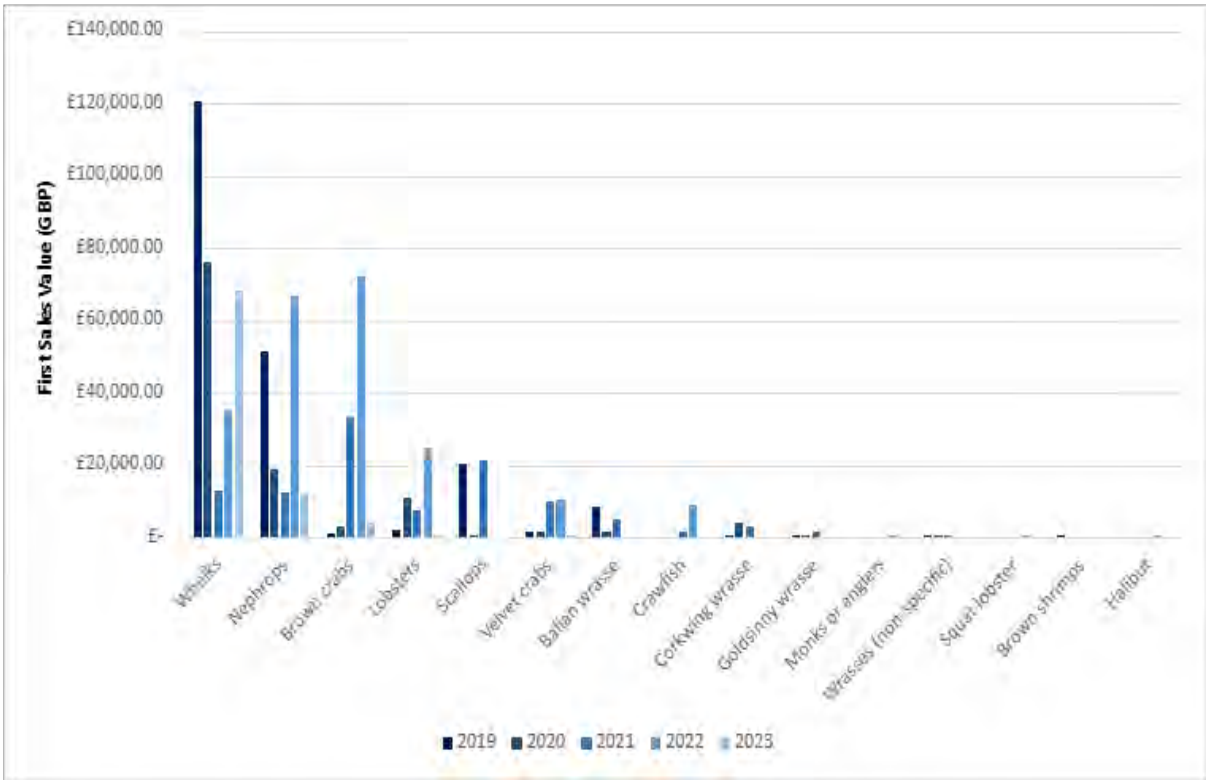


Figure 12-5: Average annual landed value of species from ICES rectangle 44E5, based on 5-year average from 2019 to 2023 (MMO, 2023a).

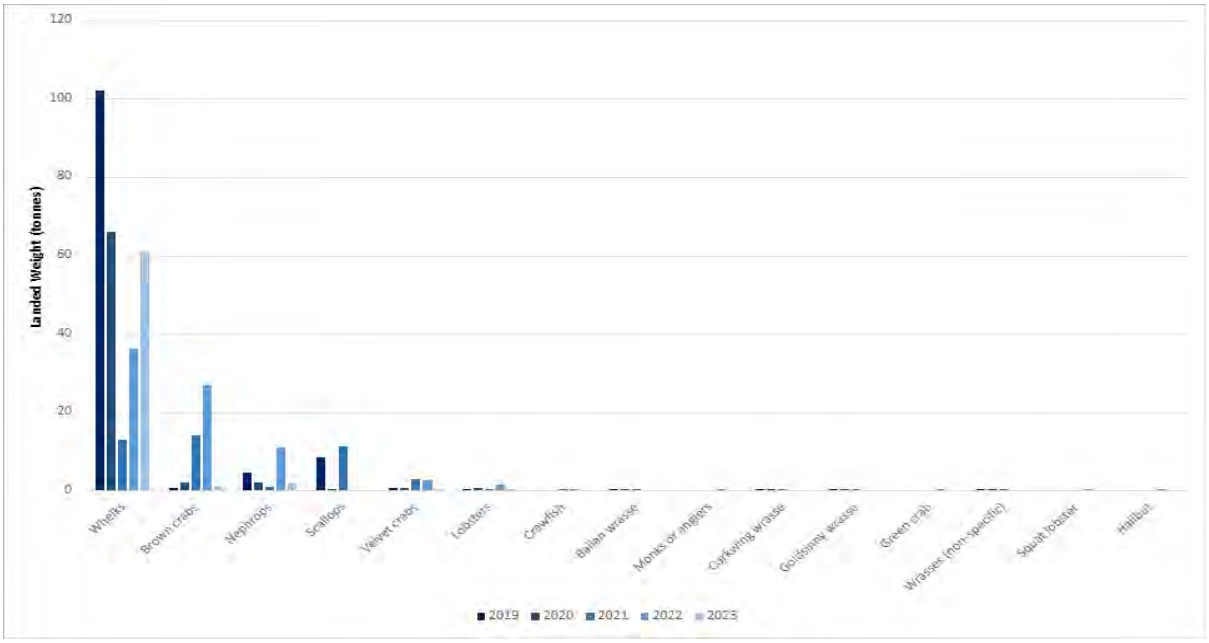


Figure 12-6: Average annual landed weight of species from ICES rectangle 44E5, based on 5-year average from 2019 to 2023 (MMO, 2023a).

12.4.7 ICES Rectangle 44E6

12.4.7.1 In ICES rectangle 44E6 (Dornoch and Moray Firth), *Nephrops* dominated landed weight and first sales value between 2019 and 2023, except in 2019 where landed weight of squid was 354 tonnes. Landed weight values for *Nephrops* range from 158 tonnes with a first sales value of £629,521 in 2020 to 372 tonnes with a first sales value of £2.03 million in 2023 and a 5-year average of 241.2 tonnes at a value of £1.22 million. Squid had the highest landed weight in 2019 with a first sales value of £882,673; however landings dropped significantly in 2020 to 153 tonnes with a first sales value of £382,766 and continued to drop to a low of 86 tonnes in 2021, remaining stable in the remainder of the reporting period. Lobsters represent the next highest first sales value with an increasing trend in landings and first sales value observed ranging from a low of 18.1 tonnes at a first sales value of £239,732 in 2020 to a peak of 47.3 tonnes in 2023 at a first sales value of £707,413.

12.4.7.2 Landed weight and first sales value of mixed squid and octopus peaked in 2019 at 91.4 tonnes at a value of £654,389, however dropped significantly in 2020 to 14.4 tonnes, continuing to a low of 2.4 tonnes in 2022 with a slight increase observed in 2023 to 5.24 tonnes. Brown crabs (40.24 tonnes at a first sales value of £102,590), whelks (76 tonnes at a first sales value of £84,446), velvet crabs (22.03 tonnes at a first sales value of £54,347) and scallops (21.4 tonnes at a first sales value of £43,831) are consistently landed year-on-year across the 5-year reporting period and alongside the species discussed in paragraph 12.1.2.17, comprise the majority of landed weight and first sales value within ICES rectangle 44E6.

12.4.7.3 Haddock represents the fifth highest landed weight in the rectangle, ranging from 8.4 tonnes with a first sales value of £11,124 in 2020 to 59.1 tonnes with a first sales value of £46,620 in 2022 and an average first sales value of £25,547 across the data reporting period. Although significantly lower in landed weight than Haddock, corkwing wrasse (0.2 tonnes with a first sales value of £33,727), monks or anglers (3.85 tonnes at a first sales value of £13,208), mackerel (6.7 tonnes at a first sales value of £8,843), Plaice (1.64 tonnes at a first sales value of £950), Dabs (1.95 tonnes at a first sales value of £417) and green crab (0.91 tonnes at a first sales value of £812) are important target species within ICES rectangle 44E6. Finfish and other species, although targeted within this rectangle, represent a small proportion individually overall of average landed weight and first sales value within ICES rectangle 44E6. Fisheries Statistics indicate that the majority of demersal and pelagic fish landed by UK vessels were caught using demersal trawls. Shellfish species were caught using beam trawls, dredges, demersal trawls, and pots and traps.

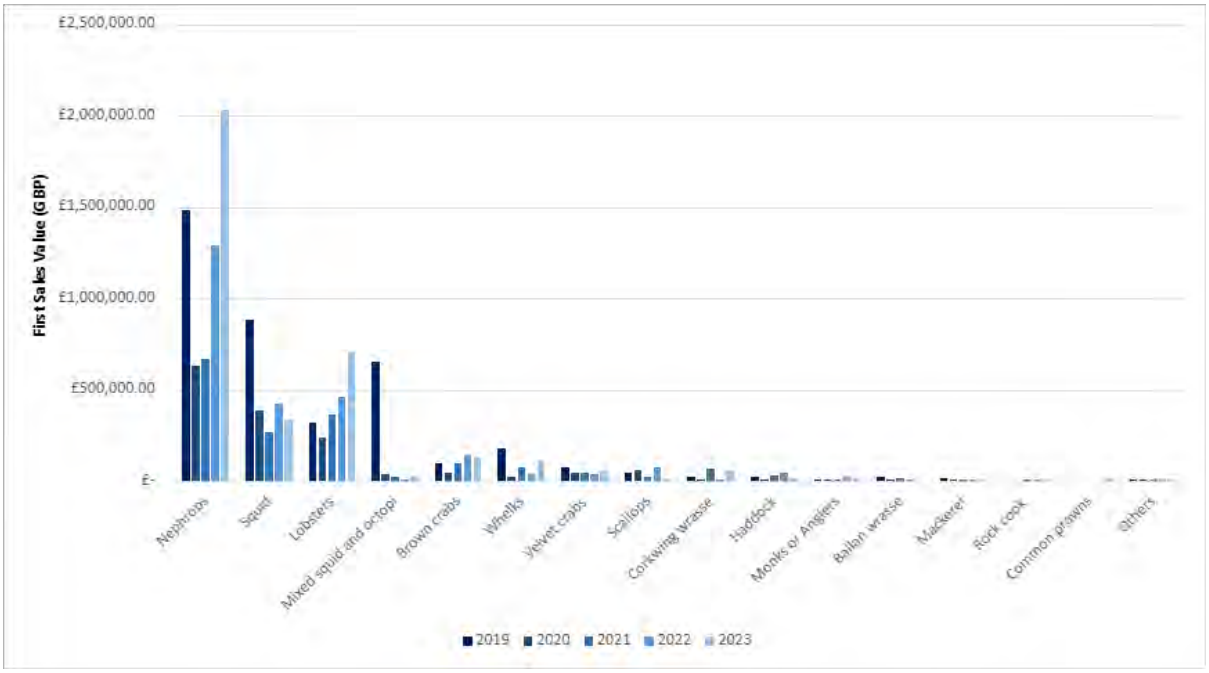


Figure 12-7: Average annual landed value of species from ICES rectangle 44E6, based on 5-year average from 2019 to 2023 (MMO, 2023a).

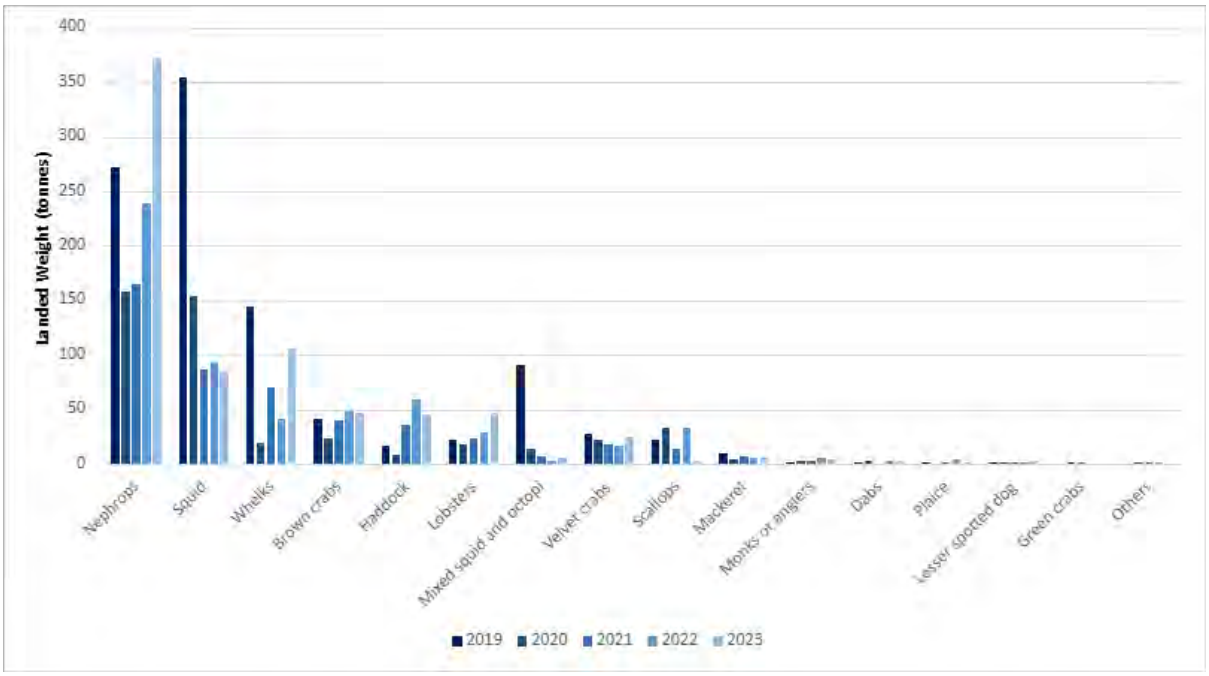


Figure 12-8: Average annual landed weight of species from ICES rectangle 44E6, based on 5-year average from 2019 to 2023 (MMO, 2023a).

12.4.8 Local Study Area Summary

12.4.8.1 Figure 12-3 to Figure 12-8 above show the top 15 species landed from the commercial fisheries local study area by ICES rectangle, by value and weight respectively, between 2019 to 2023 (MMO, 2023). The key species landed from the commercial fisheries local study area as a whole include *Nephrops Nephrops norvegicus*, squid *Loligo vulgaris*, whelk *Buccinum undatum*, brown crab *Cancer pagurus*, haddock *Melanogrammus aeglefinus*, lobster *Homarus gammarus*, velvet crabs *Necora puber*, scallops *Pecten maximus*, mackerel *Scomber scombrus*, monks or anglers *Lophius piscatorius*, dabs *Limanda limanda*, plaice *Pleuronectes platessa*, green crabs *Carcinus maenas*, corkwing wrasse *Symphodus melops*, ballan wrasse *Labrus bergylta* and crawfish *Palinurus elephas*.

12.4.9 Regional Study Area

12.4.9.1 The regional commercial fisheries study area provides a broader context for commercial fisheries activity across the wider geographic setting. Its focus is on identifying overarching patterns and key fisheries in the region. This higher-level perspective contrasts with the more detailed analysis presented for the local study area, which concentrates on site-specific fishing operations and potential direct interactions with the Project. By maintaining this distinction, the chapter avoids duplication and ensures that both regional and local dynamics are appropriately addressed.

12.4.9.2 On average, landed weight equating to 4,166 tonnes with a first sales value of £ 11.7 million was landed from the commercial fisheries regional study area, encompassing ICES rectangles 43E5, 44E5, 44E6 (local study area), 44E7, 45E6, 45E7 in the same reporting period. The local study area comprises 24.8% of the first sales value and 17.9% of the landed weight recorded in the regional study area. Peak landings in the regional study area occurred in 2019 with 6,205 tonnes landed at a first sales value of £17.35 million. The lowest landings in the 5-year reporting period were recorded in 2022 with 2,980 tonnes landed at a first sales value of £9.9 million.

12.4.10 Regional Study Area Summary

12.4.10.1 To provide context with the detail presented for the local study area above, Figure 12-9 and Figure 12-10 show the top 15 species landed from the wider Commercial Fisheries regional study area by value and weight respectively, from 2019 to 2023 (MMO, 2023). Landing statistics indicate that the key fisheries in the regional study area are targeting *Nephrops*, squid, brown crabs, lobsters, scallops, haddock, mackerel, velvet crabs, whelks, monks or anglers, cod *Gadus morhua*, whiting *Merlangius merlangus*, plaice, ballan wrasse and lesser spotted dog *Scyliorhinus canicula*.

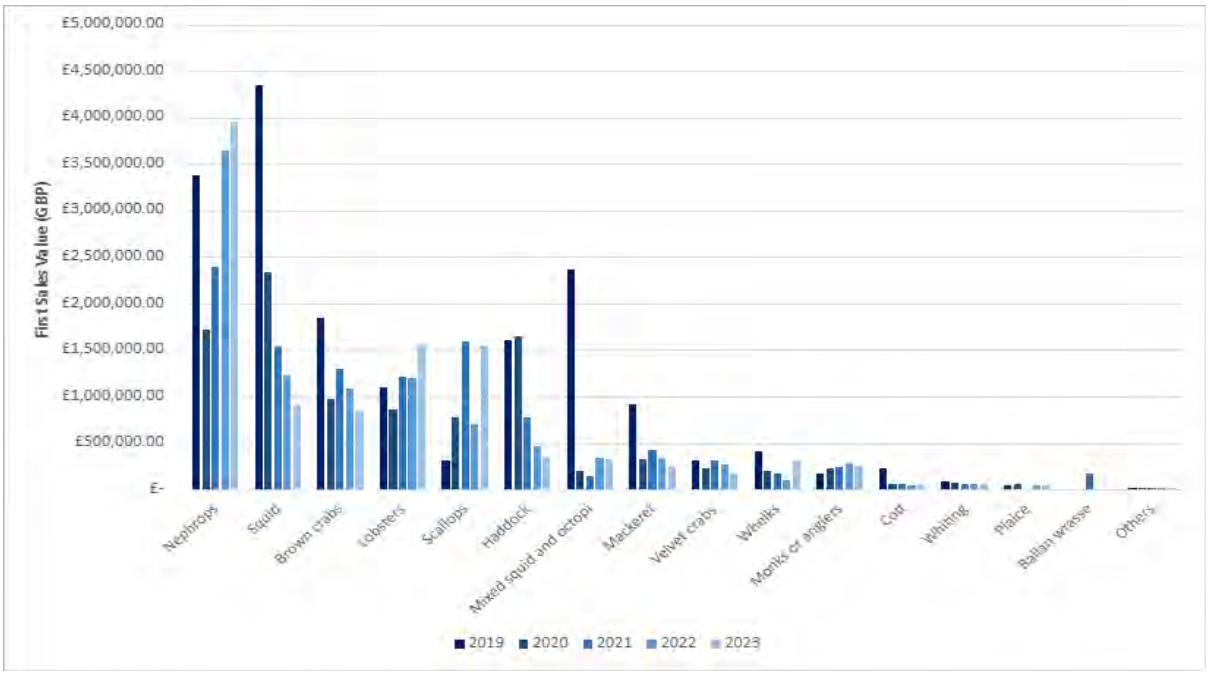


Figure 12-9: Average annual landed value of species from the commercial fisheries regional study area (ICES rectangles 43E5, 44E5, 44E6, 44E7, 45E6, 45E7), based on 5-year average from 2019 to 2023 (MMO, 2023a).

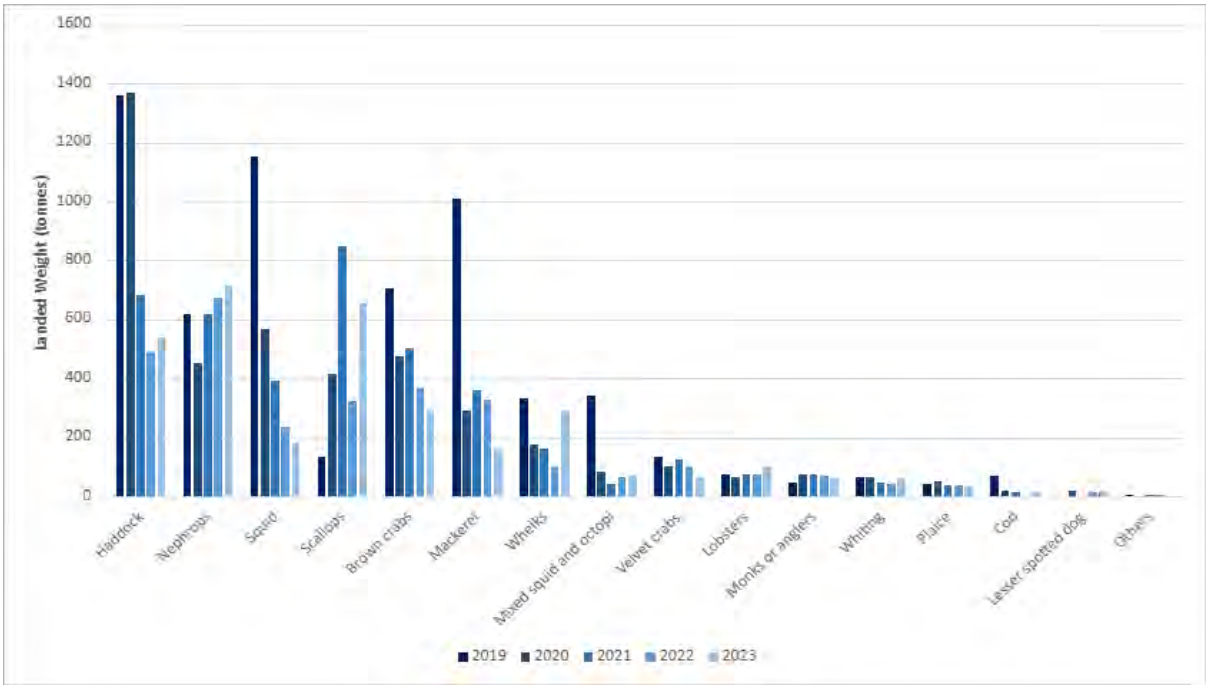


Figure 12-10: Average annual landed weight of species from the Commercial Fisheries regional study area (ICES rectangles 43E5, 44E5, 44E6, 44E7, 45E6, 45E7), based on 5-year average from 2019 to 2023 (MMO, 2023a).

12.4.10.2 Figure 12-11 below presents the average first sales value of landings between 2019 to 2023 in the regional Commercial Fisheries Study Area ICES rectangles, with a comparative presentation of these data for both the regional and local Study Areas presented in Figure 12-12. The comparative analysis compares the average first sales value of fish landings between the local and regional commercial fisheries within designated ICES rectangles in the study area. By examining the initial market prices at which catches are sold, it highlights economic differences between smaller-scale, locally focused operations and broader regional fisheries.



Figure 12-11: Average first sales value of landings between 2019 and 2023 in the regional commercial fisheries study area ICES rectangles.

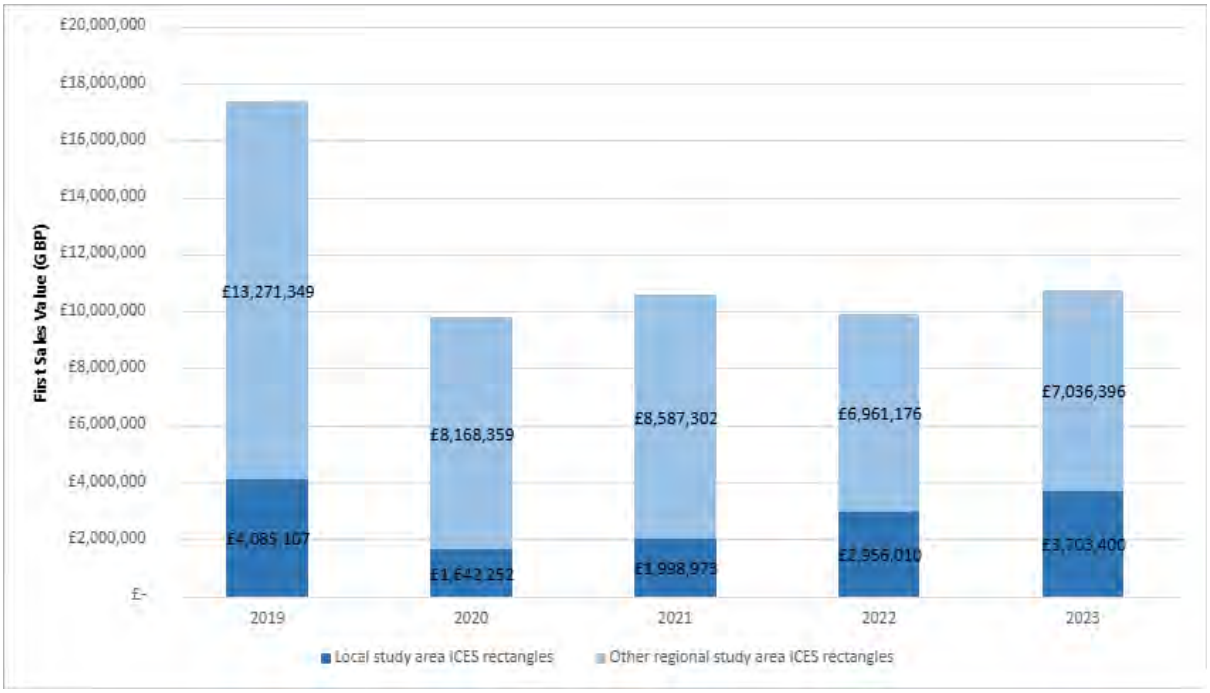


Figure 12-12: Comparative average first sales value of landings between the local and regional commercial fisheries study area ICES rectangles.

12.4.11 Fleet Composition and Vessel Size

12.4.11.1 The Moray Firth exhibits a varied depth profile that influences both ecological dynamics and fishing activity. In its inner reaches, depths typically range from 10 to 60 m, with shallower areas around estuaries and river mouths. As the firth opens eastward into the North Sea, depths increase significantly, reaching up to 100 to 200 m in offshore areas. The firths funnel-like bathymetry, from narrow and shallow in the west to broader and deeper in the east, shapes tidal flow, sediment transport, and species distribution, and plays a key role in determining the types of fishing gear and vessels that operate within different zones of the Firth (Marine Scotland, 2020c; Moray Offshore Renewables Ltd, 2018).

12.4.11.2 ICES rectangles 43E5, 44E5 and 44E6 cover a portion of the inner reaches of the Firth, however 44E6 extends into deeper waters at its furthest boundary extents. Fisheries statistics indicate that the local study area comprises productive shellfish grounds, supporting a predominantly shellfish-oriented fishery shaped by the region's sheltered waters and relatively shallow depths. Landings are predominantly comprised of *Nephrops*, whelks, brown crabs, lobsters, velvet crabs and squid targeted by a mixed inshore fleet of vessels 10 m and under and over 10 m in length deploying demersal trawls, dredges and static gear such as creels and pots with the majority of landings by value being made by vessels 10 m and under in length. Vessels operate from nearby ports including Buckie, Lossiemouth and Burghead.

12.4.11.3 In ICES rectangle 43E5, the highest level of activity is undertaken by vessels 10 m and under in length deploying pots and traps targeting *Nephrops*, ballan wrasse, brown crabs, velvet crabs, lobsters and whelks. Significantly lower levels of demersal trawling targeting demersal finfish and other species is undertaken by vessels 10 m and under. Low levels of dredge and other passive gears activity have been identified for vessels over 10 m.

12.4.11.4 Fishing activity trends in ICES rectangle 44E5 almost mirror those in 43E5 with a similar target species assemblage, however, landed weight and first sales value are higher within this rectangle and additional pots and traps activity has been identified for vessels over 10 m in length whilst vessels 10 m and under are deploying other passive gears. Fishing activity trends reflect the shallow, inshore nature of this portion of the local study area.

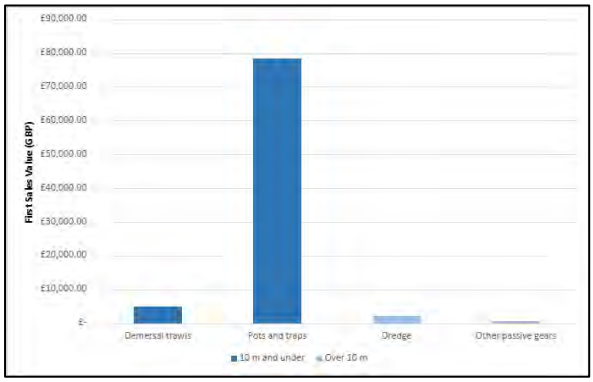
12.4.11.5 Fishing activity trends in ICES rectangle 44E6 reflect access for vessels to deeper waters. Pots and traps are almost exclusively deployed by vessels 10 m and under, however vessels 10 m and under and over 10 m share a near equal proportion of demersal trawl activity within the rectangle targeting demersal finfish and other species. Vessels over 10 m in length are also deploying demersal seines and pelagic trawls, targeting mobile pelagic species such as mackerel whilst very low levels of seasonal handlining for mackerel has also been observed.

12.4.11.6 The fleet operating within the local study area is dominated by vessels 10 m and under in length. These vessels typically conduct short trips within the firth and adjacent coastal waters, with fishing effort concentrated in spring and summer months when shellfish activity peaks. Seasonal patterns are influenced by water temperature, breeding cycles, and market demand with crab and lobster often landed together, while whelk fishing tends to peak in the off-season for crustaceans. Pelagic species are not a major component of the catch in these rectangles, though mackerel may be landed seasonally in small volumes. Landings of the species detailed above vary seasonally, with inshore vessels often equipped to move from species to species throughout seasons.

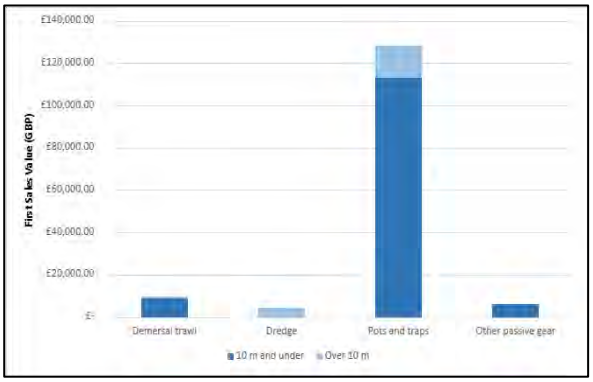
12.4.11.7 Landing trends per month will be analysed within the EIAR for individual species at both an ICES rectangle level, and by port of landing to identify which fleet and fishery operate at specific times of the year.

12.4.11.8 In addition to the ICES rectangles identified for the local study area, fishing activity trends have been analysed for ICES rectangles 44E7, 45E6 and 45E7. These rectangles extend into deeper waters still, and fishing activity is characterised by a shift in being dominated by vessels 10 m and under to those vessels over 10 m in length. Potting and trap activity continues to be dominated by vessels 10 m and under in these rectangles, however these vessels are also deploying fixed and drift nets and higher levels of effort are directed towards handlines. Vessels over 10 m dominate demersal trawl activity within these rectangles, whilst beam trawl, demersal seine, dredge and pelagic trawls are exclusively deployed by vessels over 10 m in length. Figure 12-13 presents the results of the comparative effort by gear type and ICES rectangle for vessels 10 m and under and over 10 m operating in the commercial fisheries study area.

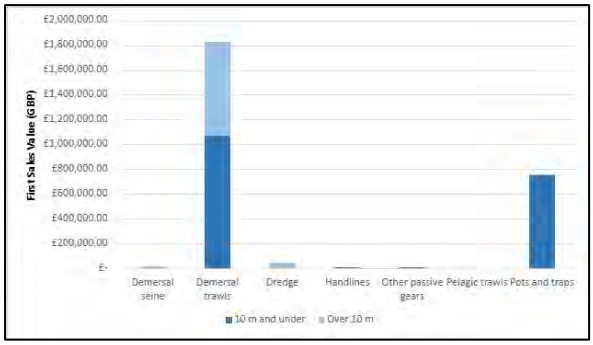
ICES Rectangle 43E5



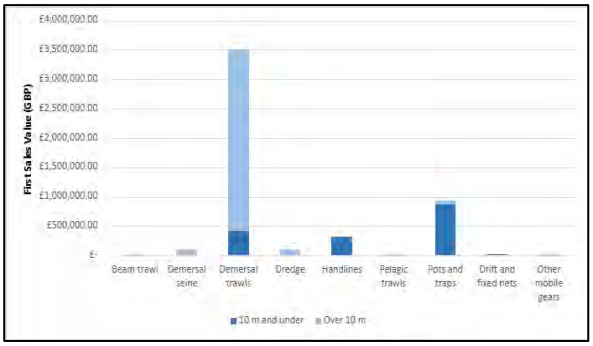
ICES Rectangle 44E5



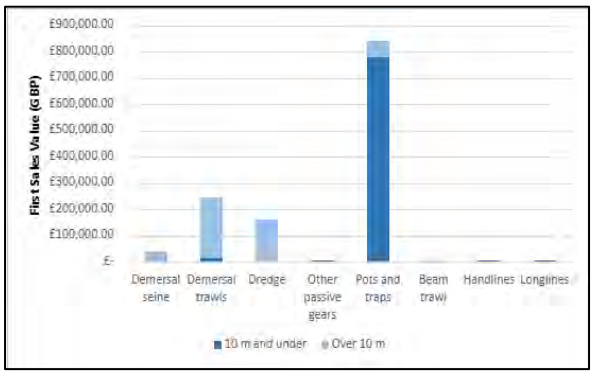
ICES Rectangle 44E6



ICES Rectangle 44E7



ICES Rectangle 45E6



ICES Rectangle 45E7

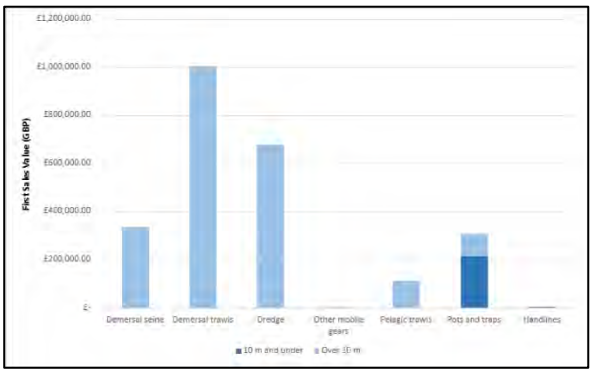


Figure 12-13: Comparative effort by gear type and ICES rectangle for vessels 10 m and under and over 10 m operating in the commercial fisheries study area

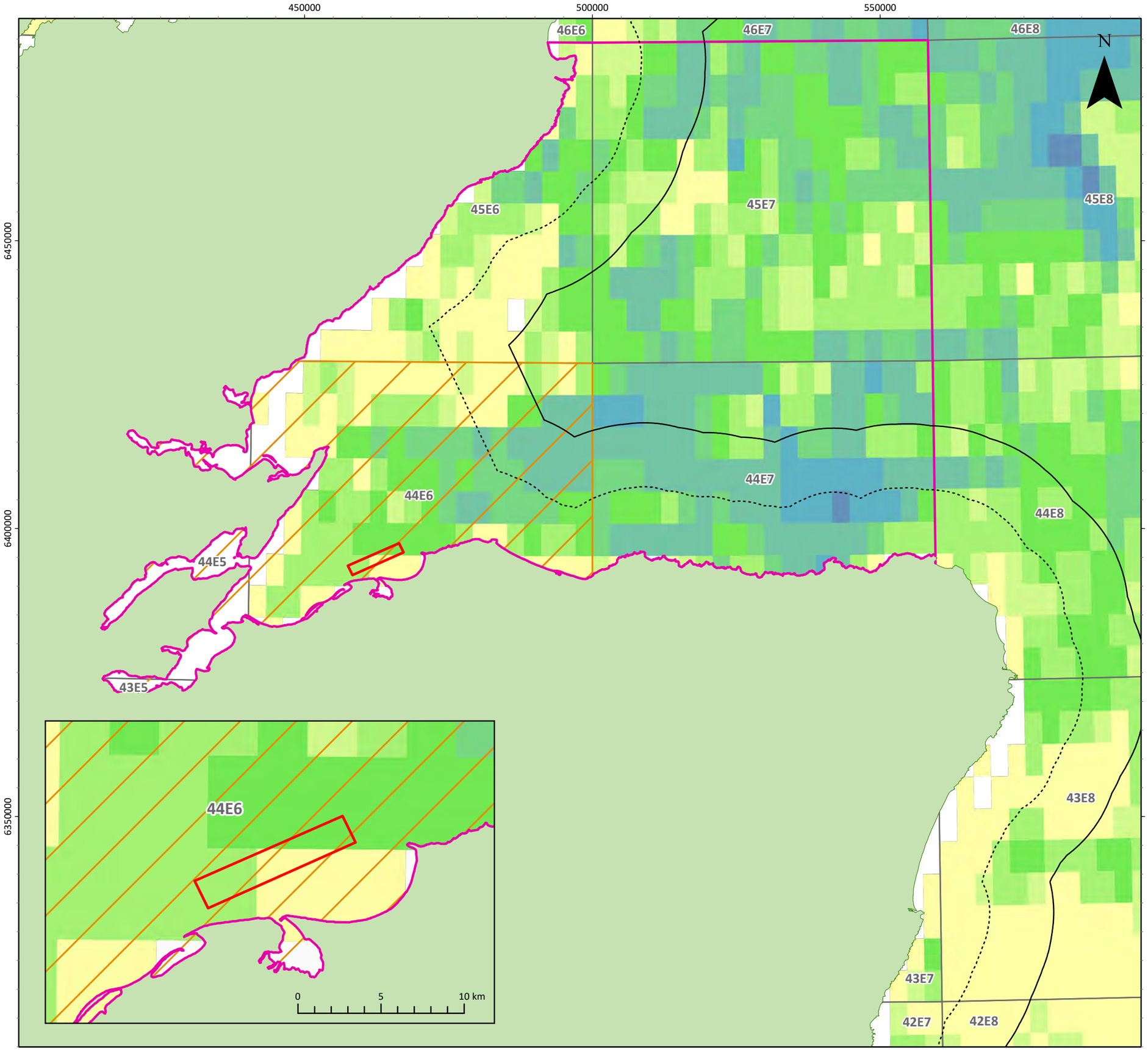
12.4.11.9 EU-27 vessels, registered to the 27 member states of the European Union, may land catch in UK waters under access agreements, and their activity is recorded within fisheries landings data. EU-27 landings statistics indicate that the local study area is almost exclusively fished by UK vessels operating from Scotland, England and Northern Ireland, however very low levels of activity by a French vessel targeting hake as a quota species (0.1 tonne landed into Ullapool with a first sales value of £254) was identified in 2020. Records indicate that no fishing activity has been undertaken by French vessels or vessels of any other nation since 2020. In the broader regional study area, EU-27 landings statistics indicate that no other nations actively fished the area between 2019 to 2023.

12.4.12 Fishing Grounds and Intensity of Use

12.4.12.1 In addition to fisheries statistics data, VMS and spatial data to map fishing activity is available for UK and EU fleets. VMS data sourced from ICES and available through EMODnet (EMODnet, 2025a) displays the SAR of catches by different gear types and covers EU (including UK) registered vessels 12 m and over in length. Surface SAR indicates the number of times in an annual period that a demersal fishing gear sweeps the seabed surface compared to the total area of the seabed in a defined grid cell (typically 0.05° × 0.05°). Surface SAR provides a proxy for fishing intensity and has been analysed to determine an average annual SAR based on data from 2019-2022.

12.4.12.2 Figure 12-14 indicates that fishing intensity by EU (including UK) registered vessels 12 m and over in length ranges throughout the local study area. Intensity ranged from inshore areas within 6 nm of low to moderate fishing intensity by vessels deploying demersal bottom towed gear, with less than 0.5 (or 50%) of those grid cells overlapping Moray FLOW-Park Area being swept by fishing gear on average over the course of a year. This indicates minimal bottom-contact gear disturbance across the seabed by vessels 12 m and over within the inshore portion of the local study area and suggests the predominance of static fishing methods such as creels. Areas beyond 6 nm are subject to higher fishing intensity, increasing as waters get deeper within the local study area, ranging from 0.2 up to 10. Water depths across the Moray Firth increase progressively offshore, with near coastal waters typically shallower than 20 m within the first 6 nm, deepening to approximately 20 to 60 m between 6 nm and 12 nm, and exceeding 60 m beyond 12 nm (British Geological Survey, 2024). Higher SAR values (more than 1.0) indicate repeated trawling, often associated with degraded benthic habitats and reduced biodiversity, therefore 10 represents an area of very high bottom towed gear intensity.

12.4.12.3 Additional non-UK fisheries data will be requested and consultation with other jurisdictions will be undertaken, where appropriate, and presented in the EIAR. This includes fisheries data obtained from the EU Data Collection Framework (DCF) database, which was unavailable at the time of writing.



OFFSHORE SOLUTIONS GROUP | working on behalf of Flow Park Investment Ltd

Moray FLOW-Park
Inshore Scoping Report

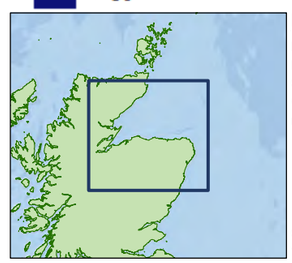
Average Surface SAR for EU Vessels (Including UK) (>12 m) Between 2019 to 2022 (Source: EMODnet, 2025)

Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Average Surface Swept Area Ratio

- > 0 <= 0.1
- > 0.1 <= 0.2
- > 0.2 <= 0.5
- > 0.5 <= 1
- > 1 <= 2
- > 2 <= 5
- > 5 <= 10
- > 10 <= 20
- > 20 <= 50
- > 50



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors Contains Ordnance Survey data © Crown copyright and database rights (2022). OS OpenData.

Coordinate System: WGS 1984 UTM Zone 30N

0 20 40 km

0 10 20 nm

Scale	Date	Drawn By	Checked By	Approved By
1:650,000 @ A3	19/02/2026	EV	BPHB	CC

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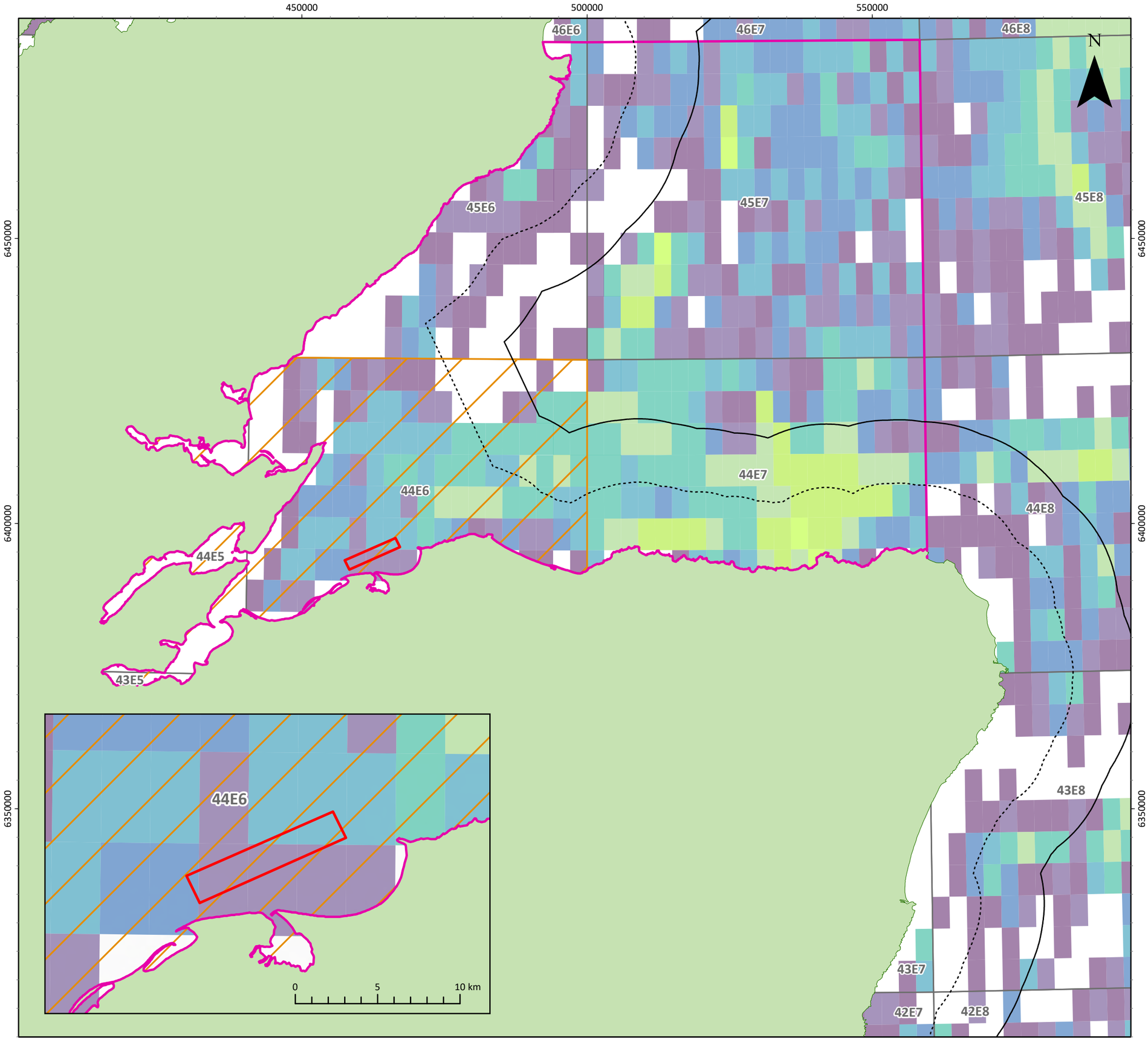
Figure 12-14

Figure Reference: MFP_CF_Fig12-14_AverageSurfaceSAR_2019To2022_v4

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12.4.12.4 In 2020, UK vessels over 15 metres in length recorded notable fishing effort across ICES rectangles 43E5, 44E5, and 44E6, which encompass key areas of the Moray Firth. Effort was measured in kilowatt-hours (kW/h), derived from VMS data that combines engine power with time spent fishing. These rectangles exhibited a mix of gear types, with otter trawls (bottom and midwater), *Nephrops* trawls, and Scottish seines being predominant beyond 6 nm, while static gear such as creels were more common inside the 6 nm limit . Fishing effort intensity varied spatially, with 44E6 covering deeper offshore waters showing higher kW/h totals compared to the more sheltered 43E5 and 44E5. This distribution reflects both ecological gradients and operational preferences, with mobile gear concentrated in deeper, less structurally complex habitats. Low to moderate levels of amalgamated fishing effort by vessels 15 m and over occurs in areas overlapping Moray FLOW-Park Area (Figure 12-15).

12.4.12.5 It should be noted that the quantitative datasets identified may not capture all commercial fisheries activity within the local and regional study areas. For example, the ICES and MMO VMS datasets only cover vessels ≥12 m or ≥15 m in length respectively and although UK vessels ≥12 m in length have VMS on board, the MMO only provides amalgamated VMS datasets for ≥15 m vessels currently.



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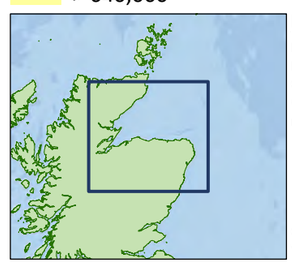
Total Fishing Effort of UK Vessels (>15 m) in 2020 (kW/h) (Source MMO, 2025)

Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Total Fishing Effort >15m 2020 - All Gears (kilowatt/hours)

- > 0 - 2,500
- > 2,500 - 5,000
- > 5,000 - 10,000
- > 10,000 - 20,000
- > 20,000 - 40,000
- > 40,000 - 80,000
- > 80,000 - 160,000
- > 160,000 - 320,000
- > 320,000 - 640,000
- > 640,000



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0 20 40 km

0 10 20 nm

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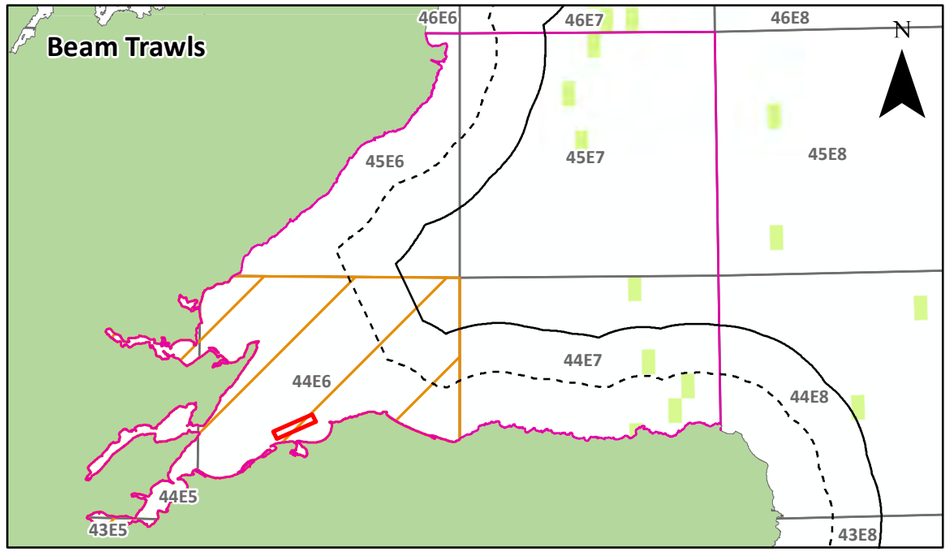
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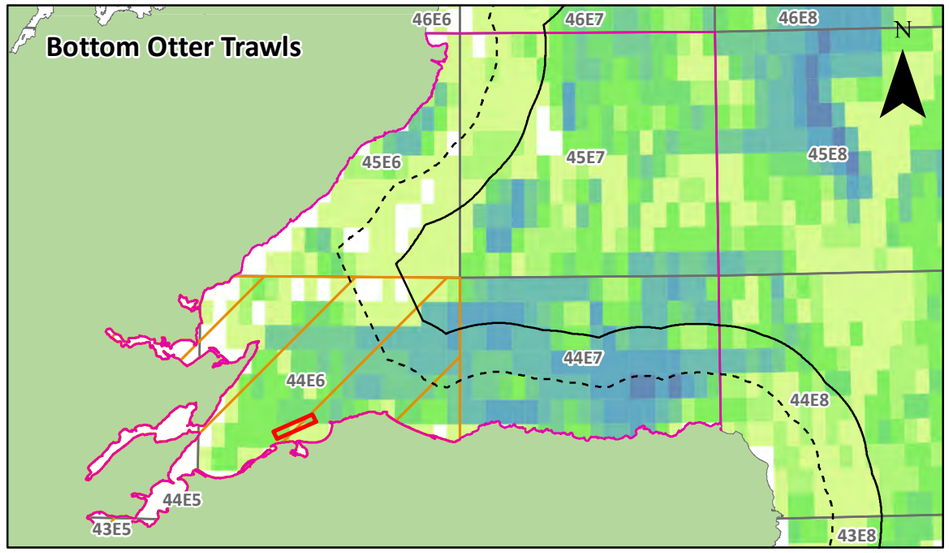
Figure 12-15

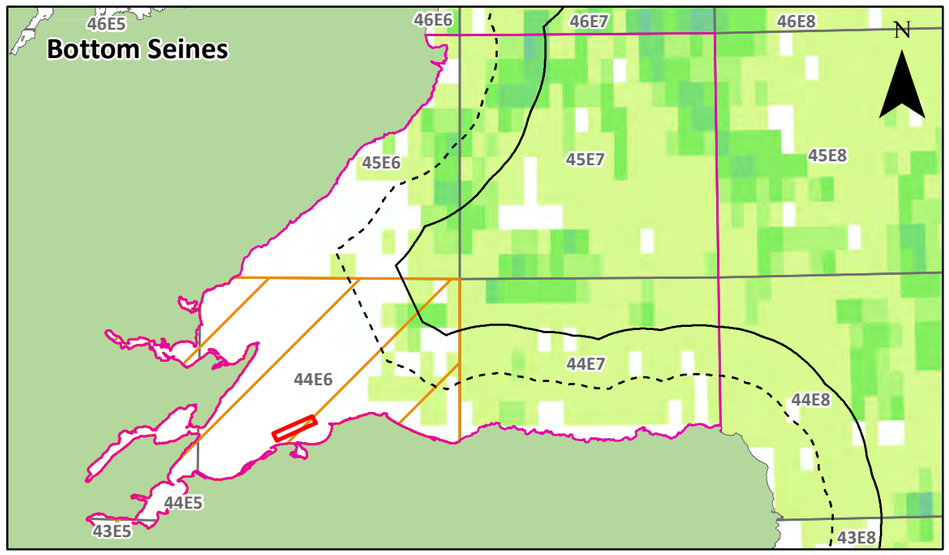
Figure Reference: MFP_CF_Fig12-15_TotalFishingEffortGrThan15m_2020_v4

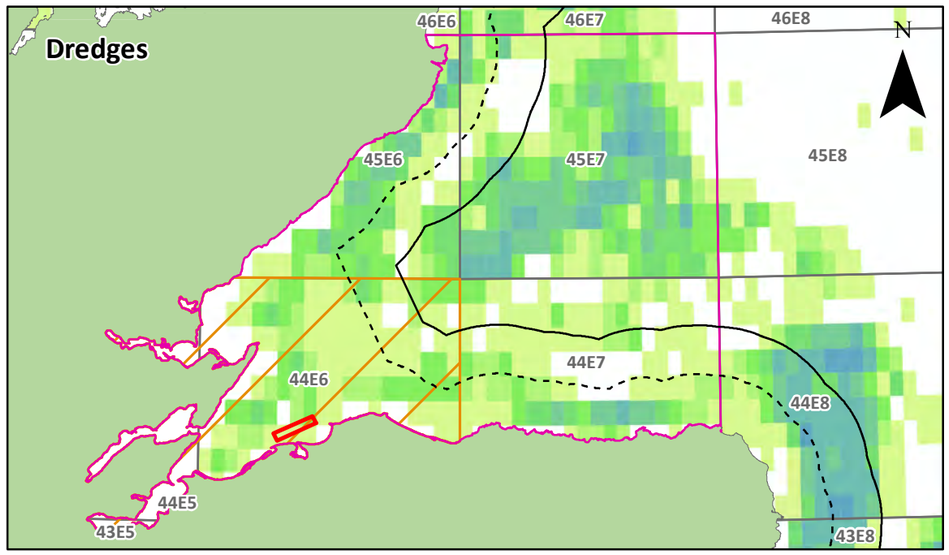
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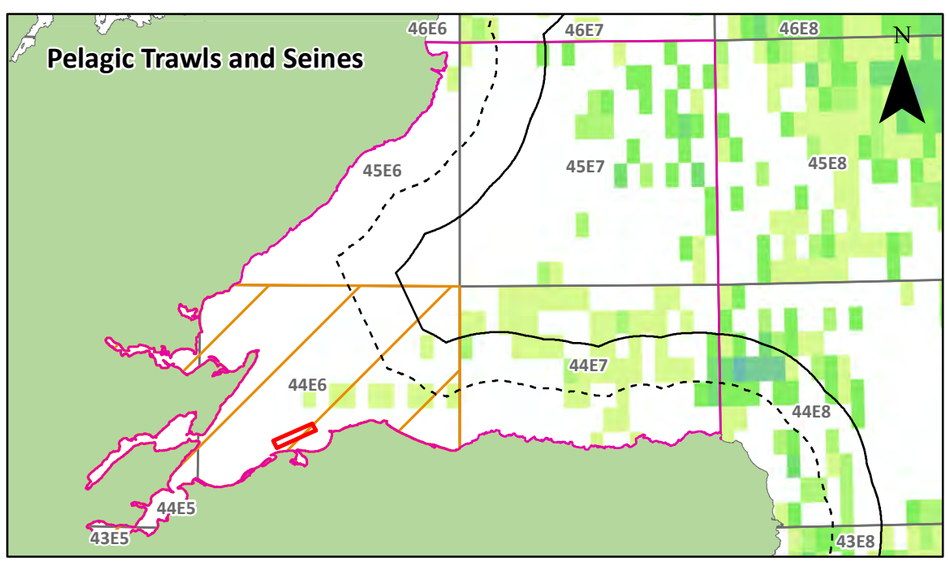
12.4.12.6 VMS data on the average SAR for EU vessels, including those from the UK, measuring 12 metres and over, was analysed for six gear types operating within the study area (Figure 12-16). This analysis focused on the average total fishing effort between 2019 and 2022 for beam trawls, bottom otter trawls, bottom seines, dredges, pelagic trawls and seines, and static gear, providing a spatially resolved understanding of commercial fishing activity within the defined commercial fisheries study area. Beam trawls, bottom seines, pelagic trawls and seines, and static gear were shown to have no spatial overlap with indicative areas overlapping Moray FLOW-Park Area and very low patchy areas of activity beyond 6 nm of the study area. Vessels deploying bottom otter trawls and dredges had persistently low average SAR values in the inshore areas within the 6 nm limit that overlap with Moray FLOW-Park Area with higher levels of effort being exerted beyond 6 nm in the local study area and further offshore beyond 12 nm.











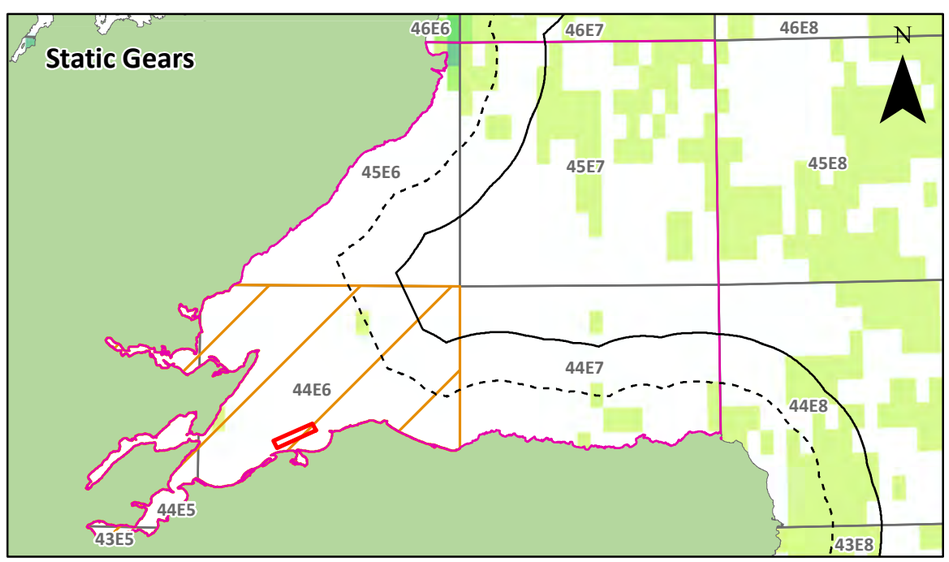


Figure Reference: MFP_CF_Fig12-16_AverageFishingEffortGrThan12m_2019To2022_AllGears_v4

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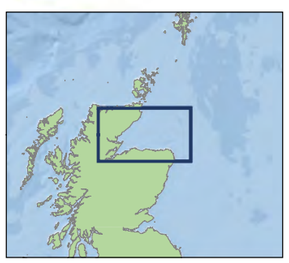
Average Fishing Effort for EU Vessels (Including UK) 12 m and Over Deploying Beam Trawls, Bottom Otter Trawls, Bottom Seines, Dredges, Pelagic Trawls and Seines and Static Gears Between 2019 and 2022 (Source: EMODnet, 2025)

Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Average MW Fishing hours

- > 0 <= 1
- > 1 <= 2
- > 2 <= 5
- > 5 <= 10
- > 10 <= 20
- > 20 <= 50
- > 50 <= 100
- > 100 <= 200
- > 200 <= 500
- > 500



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0 50 100 km

0 25 50 nm

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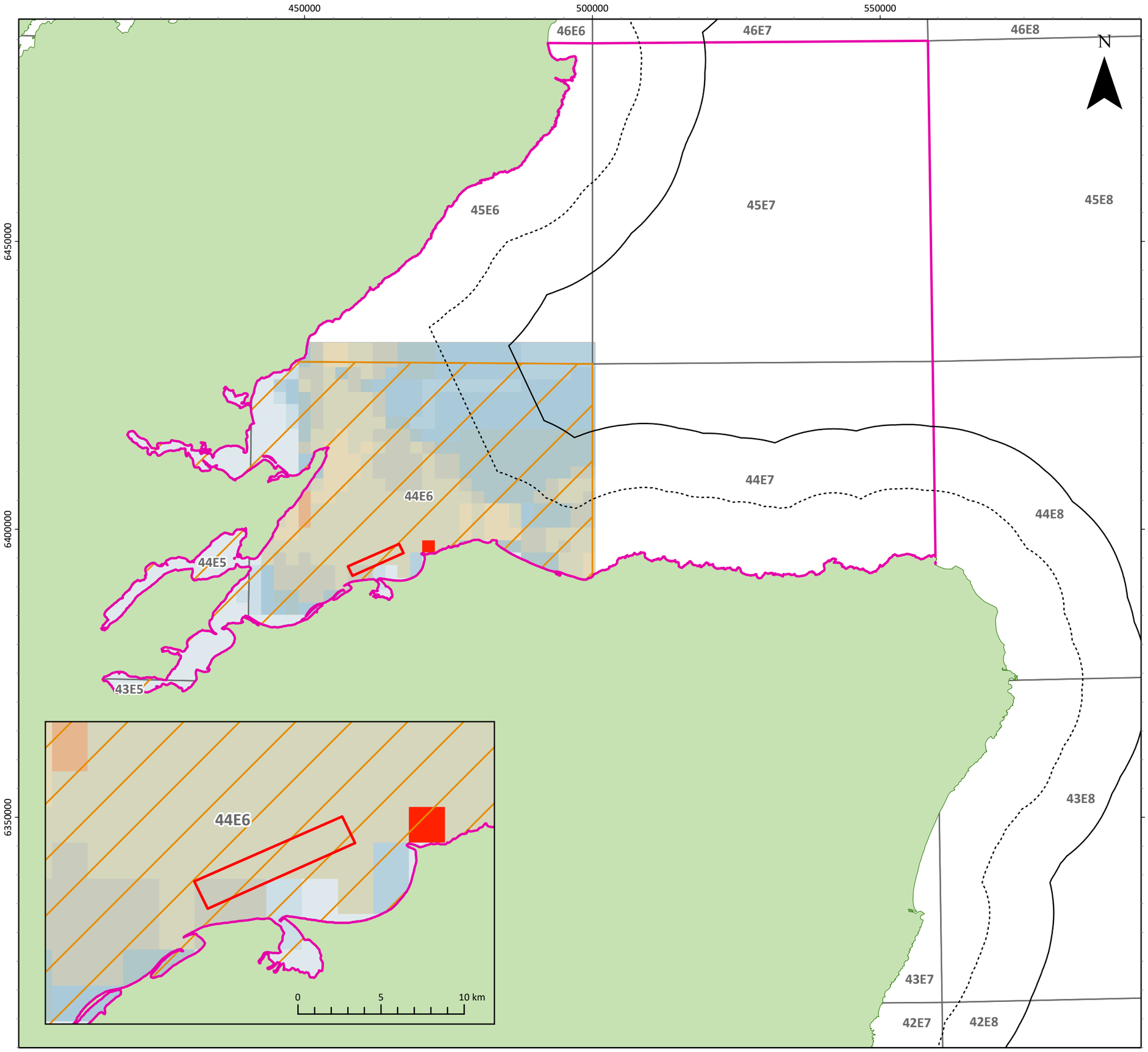
Figure 12-16

12.4.13 ScotMap Inshore Fisheries Data

12.4.13.1 ScotMap (Scottish Government, 2014) captures the distribution and economic importance of inshore commercial fisheries around Scotland based on interviews conducted with over 700 fishers operating vessels under 15 m in length. This spatial dataset provides detailed insight into the location and intensity of fishing activity across Scottish coastal waters. The data reflects fishing effort, target species, and gear types and is presented in Figure 12-17 to Figure 12-24.

12.4.13.2 Within the Moray Firth, ICES statistical rectangles 44E5 and 44E6 encompass key inshore fishing grounds used by small-scale vessels, particularly those deploying static gear such as creels for shellfish targeting brown crab, lobster and *Nephrops*. ScotMap data for these rectangles indicates low to moderate levels of creel fishing activity along the coastal margins, especially near harbour approaches and rocky substrates. These areas are economically important for small-scale local fishers who may be disproportionately sensitive to disturbance to fishing activities from marine development.

12.4.13.3 The ScotMap dataset also highlights the presence of other gear types in the region, including occasional use of mobile gear such as demersal trawls and dredges. While fishing intensity varies seasonally, the data provides a baseline for assessing potential spatial overlap between proposed marine works and established fishing grounds.



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Spatial Distribution of Annual Fishing Monetary Value (£) for All Gear Types in ICES Rectangles 44E5 and 44E6 based on ScotMap Data

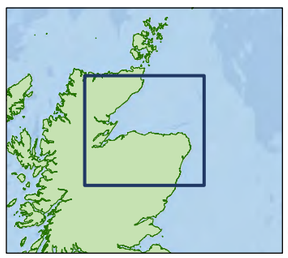
Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Annual Fishing - All Gears

Monetary Value (£)

- 221 - 221
- 221 - 442
- 442 - 663
- 663 - 884
- 884 - 1,326
- 1,326 - 1,768
- 1,768 - 2,210
- 2,210 - 2,873
- 2,873 - 3,536
- 3,536 - 4,420
- 4,420 - 5,305
- 12,377 - 56,361



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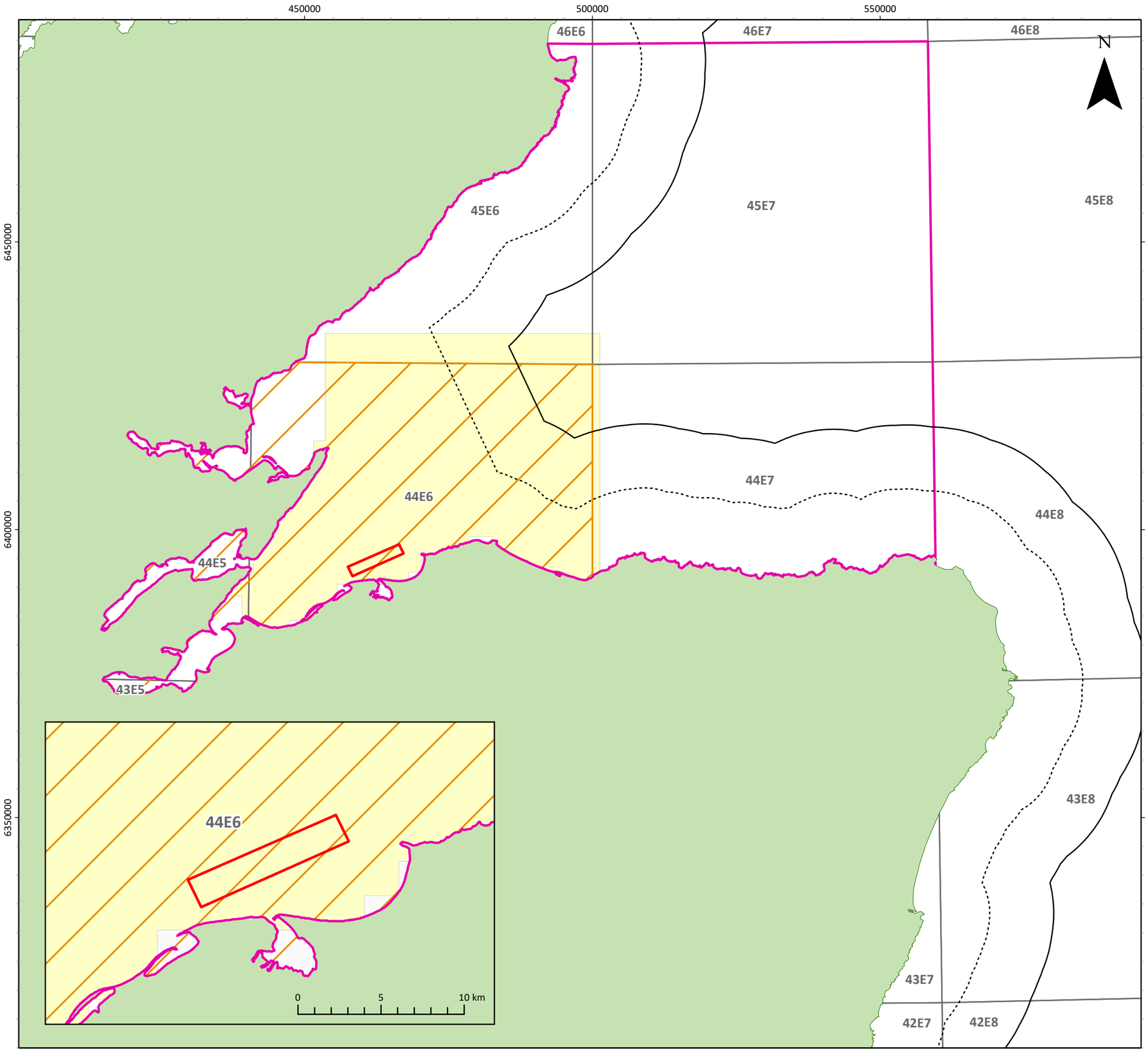
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Figure 12-17

Figure Reference: MFP_CF_Fig12-17_AnnualFishingMonetaryValue_AllGears_v3

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Spatial Distribution of Scallop Towed Dredge Fishing Effort in ICES Rectangles 44E5 and 44E6 based on ScotMap Data

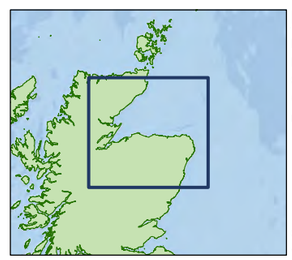
Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Scallop Towed Dredges

Number of Vessels

- 1 - 3



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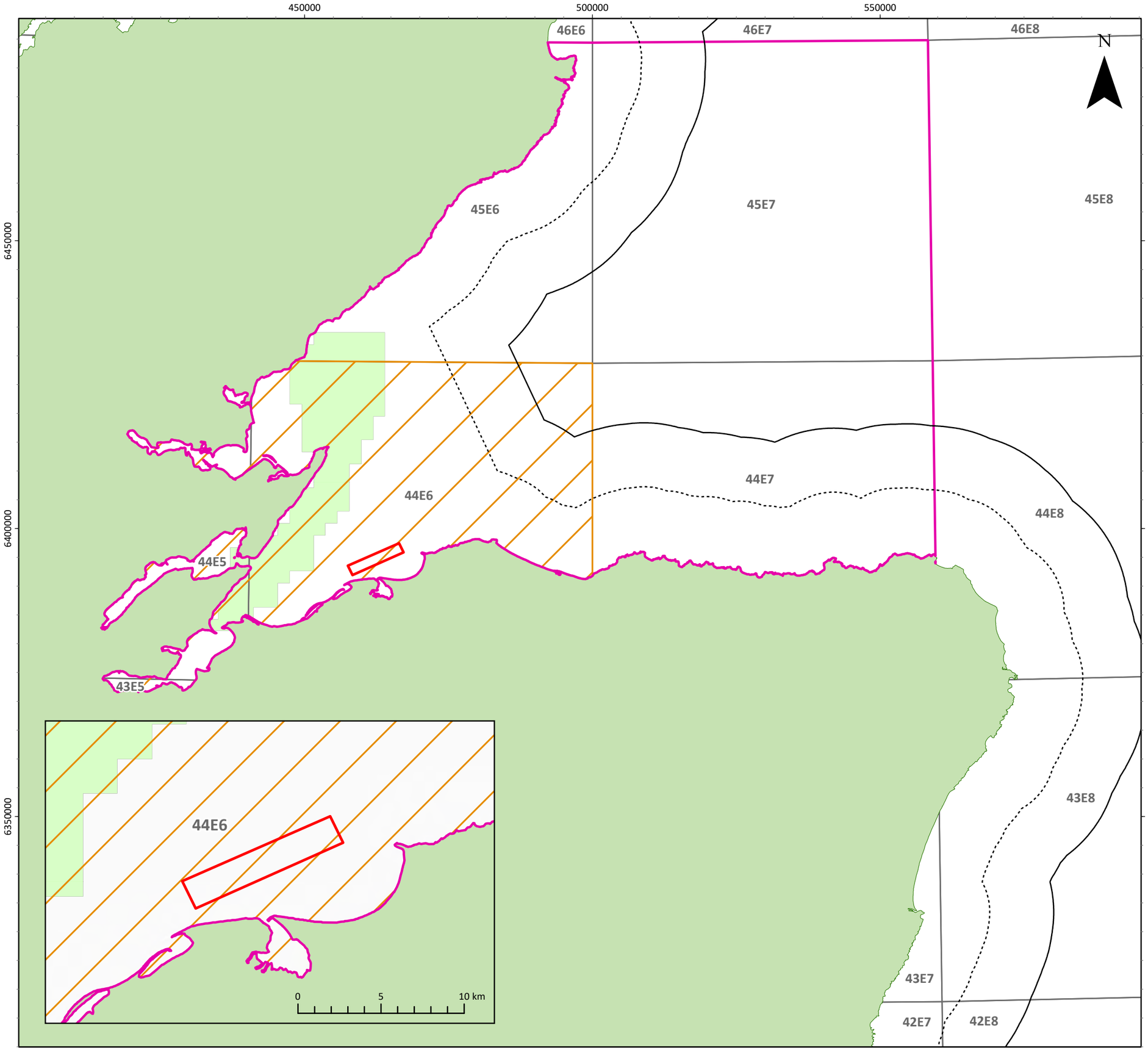
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Figure 12-18

Figure Reference: MFP_CF_Fig12-18_ScallopTowedDredgeFishingEffort_v3

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Spatial Distribution of Nephrops Pots Fishing Effort in ICES Rectangles 44E5 and 44E6 based on ScotMap Data

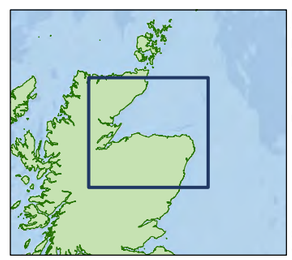
Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Nephrops Pots

Number of Vessels

- 1 - 3



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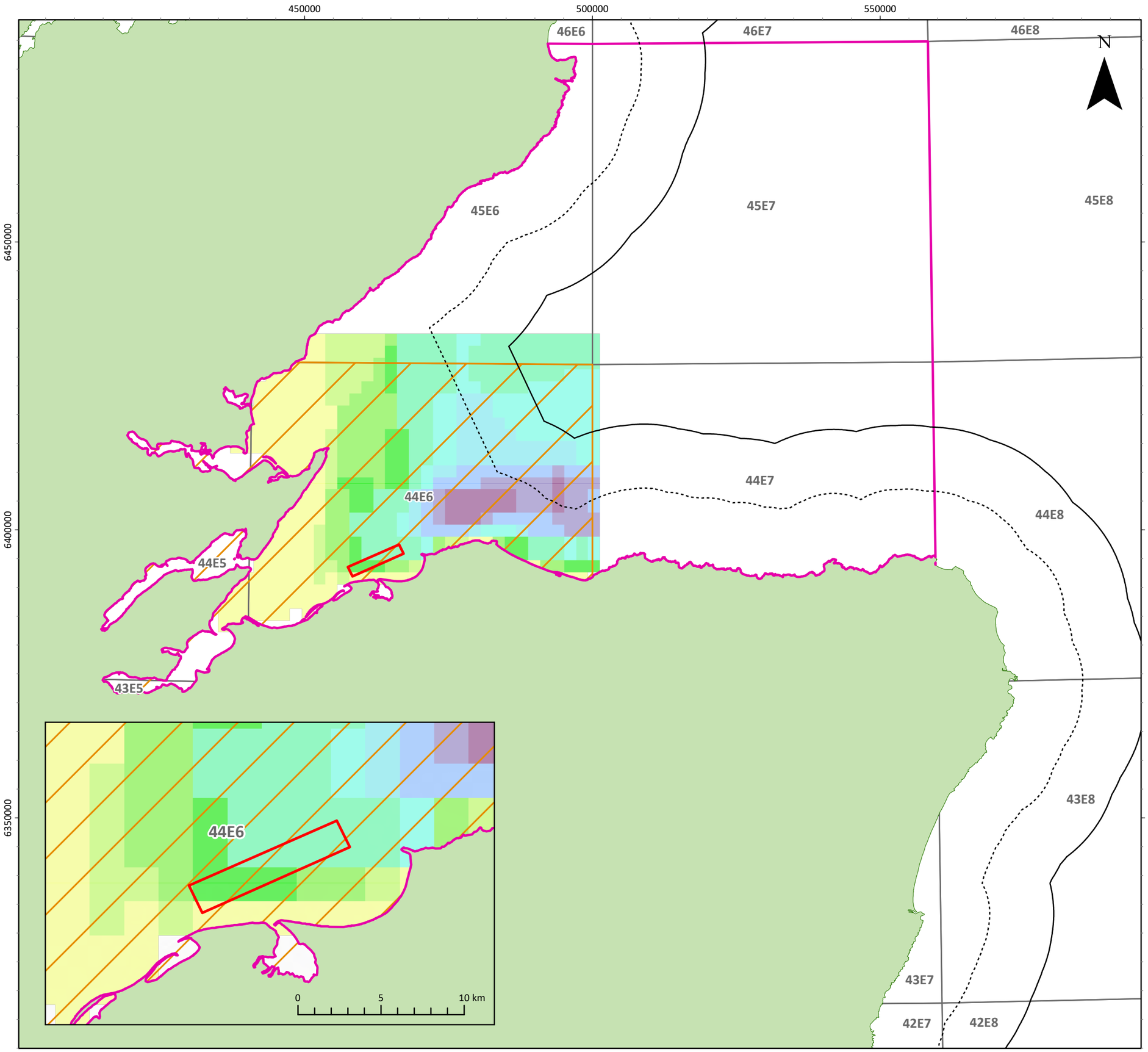
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Figure 12-19

Figure Reference: MFP_CF_Fig12-19_NephropsPotsFishingEffort_v3

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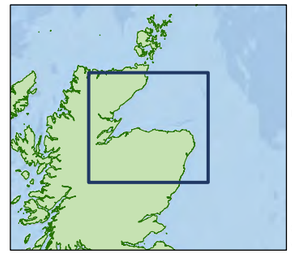
Spatial Distribution of NOT Nephrops Trawls Fishing Effort in ICES Rectangles 44E5 and 44E6 based on ScotMap Data

Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

NOT Nephrops Trawls Number of Vessels

- 1 - 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15



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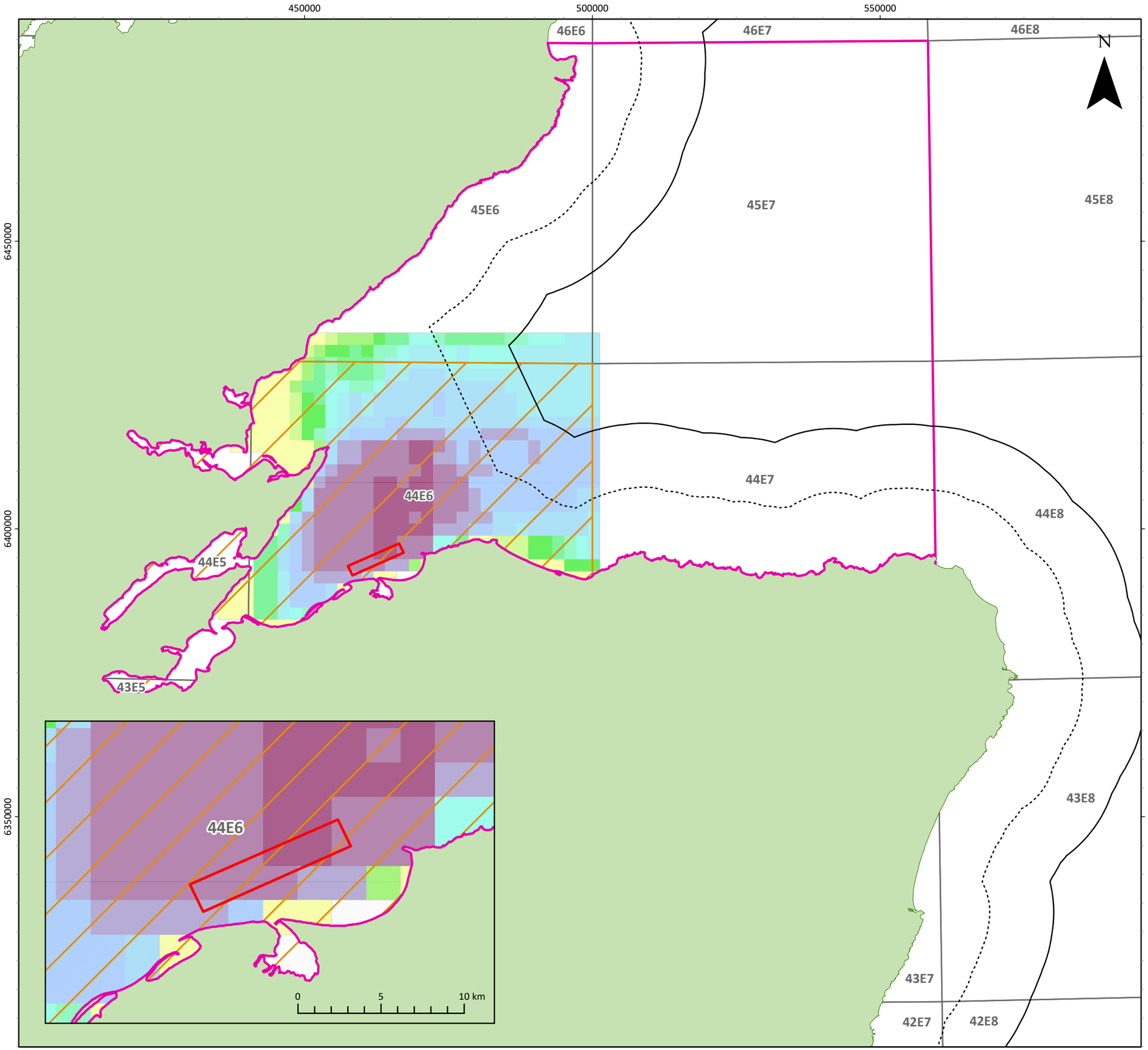
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Figure 12-20

Figure Reference: MFP_CF_Fig12-20_NotNephropsTrawlsFishingEffort_v3

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Spatial Distribution of Nephrops Trawls Fishing Effort in ICES Rectangles 44E5 and 44E6 based on ScotMap Data

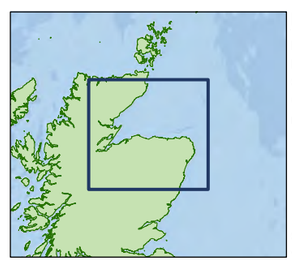
Legend

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- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Nephrops Trawls

Number of Vessels

- 1 - 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11 - 12
- 13 - 14
- 14 - 16
- 16 - 18
- 19 - 21



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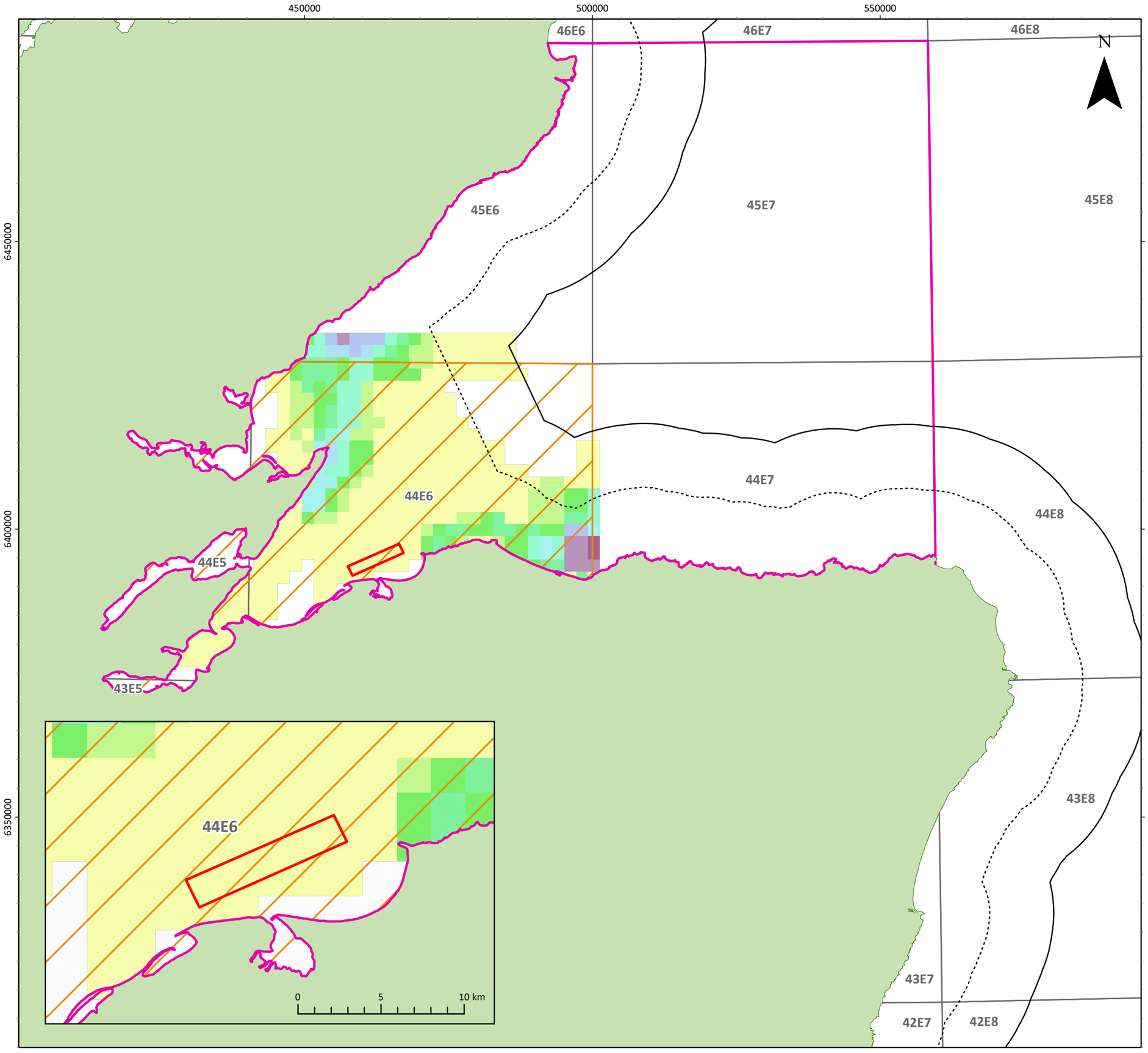
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Figure Reference: MFP_CF_Fig12-21_NephropsTrawlsFishingEffort_v3

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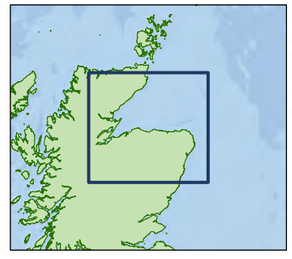
Spatial Distribution of Crab and Lobster Pots Fishing Effort in ICES Rectangles 44E5 and 44E6 based on ScotMap Data

Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Grab and Lobster Pots
Number of Vessels

- 1 - 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12



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0 10 20 nm

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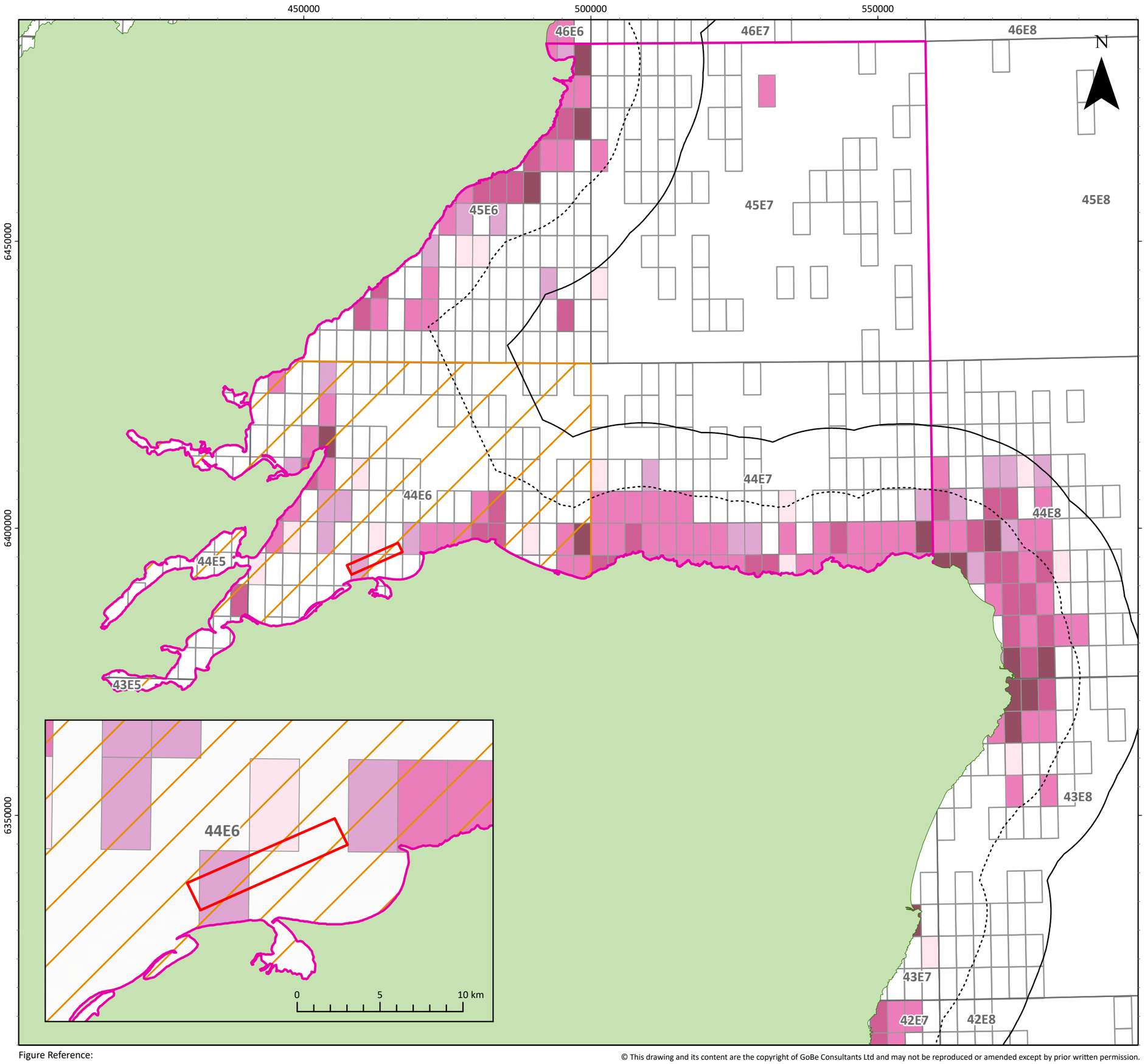
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Figure Reference: MFP_CF_Fig12-22_CrabLobsterPotsFishingEffort_v3

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Average Annual Monetary Value (£) from Creels, Pots and Traps by Scottish Vessels under 12m (2018-2022)

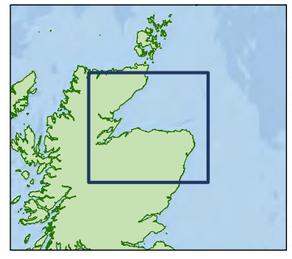
Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Creels, Traps & Pots - Scottish Vessels Under 12m

Average Annual Value (2018-2022) (£)

- £2,000 or Less
- £2,000 - £5,000
- £5,000 - £20,000
- £20,000 - £50,000
- £50,000 or Greater
- Less than 5 Vessels



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0 10 20 nm

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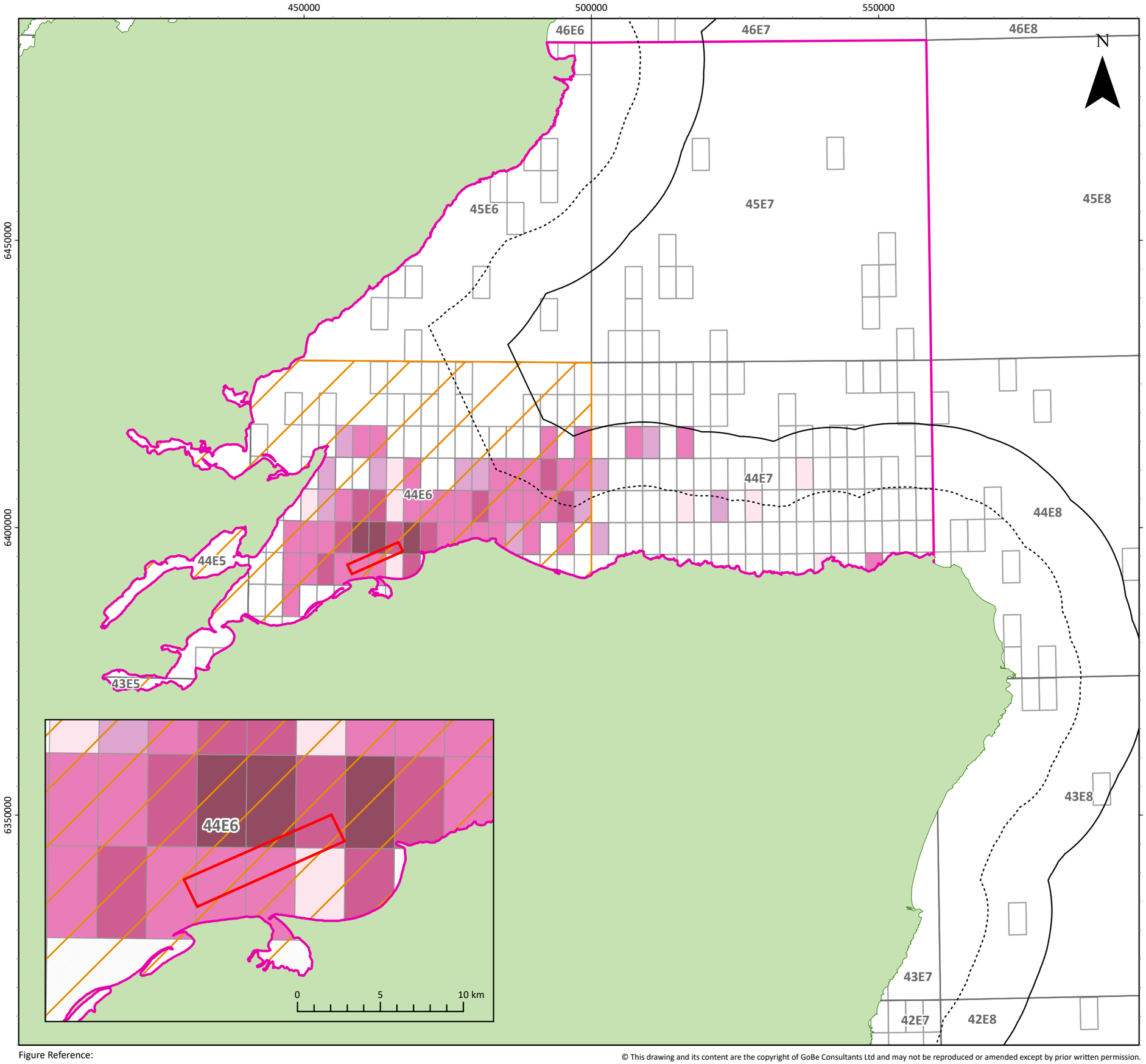
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Figure 12-23

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Inshore Scoping Report

Average Annual Monetary Value (£) from Bottom Trawls by Scottish Vessels under 12m (2018-2022)

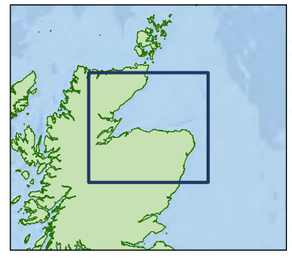
Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Bottom Trawls - Scottish Vessels Under 12m

Average Annual Value (2018-2022) (£)

- £2,000 or Less
- £2,000 - £5,000
- £5,000 - £20,000
- £20,000 - £50,000
- £50,000 or Greater
- Less than 5 Vessels



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 20 40 km

0 10 20 nm

Scale	Date	Drawn By	Checked By	Approved By
1:650,000 @ A3	19/02/2026	EV	BPHB	CC

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Figure 12-24

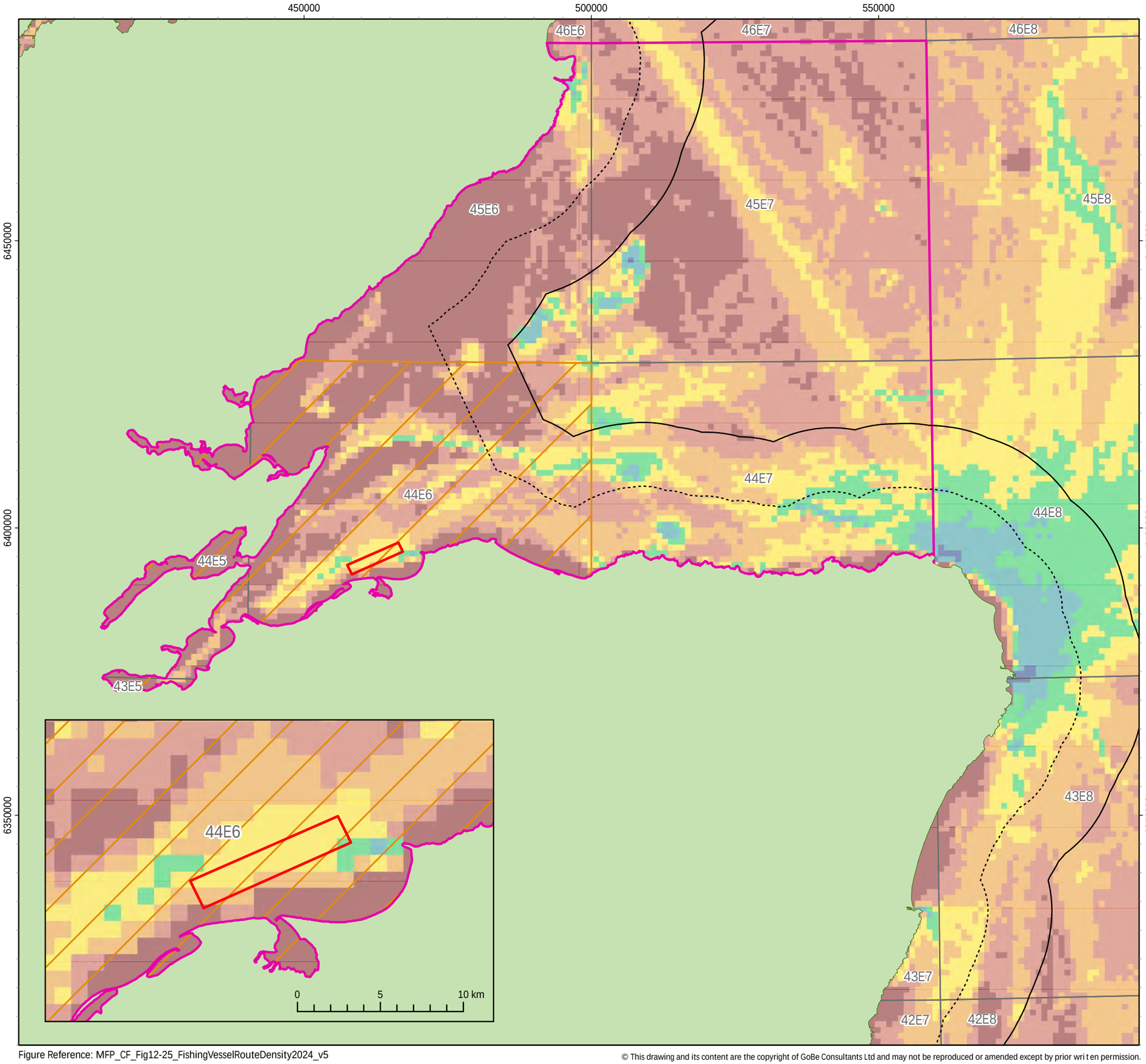
Figure Reference:

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12.4.14 Access and Navigational Safety

12.4.14.1 EMSA fishing vessel density track data (EMODnet, 2025b) illustrates the movement patterns and concentration of fishing vessels across EU waters over time. By aggregating satellite and AIS signals, it reveals hotspots of fishing activity and identifies frequently used routes. Figure 12-25 indicates low - medium levels of activity by fishing vessels (including both steaming and active fishing) in the vicinity of the Project, particularly within 6 nm, whilst areas in yellow potentially indicate traditionally used fishing grounds by the inshore fleet overlapping the Moray FLOW-Park Area and more broadly across the local study area.

12.4.14.2 Further time series will be analysed within the EIAR for the above data sources, including presentation of data for all gear types and MMO VMS data.



OFFSHORE SOLUTIONS GROUP | working on behalf of Flow Park Investment Ltd

Moray FLOW-Park Inshore Scoping Report

Fishing Vessel Route Density 2024 (Source: EMSA, 2025)

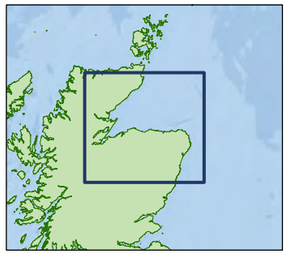
Legend

- Moray FLOW-Park
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6nm Limit (Limit of Inshore Fisheries Designation as defined in the Scottish Fishing Act)
- 12nm Limit

Route Density for Fishing Vessels (2024)

(Routes per Square Km per Year)

- > 1,200
- 240 - 1,200
- 120 - 240
- 60 - 120
- 24 - 60
- 6 - 24
- < 6



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 20 40 km

0 10 20 nm

Scale	Date	Drawn By	Checked By	Approved By
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Figure 12-25

Figure Reference: MFP_CF_Fig12-25_FishingVesselRouteDensity2024_v5

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Potential for displacement or co-existence

12.4.14.3 Floating offshore wind farm wet storage infrastructure introduces both risks and opportunities for co-existence with commercial fisheries in the Moray Firth. Static gear fleets, particularly creel vessels targeting crab, lobster, and whelk, are most vulnerable to displacement due to the spatial footprint of anchor spreads, mooring lines, and the risk of gear entanglement. Mobile gear fleets, such as *Nephrops* trawlers and demersal otter trawlers, may be better able to adapt transit routes, though they still face potential disruption to preferred grounds and increased steaming times.

12.4.14.4 The FiSMaDiM project provides a robust framework for assessing these interactions. Using location choice modelling and fisheries sensitivity indices, FiSMaDiM identifies areas of high and low risk for displacement and economic impact. In the Moray Firth, FiSMaDiM show that fishing activity, particularly from creel and *Nephrops* fleets, is spatially concentrated , with limited alternative grounds available for some operators.

12.4.15 Key fleet metiers operating within the study area

12.4.15.1 In summary, based on the data gathered to inform this scoping exercise, the key fleets operating across the study area include (in no particular order):

- Local inshore Scottish creel fleet (vessels typically <15 m) targeting brown crab, lobster, velvet crab and whelk operating year-round;
- Local inshore Scottish bottom otter trawl fleet (vessels typically <15 m) targeting *Nephrops* focused on muddy substrates and squid on clean sand with seasonal peaks in spring and autumn respectively; and
- Local inshore Scottish demersal trawl fleet (vessels typically <15 m) targeting finfish and other demersal species operating year-round across mixed grounds.

12.4.16 Future Baseline

12.4.16.1 The commercial fisheries baseline varies season-by-season based on a range of natural and socio-economic factors. The previous section illustrates the amount of variability in the species, catch value and gear type used over a five-year period. Therefore, predicting the future baseline is difficult, but the following factors are relevant considerations:

- Stock abundance: fluctuation in the harvestable biomass in response to changes due to stock status, which is affected by recruitment, natural disturbances (e.g. due to storms, sea temperature etc.), changes in fishing pressure, amongst other factors, leading to changes in where, when and how much biomass is landed;

- Fisheries management: each year quotas are set by the government for specific fish species this is to avoid overfishing of specific species and therefore may mean a change in fishing effort in a particular area;
- Environmental management: including the potential restriction of certain fisheries within protected areas;
- Market prices and demand: commercial fishing fleets respond to market prices and demand by focusing effort on higher value target species when prices are high and markets in demand;
- Improved efficiency and gear technology: with fishing fleets constantly evolving to reduce operational costs e.g. by moving from beam trawl to demersal seine; this can lead to changes in gear configuration which may affect access ability, as well as reduced fishery footprint due to improved catching efficiency;
- Sustainability: with seafood buyers more frequently requesting certification of the sustainably of fish and shellfish products, such as the Marine Stewardship Council certification, the industry is adapting to improve fisheries management and wider environmental impacts; and

12.4.16.2 Climate change: It is anticipated over time that global climate change will result in changes to the marine environment, which would include impacts on fish and shellfish populations of commercial importance (Cheung W et.al.,2012), (Tripathi, A. et al., 2016). This may in turn result in changes to commercial fisheries practices in order to respond to any potential changes in species distribution abundance and/or seasonal trends.

12.5 Embedded Mitigation

12.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on commercial fisheries receptors. These measures are presented below in Table 12-3 and in the Embedded Commitments Register and will likely further evolve over the development process as the EIAR progresses and in response to stakeholder consultation.

Table 12-3: The proposed embedded mitigation relevant to commercial fisheries receptors

Reference	Embedded Commitment / Mitigation
C6	The final layout and positioning for FLOW foundations will be defined, as far as possible, to limit impacts to the qualifying features of the Moray Firth Special Area of Conservation (SAC) and the Moray Firth SPA and other environmental considerations. Foundations will also be stored sensitively to reduce environmental impacts.
C9	Development of and adherence to a Navigational Safety Plan (NSP) to mitigate the navigational risk to other legitimate users of the sea.

Reference	Embedded Commitment / Mitigation
C10	Appointment of a Fisheries Liaison Officer (FLO) to facilitate engagement with the commercial fishing industry.
C13	Development of and adherence to a Construction Programme to confirm the timeline for construction.
C15	Advance warning and accurate location details of operations will be given via notifications to mariners and Kingfisher Bulletins.
C16	Development of and adherence to a Lighting and Marking Plan (LMP). This will ensure navigational safety and the safe marking and lighting of the Development.
C23	Development of and adherence to a Project Environmental Monitoring Programme (PEMP) to ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.
C24	Development of and adherence to a Fisheries Mitigation Monitoring and Communication Plan (FMMCP) to mitigate impacts upon commercial fishermen.
C28	Development of and adherence to an Emergency Response Cooperation Plan (ERCoP) to identify measures in place to support emergency response. Prepared in line with Marine Coastguard Agency guidance.
C29	All debris or waste materials arising during construction, operation and maintenance will be removed for disposal at an approved location above the tidal level of Mean High Water Spring tide.
C30	Local mariners and fishermen's organisations will be made fully aware of proposed works through a local notification. This will be issued at least 14 days before the commencement of any construction / operation and maintenance works through a Notice to Mariners (NtM).
C32	Return of the seabed to its original profile, or as close as reasonably practicable following completion of construction works.
C35	Navigational lighting of the Project will not be exhibited, altered or discontinued without the statutory sanction of the Commissioners of Northern Lighthouses.
C36	Failure of lighting and marking will be appropriately reported and rectified as soon as practicable. Interim hazard warnings will be put in place as required.
C42	Appropriate depiction on UKHO Admiralty Charts. This will involve provision of the positions and heights of structures to the UKHO, MoD and DGC.
C43	Development of and adherence to an Operation and Maintenance Programme (OMP) to safeguard environmental interests during operation and maintenance.

Reference	Embedded Commitment / Mitigation
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.
C49	Commitment to public updates/live status report online of the FLOW-Park activity – exact method /details to be confirmed (i.e. on FLOW-Park website)
C51	The Project will develop a permanent no infrastructure channel in the FLOW Park to support vessel transit, safe access through the site, avoid and respect seabed wrecks and potential war graves. The size and location are currently being developed in consultation with regulators and stakeholders and will be finalised during the EIA Phase. Additional temporary access channels will be considered and developed in direct consultation with marine stakeholders during the EIA Phase.

12.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIAR.

12.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon commercial fisheries receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIAR process.

12.6 Scoping of Impacts

12.6.1.1 An initial assessment of the likelihood of effects on commercial fisheries due to Project activities for the Scoping stage of the EIAR process is presented in Table 12-4. This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Section 12.5, together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for commercial fisheries effects associated with Project activities; relevant policy; and the professional judgement of qualified commercial fisheries specialists.

Table 12-4: Scoping assessment for commercial fisheries.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction and Decommissioning			
Reduction in access to, or exclusion from, established fishing grounds	C6, C9, C10, C13, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C40 secured through a FMMCP	Scoped In	Construction and decommissioning of floating wet storage infrastructure may temporarily restrict access to established fishing grounds due to the Project footprint, safety zones, increased vessel traffic and heavy equipment. These disruptions can affect traditional fishing patterns, particularly for static gear fleets, and reduce access to productive areas. Anchor deployment during construction and retrieval during decommissioning may disturb seabed habitats, impacting fishing viability, while informal anchoring and sheltering spots may also be lost, increasing operational risk. Fisheries activity will be assessed by fleet through desk-based analysis and industry consultation, considering operational range, expert input, and alternative grounds. Reduced access may also indirectly affect other receptors, including Benthic Subtidal and Intertidal Ecology (Chapter 8), Fish and Shellfish Ecology (Chapter 9), Shipping and Navigation (Chapter 13) and Socio-economics, Tourism and Recreation (Chapter 17).
Displacement of fishing activity leading to gear conflict and increased fishing pressure on adjacent grounds	C6, C9, C10, C13, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C40 secured through a FMMCP	Scoped In	Displacement of fishing activity during construction and decommissioning of floating wet storage infrastructure may increase pressure on adjacent grounds and lead to gear conflict, particularly among static gear fleets. As fishers relocate from established areas, competition may intensify, raising the risk of entanglement, gear damage, and community tension. These effects are likely to be more pronounced in areas with limited

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			alternative grounds or high seasonal effort. Displacement may also erode spatial knowledge built over years, reducing catch efficiency and increasing operational uncertainty. Fleet-specific displacement will be assessed through activity analysis, sensitivity mapping, and consultation with the fishing industry, informed by guidance such as Marine Scotland (2022). Indirect impacts may also affect other receptors including Benthic, Subtidal and Intertidal Ecology (Chapter 8), Fish and Shellfish Ecology (Chapter 9), Shipping and Navigation (Chapter 13), and Socio-economics, Tourism and Recreation (Chapter 17).
Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	C6, C9, C10, C13, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C40 secured through a FMMCP	Scoped In	Construction and decommissioning of floating wet storage infrastructure may disturb commercially important fish and shellfish through underwater noise, sediment resuspension, and habitat disruption from anchor deployment, retrieval and vessel operations. These impacts may temporarily shift species distribution, reduce catch rates, or prompt stock migration, particularly affecting fleets reliant on seasonal or site-specific harvesting. Disturbance levels will be assessed through the fish and shellfish ecology chapter, with fleet sensitivity informed by desk-based analysis, industry consultation, and expert input. Reduced resource availability may also indirectly affect other receptors including Benthic, Subtidal and Intertidal Ecology (Chapter 8), Shipping and Navigation (Chapter 13), and Socio-economics, Tourism and Recreation (Chapter 17).

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Increased vessel traffic associated with the Project within fishing grounds leading to interference with fishing activity	C6, C9, C10, C13, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C40 secured through a FMMCP	Scoped In	Increased vessel traffic during construction, operation and decommissioning of floating wet storage infrastructure may disrupt fishing activity by creating navigational hazards, limiting space for gear deployment, and interfering with established routines. The presence of installation, decommissioning and associated support vessels within traditional grounds can cause congestion, gear loss, and operational delays, particularly affecting small-scale and inshore fleets reliant on predictable access. Timing conflicts with gear soak periods, especially for creel fisheries, may lead to premature retrieval or reduced catch rates. Impacts will be assessed through fisheries activity analysis and fleet sensitivity. Indirect effects may also arise for Shipping and Navigation (Chapter 13) and Socio-economics, Tourism and Recreation (Chapter 17).
Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Project	C6, C9, C10, C13, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C40 secured through a FMMCP	Scoped In	Construction and decommissioning of floating wet storage infrastructure may displace vessels from traditional grounds, requiring longer transits to alternative areas. This increased steaming raises fuel costs, carbon emissions, and vessel wear, while reducing fishing efficiency. Displacement may also intensify competition in adjacent grounds, leading to overcrowding, gear conflict, and ecological pressure on less-used stocks. Impacts will be assessed through fisheries activity analysis and fleet sensitivity. Indirect effects may also arise for Shipping and Navigation (Chapter 13) and Socio-economics, Tourism and Recreation (Chapter 17).
Physical presence of infrastructure leading to gear snagging	C6, C9, C10, C13, C15, C16, C23, C24, C28, C29, C30, C32, C35,	Scoped In	The presence of floating wet storage infrastructure during construction, operation and decommissioning such as anchors, mooring lines, and installation vessels poses a gear snagging risk

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
	C36, C42, C40 secured through a FMMCP		for nearby fishing vessels. Bottom-towed gear such as trawls and dredges are especially vulnerable to entanglement or damage near mooring spreads or uneven seabed conditions. These risks may compromise crew safety, cause gear loss, and reduce catch efficiency. Uncertainty around infrastructure location may further deter access to viable grounds. Impacts will be assessed through fisheries activity analysis and fleet sensitivity. Indirect effects may also arise for Shipping and Navigation (Chapter 13) and Socio-economics, Tourism and Recreation (Chapter 17).
Disruption to seasonal fishing patterns	C6, C9, C10, C13, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C40 secured through a FMMCP	Scoped In	Construction and decommissioning of floating wet storage infrastructure may disrupt seasonal fishing patterns by limiting access during key harvesting periods. Many fisheries in the Moray Firth depend on spawning migrations, market-driven peaks, or weather-sensitive operations. Temporary exclusion zones, vessel traffic, and seabed disturbance may prevent gear deployment at optimal times or locations, reducing catch efficiency and economic returns, especially for fleets with limited flexibility or short seasonal windows. Impacts will be assessed through industry consultation and analysis of fleet behaviour, effort timing, and sensitivity to temporal constraints. Indirect effects may also arise for Socio-economics, Tourism, and Recreation (Chapter 17).
Reduced safety and visibility for small vessels	C6, C9, C10, C13, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C40 secured through a FMMCP	Scoped In	Construction and decommissioning of floating wet storage infrastructure may reduce safety and visibility for small fishing vessels operating nearby. Installation, operations and decommissioning vessels, anchor spreads, and temporary infrastructure can create navigational hazards, especially in poor

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			weather or low-light conditions. . Impacts will be assessed through fisheries activity analysis, fleet sensitivity and industry consultation. Indirect effects may also arise for Shipping and Navigation (Chapter 13) and Socio-economics, Tourism and Recreation (Chapter 17).
O&M			
Long-term exclusion from established fishing grounds	C6, C9, C10, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C43 secured through a FMMCP	Scoped In	The continued presence of floating infrastructure and associated safety zones may result in permanent or seasonal exclusion from historically productive fishing areas. This limits access for fleets that rely on site-specific harvesting patterns and can reduce overall fishing opportunity, particularly for static gear operators with limited spatial flexibility. Long-term displacement from familiar grounds may erode fishers' spatial knowledge and reduce the effectiveness of site-specific harvesting strategies. This loss of traditional patterns can affect decision-making, catch predictability, and overall fleet resilience.
Gear snagging and entanglement risk	C6, C9, C10, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C43 secured through a FMMCP	Scoped In	Anchors, mooring lines, and submerged infrastructure pose a persistent hazard for bottom-towed gear such as trawls and dredges. These risks can result in gear loss, vessel damage, and operational downtime, while uncertainty around infrastructure layout may deter fishers from accessing otherwise viable grounds.
Displacement of fishing effort	C6, C9, C10, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36,	Scoped In	Ongoing spatial restrictions may force fishers to relocate to adjacent grounds, increasing competition and the risk of gear conflict. This displacement can also place additional pressure on marine resources in areas not previously subjected to such

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
	C42, C43 secured through a FMMCP		intensity, potentially leading to ecological stress and reduced stock resilience. Persistent uncertainty around infrastructure location, maintenance schedules, and temporary exclusion zones may lead fishers to avoid otherwise viable grounds. This avoidance behaviour can reduce fishing efficiency and contribute to long-term displacement. The presence of the wet storage area may compound spatial pressures from other marine activities, such as additional OWFs, marine protected areas, or shipping lanes, however it should be noted that the types of gear deployed, and fishing effort undertaken within and near the FLOW-Park area differ to those undertaken in proximity to OWFs due to the inshore location of the Project. This cumulative compression reduces the availability of fishing grounds and intensifies competition among fleets.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Interference with fishing activity from maintenance vessel traffic	C6, C9, C10, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C43 secured through a FMMCP	Scoped In	Routine inspection and servicing activities introduce regular vessel movements within or near fishing grounds. This can disrupt gear deployment, reduce available space for fishing operations, and increase navigational hazards, particularly for small-scale vessels with limited manoeuvrability.
Alteration of fish and shellfish behaviour influencing species distribution, catch rates, or seasonal abundance patterns	C6, C9, C10, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C43 secured through a FMMCP	Scoped In	The physical presence of infrastructure, combined with noise and vibration from maintenance activities, may influence the distribution and behaviour of commercially important species. This can affect catch rates, seasonal abundance, and the predictability of fishing success in surrounding areas. The potential effects of infrastructure presence, noise, and vibration on the distribution and behaviour of commercially important species will be considered within the Fish and Shellfish Ecology chapter of the EIAR, with subsequent potential impacts on catch rates and fishing patterns assessed in the Commercial Fisheries chapter of the EIAR.
Reduced fishing efficiency and increased costs	C6, C9, C10, C15, C16, C23, C24, C28, C29, C30, C32, C35, C36, C42, C43 secured through a FMMCP	Scoped In	Longer steaming distances, gear loss, and disrupted routines caused by infrastructure presence and vessel traffic can reduce catch efficiency and increase operational costs. These impacts may be particularly significant for small-scale operators with narrow profit margins.

12.7 Potential Cumulative Effects

12.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment. For commercial fisheries, cumulative interactions may occur with other inshore & offshore wind developments, port expansion projects, subsea cable installations and interconnectors and MPAs, all of which have the potential to contribute to spatial compression, increased vessel traffic, and long-term exclusion zones, resulting in a reduction of available fishing grounds and intensified displacement effects. A full appraisal of projects to include within the CEA will be undertaken as part of the EIAR.

12.7.1.2 Impacts that are scoped into the assessment for the Project alone are generally spatially restricted to being within close proximity to the Moray FLOW-Park Area. However, certain potential impacts, such as displacement of fishing activity, have the potential to be observed over a wider area. For commercial fisheries, the following impacts from the Project have the potential to act cumulatively with impacts from other developments to contribute to cumulative effects:

- Reduction in access to, or exclusion from established fishing grounds;
- Displacement leading to gear conflict and increased fishing pressure on adjacent grounds; and
- Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity.

12.7.1.3 The CEA for commercial fisheries will consider the MDS for each of the projects, plans and activities in line with the methodology outlined in Chapter 4: EIA Methodology. Cumulative effects will be assessed by taking into consideration any similar developments, proposed or existing, that are in the vicinity of the study area. The developments selected as relevant to the assessment of impacts to commercial fisheries will be based on a screening exercise undertaken on a long list. Each project, plan or activity will be considered and scoped in or out based on effect-receptor pathways, data confidence and the temporal and spatial scales involved.

12.8 Potential Transboundary Effects

12.8.1.1 No transboundary impacts on commercial fisheries are anticipated to occur as a result of the Project activities during construction, O&M or decommissioning due to its inshore location within the UK's territorial waters, well away from international boundaries and the data evidence indicating no international fleets operating within the local and regional study areas since 2020. The scale and nature of the activities are expected to be localised and temporary, with impacts on commercial fisheries receptors confined to the immediate marine environment. Additionally, the Project is not expected to generate significant pollution, sediment transport, or ecological disruption that could extend beyond national jurisdiction. Given the absence of shared fisheries, habitats, or maritime borders in close proximity, the risk of cross-border environmental, economic, or social consequences is minimal. Therefore, it is proposed to scope out transboundary impacts with regards to commercial fisheries.

12.9 Proposed Approach to EIA

12.9.1 Guidance

12.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of commercial fisheries receptors will also comply with the following guidance documents where they are specific to this topic:

- Developing guidance on fisheries Cumulative Impact Assessment for wind farm developers (Blyth-Skyrme, 2010b);
- Options and opportunities for marine fisheries mitigation associated with wind farms (Blyth-Skyrme, 2010a);
- Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects Part 1and 2 (Department of Communications, Climate Action and Environment, 2018);
- Fisheries Liaison with Offshore Wind and Wet Renewables group (FLOWW) Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison (FLOWW 2014);
- FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds (FLOWW, 2015);
- FLOWW: Recommendations for Fisheries Liaison: Best Practice guidance for offshore renewable developers (FLOWW, 2014 and BERR, 2008);
- Damage to Gear Compensation Claim Forms (Marine Scotland, 2021a);
- Guidance on completing Damage to Gear Compensation Claim Forms (Marine Scotland, 2021b);

- Draft Guidance on preparing a Fisheries Management and Mitigation Strategy (Marine Scotland, 2020d);
- Assessing fisheries displacement by other licensed marine activities: good practice guidance (Marine Scotland, 2022b);
- Mapping fishing activities in the UK EEZ: a brief overview of data, methods, and tools. Report produced for The Crown (Mendo et al. 2023);
- Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments (Seafish, 2022);
- Cefas, (2004). Offshore Windfarms: Guidance note for Environmental Impact Assessment in Respect of FEPA and CPA requirements; and
- Cumulative impact assessment guidelines, guiding principles for cumulative impacts assessments in offshore wind farms (Renewable UK, 2013).

12.9.2 Additional Data Sources

12.9.2.1 A more detailed literature review will be developed for the EIAR, building upon the high-level outline provided within this Inshore Scoping Report. No site-specific surveys have been undertaken to inform this commercial fisheries chapter at the Scoping stage. It is anticipated that no site-specific surveys will be undertaken to inform the EIAR. Baseline data sources will be validated through engagement with fisheries stakeholders and by the results of site-specific marine traffic surveys undertaken to inform Chapter 13: Shipping and Navigation.

12.9.3 Assessment Methodology

12.9.3.1 The EIAR will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report. Whilst this has informed the approach that has been used for commercial fisheries, the following section describes how this methodology will be applied, and adapted as appropriate, to address the specific needs of the commercial fisheries assessment.

12.9.3.2 To enable the assessment of potential impacts on commercial fisheries from the Project, a description of the existing baseline environment for commercial fisheries will be developed. Potential impacts that may occur on commercial fisheries as a result of the Project will then be identified and the sensitivities of the identified receptors to these pressures will be assessed. Where appropriate, mitigation measures will be proposed to avoid or minimise significant adverse effects.

12.9.3.3 The criteria for determining the significance of effects will be a two-stage process involving defining the magnitude of the impacts and the sensitivity of the receptors. The magnitude of potential impacts is defined by a series of factors including the spatial extent of any interaction, and the likelihood, duration, frequency and reversibility of a potential impact. The sensitivity of commercial fisheries receptors is defined by both their potential vulnerability to an impact (the ability of the receptor to accommodate a temporary or permanent change) and their recoverability (the extent to which a receptor will recover following an impact).

12.9.3.4 Specific commercial fisheries definitions in relation to assessing the magnitude of an impact and the sensitivity of the receptor are detailed in Table 12-5 and Table 12-6 respectively. In the context of commercial fisheries, the term 'receptor' may apply to fish species of socio-economic value, fishing fleets, fishing grounds, or the fishing industry in a wider context.

Table 12-5: Definitions of magnitude level for commercial fisheries.

Magnitude Value	Description
Negligible	Impact is expected to be undetectable compared to pre-Project baseline conditions.
Low	Impact is of short-term duration (e.g., less than 2 years) and/or is of limited physical extent. The short-term duration is based on professional judgement and is not definitive dependant on the nature of the impact. And: Impact is expected to result in one or more of the following: • Minor loss of target fish or shellfish biological resource (e.g., minor loss of resource within Project Area); and • Minor loss of ability to carry on fishing activities (e.g., minor reduction of fishing effort within Project Area). Minor loss of economic value of commercial landings that is not locally significant.
Medium	Impact is of medium-term duration (e.g., less than 12 years) and/or is of moderate physical extent. And: Impact is expected to result in one or more of the following: • Partial loss of target fish or shellfish biological resource (e.g., moderate loss of resource within Project Area); and • Partial loss of ability to carry on fishing activities (e.g., moderate reduction of fishing effort within Project Area). Partial loss of economic value of commercial landings that is locally significant.

Magnitude Value	Description
High	Impact is of long-term duration (e.g., greater than 12 years duration) and/or is of extended physical extent. And: Impact is expected to result in one or more of the following: • Substantial loss of target fish or shellfish biological resource (e.g., loss of substantial proportion of resource within Project Area); and • Substantial loss of ability to carry on fishing activities (e.g., substantial proportion of effort within Project Area). Substantial loss of economic value of commercial landings, that are nationally or regionally significant.

Table 12-6: Definitions of sensitivity levels for commercial fisheries.

Sensitivity	Description
Negligible	Receptor is not vulnerable to impacts that may arise from the project and/or has high recoverability. And/or: Extensive alternative fishing grounds available and/or fishing fleet is highly adaptive and resilient to change.
Low	Receptor is not generally vulnerable to impacts that may arise from the project and/or has high recoverability. And/or: High levels of alternative fishing grounds are available and/or fishing fleet has large to extensive operational range; fishing fleet is adaptive and resilient to change.
Medium	Receptor is somewhat vulnerable to impacts that may arise from the project and has moderate levels of recoverability. And/or: Moderate levels of alternative fishing grounds are available and/or fishing fleet has moderate operational range.
High	Receptor is highly vulnerable to impacts that may arise from the project and recoverability is long term or not possible. And/or: No alternative fishing grounds are available.

12.9.3.5 Cumulative impacts will be assessed by taking into consideration any similar developments, proposed or existing, that are in the vicinity of the Project.

12.10 Scoping Questions

12.10.1.1 The following Scoping questions refer to the commercial fisheries chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree that local fishing practices and seasonal patterns captured through initial stakeholder engagement present an accurate basis on which to undertake the EIA?
- Do you foresee any operational challenges for fisheries that may arise from the Project, beyond those already scoped?
- Have any recent changes in fishing activity, gear types, or target species occurred that should be reflected in the assessment?
- Do you agree that the temporal scope of the assessment adequately reflects seasonal and interannual variability in commercial fishing activity?
- Are there specific fishing grounds or transit routes that require more detailed consideration within the study area?
- Do you have suggestions for mitigation measures that should be considered at this stage to reduce potential impacts on commercial fisheries?
- Do you agree with the study area(s) defined for commercial fisheries?
- Do you agree with the use of those data listed in Section 12.3 being used to inform the Inshore EIAR? Do you have concerns about the reliability or completeness of the baseline data used in the assessment? Are there any local / regional data sources you'd recommend for inclusion in the EIAR?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to commercial fisheries have been identified?
- Do you agree with the Scoping in and out of impact pathways in relation to commercial fisheries?
- Do you agree with the assessment of transboundary effects in relation to commercial fisheries?
- Do you agree with the assessment of cumulative effects in relation to commercial fisheries?
- Do you agree with the proposed assessment methodology for commercial fisheries?

13 Shipping and Navigation

13.1 Introduction

13.1.1.1 This Chapter of the Inshore Scoping Report identifies the Shipping and Navigation receptors of relevance to the Project and considers the potential impacts from the construction, Operation and Maintenance (O&M) and decommissioning of the Project on Shipping and Navigation receptors up to MHWS.

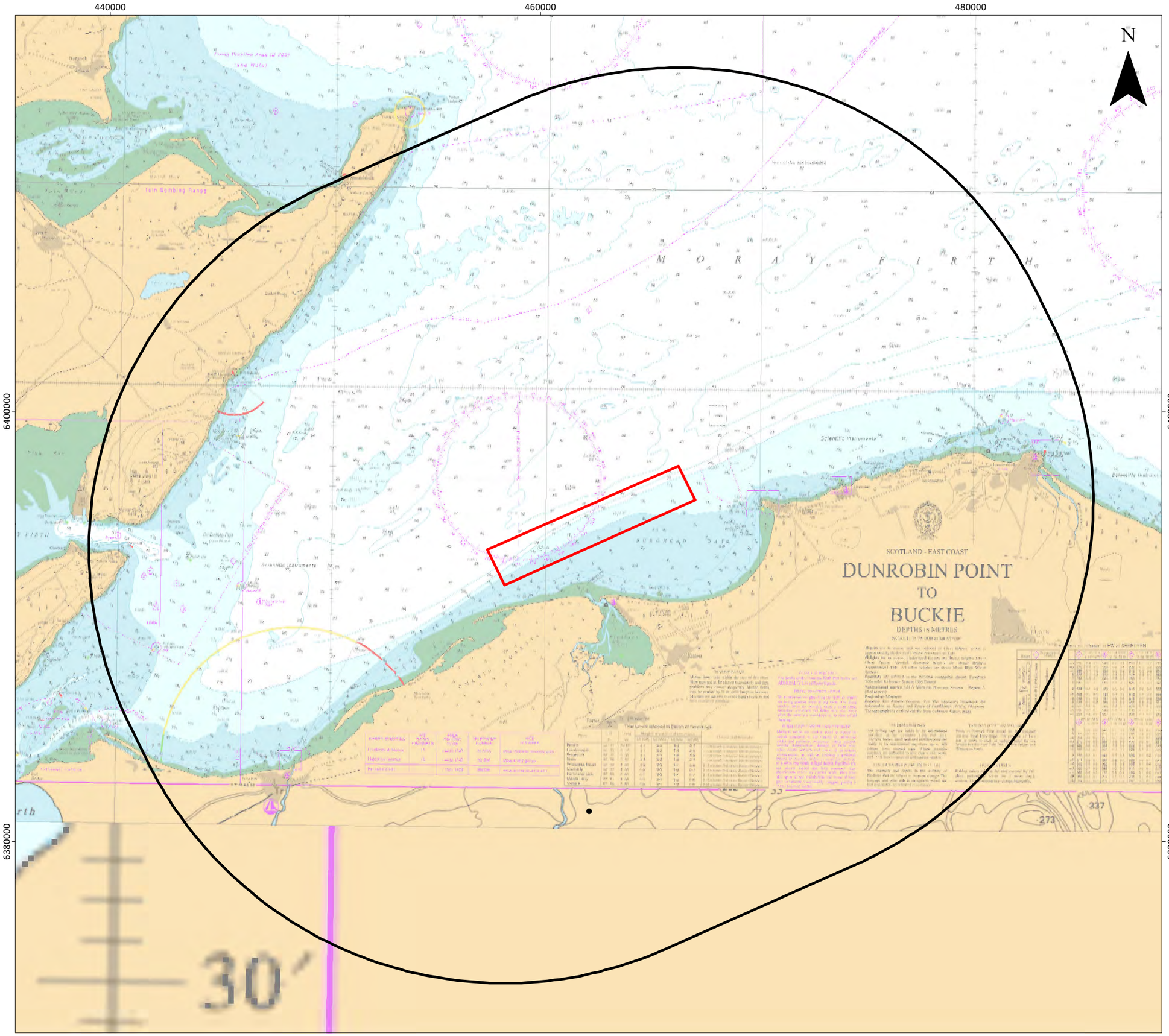
13.1.1.2 This Chapter should be read alongside the following other chapters:

- Chapter 12: Commercial Fisheries;
- Chapter 17: Socio-economics, Tourism and Recreation; and
- Chapter 19: Infrastructure and Other Users.

13.2 Study Area

13.2.1.1 The Shipping and Navigation study area is defined by the Moray FLOW-Park area (5 nautical miles (nm^2) (18 square kilometres (km^2))) in addition to the buffer zone, giving a total area of 444nm^2 (18523 km^2). This study area is presented in Figure 13-1.

13.2.1.2 The buffer extends ten nautical miles (nm) from the boundary of the Moray FLOW-Park area. This is considered an industry standard for assessing impacts to shipping and navigation receptors from offshore developments as it captures relevant commercial vessel routeing, and recreational and fishing vessel activity that may be affected by the Moray FLOW-Park while remaining specific to the mooring lines and FLOW foundations associated with the Project. This study area will be utilised within the EIA to assess the impacts to shipping and navigation receptors.



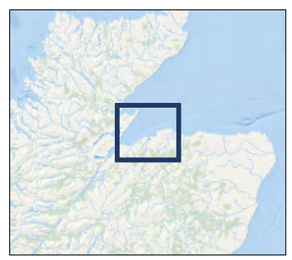
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Shipping and Navigation Study Area

Legend

- Moray FLOW-Park
- Shipping and Navigation Study Area



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Figure 13-1

Figure Reference: Figure 13-1 Shipping and Navigation Study Area

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13.3 Data Sources to Inform the EIA Baseline Characterisation

13.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial data sources. The data sources that have been used to inform this Shipping and Navigation Chapter are presented in Table 13-1. These data sources will be taken forward and used to inform the EIA, in addition to any site-specific data that will be collected for the Project.

13.3.1.2 The primary data source for the assessment of impacts to shipping and navigation receptors is two 14-day periods of Automatic Identification System (AIS) data which captures the seasonality of vessel traffic activity within the Shipping and Navigation study area. It is noted that AIS carriage and broadcast is not compulsory for fishing vessels below 15 metres (m) in length nor for vessels below 300 gross tonnage (GT), however, given that many vessels voluntarily broadcast on AIS and that these datasets suitably capture commercial vessel routeing, the AIS-only data is considered appropriate for the purposes of this Inshore Scoping Report.

Table 13-1: Key sources of Shipping and Navigation data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
14 days of AIS data for the period 18 January 2025 to 31 January 2025 (Anatec, 2025)	Characterises vessel traffic movements within and in proximity to the Moray FLOW-Park	Full coverage of the Shipping and Navigation study area.
14 days of AIS data for the period 05 July 2025 to 18 July 2025 (Anatec, 2025)		
Admiralty Chart 223, 115, and 245 (UKHO, 2025)	Characterises navigational features in proximity to the Moray FLOW-Park area	Full coverage of the Shipping and Navigation study area
Admiralty Sailing Directions North Coast of Scotland Pilot NP52 11th Edition (UKHO, 2022)		
Marine Accident Investigation Branch (MAIB) incident data, 2015 to 2024	Characterises marine incidents in proximity to the Moray FLOW-Park area	Full coverage of the Shipping and Navigation study area
RNLI incident data, 2015 to 2024		

13.4 Description of Baseline Environment

13.4.1.1 An initial desk-based review of literature and available data sources (see Table 13-1) has been undertaken to support this Inshore Scoping Report. The findings of this research are presented below in order to provide an understanding of the Project environment and inform the Inshore Scoping process.

13.4.1.2 The key Shipping and Navigation receptors which will inform this Inshore Scoping Report and the subsequent Inshore Environmental Impact Assessment Report (EIAR) include:

- Commercial vessels;
- Fishing vessels; and
- Recreational vessels.

Navigational Features

13.4.1.3 Key navigational features in proximity to the Moray FLOW-Park area are presented in Figure 13-2.

13.4.1.4 The Moray FLOW-Park area is located approximately 1.5 nm north of Findhorn and 1.7 nm west of Burghead. Burghead Harbour is described by the Admiralty Sailing Directions as mainly a fishing harbour though "*use of the harbour for maritime leisure activities is increasing*" (UKHO, 2022). A preferred anchorage is located 1 nm west of the harbour and approximately 0.7 nm southeast of the Moray FLOW-Park area.

13.4.1.5 A spoil ground is also located in the vicinity, at 1 nm east of the Moray FLOW-Park area. Numerous wrecks and obstructions are noted within the Shipping and Navigation study area, two of which are located within the Moray FLOW-Park area itself. The Guillam Bank is located 3 nm northwest of the Moray FLOW-Park area with minimum water depths of 12 m. This bank was seen to be a factor in commercial vessel routeing, as discussed further in the section on vessel traffic.

13.4.1.6 Other navigational features nearby include the Cromarty Firth which contains the Port of Invergordon, the Port of Nigg, and Cromarty Harbour. The entrance to the Cromarty Firth is 9 nm west of the Moray FLOW-Park area, with the harbour limits extending into the Moray Firth up to approximately 5.2 nm west of the Moray FLOW-Park area. The Admiralty Sailing Directions describe the Cromarty Firth as "*the best deep-water harbour on the northeast coast of Scotland and affords sheltered anchorage for vessels of all types and sizes*" (UKHO, 2022). The Cromarty Firth is a major hub for offshore operations in the North Sea. Ardersier Port is located approximately 10.7 nm southwest of the Moray FLOW-Park area and is the location of the under-construction Ardersier Energy Transition Facility. Ardersier harbour limits extend into the Moray Firth at approximately 9.6 nm southwest of the Moray FLOW-Park area.

13.4.1.7 Whilst not in direct proximity to the Moray FLOW-Park area (or within the study area), it is noted that there are three operational wind farms in the Moray Firth. These are Moray West, Moray East, and Beatrice. These are important navigational features within the Moray Firth as commercial vessels avoid the associated structures.

13.4.1.8 The nearest Military Exercise Areas and Danger area (PEXA) is Firing Practice Area D703, located 8.9 nm north of the Moray FLOW-Park area, noting Firing Practice Area D702 is also present 10.7 nm to the west.

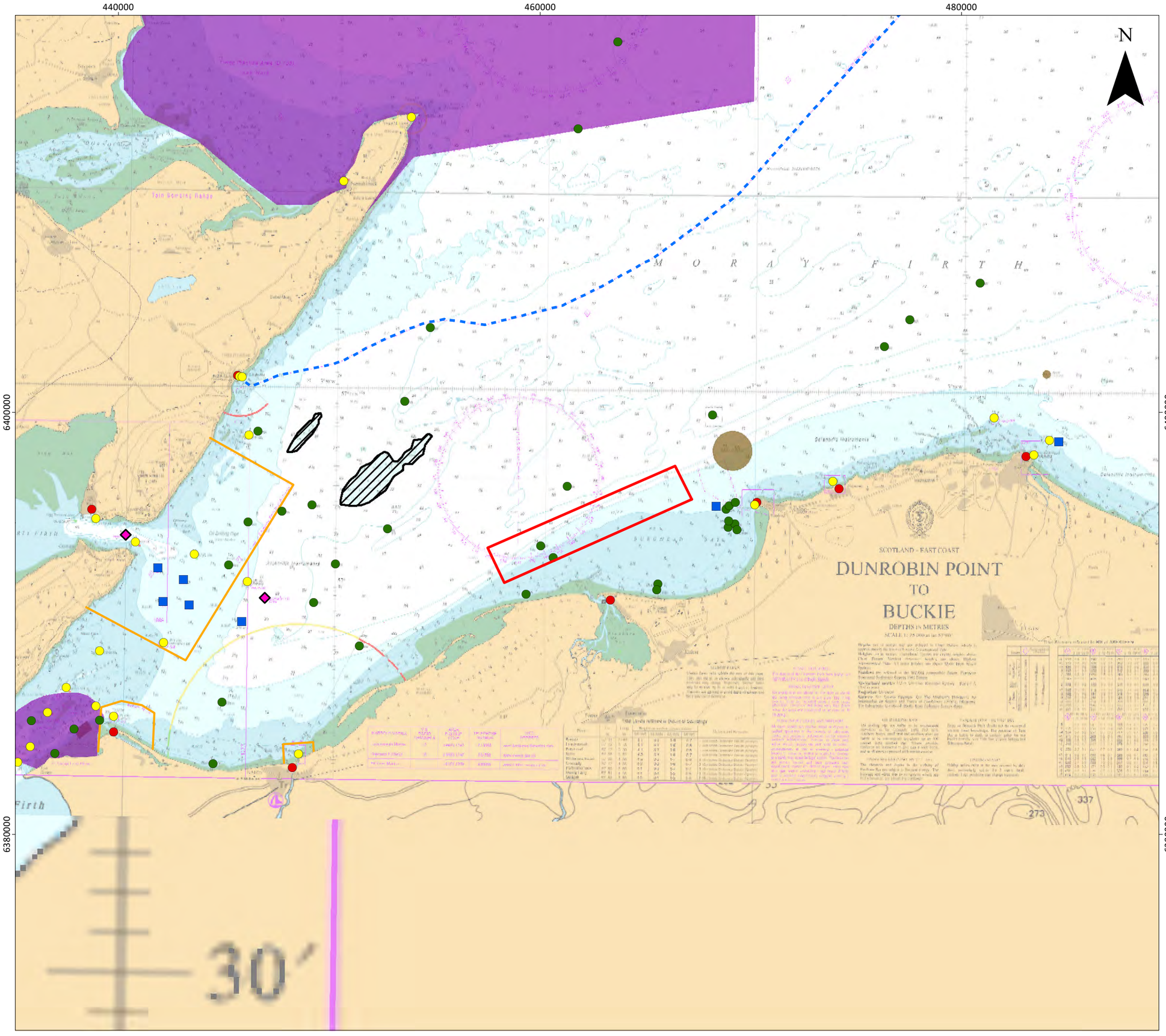


Figure Reference: Figure 13-2 Navigational Features

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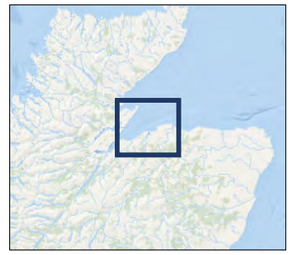
Key Navigational Features

Legend

- Moray FLOW-Park

Navigational Features

- Aid to Navigation
- Charted Wreck or Obstruction
- Preferred Anchorage
- Pilot Boarding Station
- Port or Harbour
- Subsea Pipeline
- Harbour Limit
- Firing Practice Area
- Shallow Bank
- Spoil Ground



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Figure 13-2

Vessel Traffic

13.4.1.9 A total of 28 days of AIS-only vessel traffic was collected from coastal and satellite receivers between 18 January 2025 and 31 January 2025, as well as between 05 July 2025 and 18 July 2025. The vessel traffic recorded during these periods is presented in Figure 13-3, colour-coded by vessel type. It is noted that vessel activity which was deemed as temporary has been removed from the analysis, this included survey activity, operations associated with the under-construction Ardersier Energy Transition Facility, as well as vessel activity related to the production of The Odyssey film.

13.4.1.10 During the winter 2025 period, there was an overall average of between four and five unique vessels recorded per day within the Shipping and Navigation study area, with an average of one unique vessel recorded every one to two days within the Moray FLOW-Park area itself. The most common vessel type recorded during the winter 2025 period within the Shipping and Navigation study area were cargo vessels (32%).

13.4.1.11 During the summer 2025 period, there was an average of 22 unique vessels recorded within the Shipping and Navigation study area per day, with an average of between four and five unique vessels per day within the Moray FLOW-Park area itself. The most common vessel type recorded within the Shipping and Navigation study area during the summer 2025 period were recreational vessels (47%). The increase in vessels compared to the winter 2025 period is primarily due to a notable increase in recreational traffic, noting the period chosen has been selected to include local recreational sailing events including the annual Findhorn Sailing Regatta.

13.4.1.12 Cargo vessels were observed to route to and from Invergordon and Inverness, with the majority of cargo traffic passing parallel to the north of the Moray FLOW-Park area. Other destinations include Mistley (United Kingdom (UK)), Belfast (UK), Scrabster (UK), and several other European ports.

13.4.1.13 Recreational vessels were primarily recorded transiting close to the coast and operating out of the Cromarty Firth and Inverness Firth, as well as several local harbours. Recreational vessels were recorded intersecting the Moray FLOW-Park area. All but one recreational vessel transit was recorded during the summer 2025 period.

13.4.1.14 Fishing vessels were also common during both the winter and summer periods, the vast majority of which displayed potential active fishing behaviour. These vessels were seen to operate out of Burghead with activity noted within the Moray FLOW-Park area.

13.4.1.15 Passenger vessel recorded within the Shipping and Navigation study area mostly comprised of a local ferry operating between Cromarty and Nigg and cruise liners transiting to and from Invergordon.

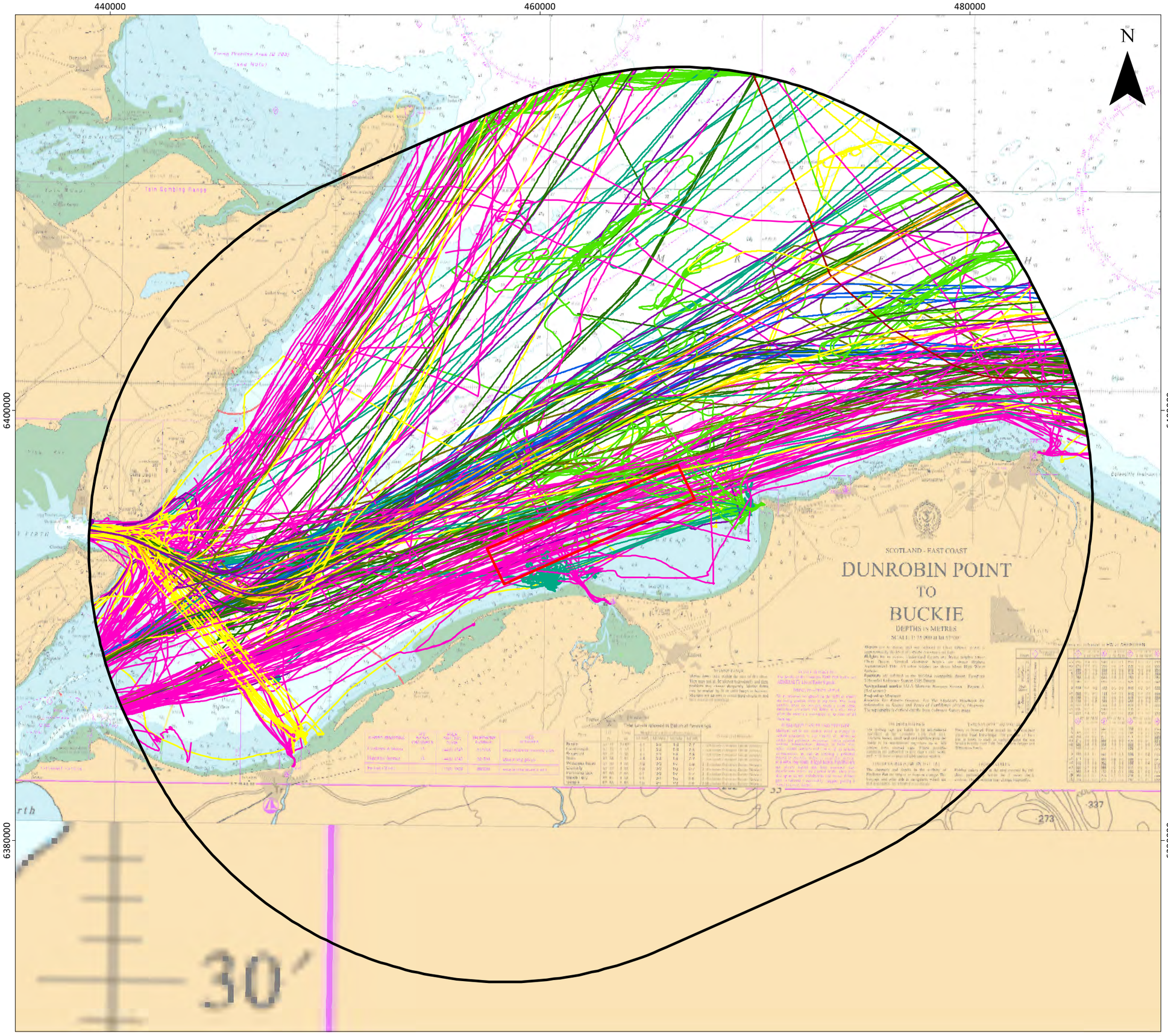
13.4.1.16 Tankers displayed clear routeing within the Shipping and Navigation study area, transiting parallel to the north of the Moray FLOW-Park area, passing at a distance of approximately 1.4 nm.

13.4.1.17 The majority of commercial vessels were observed to transit south of the Guillam Bank, in areas where water depths were greater.

Marine Incidents

13.4.1.18 Between 2015 and 2024, 30 incidents were recorded within the MAIB dataset in the Shipping and Navigation study area, equating to an average of three incidents per year. No incidents were recorded within the Moray FLOW-Park area itself. MAIB incidents recorded within the Shipping and Navigation study area, colour-coded by incident type, are presented in Figure 13-4.

13.4.1.19 During the ten-year period between 2015 and 2024, there was a total of 109 incidents recorded within the RNLI dataset in the Shipping and Navigation study area, equating to an average of approximately 11 incidents per year. One incident was recorded in the Moray FLOW-Park area. RNLI incidents recorded within the Shipping and Navigation study area, colour-coded by incident type, are presented in Figure 13-5.



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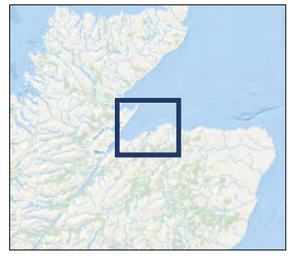
28 Days of AIS Vessel Traffic by Vessel Type (Winter and Summer 2025)

Legend

- Moray FLOW-Park
- Shipping and Navigation Study Area

Vessel Type

- Unspecified
- Fishing
- Military
- Tug
- Passenger
- Cargo
- Tanker
- Other
- Recreational
- Oil and Gas
- Wind Farm



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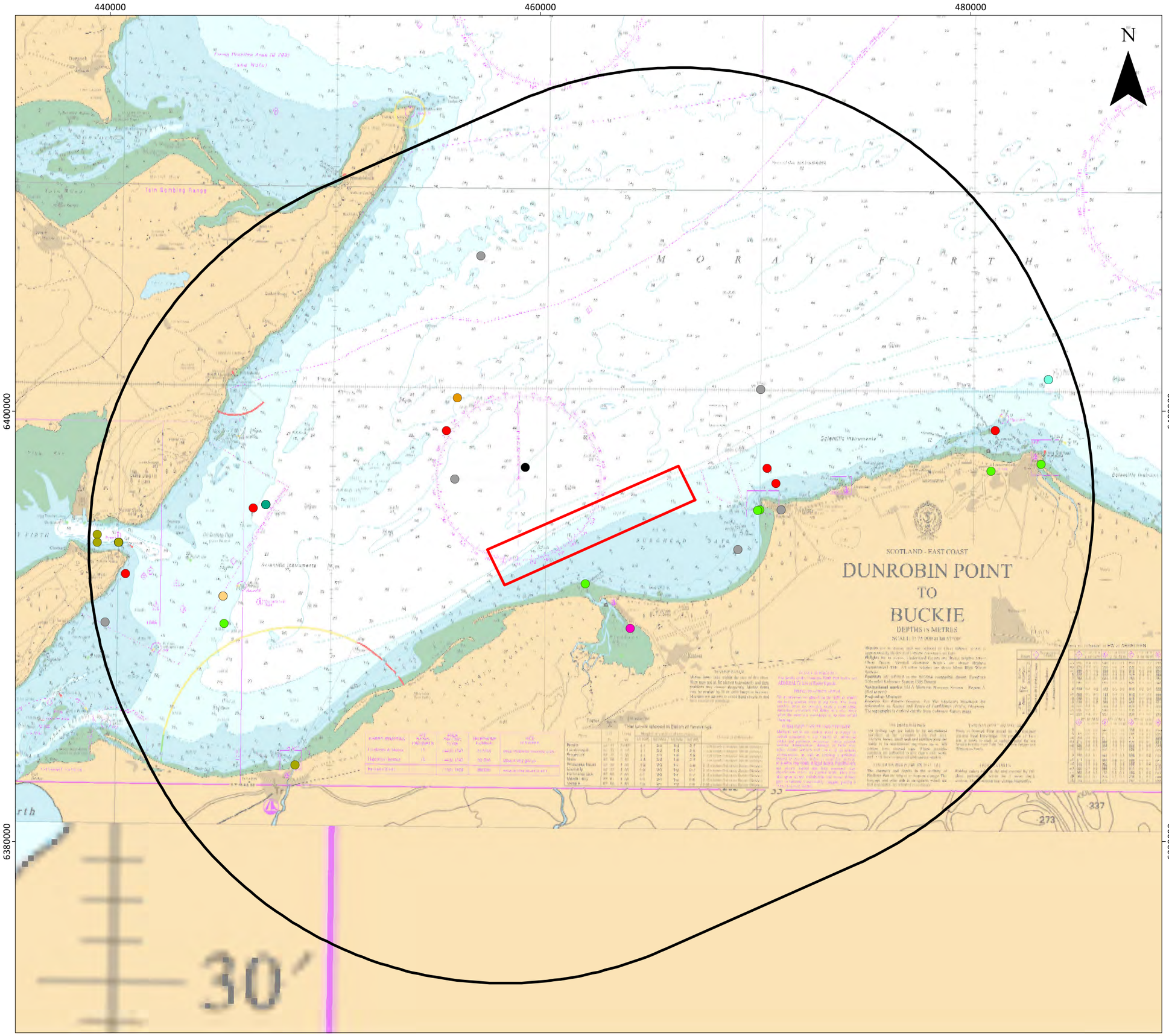
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Figure 13-3

Figure Reference: 13-3 28 Days of AIS

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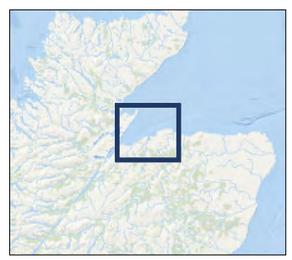
MAIB Incident Data by Incident Type (2015 to 2024)

Legend

- Moray FLOW-Park
- Shipping and Navigation Study Area

Incident Type

- Accident to Person
- Capsizing/Listing
- Collision
- Contact
- Damage/loss of equipment
- Fire/explosion
- Floating object
- Grounding/stranding
- Machinery Failure
- Unspecified



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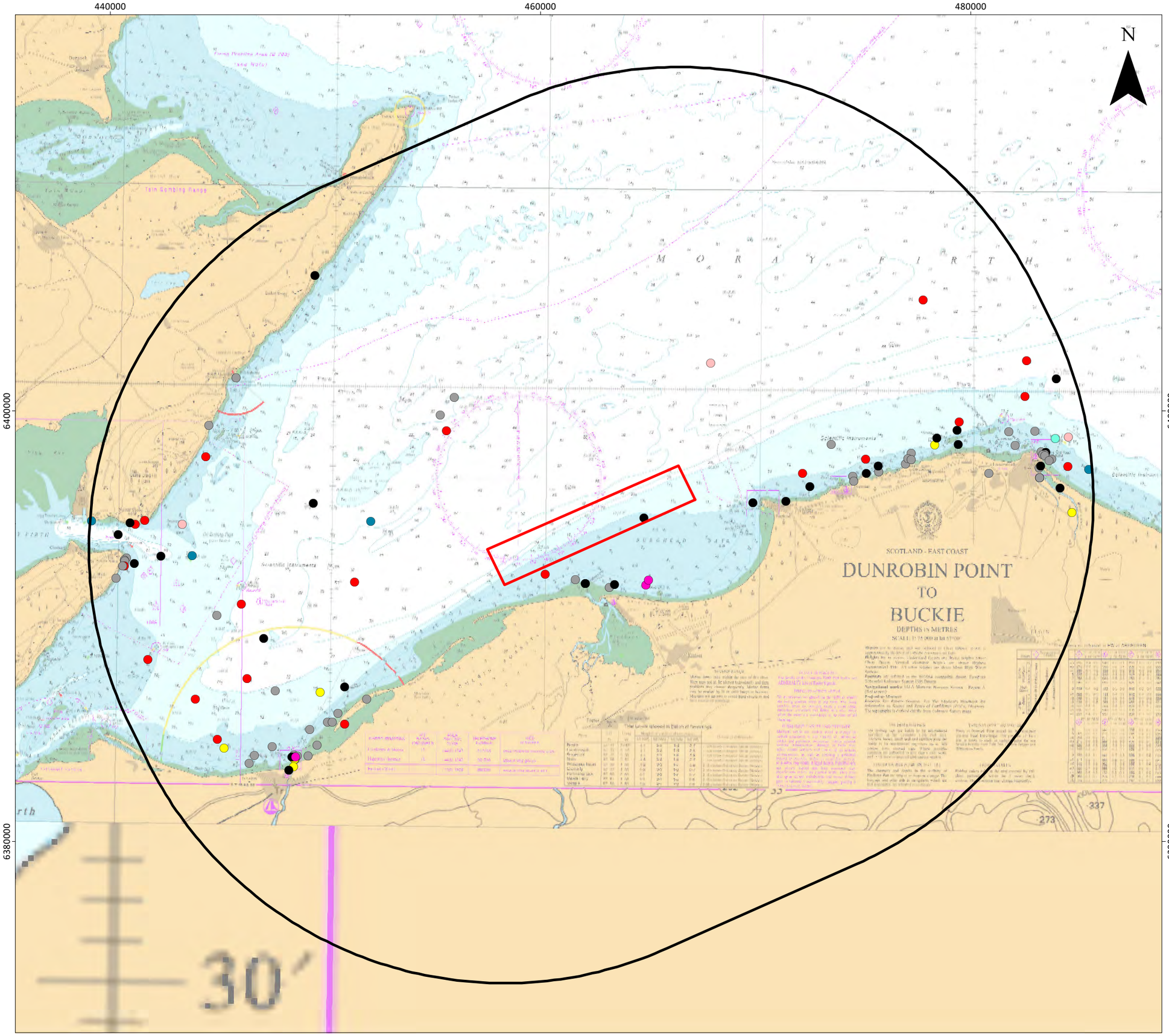
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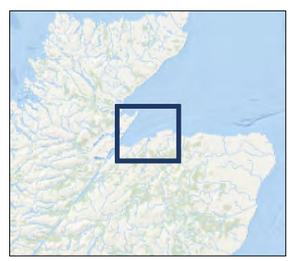
RNLI Incident Data by Incident Type (2015 to 2024)

Legend

- Moray FLOW-Park
- Shipping and Navigation Study Area

Incident Type

- Capsize
- Collision
- Machinery Failure
- Other
- Person in Danger
- Sail Failure
- Vessel May be in Trouble
- Unspecified



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Figure Reference: Figure 13-5 RNLI

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Future Baseline

13.4.1.20 Future changes in shipping activity including fishing activity depend on a variety of factors including trading patterns and vessel design and are thus difficult and complex to predict. The Navigational Risk Assessment (NRA) will therefore consider potential conservative traffic increases agreed with stakeholders through consultation.

13.4.1.21 Vessels are already accounting for the presence of the Moray East, Moray West and Beatrice offshore wind farms. Relevant future developments that may impact vessel routeing within the Shipping and Navigation study area include the expansion of facilities at the Port of Cromarty Firth and the Ardersier Energy Transition Facility, both of which will support offshore wind projects. Foreseeable future offshore wind farms are unlikely to notably impact routeing in vicinity of the Moray FLOW-Park area, however, may lead to increases in local vessel activity depending on base ports used.

13.5 Embedded Mitigation

13.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 7-7 and in the Embedded Commitments Register (Appendix A). These commitments will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 13-2: The proposed mitigation measures relevant to Shipping and Navigation receptors

Mitigation Code	Mitigation Measure
C5	Layout approval in consultation with MCA and NLB.
C8	Development and adherence to a Vessel Management Plan (VMP) post-consent in order to confirm the types and numbers of vessels engaged in activities associated with the Moray FLOW-Park and consider vessel coordination including indicative transit route planning.
C9	Development and adherence to a Navigational Safety Plan (NSP) post-consent.
C10	Appointment of a Fisheries Liaison Officer (FLO) to facilitate engagement with the commercial fishing industry.
C11	Development of and adherence to a Development Specification and Layout Plan (DSLP) which will confirm the layout of the FLOW foundations and design parameters.

Mitigation Code	Mitigation Measure
C13	Development of and adherence to a Construction Programme (CoP) to confirm the timeline for construction.
C15	Advance warning and accurate location details of operations will be given via notifications to mariners and Kingfisher Bulletins.
C16	Development and adherence to a Lighting and Marking Plan (LMP) which details lights, marks, sounds, signals, and other aids to navigation which will be exhibited as required by NLB and MCA.
C17	Where required by risk assessment, guard vessels or alternative suitable marine assets such as buoys or autonomous assets will be used to ensure adherence with safety zones or advisory passing distances.
C18	Compliance with Marine Guidance Note (MGN) 654 (Maritime and Coastguard Agency (MCA), 2021) and its annexes where applicable to the Project.
C19	Compliance with the Regulatory Expectations on Moorings for Floating Wind and Marine Devices (MCA and Health and Safety Executive (HSE), 2017).
C20	Marine coordination will be implemented to manage project vessels during mooring installation and decommissioning, as well as during deployment or retrieval of FLOW foundations. Coordination activities will be managed by the FLOW Park Management and Control System.
C21	Project vessels will comply with international marine regulations as adopted by the Flag State including the COLREGs (International Maritime Organization (IMO), 1972/77) and SOLAS (IMO, 1974).
C22	The FLOW Park Management and Control System, a fully integrated operational safety & risk management system designed specifically for wet storage facilities, fully compliant with maritime regulations and industry best practice, and providing 24/7/365 live monitoring for safety and security.
C24	Development of and adherence to a Fisheries Mitigation Monitoring and Communication Plan (FMMCP) to mitigate impacts upon commercial fishermen.
C27	Development and adherence to a Marine Pollution Contingency Plan (MPCP).
C28	Development and adherence to an Emergency Response Cooperation Plan (ERCoP). The ERCoP will be prepared in line with MCA guidance and will confirm the measures the Project has in place to support any emergency response.
C29	All debris or waste materials arising during construction, operation and maintenance will be removed for disposal at an approved location above the tidal level of Mean High Water Spring (MHWS) tide.

Mitigation Code	Mitigation Measure
C30	Local mariners and fishermen's organisations will be made fully aware of proposed works through a local notification. This will be issued at least 14 days before the commencement of any construction / operation and maintenance works.
C35	Navigational lighting of the Project (Inshore) will not be exhibited, altered or discontinued without the statutory sanction of the Commissioners of Northern Lighthouses.
C36	Failure of lighting and marking will be appropriately reported and rectified as soon as practicable. Interim hazard warnings will be put in place as required.
C38	Typical separation distance between FLOW foundations of 600 m.
C42	Appropriate depiction on UKHO Admiralty Charts. This will involve provision of the positions and heights of structures to the UKHO, MoD and DGC.
C43	Development of and adherence to an Operation and Maintenance Programme (OMP) to safeguard environmental interests during operation and maintenance.
C44	Application for safety zones of up to 500 m during mooring installation and decommissioning, as well as deployment and retrieval of FLOW foundations. Where / if consultation indicates safety zones do not apply, advisory safe passing distances may be used.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.
C52	The Project will develop a permanent no infrastructure channel in the FLOW Park to support vessel transit, safe access through the site, avoid and respect seabed wrecks and potential war graves. The size and location are currently being developed in consultation with regulators and stakeholders and will be finalised during the EIA Phase. Additional temporary access channels will be considered and developed in direct consultation with marine stakeholders during the EIA Phase.

13.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

13.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon Shipping and Navigation receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

13.6 Scoping of Impacts

13.6.1.1 An initial assessment of the likelihood of effects on Shipping and Navigation due to Project activities for the Scoping stage of the EIA process is presented in Table 13-3. This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Section 13.5, together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for Shipping and Navigation effects associated with Project activities; relevant policy; and the professional judgement of qualified Shipping and Navigation specialists.

13.6.1.2 Given the construction and decommissioning phases present similar scenarios from a shipping and navigation perspective (e.g., increased vessel presence on site), the scoping process has been grouped for these two phases.

13.6.1.3 No impacts are proposed to be scoped out at this stage and will be fully assessed in the NRA.

Table 13-3: Scoping assessment for Shipping and Navigation

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction and Decommissioning			
Vessel displacement (i.e., vessels choosing to avoid the ongoing construction works) leading to increased vessel to vessel collision risk between third-party vessels	C5, C8, C9, C11, C13, C15, C16, C18, C20, C22, C21, C24, C28, C30, C42, C46, C48	Scoped In	Reduction in navigable sea room will displace third-party vessel traffic and could lead to an increase in encounters and subsequent collision risk including between the Guillam Bank (which could represent a grounding hazard for larger vessels) and the Moray FLOW-Park area.
Vessel to vessel collision risk between third-party vessels and Project vessels	C8, C9, C10, C13, C15, C16, C17, C18, C20, C21, C22, C24, C28, C30, C42, C44, C46, C48	Scoped In	Presence of project vessels will increase the collision risk between third-party and project vessels.
Reduced access to local ports, harbours, and facilities as a result of the construction works and associated vessels	C5, C8, C10, C11, C13, C15, C16, C20, C21, C30, C46, C48	Scoped In	The presence and construction of the Moray FLOW-Park and associated vessel transits may impact access to local facilities.
Reduced under keel clearance and vessel interaction with	C5, C10, C11, C13, C15, C17, C18, C19, C21, C22, C24, C28,	Scoped In	The presence of subsea infrastructure including the mooring lines and anchors may lead to a reduction of under keel clearance and subsequent increase in vessel interaction risk.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
subsea infrastructure stored during construction	C30, C42, C44, C46, C48		
Reduction of emergency response capability including SAR	C5, C8, C9, C11, C13, C15, C16, C17, C18, C21, C22, C24, C28, C30, C36, C37, C38, C39, C42, C44, C45, C46, C48	Scoped In	The presence of the Project may lead to an increase in incident rates or restrict access for responders which could lead to a reduction in emergency response capabilities.
O&M			
Vessel displacement (i.e., vessels choosing to avoid the Moray FLOW-Park area) leading to increased vessel to vessel collision risk between third-party vessels	C5, C11, C15, C16, C18, C21, C22, C24, C28, C30, C42, C48	Scoped In	Reduction in navigable sea room will displace third-party vessel traffic and could lead to an increase in encounters and subsequent collision risk including between the Guillam Bank and the Moray FLOW-Park area.
Vessel to vessel collision risk between third-party vessels and Project vessels	C8, C9, C10, C15, C16, C17, C18, C20, C21, C22, C24, C28, C30, C42, C44, C48	Scoped In	Presence of project vessels will increase the collision risk between third-party and project vessels.
Reduced access to local ports, harbours, and facilities from the infrastructure within	C5, C8, C10, C11, C15, C16, C20, C21, C30, C48	Scoped In	The presence of the Moray FLOW-Park and associated vessel transits may impact access to local facilities.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
the Moray FLOW-Park area or associated project vessels			
Vessel to structure allision risk i.e., risk of a vessel making contact with a FLOW foundation unit.	C5, C10, C11, C15, C16, C17, C19, C21, C22, C24, C28, C30, C36, C37, C38, C42, C44, C45, C48	Scoped In	The presence of surface structures will create an allision risk for vessels operating in the area.
Loss of station of a FLOW foundation.	C10, C15, C16, C19, C21, C22, C24, C28, C30, C36, C43, C48	Scoped In	In the event of mooring line failure, an adrift FLOW foundation may create a collision risk for passing traffic in the area.
Reduced under keel clearance and vessel interaction with subsea infrastructure	C5, C10, C11, C15, C18, C19, C21, C22, C24, C28, C30, C42, C44, C48	Scoped In	The presence of subsea infrastructure including the mooring lines and anchors may lead to a reduction of under keel clearance and subsequent increase in vessel interaction risk.
Reduction of emergency response capability including Search and Rescue (SAR)	C5, C8, C9, C11, C15, C16, C17, C18, C21, C22, C24, C28, C30, C36, C37, C38, C39, C42, C44, C45, C48	Scoped In	The presence of the Project may lead to an increase in incident rates or restrict access for responders which could lead to a reduction in emergency response capabilities.

13.7 Potential Cumulative Effects

13.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment.

13.7.1.2 All impacts identified on an in-isolation basis will be considered within the NRA for the potential for cumulative effects. Cumulative developments will be assessed based on the most recent publicly available information, with a proposed screening radius of 50nm. Factors that will be considered include:

- Distance from the Moray FLOW-Park area;
- Development status;
- Level of interaction with main commercial routes passing in proximity to the Moray FLOW-Park area;
- Consultation feedback; and
- Data confidence level.

13.7.1.3 The CEA for Shipping and Navigation will consider the MDS for each of the projects, plans and activities in line with the methodology outlined in Chapter 4: EIA Methodology, Section 4.5.

13.8 Potential Transboundary Effects

13.8.1.1 Given the international nature of shipping, the in-isolation and cumulative assessments capture vessel routeing to and from ports outside of the UK by international operators. Therefore, impacts listed in Section 13.6 may also be relevant at a transboundary level. This will be assessed as part of the NRA process.

13.9 Proposed Approach to EIA

13.9.1 Guidance

13.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of Shipping and Navigation receptors will also comply with the following guidance documents where they are specific to this topic:

- Marine Guidance Nore (MGN) 654 OREI: Guidance on UK Navigational Practice, Safety and Emergency Response (MCA, 2021);
- Revised Guidelines for Formal Safety Assessment (FSA) (IMO, 2018);
- MCA and HSE Regulatory Expectations on Moorings for Floating Wind and Marine Devices (MCA and Health and Safety Executive (HSE), 2017);

- International Organization for Marine Aids to Navigation (IALA) Guidance G1185 Enhancing the Safety and Efficiency of Navigation Around Offshore Renewable Energy Installations (IALA, 2024);
- IALA Guidance G1162 on the Marking of Man-Made Offshore Structures (IALA, 2022);
- IALA Recommendation O-139 on the Marking of Man-Made Offshore Structures (IALA, 2021);
- The RYA's Position on Offshore Energy Developments: Paper 1 – Wind Energy (RYA, 2019); and
- Draft[21] MGN Safety of Navigation: Guidance on towing requirements for offshore floating structures (excluding oil and gas infrastructure) (MCA, 2024).

13.9.2 Additional Data Sources

13.9.2.1 A more detailed literature review will be developed for the EIA and NRA, building upon the high-level outline provided within this Inshore Scoping Report. Project-specific survey outputs will be used to enhance the understanding of the baseline conditions. These may include the following across the Moray FLOW-Park Area:

- 28 days of site-specific seasonally weighted vessel traffic survey data;
- RYA Coastal Atlas (RYA, 2018);
- Vessel Monitoring System data; and
- Consultation input into baseline.

13.9.2.2 The format, data collection means, location and timing of the vessel traffic surveys will be agreed with the MCA prior to the NRA process commencing. As a minimum, 28 days of survey data will be collected to include a combination of radar and visual data in agreement with the MCA (14 days in summer and 14 days in winter).

13.9.3 Assessment Methodology

13.9.3.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

13.9.3.2 As required under the MCA Methodology (Annex 1 to MGN 654) (MCA, 2021) and in line with international marine risk assessment standards, the International Maritime Organisation (IMO) FSA (IMO, 2018) approach will be applied to the assessment of effects on shipping and navigation receptors.

[21] The draft version has been consulted on by the MCA but is yet to be finalised.

13.9.3.3 The FSA methodology is centred on risk control. The method assesses each impact in terms of its frequency of occurrence and the severity of its consequence, to determine its significance as either 'broadly acceptable', 'tolerable' or 'unacceptable.' The FSA methodology risk matrix is shown in Table 13-4. Any impact assessed as 'unacceptable' will require additional mitigation measures implemented beyond those considered designed-in to reduce the impact to within 'tolerable with mitigation' or 'broadly acceptable' parameters.

Table 13-4: IMO FSA Risk Matrix

Frequency of Occurrence	**Frequent**	Tolerable with Mitigation	Tolerable with Mitigation	Unacceptable	Unacceptable	Unacceptable
	Reasonably Probable	Broadly Acceptable	Tolerable with Mitigation	Tolerable with Mitigation	Unacceptable	Unacceptable
	Remote	Broadly Acceptable	Broadly Acceptable	Tolerable with Mitigation	Tolerable with Mitigation	Unacceptable
	Extremely Unlikely	Broadly Acceptable	Broadly Acceptable	Broadly Acceptable	Tolerable with Mitigation	Tolerable with Mitigation
	Negligible	Broadly Acceptable	Broadly Acceptable	Broadly Acceptable	Broadly Acceptable	Tolerable with Mitigation
		Negligible	**Minor**	**Moderate**	**Serious**	**Major**
		Severity of Consequence				

13.9.3.4 The frequency and consequence rankings per hazard will be determined using a number of inputs, notably:

- Quantitative modelling undertaken in the NRA;
- Outputs of the characterisation of the baseline including vessel traffic surveys;
- Consideration of proposed mitigation measures;
- Lessons learned from offshore wind developments;
- Level of stakeholder concern determined through the hazard log;
- Consultation output; and
- Expert opinion.

13.9.3.5 The NRA process will be informed via consultation with key shipping and navigation stakeholders. This is expected to include:

- Dedicated key stakeholder meetings (e.g. MCA, NLB, RYA Scotland, Chamber of Shipping);
- Regular operator outreach (i.e. consultation with regular users of the area identified from the vessel traffic data);
- Hazard Workshop(s) with local stakeholders;
- Liaison with fishing industry via FLO where appropriate; and
- Local ports, harbours, marinas, and yacht clubs.

13.10 Scoping Questions

13.10.1.1 The following Scoping questions refer to the Shipping and Navigation Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the study area(s) defined for Shipping and Navigation?
- Do you agree with the use of those data listed in Section 13.3, and any additional anticipated data listed in Section 13.9, being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to Shipping and Navigation have been identified?
- Do you agree with the Scoping in of impact pathways in relation to Shipping and Navigation?
- Do you agree with the assessment of transboundary effects in relation to Shipping and Navigation?
- Do you agree with the assessment of cumulative effects in relation to Shipping and Navigation?
- Do you agree with the proposed assessment methodology for Shipping and Navigation?

14 Marine Archaeology and Cultural Heritage

14.1 Introduction

14.1.1.1 This Chapter of the Inshore Scoping Report identifies the known and potential Marine Archaeology and Cultural Heritage receptors of relevance to the Project and considers the potential impacts from the construction, O&M and decommissioning of the Project on Marine Archaeology and Cultural Heritage receptors up to MHWS.

14.1.1.2 This Chapter should be read alongside the following other chapters:

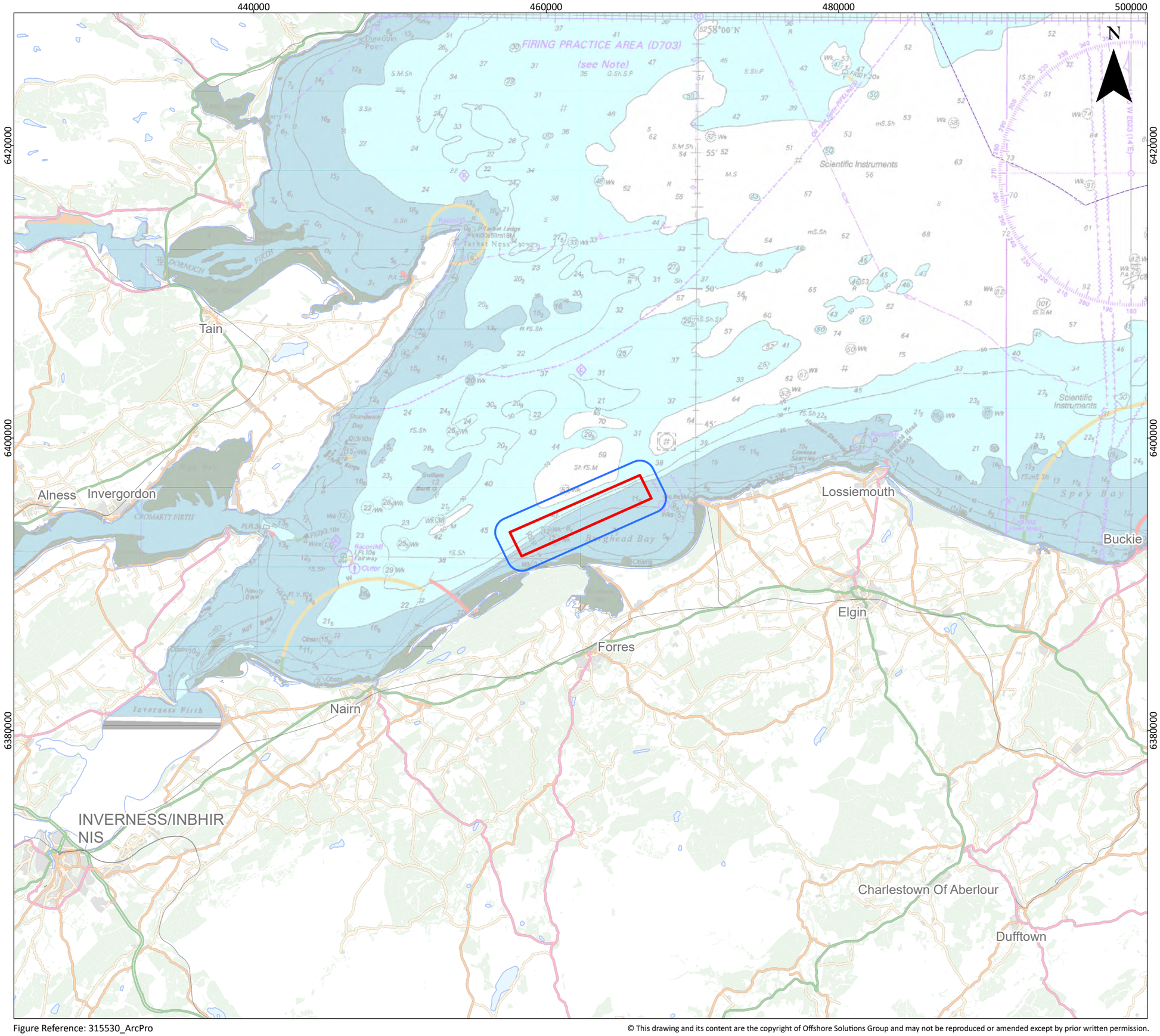
- Chapter 6: Marine and Coastal Processes; and
- Chapter 16: Seascape, Landscape and Visual Impacts.

14.2 Study Area

14.2.1.1 The Marine Archaeology and Cultural Heritage study area is defined by the Moray FLOW-Park area in addition to a 1 km buffer around both areas, except where this buffer goes above MHWS. This study area is presented in Figure 14-1.

14.2.1.2 The 1 km buffer enables marine archaeological seabed assets that are located close to the boundary of the study area to be included in the assessment, as the features themselves or their potential mitigation measures may extend into the Moray FLOW-Park Area and could potentially be impacted.

14.2.1.3 The study area will be subject to review and may be amended during subsequent phases of the Project in response to a refinement in the positioning of development infrastructure and the identification of additional constraints, which may be environmental and/or engineering related.



OFFSHORE SOLUTIONS GROUP | working on behalf of Flow Park Investment Ltd

Moray FLOW-Park
Inshore Scoping Report

Marine Archaeology and Cultural Heritage Study Area

Legend

- Moray FLOW-Park
- Marine Archaeology and Cultural Heritage Study Area



Notes

World Ocean Base: OceanWise, Esri, GEBCO, Garmin, NaturalVueContains Ordnance Survey data © Crown copyright and database rights (2025). OS OpenData.
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Coordinate System:
WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

Scale	Date	Drawn by	Checked by	Approved by
1:250,000 @A3	07/01/2026	KF	BS	AB

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Figure 14-1

Figure Reference: 315530_ArcPro

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14.3 Data Sources to Inform the EIA Baseline Characterisation

14.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this Marine Archaeology and Cultural Heritage Chapter are presented in Table 14-1.

14.3.1.2 . These data sources will be taken forward and used to inform the Inshore EIA, in addition to any site-specific data that will be collected for the Project.

14.3.1.3 The data sources used in this assessment have been presented in Universal Transverse Mercator (UTM) Zone 30 North projected from a European Terrestrial Reference System (ETRS89) datum.

Table 14-1: Key sources of Marine Archaeology and Cultural Heritage data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
United Kingdom Hydrographic Office (UKHO) (2025), Wrecks and obstructions. Records were requested directly from the UKHO https://www.admiralty.co.uk/access-data/marine-data	Dataset comprising wrecks and obstructions collected and maintained for navigational purposes.	The dataset fully covers the Study Area and records exist within the Moray FLOW-Park
National Record of the Historic Environment (NRHE) for Scotland (2025). Maintained by Historic Environment Scotland (HES). Requested directly from HES.	Compiled and managed by HES, this dataset comprises terrestrial and marine archaeological sites, find spots and archaeological/survey events.	The dataset fully covers the Study Area and records exist within the Moray FLOW-Park
Moray Historic Environment Record (HER) (2025), Archaeology Service records. Records were requested directly from Aberdeenshire Council Archaeology Service (ACAS) (2025) https://online.aberdeenshire.gov.uk/smrpub/	Maintained by ACAS, this dataset comprises records relating to archaeological and historical information including archaeological sites, find spots and events.	The dataset covers the whole of Study Area: Moray FLOW-Park . Records exist in the Study Area.
HES' Scheduled Monuments (2025) Records were downloaded from the National Marine Plan interactive (NMPi) website https://marine.gov.scot/maps/1472	Nationally important monuments and sites including those in the marine area, legally protected by the Ancient Monuments and Archaeological Areas Act 1979.	The dataset covers Scotland – no records are within the Study Area.
Scottish Government (Marine Directorate)'s protected wrecks (2025) Records were downloaded from the National Marine Plan interactive (NMPi) website https://marine.gov.scot/maps/628	Nationally and internationally significant historic wreck sites designated as Historic Marine Protected Areas under the Marine (Scotland) Act 2010	The dataset covers Scotland – no records are within the Study Area.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Ministry of Defence (MOD) protected wrecks (2025) Records were downloaded from the NMPi website https://marine.gov.scot/maps/628	Aircraft and ships designated under the Protection of Military Remains Act 1986	The dataset covers Scotland – no records are within the Study Area.
GeoIndex (offshore) maintained by the BGS (2025) https://www.bgs.ac.uk/map-viewers/geoindex-offshore/	Geological information and survey data for the inshore & offshore environment.	The dataset covers Scotland and contains geological baseline information for the Study Area.
Admiralty chart 0115 (2025)	Marine chart issued by the UKHO that provides details regarding depths (chart datum), navigational seabed hazards including wreck sites and coastlines.	The chart covers the entire Study Area
Existing archaeological reports and published sources (various)	Background information relevant to the Study Area to enhance the baseline description, including paleogeography and geological assessments and aircraft crash site assessment.	Sources relevant to the Study Area have been utilised.

14.4 Description of Baseline Environment

14.4.1.1 An initial desk-based review of literature and available data sources (see Table 14-1) has been undertaken to support this Inshore Scoping Report. The findings of this research are presented below in order to provide an understanding of the Project environment and inform the Inshore Scoping process.

14.4.1.2 The desk-based review has been completed in accordance with the relevant sections of the Chartered Institute for Archaeologists' (CIfA) Standard and Guidance for Historic Environment Desk-bases Assessment (2020).

14.4.1.3 'Marine historic assets' are defined in the Marine (Scotland) Act 2010, Section 73 (5) as:

"vessels, vehicles, aircraft, parts of such, contents of such, buildings and other structures, caves, deposits, artefacts or any other thing or groups of things that evidence previous human activity".

14.4.1.4 Based on expert judgement and experience, the key marine archaeology and cultural heritage receptors which will inform this Inshore Scoping Report and the subsequent EIAR can be characterised as comprising three fundamental themes:

- Submerged Prehistory and Palaeolandscapes (for example, seabed and sub-seabed palaeochannels and other geomorphological features that may contain prehistoric deposits, ecofacts, and prehistoric artefacts such as stone tools) including their setting;
- Seabed assets, including maritime sites (such as shipwrecks and/or associated material including cargo, obstructions and fishermen's fasteners) and aviation sites (aircraft crash sites and/or associated debris) including their setting; and
- Intertidal heritage receptors relating to marine and maritime activity for example fish traps, piers, sea defences located within the intertidal zone, between the MHWS and Mean Low Water Springs (MLWS) marks.

14.4.1.5 The known marine archaeology and cultural heritage receptors located within the Study Area are listed in Table 14-2 and presented in Figure 14-2.

14.4.2 Designated Sites

14.4.2.1 Maritime or aviation wrecks can be protected under various legislation, including the Marine (Scotland) Act 2010, the Protection of Military Remains Act 1986 or the Ancient Monuments and Archaeological Areas Act 1979 and interference or damage to these sites is considered a criminal offence.

14.4.2.2 There are currently no known maritime or aviation sites within the study area that are subject to statutory protection from these acts, which can be used to protect marine archaeological assets of historical, archaeological or artistic value, as well as allowing military wrecks and aircraft remains to be protected.

14.4.3 Submerged Prehistory and Palaeolandscapes

14.4.3.1 Submerged palaeolandscapes are terrain that has previously been coastal or terrestrial landscapes which are currently inundated by Holocene sea level changes. During one or more phases in the past, during the Quaternary, they may have been habitable by humans and may preserve archaeological and palaeoenvironmental records of such rarity to potentially be considered of national and international archaeological interest.

14.4.3.2 Archaeological records indicate a variety of hominid species have occupied the British Isles at various times, with the earliest occupation extending back to around one million years in Southeast England (Parfitt et al., 2010). More recently, the early prehistoric archaeological and palaeoenvironmental records of modern humans, *H. sapiens*, is increasingly encountered across landscapes that are now submerged by global sea level changes (Bailey et al., 2020). Regionally, archaeological evidence for early prehistory in North and Northeast Scotland currently exists from the Late Upper Palaeolithic, following the end of the last Ice Age, from c. 15,000 years ago (Ballin, 2017).

14.4.3.3 There are currently no known submerged prehistoric assets within the study area. Baseline submerged prehistory and palaeolandscapes datasets across the UK, are in part restricted due to significant data gaps in shallow coastal waters (Bicket and Tizzard, 2015; Dawson et al., 2017).

14.4.3.4 Nearshore and shallow coastal areas around Scotland retain higher potential for encountering Late Pleistocene and Early Holocene submerged palaeolandscapes and regional baseline understanding is markedly improving (Clark et al., 2022). With the Moray FLOW Park Area being located on or in shallower water than the -20 m water depth contour, the vast majority of the Study Area is within this nearshore area. There is therefore potential for the presence of as yet undiscovered in situ palaeolandscape deposits (for example peats, estuarine and low-energy coastal sediments of archaeological interest) palaeochannels of river systems, prehistoric sites and finds located within the inundated palaeolandscapes. Any early prehistoric discoveries will be regarded of national importance.

14.4.4 Maritime and Aviation Archaeology

Maritime Archaeology

14.4.4.1 Maritime archaeological sites comprise two broad categories; the remains of vessels that have been lost as a result of stranding, foundering, collision, enemy action and other causes (for instance shipwrecks), and sites that consist of vessel-related material (for instance material that would be considered 'wreck' in terms of Merchant Shipping Act 1995).

14.4.4.2 Shipwrecks on the seabed provide insight on the types of vessels used in the past, the nature of shipping activity in the wider area and the changing usage of the marine environment through different periods. Such remains are considered more likely in sediments that promote the preservation of wreck sites (especially those constructed of wood), for instance finer grained sediments that are not subject to high levels of mobility, particularly where such sediments have seen limited recent disturbance.

14.4.4.3 Wreck-related debris includes, but is not limited to, equipment lost overboard or deliberately jettisoned such as fishing gear, ammunition and anchors or the surviving remains of a vessel such as its cargo or a ballast mound.

14.4.4.4 There is potential for discoveries of maritime craft from the Mesolithic to the modern period. Post-medieval and modern wrecks, as they were generally made of more substantial material, are more likely to have been discovered through surveys undertaken by the UKHO and others and thus recorded in the archaeological record. However, there is still potential for the discovery of previously unrecorded wreck sites, particularly of wooden wrecks, broken up wrecks or partially buried wrecks that are more difficult to detect through geophysical survey.

14.4.4.5 Shipwreck inventories and documentary sources are usually biased towards the 18th century and later when more systematic reporting began. Therefore, there are few known historical records of wrecks from the medieval or earlier periods. There is still high potential for both unknown, unrecorded vessels and reported but unlocated losses to have sunk in the Study Area.

Aviation Archaeology

14.4.4.6 Marine aviation archaeology receptors comprise the remains or associated remains of military and civilian aircraft that have been lost at sea (Wessex Archaeology, 2008). Evidence is divided into three primary time periods based on major technological advances in aircraft design: pre-1939; 1939-1945; and post-1945.

14.4.4.7 There is high potential for 20th century aircraft, particularly in relation to the Second World War (Wessex Archaeology, 2008). There were several airfields in the vicinity of the Study Area during the Second World War, with Royal Air Force (RAF) Stations Kinloss and Lossiemouth particularly proximate, along with wider activity from Axis forces based in Norway undertaking missions to mainland Scotland, and maritime patrol activities from both sides throughout the period.

14.4.4.8 Marine aircraft crash sites can retain a significant amount of material, whilst being an ephemeral target to identify, with the potential for in situ human remains. Aircraft crash sites are often difficult to identify through archaeological assessments of geophysical survey, although experience indicates material from the site, such as engines or other material may be recorded as small obstructions or anomalies.

14.4.4.9 Unlike vessels the remains of all crashed military aircraft are automatically protected under the Protection of Military Remains Act 1986 and cannot be disturbed without a licence obtained from the Joint Casualty and Compassionate Centre (JCCC), part of the MOD.

Known Seabed Assets

14.4.4.10 There are eight records within the Study Area for known seabed assets which could relate to maritime or aviation archaeological sites and/or associated material or find spots: four within the Moray FLOW-Park Area; and four within the 1 km buffer around the Moray FLOW-Park Area.

14.4.4.11 The records for these are presented in Table 14-2 and on Figure 14-2, and comprise:

- Eight wrecks, including:
  - three ‘live’ wrecks recorded as having existing identified wreckage on/under the seabed;
  - two ‘dead’ wrecks considered by the UKHO not to exist as material has not been detected during the most recent surveys (although one of these has diver footage suggesting the wreck may be preserved and is not currently classified as a live navigational hazard); and
  - three unknown wrecks recorded in the NRHE and/or Moray HER databases with no associated UKHO record.

14.4.4.12 Three of the recorded wrecks relate to named vessels or known vehicles, potentially allowing further research to be undertaken into their background, use and circumstances of loss. These included the wrecks of the fishing vessel *Briar* (2000, unknown date of sinking) and the reported locations of the wrecks of the *Industry* (2003, unknown date of sinking) and *Wansbeck* (2006, sunk in February 1900). Shipwreck inventories and documentary sources are usually biased towards the 18th century and later when more systematic reporting began. The remaining unnamed wrecks (2006) may relate to any one of the 17 maritime Recorded Losses listed within the study area (see below) or to an unreported/unrecorded wreck.

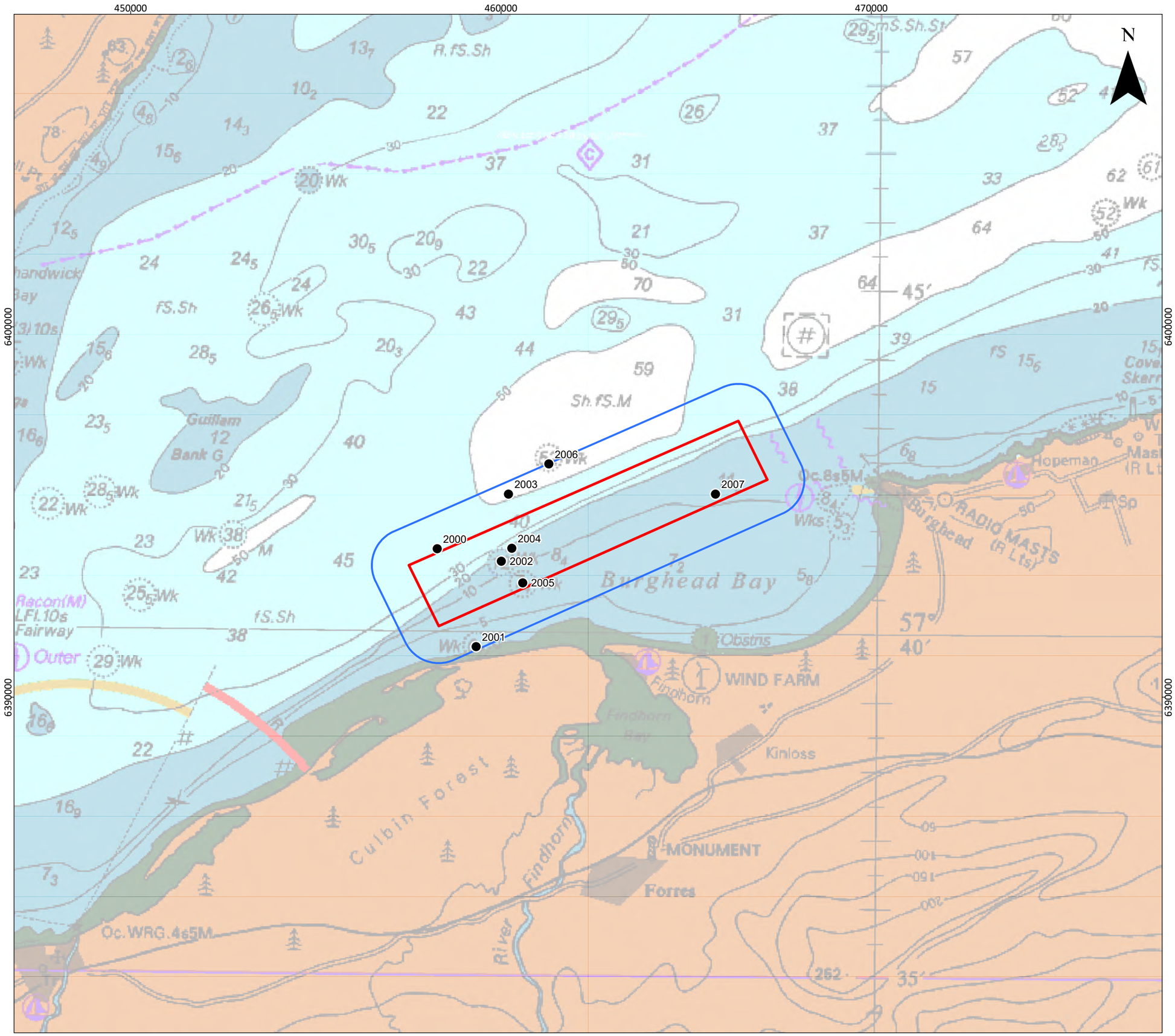
14.4.4.13 Four of the known records relate to Valentine DD (Duplex Drive) amphibious tanks lost during D-Day rehearsals at Findhorn Bay in 1944 (2002, 2004, 2005 and 2007). They are not designated sites under the PMRA 1986 as they are not aircraft or listed on the Protected Places or Controlled Sites of naval vessels but they do still have significance. While not ships, these tanks are maritime archaeological receptors due to their conversion to amphibious vehicles and relationship to important historical events of national importance. At least six tanks were recorded as being lost during these exercises, and records for four of them are within the Study Area. Three of these have been recorded in location by avocational divers within the Moray FLOW-Park Area, while the fourth (2007) is a reported location with no confirmation of being in place. One crew member (Corporal Francis Underhay) from one of these tanks is thought to have been killed when the tank sank, but it is unclear which. 2002 has been put forward as the most likely candidate. An application for these tanks to be designated as a Historic MPA has been submitted to HES and is currently under review. Further examples, generally in poorer condition than the Moray Firth examples, are present within Studland Bay off Dorset and one preserved tank is operational within a private collection.

14.4.4.14 It should also be noted that any of the unidentified sites or obstructions could relate to either shipwreck of aircraft sites and that material could still exist on or under the seabed of the sites described as ‘dead’ or ‘lifted’. The seabed sediments within the Study Area are listed as sand or muddy sand which have potential to cover and preserve archaeological material (BGS Online Viewer 2025).

Table 14-2: Known Seabed Assets Recorded in the Study Area.

WA ID	UKHO ID	NRHE ID	Description	Easting ETRS89	Northing UTM30N	Location in study area
2000	2107	321862, 311048	Wreck of British fishing vessel *Briar*, sunk unknown. Listed as obstruction, foul ground, dead. Not observed on any previous surveys but recorded by Whittaker as old wreck symbol from charts.	458276	6394010	FLOW-Park Area 1 km Buffer
2001	94556		Listed as unknown dangerous wreck 28.9 m in length, 6.7 m width and 1.8 m height from seabed. Identified in 2020 by multibeam	459327	6391366	FLOW-Park Area 1 km Buffer
2002	65359	324053	Valentine DD Tank lost by Royal Hussars during rehearsals for D-Day in 1944. Identified by multibeam and recorded with sonar length of 6.4 m, width of 3.3 m and height of 1.2 m. Previously damaged by trawl equipment. Listed as dangerous wreck.	460008	6393672	FLOW-Park Area
2003		310639	Reported location of wreck, possibly the *Industry*, recorded by Whittaker	460200	6395484	FLOW-Park Area 1 km Buffer
2004	2108	101771, 311047	Valentine DD Tank lost by Royal Hussars during rehearsals for D-Day in 1944. Recorded by divers as complete and standing c. 3.5 m above seabed. Listed as dangerous wreck, dead, by UKHO. Recorded by Whittaker as old wreck symbol from charts. Listed in Moray HER as NJ06NW0002	460290	6394022	FLOW-Park Area
2005	65362	324054	Valentine DD Tank lost by Royal Hussars during rehearsals for D-Day in 1944. Identified by multibeam and recorded with sonar length of 7.7 m, width of 4 m and height of 2 m. Listed as dangerous wreck.	460585	6393087	FLOW-Park Area
2006		310548	Reported location of wreck of *Wansbeck*, wooden ship lost in February 1900	461290	6396300	FLOW-Park Area 1km Buffer

WA ID	UKHO ID	NRHE ID	Description	Easting ETRS89	Northing UTM30N	Location in study area
2007		310911	Reported location of Valentine DD Tank lost in 1944 rehearsals for D-Day.	465790	6395484	FLOW-Park Area



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Moray FLOW-Park
Inshore Scoping Report

Marine Archaeology and Cultural Heritage Receptors

Legend

- Moray FLOW-Park
- Marine Archaeology and Cultural Heritage Study Area
- Marine Archaeology and Cultural Heritage Receptors



Notes

World Ocean Base: OceanWise, Esri, GEBCO, Garmin, NaturalVueContains Ordnance Survey data © Crown copyright and database rights (2025). OS OpenData.
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Coordinate System: WGS 1984 UTM Zone 30N

0 2.5 5 km

0 1 2 nm

Scale	Date	Drawn by	Checked by	Approved by
1:100,000 @A3	07/01/2026	KF	BS	AB

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Figure 14-2

Figure Reference: 315530_ArcPro

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Recorded Losses

14.4.4.15 Within the NRHE for Scotland and the Moray HER, there are 10 records located across the study area that relate to Recorded Losses: four maritime losses and six aviation losses.

14.4.4.16 These are records for ships or aircraft that are known to have wrecked or crashed offshore, but for which the exact locations are not known. The positional data of these records is unreliable and serves only to provide an indication of the types of vessels or aircraft that passed through the area and the wrecking incidents that are known to have occurred in the general region. Whilst the remains of these vessels or aircraft may exist somewhere on the seafloor, their location is presently unknown. As such they have not been presented on the scoping figures but are included as part of the potential maritime and aviation resource.

14.4.4.17 The maritime Recorded Losses date from the 19th and 20th centuries, with two losses in each century including a lugger, a yacht and two craft of unknown type. The causes of loss are diverse and could indicate navigational hazards or military action.

14.4.4.18 The aviation Recorded Losses are particularly important as any aircraft lost while in military service is automatically protected under the Protection of Military Remains Act 1986, and therefore the discovery of remains from any of these aircraft would be protected. The aviation Recorded Losses relate to British aircraft, all of which were lost whilst in military service during the Second World War. Five are RAF Armstrong-Whitworth Whitley bombers operating as training aircraft for bomber crews in 1941 and 1942 from RAF Kinloss and the last is an RAF Boulton-Paul Defiant which crashed in 1941.

14.4.4.19 The archaeological potential of these records will be more fully assessed in the desk-based assessment undertaken to inform the subsequent EIA process.

14.4.5 Intertidal Archaeology

14.4.5.1 Intertidal heritage assets comprise sites and material located in the area between the MHWS and MLWS marks. While the Moray FLOW-Park Area does not extend into the intertidal area, the Study Area around it does and so these receptors would be considered here. Culbin Sands, to the Southwest of the area, has been identified as having extensive potential for prehistoric occupation, as well as being the first location of the burgh of Findhorn during the medieval period when it was recorded as being a place of importance as the port for Kinloss Abbey. None of the records for this fall within the Study Area; however their location is not precise. Similarly, the record for the second burgh of Findhorn, which was lost to the sea in the early 18th century after the River Findhorn changed its course, is located just to the south of the extent of the Study Area for the Moray FLOW-Park Area.

14.4.6 Future Baseline

14.4.6.1 In line with the EIA Regulations, this Scoping includes a "description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort, on the basis of the availability of environmental information and scientific knowledge". This reflects how the baseline relevant to Marine Archaeology and Cultural Heritage is expected to evolve without the Project.

14.4.6.2 If undisturbed by the Project, there would be no predictable change to the baseline conditions discussed above beyond those caused by natural physical processes and/or natural deterioration, as well as those associated with potential changes to the coastline or sediment processes caused by climate change (as outlined in HES's Climate Action Plan- HES 2019c).

14.5 Embedded Mitigation

14.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 7-7 and in the Commitments Register (Appendix A) and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 14-3: The proposed mitigation measures relevant to Marine Archaeology and Cultural Heritage receptors

Mitigation Code	Mitigation Measure
C11	Development of and adherence to a Development Specification and Layout Plan (DSLP) to confirm final development specification and layout.
C25	Development of and adherence to a Written Scheme of Investigation (WSI) setting out the agreed mitigation measures to be in place during construction, operation and maintenance and decommissioning, including where necessary Archaeological Exclusion Zones (AEZs), archaeological review of geophysical and/or geotechnical datasets, micrositing of project infrastructure, ground-truthing of anomalies and reporting of results.
C26	Development of and adherence to a Protocol for Archaeological Discoveries (PAD) as part of the WSI setting out the process of reporting on discovery of any unexpected marine archaeology during construction, operation and maintenance and monitoring of works.
C33	Provision of scour protection where there is potential for scour to develop around infrastructure (foundations, moorings).
C43	Development of and adherence to an Operation and Maintenance Programme (OMP) to safeguard environmental interests during operation and maintenance.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.
C50	The Project will avoid all wrecks as identified by the Archaeological review and site surveys.
C52	The Project will develop a permanent no infrastructure channel in the FLOW Park to support vessel transit, safe access through the site, avoid and respect seabed wrecks and potential war graves. The size and location are currently being developed in consultation with regulators and stakeholders and will be finalised during the EIA Phase. Additional temporary access channels will be considered and developed in direct consultation with marine stakeholders during the EIA Phase.

14.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

14.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon Marine Archaeology and Cultural Heritage receptors. These measures will be consulted upon with key stakeholders and consultees and stakeholders throughout the EIA process.

14.6 Scoping of Impacts

14.6.1.1 The potential impacts categories of relevance to marine archaeology and cultural heritage assessments are presented below in Table 14-4.

Table 14-4: Potential Impact Categories Associated with Marine Archaeology and Cultural Heritage.

Impact Category (for seabed, sub-seabed and intertidal marine heritage assets)	**Definitions associated with Impact Categories**
Direct	Direct impacts can include direct damage to marine archaeological receptors, structures, features, deposits and artefacts, and the disturbance of relationships between these elements and the wider surroundings. The setting of known and named wreck sites may also be impacted and in turn this could potentially affect the significance of such receptors.
Indirect	The indirect interactions upon the known and potential marine archaeological receptors occur as a result of changes to hydrodynamic patterns and sediment transport regimes, where these changes have occurred as a consequence of activities and structures associated with the project activities. Scour has a negative or adverse impact on marine archaeological receptors whereby it can expose material which leads to increased rates of deterioration through biological, chemical and physical processes. Alternatively, the redeposition of sediments following settling of sediment plumes can be beneficial to the preservation of marine archaeological receptors as greater sediment cover increases the potential for anaerobic environment, which inhibits a range of biological, chemical and physical degradation processes.

14.6.1.2 The potential activities associated with the various development phases of the Project which could directly and indirectly impacts marine and intertidal archaeological receptors are presented in Table 14-5.

Table 14-5: Potential Impact Categories Associated with Marine Archaeology and Cultural Heritage.

Impact Category	Potential Development Activities and Associated Impacts to Archaeological Receptors
Construction	
Direct	Pre-installation intrusive seabed and intertidal surveys (such as geotechnical coring) and seabed preparation (such as seabed levelling or ground reinforcement) and clearance (such as UXO clearance); Installation of: • Foundation anchors and their scour protection (if required); and • Other infrastructure if tethered to the seabed, such as inshore wave buoys and wind measurement devices Use of vessels throughout the Project such as jack-up barges, workboats or specialist foundation anchor installation vessels.
Indirect	• Scour associated with changes to hydrodynamic regimes and seabed sediment distributions from construction activities and structures; • Sediment deposition or the placement of non-burial scour protection on the seabed; and • Seabed sediment movement caused by propellers of construction vessels.
O&M	
Direct	Direct damage may occur where operational and maintenance activities contact the seabed beyond the area already impacted during the construction phase.
Indirect	Indirect damage may occur as a result of sediment deposition or the placement of scour protection on the seabed, seabed sediment movement caused by propellers of operations vessels and/or foundation anchor maintenance and repair that could lead to an alteration of sediment transport regimes.
Decommissioning	
Direct	Direct damage may occur where decommissioning activities contact the seabed beyond the area already impacted during the construction phase.
Indirect	Indirect damage may occur as a result of the removal of foundation anchors or associated infrastructure leading to an alteration of sediment transport regimes and seabed sediment movement caused by propellers of decommissioning vessels.

14.6.1.3 An initial assessment of the likelihood of effects on Marine Archaeology and Cultural Heritage due to Project activities for the Scoping stage of the EIA process is presented in Table 14-4. This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Section 14.5, together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for Marine Archaeology and Cultural Heritage effects associated with Project activities; relevant policy; and the professional judgement of qualified Marine Archaeology and Cultural Heritage specialists.

Table 14-6: Scoping assessment for Marine Archaeology and Cultural Heritage

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction and Decommissioning			
Physical disturbance activities causing direct damage and/or loss to submerged/buried prehistoric landscapes.	C11, C25, C26, C46	Scoped In	Any of the pre-installation clearance activities, installation of proposed infrastructure, decommissioning activities and vessel usage that impact the seabed or sub-seabed in any manner have the potential to result in the damage/loss of submerged prehistoric landscape deposits, features or finds, if present. Effects are considered to be permanent.
Physical disturbance activities causing direct damage and/or loss to known and/or potential seabed/sub-seabed marine and intertidal heritage receptors (maritime and aviation).	C11, C25, C26, C46	Scoped In	Any of the pre-installation clearance activities, installation of proposed infrastructure, decommissioning activities, and vessel usage that impact the seabed or sub-seabed in any manner have the potential to result in the damage/loss of known or potential marine and intertidal sites, features or finds, if present. Effects are considered to be permanent.
Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes leading to sediment	C11, C25, C26, C33, C46	Scoped In	Any of the pre-installation clearance activities, installation of proposed infrastructure, decommissioning activities, and vessel usage may cause indirect changes to hydrodynamic and sedimentary regimes leading to sediment reduction on the seabed and scour, potentially exposing receptors leading to increased rates of deterioration through biological, chemical and physical processes.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
reduction on the seabed.			
Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes leading to sediment accretion on the seabed.	C11, C25, C26, C33, C46	Scoped In	Any of the pre-installation clearance activities, installation of proposed infrastructure, decommissioning activities, and vessel usage may cause indirect changes to hydrodynamic and sedimentary regimes may cause sediment to cover receptors inhibiting a range of biological, chemical and physical degradation processes (beneficial effect).
Temporary or permanent change to the setting of heritage assets.	C11, C25, C26, C46	Scoped In	The setting of known and named wreck (and aviation) sites may be impacted by activities associated with the foundation anchors, mooring systems and other infrastructure, and in turn this could potentially affect the significance of such seabed features. Effects could be temporary or permanent.
O&M			
Physical disturbance activities causing direct damage and/or loss to submerged/buried prehistoric landscapes.	C25, C26, C43	Scoped In	Any of the O&M activities or vessel usage that impact the seabed or sub-seabed in any manner have the potential to result in the damage/loss of submerged prehistoric landscape deposits, features or finds, if present. Effects are considered to be permanent.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Physical disturbance activities causing direct damage and/or loss to known and/or potential seabed/sub-seabed marine and intertidal heritage receptors (maritime and aviation).	C25, C26, C43	Scoped In	Any of the O&M activities or vessel usage that impact the seabed or sub-seabed in any manner have the potential to result in the damage/loss of known or potential marine and intertidal sites, features or finds, if present. Effects are considered to be permanent.
Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes leading to sediment reduction on the seabed.	C25, C26, C33, C43	Scoped In	Any of the O&M activities or vessel usage may cause indirect changes to hydrodynamic and sedimentary regimes leading to sediment reduction on the seabed and scour, potentially exposing receptors leading to increased rates of deterioration through biological, chemical and physical processes.
Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes leading to sediment accretion on the seabed.	C25, C26, C33, C43	Scoped In	Any of the O&M activities or vessel usage may cause indirect changes to hydrodynamic and sedimentary regimes may cause sediment to cover receptors inhibiting a range of biological, chemical and physical degradation processes (beneficial effect).

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Temporary or permanent change to the setting of heritage assets.	C25, C26, C43	Scoped In	The setting of known and named wreck (and aviation) sites may be impacted by activities associated with O&M activities, and in turn this could potentially affect the significance of such seabed features. Effects could be temporary or permanent.

14.7 Potential Cumulative Effects

14.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment. For Marine Archaeology and Cultural Heritage, cumulative interactions for direct impacts are unlikely. However cumulative interactions may occur with regards to indirect effects, such as effects to local hydrodynamic and sediment transport regimes. These will need to be assessed within the Inshore EIA through Chapter 6: Marine and Coastal Processes and the results discussed in relation to Marine Archaeology and Cultural Heritage to assess the significance of these impacts upon the known and unknown marine historic environment within the study area.

14.7.1.2 The CEA for Marine Archaeology and Cultural Heritage will consider the MDS for each of the projects, plans and activities in line with the methodology outlined in Chapter 4: EIA Methodology.

14.8 Potential Transboundary Effects

14.8.1.1 No transboundary impacts on marine physical process pathways are anticipated to occur as a result of the Project activities during construction, O&M or decommissioning. Any predicted impacts on these pathways will largely be localised to within the study area and will not give rise to effects on the marine archaeology and cultural heritage within the marine environment beyond UK waters. Therefore, it is proposed to scope out transboundary impacts with regards to Marine Archaeology and Cultural Heritage.

14.9 Proposed Approach to EIA

14.9.1 Guidance

14.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of Marine Archaeology and Cultural Heritage receptors will also comply with the following guidance documents where they are specific to this topic:

- Managing Change in the Historic Environment: Conserving our Underwater Heritage (HES, 2025).
- Managing Lithic Scatters: Archaeological Guidance for Planning Authorities and Developers (English Heritage (now Historic England), 2000);
- Military Aircraft Crash Sites: Guidance on their significance and future management (English Heritage (now Historic England), 2002);

- The Code of Practice for Seabed Development (Joint Nautical Archaeology Policy Committee, 2006);
- Historic Environment Guidance for the Offshore Renewable Energy Sector (Wessex Archaeology, 2007);
- Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage (now Historic England), 2008);
- Guidance for Assessment of Cumulative Impacts on the Historic Environment from Offshore Renewable Energy (Oxford Archaeology and George Lambrick Archaeology and Heritage, 2008);
- Our Seas – A shared resource: High level marine objectives (DEFRA, 2009);
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather, 2011);
- Marine Geophysics: Data Acquisition, Processing and Interpretation Guidance Notes (2nd Edition) (James et al., 2013);
- Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate, 2014);
- Scotland's National Marine Plan (NMP): A Single Framework for Managing Our Seas (Scottish Government);
- Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record (Historic England, 2015);
- Managing Change in the Historic Environment - Setting (HES, 2016);
- Marine Scotland Consenting and Licensing Guidance (Marine Scotland, 2018);
- Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland (HES and Scottish Natural Heritage (SNH), 2018);
- Marine Protected Areas in the Seas around Scotland – Guidelines on the selection, designation and management of Historic Marine protected Areas (HES, 2019a);
- Historic Environment Policy for Scotland (HES, 2019b);
- Designation Policy and Selection Guidance (HES, 2020);
- Standard and Guidance for Historic Environment Desk-based Assessment (CIfA, 2020);
- SEA of Sectoral Marine Plan for Offshore Wind Energy – Strategic Environmental Assessment Environmental Report' (ABPmer, 2019);
- Offshore Wind Energy in Scottish Waters: Regional Locational Guidance (ABPmer, 2020);
- Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021);
- Sectorial Marine Plan for Offshore Wind Energy (updated) – Strategic Environmental Assessment Screening and Scoping Report (ABPmer, 2023);
- Curating the Palaeolithic (Historic England, 2023); and

- Managing Change in the Historic Environment: Conserving our Underwater Heritage (HES, 2025).

14.9.2 Additional Data Sources

14.9.2.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Inshore Scoping Report. Project-specific survey outputs will be used to enhance the understanding of the baseline conditions. These may include the following across the Moray FLOW-Park Area:

- Project-specific marine geophysical datasets comprising sub-bottom profiler (sub-bottom), sidescan sonar (SSS), high-density magnetometer (Mag.) and Multi-beam Bathymetry Echo Sounder (Multibeam);
- Project-specific marine geotechnical data obtained from the assessment of boreholes, vibrocores and Cone Penetration Tests (CPT);
- Remotely Operated Vehicle (ROV) data/images;
- Drop down Camera images;
- Existing geotechnical, geophysical and geoarchaeological data;
- Available Light Detection and Ranging (LiDAR) and aerial photography;
- Online resources including the BGS Geology of Britain Viewer;
- Relevant background mapping from the area including Admiralty Charts from the UKHO, historic maps and Ordnance Survey; and
- Published and unpublished literature (including a detailed review of reports for previous fieldwork carried out within the proximity to the Study Area).

14.9.2.2 Geophysical and geotechnical surveys undertaken across the Study Area can be archaeologically assessed to provide a fuller assessment of the known Marine Archaeology and Cultural Heritage receptors and to identify anthropogenic geophysical anomalies and the presence of submerged palaeolandscape deposits, with previously unknown or unconfirmed locations. The marine geophysical surveys will be conducted to appropriate professional standards for archaeological review (e.g. outlined in James et al., 2025) and support post-consent mitigation strategies (The Crown Estate, 2021, HES, 2025).

14.9.2.3 Geotechnical surveys conducted for the Project primarily provide seabed information for engineering design solutions and can directly inform the baseline understanding of submerged palaeolandscapes features and Quaternary sediments of paleoenvironmental importance (e.g. Gribble and Leather, 2011). Such assessments would inform whether submerged palaeolandscape deposits and prehistoric archaeological remains are present in the Moray FLOW-Park Area.

14.9.3 Assessment Methodology

14.9.3.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

14.9.3.2 Methodology relating specifically to marine archaeology receptors, and beyond the scope of that presented in Chapter 4: EIA Methodology will be presented below.

14.9.3.3 Following submission of the Inshore Scoping Report, the baseline for marine archaeology and cultural heritage will be further developed with a desk-based assessment conducted to identify the known and potential marine cultural heritage baseline resource within the study area.

14.9.3.4 This will be enhanced by the archaeological review of project-specific marine geophysical and geotechnical datasets as available to determine the status of known, and potential for currently unknown, marine archaeological receptors. The desk-based baseline assessment would be conducted to appropriate professional standards (CIfA, 2020). The importance (or value) of marine historic environment assets along with the significance of their setting will also be evaluated to inform the assessment. The level of importance assigned depends on a number of factors, including intrinsic, contextual and associative characteristics. This will be based on the following guidance documents (and other relevant, specific topic/technical guidance as appropriate):

- Designation Policy and Selection Guidance, including Annexes (HES, 2020);
- Managing Change in the Historic Environment: Conserving our Underwater Heritage (HES, 2025).

14.9.3.5 The assessment will address the identification of any Marine Archaeology and Cultural Heritage assets on the seabed, so that avoidance of impact can be embedded in the project design, and if avoidance is not practicable, then an evidence-based approach will be used to design suitable mitigation strategies in consultation with MD-LOT, via an agreed WSI.

14.9.3.6 All potential impacts on Marine Archaeology and Cultural Heritage assets identified within this Chapter and confirmed in the EIAR will be Scoped into the EIA process (see Table 6-4).

14.9.3.7 Transboundary effects are recommended at this stage to be Scoped Out of EIA.

14.9.3.8 The assessment will be based on analysis of desk-based sources (including an ArcGIS Pro based gazetteer) and geophysical and geotechnical data collected specifically for the Project. The assessment of the magnitude of impact and the significance of effect on marine historic environment assets will be based on HES and SNH's Environmental Impact Assessment Handbook (2018) and is detailed below, to be agreed in consultation with statutory stakeholders and curators.

14.9.3.9 In addition to the measures presented in Section 14.5, additional commitments or mitigation measures are proposed to ensure that where impact is unavoidable, further information is obtained for posterity or material is recovered and preserved, thus further informing the archaeological record. Additional measures include:

- Mitigating and offsetting impacts to submerged palaeolandscapes features such as palaeochannels may occur through further investigation of existing geotechnical samples or undertaking further samples, which can enhance the baseline knowledge for an area;
- Archaeological Exclusion Zones will not be proposed for archaeological features of lower archaeological value; however such features will be avoided where practicable. Micro-siting of the Project infrastructure and construction footprint (including vessels and equipment), where practicable, will help to avoid seabed features, such as geophysical anomalies of archaeological potential;
- Where micro-siting is not possible, further assessment will be undertaken to confirm the nature of the seabed anomaly. Methods of ground truthing assessment could include ROV or diver survey and could be undertaken in conjunction with other surveys associated with the Project, for example UXO or obstruction surveys;
- The proposed methodology will be presented in a Method Statement and agreed through consultation with MD-LOT; and
- Once the design has been confirmed, it may be possible to ascertain measures to protect Marine Archaeology and Cultural Heritage assets that could be indirectly impacted, for instance by scouring, exposure or erosion, caused by direct impacts to the seabed. For instance, protection measures for scour. This will be confirmed following review of Chapter 6: Marine and Coastal Processes.

14.9.4 Criteria for Assessing Significance

14.9.4.1 The Historic Environment Policy for Scotland (HES, 2019b: 4-5) describes a heritage asset as a physical element of the historic environment – a building, monument, site, place, area or landscape identified as having cultural significance. Cultural significance is defined as comprising aesthetic, historic, scientific or social value for past, present or future generations and can be embodied in a place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.

14.9.4.2 The significance of impacts will be determined with reference to the following factors (HES and SNH, 2018):

- The asset's value (sensitivity);
- The degree of change in its cultural significance resulting from the Project (magnitude of impact);
- The duration or frequency of the impact; and
- The likelihood of the impact occurring.

14.9.4.3 For the significance of any given impact to be fully understood, the sensitivity of any receptors that may be impacted need to be considered along with the magnitude of the effect. The criteria used to assess the significance of an impact is presented below.

Sensitivity

14.9.4.4 The sensitivity of a historic environment receptor is a function of its capacity to accommodate change and reflects its ability to recover if it is affected. Based on HES and SNH's Environmental Impact Assessment Handbook (HES and SNH, 2018), the sensitivity of the receptor will be assessed with regard to the following factors:

- Value – a measure of the receptor's importance, rarity and worth;
- Adaptability – the degree to which a receptor can avoid or adapt to an effect;
- Tolerance – the ability of a receptor to accommodate temporary or permanent change without significant negative impact; and
- Recoverability – the temporal scale over and extent to which a receptor will recover following an effect.

14.9.4.5 Archaeological receptors cannot typically adapt, tolerate or recover from physical impacts resulting in material damage or loss caused by development. Consequently, the sensitivity of each receptor is predominantly quantified only by their value. Where receptors are considered to be capable of adapting to, tolerating or recovering from indirect impacts, these factors will also be incorporated into an assessment of their sensitivity.

14.9.4.6 According to the Environmental Impact Assessment Handbook (HES and SNH, 2018: 175), value of a heritage asset reflects the relative importance of the asset as an element of the historic environment and is most commonly categorised as international, national, regional and local.

14.9.4.7 It should be noted that, while designation indicates that a receptor has been identified as being of high value, non-designated archaeological assets are not necessarily of lesser value. Consequently, non-designated receptors that can be demonstrated to be of equivalent value to designated sites are considered to be of equivalent significance.

14.9.4.8 The nature of the marine archaeological resource is such that there is a high level of uncertainty concerning remains on the seabed. Often data regarding the nature and extent of sites are limited or out of date and, as such, the precautionary principle has been applied to all aspects of archaeological impact assessment.

14.9.4.9 The sensitivity (assessed as value for marine archaeology) of known archaeological assets will be assessed using professional judgement informed by criteria provided in Table 14-7 (based on HES and SNH, 2018: 185) below.

Table 14-7: Criteria to Assess Archaeological Sensitivity.

Sensitivity	Criteria
High	Assets valued at an international or national level, for example, scheduled monuments, historic marine protected areas and non-designated assets that meet the relevant criteria for designation in the opinion of the assessor. Assets have the high potential to contribute to knowledge and understanding and/or public engagement. All other wrecked ships and aircraft with statutory protection under the Protection of Wrecks Act 1973 (section 2), Ancient Monuments and Archaeological Areas Act 1979 or Protection of Military Remains Act 1986, plus as-yet undesignated sites that are demonstrably of equivalent archaeological value. Submerged Palaeolandscape features with demonstrable potential to include artefactual and/or palaeoenvironmental material, possibly as part of a prehistoric site or landscape.

Sensitivity	Criteria
Medium	Assets valued at a regional level, for example, non-designated assets of similar value in the opinion of the assessor. Assets have the moderate potential to contribute to knowledge and understanding and/or public engagement. Includes wrecks of ships and aircraft that do not have statutory protection or equivalent significance, but have moderate potential based on a formal assessment of their importance in terms of build, use, loss, survival and investigation. Submerged Palaeolandscape features with moderate potential to contribute to an understanding of the palaeoenvironment.
Low	Assets valued at a local level, for example, non-designated assets of similar value in the opinion of the assessor. Assets have the low potential to contribute to knowledge and understanding and/or public engagement. Includes wrecks of ships and aircraft that do not have statutory protection or equivalent significance, but have low potential based on a formal assessment of their importance in terms of build, use, loss, survival and investigation. Submerged Palaeolandscape features with low potential to contribute to an understanding of the palaeoenvironment.
Unknown	There is not presently enough information available about the site to assess its value.

Magnitude

14.9.4.10 In accordance with HES and SNH (2018: 184), the assessment of magnitude will be led by professional judgement since cultural heritage impacts are rarely quantifiable. In lieu of the Project's own criteria for magnitude, the criteria outlined in Table 14-8 will be utilised for the assessment of marine archaeological heritage assets.

Table 14-8: Criteria to Assess Magnitude.

Magnitude	Adverse	Beneficial
Substantial	Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of its cultural significance, such that it may no longer be considered a heritage asset.	Preservation of the asset in situ where it would be completely or almost completely lost in the do-nothing scenario.
Moderate	Changes to the elements of the fabric or setting of the heritage asset that contribute to its cultural significance such that this is substantially altered.	Changes to key elements of the asset's fabric or setting that result in its cultural significance being preserved, where they would otherwise be lost, or restored.
Slight	Changes to the elements of the fabric or setting of the heritage asset that contribute to its cultural significance such that this is slightly altered.	Changes that result in elements of the asset's fabric or setting that detract from its cultural significance being removed.
Negligible	Changes to fabric or setting that leave significance unchanged.	

Significance of Impact

14.9.4.11 The significance of impact (adverse or beneficial) on an archaeological receptor, whether direct or indirect, is determined as a combination of the sensitivity (value) of the receptor and the measures of the magnitude of the effect. The significance of impact matrix is presented in Chapter 4: EIA Methodology, however it is not a substitute for professional judgement and interpretation, particularly where the sensitivity or effect magnitude levels are not clear or are borderline between categories.

14.10 Scoping Questions

14.10.1.1 The following Scoping questions refer to the Marine Archaeology and Cultural Heritage Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the study area defined for Marine Archaeology and Cultural Heritage?
- Do you agree with the use of those data listed in Section 14.3, and any additional anticipated data listed in Section 14.9, being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?

- Do you agree that all receptors related to Marine Archaeology and Cultural Heritage have been identified?
- Do you agree with the Scoping in and out of impact pathways in relation to Marine Archaeology and Cultural Heritage?
- Do you agree with the assessment of transboundary effects in relation to Marine Archaeology and Cultural Heritage?
- Do you agree with the assessment of cumulative effects in relation to Marine Archaeology and Cultural Heritage?
- Do you agree with the proposed assessment methodology for Marine Archaeology and Cultural Heritage?

15 Military and Civil Aviation

15.1 Introduction

15.1.1.1 This Chapter of the Offshore Scoping Report identifies the Military and Civil Aviation receptors of relevance to the Project and considers the potential impacts from the construction, O&M and decommissioning of the Project on Military and Civil Aviation receptors up to MHWS.

15.1.1.2 This Chapter should be read alongside the following other chapters:

- Shipping and Navigation;
- Seascape, Landscape and Visual Impact Assessment; and
- Infrastructure and Other Users

15.2 Study Area

15.2.1.1 The military and civil aviation study area is defined by the Offshore Scoping Array Area footprint, plus an appropriate buffer. This ensures that all airspace within the vicinity of the Moray FLOW-Park Area is considered within this Scoping Report (Figure 15-1).

15.2.1.2 The typical operating range for Primary Surveillance Radars (PSRs) used at civil and military airfields is approximately 40 to 60 nautical miles (nm). Therefore, all radar-equipped airfields located within 60 nm of the Moray FLOW-Park Area are included in the study area. In addition, en-route radars operated by NATS (En-Route) plc (NERL) and military Air Defence (AD) radars are designed to provide coverage beyond 60 nm. Therefore, any such radar with potential Radar Line of Sight (RLoS) to the foundations within the Moray FLOW-Park Area is also considered within the study area.

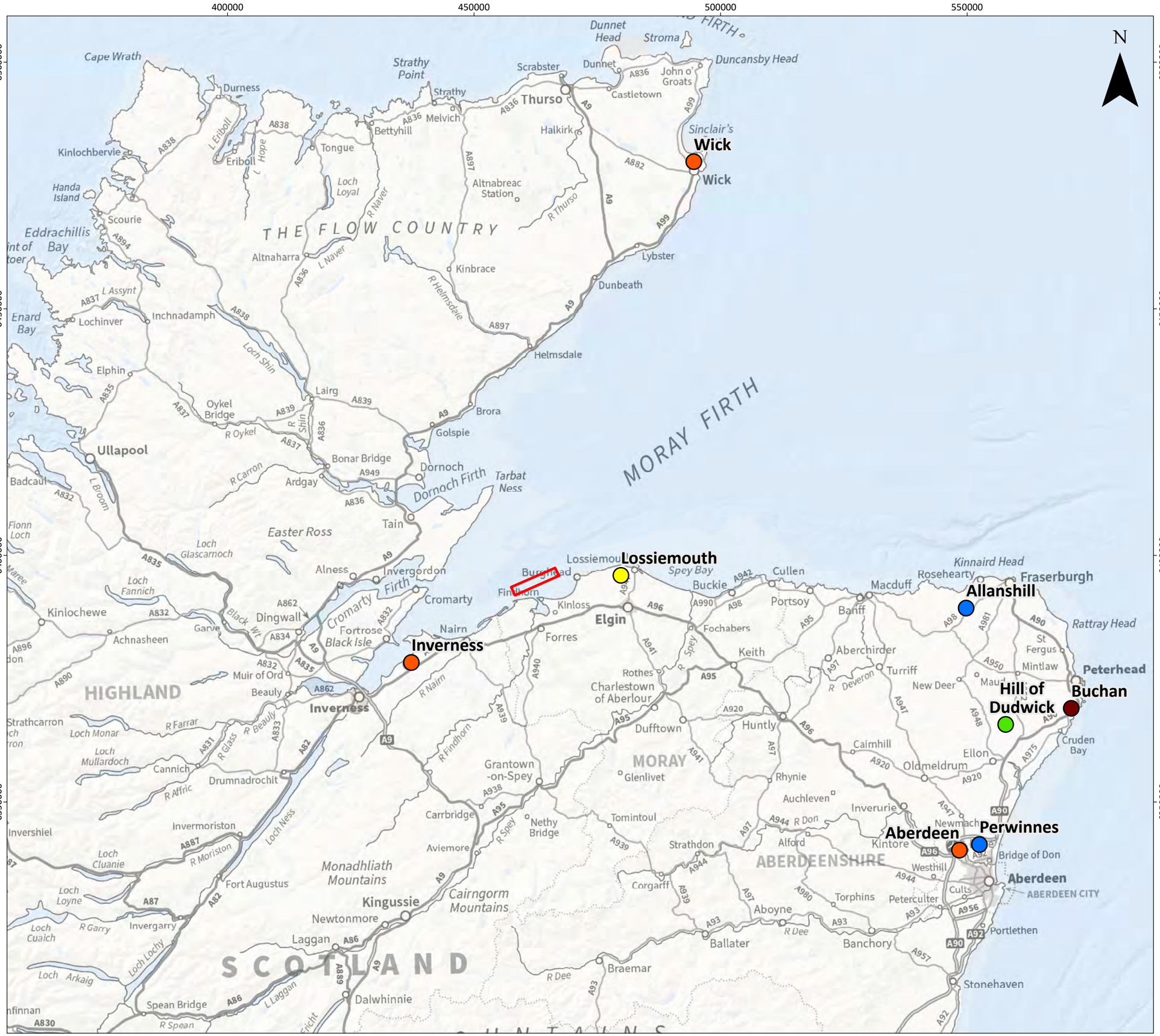


Figure Reference: MFP_AVI_Fig15-1_StudyArea_v1

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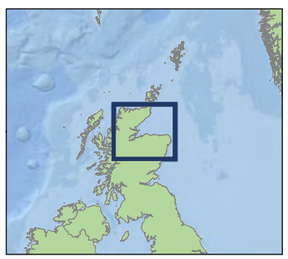
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Moray FLOW-Park
Inshore Scoping Report

Airports and Radars within the Military and Civil Aviation Study Area

Legend

- Moray FLOW-Park
- Civil Airport
- Military Airfield
- Air Defence Radar
- NERL Radar
- Weather Radar



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 20 40 km

0 10 20 nm

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Figure 15-1

15.3 Data Sources to Inform the EIA Baseline Characterisation

15.3.1.1 For the purposes of this Offshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this Military and Civil Aviation Chapter are presented in Table 15-1.

Table 15-1: Key sources of Military and Civil Aviation data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
UK Military Aeronautical Information Publication (AIP), MOD, 2025	The main resource for information on flight procedures at all military aerodromes.	Full coverage
CAP 032 UK AIP, CAA, 2025	Contains information on facilities, services, rules, regulations, and restrictions in UK airspace.	Full coverage
Wind Farm Self-Assessment Maps, NATS, 2012	Maps provided by NATS to ascertain potential impact of WTGs on their en-route electronic infrastructure.	Full coverage

15.4 Description of Baseline Environment

15.4.1.1 An initial desk-based review of literature and available data sources (see Table 15-1) has been undertaken to support this Inshore Scoping Report. The findings of this research are presented below in order to provide an understanding of the Project environment and inform the Inshore Scoping process.

15.4.1.2 The key military and civil aviation receptors which will inform this Inshore Scoping Report include:

- NATS En Route facilities;
- MOD;
- Other aviation activities (helicopter traffic); and
- Meteorological radio activities.

15.4.1.3 Receptors associated with civil aerodromes and airspace management are not relevant to this military and civil aviation impact assessment due to the height of the foundations not exceeding significant height (see Paragraph 15.4.2.2). Further details on the Project design are presented in Chapter 3: Project Description.

15.4.2 NATS En Route Facilities

15.4.2.1 The Moray FLOW-Park Area is out-with the NATS detailed primary and secondary radar protected areas and does not overlap with any en-route navigation aids area around Inverness Airport, which is located approximately 26 km southwest of the Project (Figure 15-1).

15.4.2.2 Through extensive consultation, HIAL have confirmed that there will be no impacts on any of their aviation receptors, as detailed in Table 15-3.

15.4.3 Ministry of Defence

15.4.3.1 RAF Lossiemouth is the closest military airfield the Project, located approximately 12 km east of the Moray FLOW-Park (Figure 15-1).

15.4.3.2 Through extensive consultation, the DIO have confirmed that there will be no impacts on any of their military or aviation receptors, as detailed in Table 15-3.

15.4.4 Helicopter Operations

15.4.4.1 Helicopter operations have been screened out of this impact assessment as no helicopter use is proposed or required during construction, operation and maintenance and decommissioning.

15.4.5 Meteorological Radars Activities

15.4.5.1 The closest met office weather radar to the Moray FLOW-Park Area is the Hill of Dudwick in Aberdeenshire, 101 km southeast of the Project.

15.5 Embedded Mitigation

15.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 15-2 and in the Embedded Commitments Register (Appendix A). These will likely evolve over the development process as the EIA progresses, and in response to stakeholder consultation.

Table 15-2: Proposed Embedded Commitment measures relevant to Military and Civil Aviation receptors

Mitigation Code	Embedded Commitment/Mitigation
C16	Development of and adherence to a Lighting and Marking Plan (LMP). This will ensure navigational safety and the safe marking and lighting of the Development.
C28	Development of and adherence to an Emergency Response Cooperation Plan (ERCoP) to identify measures in place to support emergency response. Prepared in line with Marine Coastguard Agency guidance.
C35	Navigational lighting of the Project (Inshore) will not be exhibited, altered or discontinued without the statutory sanction of the Commissioners of Northern Lighthouses.
C39	Foundations within the Moray FLOW-Park will be limited to 30m ASL.
C42	Appropriate depiction on UKHO Admiralty Charts. This will involve provision of the positions and heights of structures to the UKHO, MoD and DGC.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.

15.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

15.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon Military and Civil Aviation receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

15.6 Scoping of Impacts

15.6.1.1 An initial assessment of the likelihood of effects on Military and Civil Aviation due to Project activities for the Scoping stage of the EIA process is presented in Table 15-3. This assessment is based on a combination of the following:

- The definition of the Project at the Scoping stage;
- Embedded mitigation (as presented in Section 15.5, together with the means by which it will be secured);
- The level of understanding of the baseline at the present Scoping stage; and
- The existing evidence base for Military and Civil Aviation effects associated with Project activities and relevant policy.

Table 15-3: Scoping assessment for Military and Civil Aviation

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction and Decommissioning			
Creation of an aviation obstacle environment	*N/A*	Scoped Out	Following extensive consultation, HIAL have confirmed that infrastructure up to 40 m (therefore including the 30 m foundations) will have no impacts on any Instrument Flight Procedures (IFP), Optical Landing Systems (OLS) or Technical Aids. As the foundations do not exceed 100 m, there is no mandatory requirement to notify the Civil Aviation Authority (NATS, 2026).
Increased air traffic in the area related to wind farm activities	*N/A*	Scoped Out	There is no air traffic associated with the development.
Impact on civil PSRs	*N/A*	Scoped Out	The proposed FLOW-Park foundations have an approximate maximum height of 30 m above water level, which is significantly below the threshold at which marine structures pose a constraint to civil or military aviation activity. Initial RLoS studies indicate that the 30 m foundations will not interfere with RAF Lossiemouth, due to existing variance in local topography exceeding the foundation height. At this height, the structures also do not present a collision risk, do not infringe safeguarded airspace, and are not of a scale that would give rise to material interference with aviation radar or navigation systems. The formal response from the DIO is that obstacles over 91.4 m are of particular concern. Therefore, it can be concluded that the presence of 30 m foundations will not result in any significant impacts on radar infrastructure.
Impact on military air AD PSRs	*N/A*	Scoped Out	

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Impact to Met Office Radars	*N/A*	Scoped Out	The difference in elevation and existing variance in local topography which exceeds the foundation height will not result in significant impacts.
O&M			
Creation of an aviation obstacle environment	*N/A*	Scoped Out	Following extensive consultation, HIAL have confirmed that infrastructure up to 40 m (therefore including the 30 m foundations) will have no impacts on any Instrument Flight Procedures (IFP), Optical Landing Systems (OLS) or Technical Aids. As the foundations do not exceed 100 m, there is no mandatory requirement to notify the Civil Aviation Authority (NATS, 2026).
Increased air traffic in the area related to wind farm activities	*N/A*	Scoped Out	There is no air traffic associated with the development.
Impact on civil PSRs	*N/A*	Scoped Out	The proposed FLOW-Park foundations have an approximate maximum height of 30 m above water level, which is significantly below the threshold at which marine structures pose a constraint to civil or military aviation activity. Initial RLoS studies indicate that the 30 m foundations will not interfere with RAF Lossiemouth, due to existing variance in local topography exceeding the foundation height. At this height, the structures also do not present a collision risk, do not infringe safeguarded airspace, and are not of a scale that would give rise to material interference with aviation radar or navigation systems. The formal response from the DIO is that obstacles over 91.4 m are of particular concern. Therefore, it can be concluded that the presence of 30 m foundations will not result in any significant impacts on radar infrastructure.
Impact on military air AD PSRs	*N/A*	Scoped Out	

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Impact to Met Office Radars	*N/A*	Scoped Out	The difference in elevation and existing variance in local topography which exceeds the foundation height will not result in significant impacts.

15.7 Potential Cumulative Effects

15.7.1.1 There is no potential for cumulative impacts upon military and civil aviation receptors due to construction, O&M, and decommissioning impacts of the Project not likely to be significant, with no recognised impact pathways (See Table 17-3).

15.8 Potential Transboundary Effects

15.8.1.1 There is no potential for transboundary impacts upon military and civil aviation receptors due to construction, O&M, and decommissioning impacts of the Project not likely to be significant, with no recognised impact pathways (See Table 17-3).

15.9 Proposed Approach to EIA

15.9.1.1 As there are no likely significant effects on military and civil aviation receptors, it is proposed that this topic will be scoped out entirely from the EIA Report.

15.10 Scoping Questions

15.10.1.1 The following Scoping questions refer to the Military and Civil Aviation Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree that no likely significant effects would occur based on a maximum foundation height of 30 m (above sea level)?
- Do you agree that receptors within the military and civil aviation study area are of low sensitivity to the proposed activities?
- Do you agree that the assessment of military and civil aviation receptors should be scoped out of the EIA Report?

16 Seascape, Landscape and Visual Resources

16.1 Introduction

16.1.1.1 This Chapter of the Inshore Scoping Report identifies the seascape, landscape and visual receptors of relevance to the Project and considers the potential impacts from the construction, Operation and Maintenance (O&M) and decommissioning of the Project on the seascape, landscape and visual receptors within the study area.

16.1.1.2 This Chapter should be read alongside the following other chapters:

- Chapter 3: Project Description;
- Chapter 14: Marine Archaeology and Cultural Heritage; and
- Chapter 17: Socio-economics, Tourism and Recreation.

16.2 Study Area

16.2.1.1 The Seascape, Landscape and Visual Impact Assessment (SLVIA) study area (Figure 16-1) is defined by the Moray FLOW-Park area in addition to a 20 km radius buffer around the Moray FLOW-Park area where the FLOW Foundations may be located. Informed by professional judgement and predicted patterns of visibility illustrated on Zone of Theoretical Visibility assessments (ZTVs) (Figure 16-2 and Figure 16-3), the 20 km SLVIA study area is defined as the outer limit of the area where significant effects could occur. Based on previous offshore and inshore renewable energy experience, the actual significant effects are likely to be confined to within a much smaller radius.

16.2.1.2 The Moray FLOW-Park will comprise FLOW Foundations only and will not include any offshore wind turbines. The FLOW Park is more akin to the usage of existing anchorages for marine assets (e.g., cruise ships, oil tankers, processing shipping). The proposed study area radius reflects the relatively limited heights of the FLOW Foundations (30 m above Mean Sea Level (MSL)) and the single location of the Moray FLOW-Park area. In defining this radius, consideration is also taken of the relatively small number of FLOW Foundations that may be in place at any one time, and the seasonal and temporal nature of their deployment in the Moray Firth. The study area is presented in Figure 16-1 with further justification provided below.

440000
460000
480000
6420000
6400000
6380000

N

Moray FLOW-Park Area

Moray

Highland

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Moray FLOW-Park
Inshore Scoping Report

Moray FLOW-Park and SLVIA Study Area

Legend

- Site Boundary
- Local Authority Boundary

EMODnet Bathymetry (m, MSL)

Value

9.16

-177.14



Notes

World Ocean Base: OceanWise, Esri, GEBCO, Garmin, NaturalVue Image:

Coordinate System: WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

Scale	Date	Drawn by	Checked by	Approved by
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Figure 16-1

Figure Reference: 405.065947.00001.0013.0 Moray FLOW-Park and SLVIA Study Area

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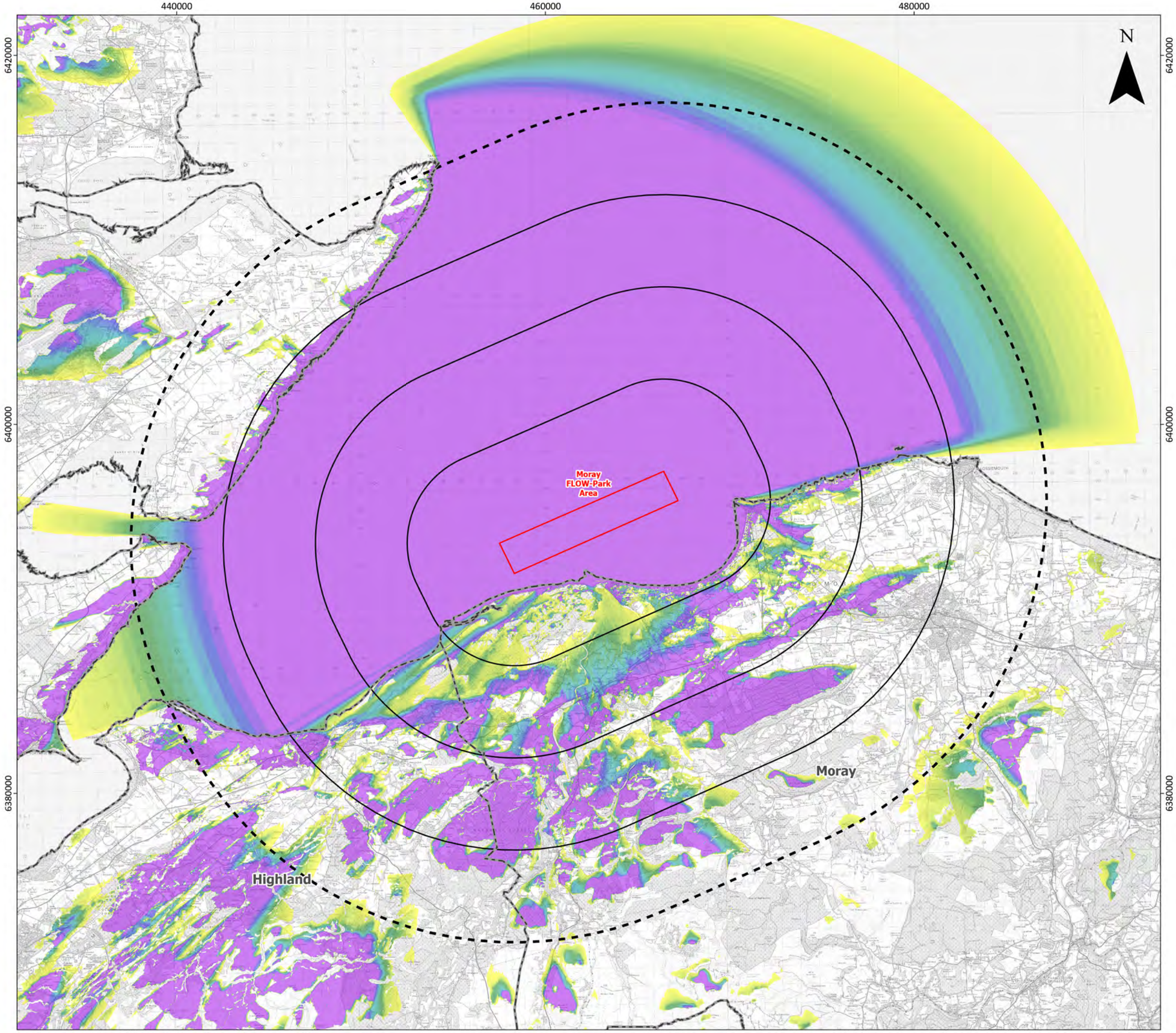


Figure Reference: 405.065947.00001.0014.1 Floating Foundations ZTV

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Moray FLOW-Park
Inshore Scoping Report

Floating Foundations Zone of Theoretical Visibility (ZTV)

Legend

- Site Boundary
- 5 km Distance Radii
- SLVIA Scoping Study Area
- Local Authority Boundary

Floater Height Zone of Theoretical Visibility (ZTV) Bare Earth

- Higher Theoretical Visibility
- Lower Theoretical Visibility

This Zone of Theoretical Visibility (ZTV) has been generated using ESRI ArcGIS Spatial Analyst extension using the assumptions detailed in the infobox below. The digital terrain model (DTM) has the following accuracy: OS Terrain 5 dataset (+/-2 m) up to 20km from turbine locations, OS Terrain 50 dataset (+/-10 m).

The ZTV has been generated based on a generic layout, the precise design parameters for which have not been defined at this stage.

The ZTV view height of 2 m above ground level is recommended by "Visual Representation of Windfarms" by NatureScot February 2017 - Version 2.2.

The ZTV is generated from a bare earth terrain and does not account for the screening effect of features within the landscape such as settlements and woodland. The ZTV shows potential theoretical visibility only and is for informing 'on the ground' visual assessment.

Foundation Ht:	30m	Observer height:	2m
DTM:	OS T5/T50	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included



Notes

World Ocean Base: OceanWise, Esri, GEBCO, Garmin, NaturalVue Image:

Coordinate System: WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

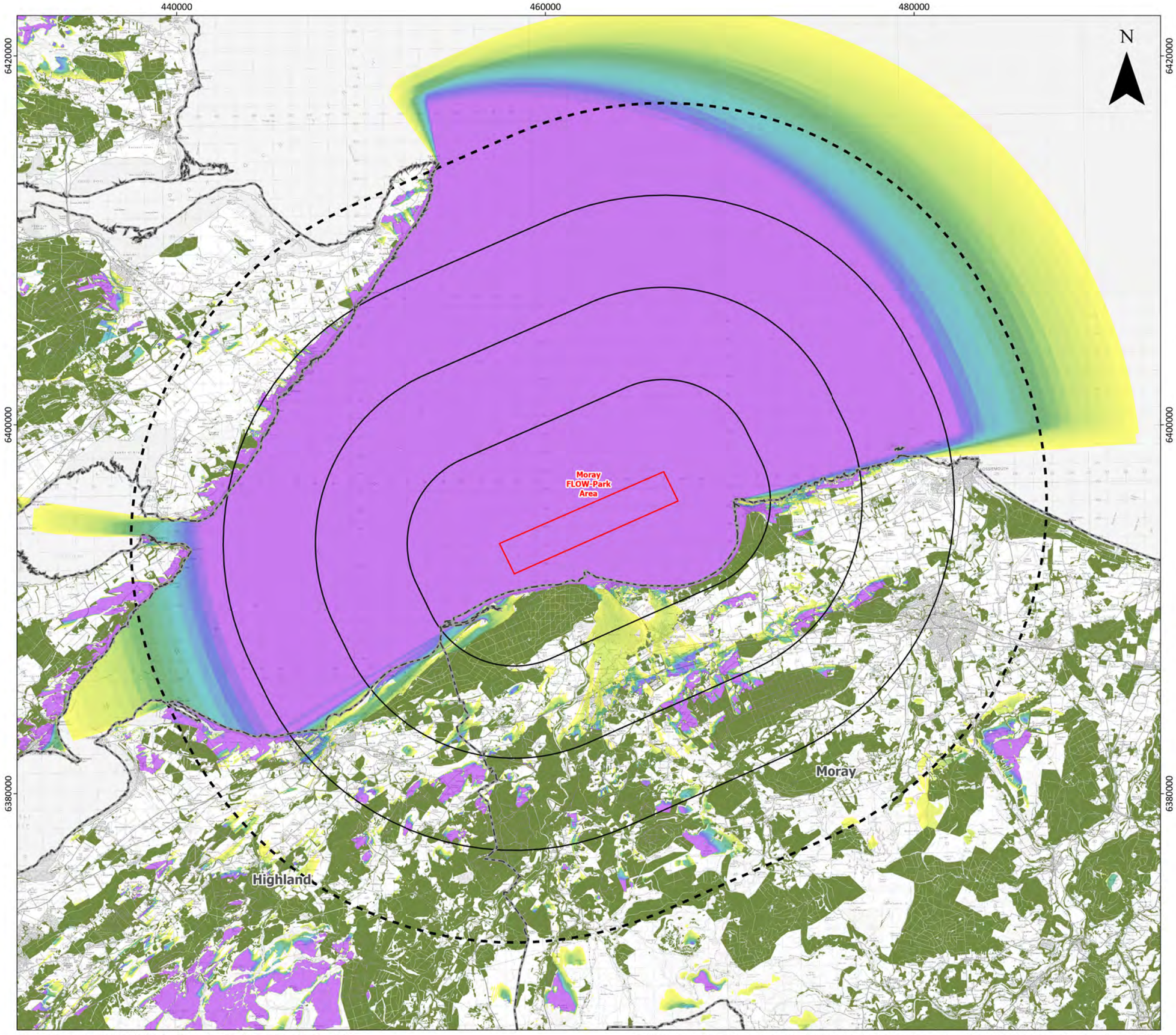
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Figure 16-2



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Moray FLOW-Park
Inshore Scoping Report

Floating Foundations Screened Zone of Theoretical Visibility (ZTV)

Legend

- Site Boundary
- 5 km Distance Radii
- SLVIA Scoping Study Area
- Local Authority Boundary
- Woodland

Floater Height Zone of Theoretical Visibility (ZTV) Screened

- Higher Theoretical Visibility
- Lower Theoretical Visibility

This Zone of Theoretical Visibility (ZTV) has been generated using ESRI ArcGIS Spatial Analyst extension using the assumptions detailed in the infobox below. The digital terrain model (DTM) has the following accuracy: OS Terrain 5 dataset (+/-2 m) up to 20km from turbine locations, OS Terrain 50 dataset (+/-10 m).

The ZTV has been generated based on a generic layout, the precise design parameters for which have not been defined at this stage.

The ZTV view height of 2 m above ground level is recommended by "Visual Representation of Windfarms" by NatureScot February 2017 - Version 2.2.

The ZTV accounts for the localised screening effects of Woodland blocks only (10 m height). The data source is Ordnance Survey Open Map Local Woodland dataset. The ZTV shows potential theoretical visibility only and is for informing 'on the ground' visual assessment.

Foundation Ht:	30m	Observer height:	2m
DTM:	OS T5/T50, Woodland 10m	Surface features:	Included
DTM resolution:	10m	Earth curvature:	Included



Notes

Image:
World Ocean Base: Esri, GEBCO, Garmin, NaturalVue

Coordinate System:
WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

Scale	Date	Drawn by	Checked by	Approved by
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Figure 16-3

Figure Reference: 405.065947.00001.0015.1 Floating Foundations Screened ZTV

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16.2.1.3 The Institute of Environmental Management and Assessment (IEMA) Guidance (IEMA, 2015; 2017) recommends a proportionate EIA focused on the significant effects and a proportionate EIA Report chapter. An overly large SLVIA study area may be considered disproportionate if it makes the understanding of the key impacts of the Project more difficult.

16.2.1.4 This is supported by Landscape and Visual Impact Assessment (LVIA) Guidance produced by the Landscape Institute (GLVIA3) (Landscape Institute, 2013). This guidance recommends that "*the level of detail provided should be that which is reasonably required to assess the likely significant effects'.* It also states that *'the study area should include the site itself and the full extent of the wider landscape around it which the Project may influence in a significant manner*".

16.2.1.5 It is important to note the seasonal operation of the Moray FLOW Park. In the summer season there will be no planned FLOW foundations deployed. The winter season is the main operational period of the Project and FLOW Foundations will be deployed up to the maximum design parameters for a peak period of time.

16.2.1.6 The SLVIA will generally focus on locations from where it may be possible to see the Project, the majority of which will be based along the coastlines.

16.2.1.7 Two ZTVs (Figure 16-2 and Figure 16-3) have been produced to inform an understanding of the likely spatial extents and patterns of theoretical visibility of the FLOW Foundations within the 20 km study area. In addition to a bare ground ZTV, a screened ZTV has also been included to allow an understanding of how the forest and woodland characteristic of the Moray coast and seaboard may screen views of the Project. Both ZTVs model theoretical visibility of the layout containing the maximum design scenario of FLOW Foundations in a generic layout within the RLB, the precise design parameters and layout are still to be defined:

- Figure 16-2 illustrates 'bare ground' theoretical visibility with predicted areas of visibility influenced by the terrain and open areas of water, but does not include the screening effects of buildings and vegetation; and
- Figure 16-3 illustrates the screening effects of the terrain and large extents of woodland and commercial forest plantation (at a nominal height of 10m), in particular along the Moray coast and immediately inland illustrated on the screened ZTV.

16.2.1.8 Due to the relatively limited vertical scale of the FLOW Foundations, it is considered unnecessary to include areas beyond the 20 km radius SLVIA study area. This extent of the study area takes into consideration the reduction in visibility evident when comparing the bare ground and screened ZTVs, where potential likely significant effects will be focussed on the coast. Beyond 20 km visibility is restricted to areas which have a reduced association with the coastal waters of the Site:

- In Highland to the north coast of Rosemarkie Bay which has a stronger visual association with the Ardersier peninsula;
- The northern uplands of the Monadhliath Mountains surrounding the high point of Carn nan Tri-tighearnan, from which views are panoramic encompassing a range of vistas, with particular association to the inner Moray Firth and the Black Isle. The inshore waters of the Site are a small part of the much wider panorama; and
- Brown Muir to the southeast of Elgin, which affords wide panoramas, particular points of focus are views south to the Moray uplands and mountains of the Cairngorms and along Speyside to the north and south, the inshore waters of the Site are a small part of the much wider panorama.

16.2.1.9 In considering the SLVIA study area, the sensitivity of the receiving seascape, landscape and visual receptors has also been reviewed, taking particular account of the landscape character types and coastal character showing in Figure 16-4, planning designations shown in Figure 16-5, as well as sensitive visual receptors shown in Figure 16-6. It is clear the principal matter for the SLVIA is the location of the Moray FLOW-Park area close to the Highland (and in particular) Moray coasts. The scope of the SLVIA considers the exposure to and visibility from these coastal locations which include settlements, long distance routes and visitor attractions as well as areas locally designated as Special Landscape Areas (SLAs).

16.2.1.10 Assessment of seascape, landscape, and visual effects as a result of the Project are proposed to be scoped out beyond 20 km. The study area will be reviewed and amended in response to refinement of the Project, the identification of additional impact pathways and in response, where appropriate, to feedback from consultation. Feedback from consultees is requested specifically on the SLVIA study area and the scope of the cumulative assessment, to omit the assessment of terrestrial and marine wind energy as part of the current and future baselines.

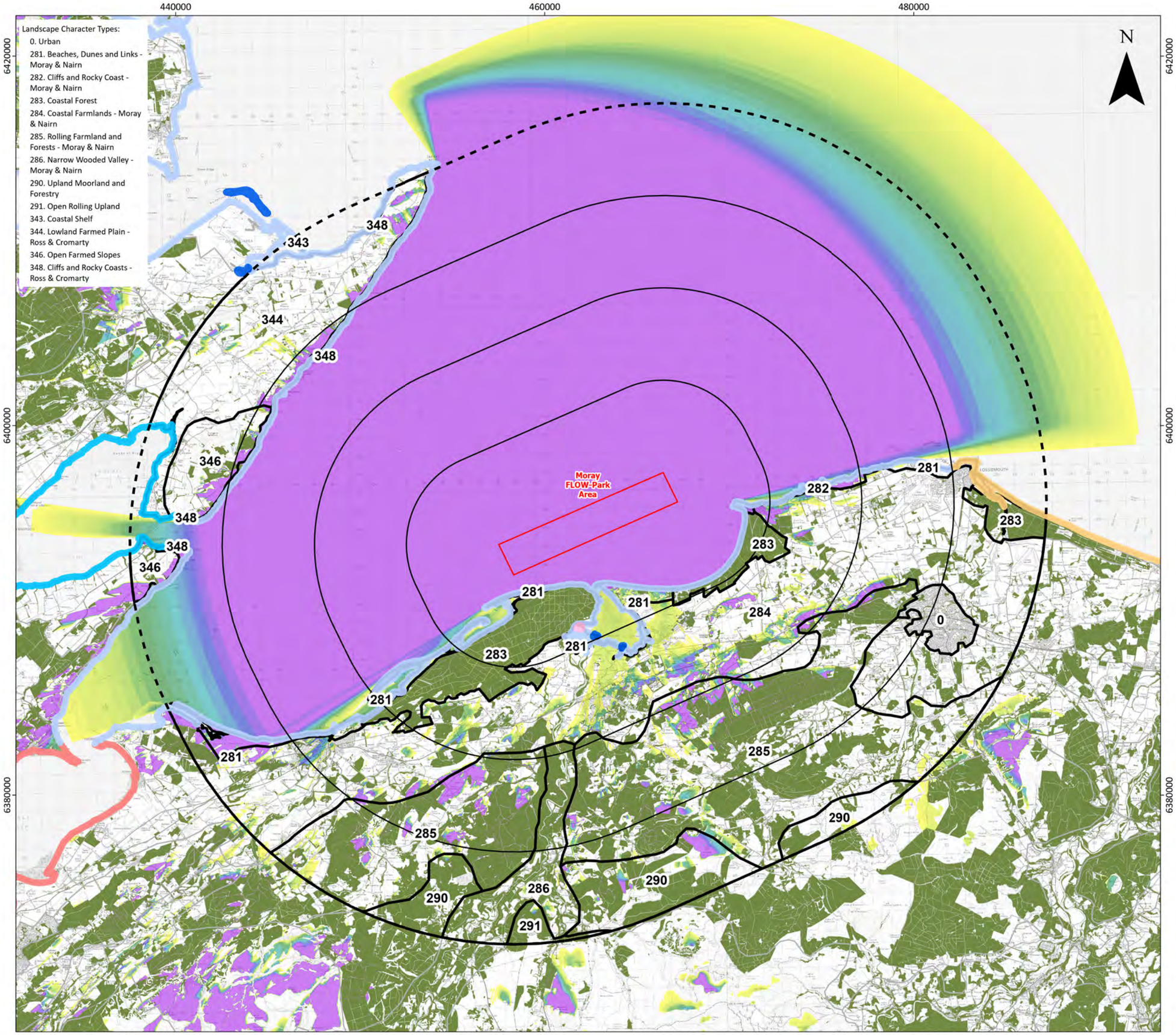


Figure Reference: 405.065947.00001.0016.0 LCT and CCAs with Screened ZTV

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Moray FLOW-Park
Inshore Scoping Report

Landscape Character Types and National Coastal Character Types with Screened ZTV

Legend

- Site Boundary
- 5 km Distance Radii
- SLVIA Scoping Study Area
- Scottish Landscape Character Types, NatureScot (2019)

National Coastal Character Types

- Coast
- Coastal Island
- Type 3. Deposition Coastline, Open Views
- Type 4. Outer Firths
- Type 5. Developed Inner Firths
- Type 11. Less Developed Inner Firths
- Woodland

Floater Height Zone of Theoretical Visibility (ZTV) Screened

- Higher Theoretical Visibility
- Lower Theoretical Visibility

Foundation Ht:	30m	Observer height:	2m
DTM:	GS TS/T50, Woodland 10m	Surface features:	Included
DTM resolution:	10m	Earth curvature:	Included

Notes

World Ocean Base: OceanWise, Esri, GEBCO, Garmin, NaturalVue Image:

Coordinate System: WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

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Figure 16-4

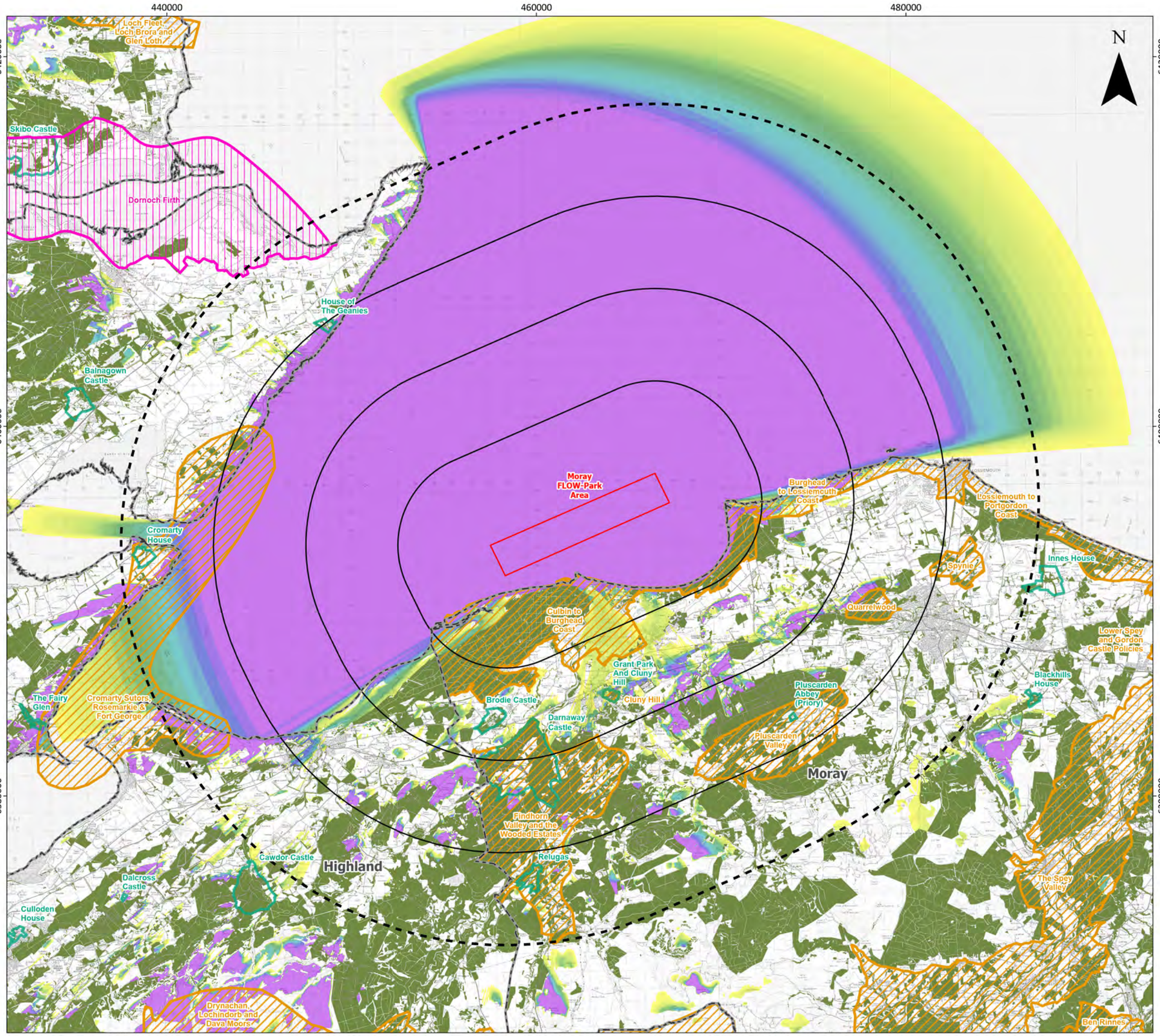


Figure Reference: 405.065947.00001.0017.0 Landscape Designations with Screened ZTV

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Moray FLOW-Park
Inshore Scoping Report

Landscape Planning Designations with Screened ZTV

Legend

- Site Boundary
- 5 km Distance Radii
- SLVIA Scoping Study Area
- Local Authority Boundary
- National Scenic Area
- Garden & Designed Landscape
- Special Landscape Area
- Woodland

Floater Height Zone of Theoretical Visibility (ZTV) Screened

- Higher Theoretical Visibility
- Lower Theoretical Visibility

Foundation Ht:	30m	Observer height:	2m
DTM:	OS TS/T50, Woodland 10m	Surface features:	Included
DTM resolution:	10m	Earth curvature:	Included



Notes

Image:
World Ocean Base: Esri, GEBCO, Garmin, NaturalVue

Coordinate System:
WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

Scale	Date	Drawn by	Checked by	Approved by
1:200,000 @A3	10/06/2026	RH	RH	SF

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Figure 16-5

Viewpoints:
1. Findhorn sand dunes
2. Burghead Pictish Fort
3. Moray Coastal Trail, north of Hopeman
4. Nairn
5. Whiteness Head coast path
6. Califer Braes Viewpoint
7. Tarbat Ness
8. Balintore
9. Cromarty
10. Buckie Loch, Culbin Forest
11. Hill 99 Viewing Platform, Culbin Forest
12. Knock of Alves
13. Findhorn settlement
14. Hillhead, east of Auldearn

440000 460000 480000

6420000 6400000 6380000

N

DORNOCH TAIN LOSSIEMOUTH BURGHEAD CROMARTY ELGIN FORRES NAIRN FORTROSE Cradlehall ROTHES CHARLESTOWN OF ABERLOUR

Moray FLOW-Park Area

B9174 B9165 B9166 A9 NCN1 B9175 B817 B9040 B9135 A941 B9103 B9013 B9012 B9089 B9011 A96 B9163 A832 B9092 B9101 B9091 B9090 B9039 B9006 B851 NCN7 B9010 B9015 A939 A940 B9007 B9102 A95

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Moray FLOW-Park
Inshore Scoping Report

Preliminary Viewpoint Locations and Visual Receptors with Screened ZTV

Legend

- Site Boundary
- Viewpoints
- Settlement
- National Cycle Route
- NCR Link Route
- Railway Track
- Dava Way Trail
- Moray Coast Trail
- Primary Road
- A Road
- B Road
- Woodland

Floater Height Zone of Theoretical Visibility (ZTV) Screened

- Higher Theoretical Visibility
- Lower Theoretical Visibility

Foundation Ht:	30m	Observer height:	2m
DTM:	GS TSTS0, Woodland 10m	Surface features:	Included
DTM resolution:	10m	Earth curvature:	Included

Notes

World Ocean Base: OceanWise, Esri, GEBCO, Garmin, NaturalVue
Image:

Coordinate System: WGS 1984 UTM Zone 30N

0 5 10 km
0 2.5 5 nm

Scale	Date	Drawn by	Checked by	Approved by
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Figure 16-6

Figure Reference: 405.065947.00001.0018.0 Visual Receptors with Screened ZTV

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16.2.2 Design Envelope Approach

16.2.2.1 Consideration of the Project and potential seascape, landscape and visual impacts is based on a 'Design Envelope' approach (sometimes referred to as a ‘Rochdale Envelope’) following the Scottish Government (2022) Guidance for applicants on using the design envelope for applications under Section 36 of the Electricity Act 1989. As a point of clarification, The Electricity Act 1989 does not apply to the Moray FLOW Park as it is not an electricity generating project requiring consent under Section 36. However, reference is made to the Design Envelope as this s still considered to be relevant good practice within the EIA process. A design envelope assessment approach is used in the SLVIA due to the current uncertainty of the detail of the final proposals. This is due to its dynamic nature, the differences between foundations used by manufacturers and evolving Project technologies.

16.2.2.2 In accordance with relevant guidance the SLVIA will:

- Be undertaken on the basis of the relevant design parameters applicable to the characteristics of the Project included in the application documents; and
- For each of the different receptors, establish those parameters likely to result in the maximum adverse effect (the worst-case or maximum design scenario) and be undertaken accordingly to determine significance.

16.3 Data Sources to Inform the EIA Baseline Characterisation

16.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and other data sources. The data sources that have been used to inform this SLVIA Chapter are presented in Table 16-1. These data sources will be taken forward and used to inform the Environmental Impact Assessment (EIA), in addition to any site-specific data that will be collected for the Project.

Table 16-1: Key sources of Seascape, Landscape and Visual data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Forestry and Land Scotland N/A	Recreation and access information on the forest estate.	National
Moray Local Development Plan 2027 - Shaping the Future of Moray - Moray Council Moray Council 2027.	Outlines the framework for land use and development in the region. Includes citations and datasets for Special Landscape Areas.	SLVIA Study Area – see Figure 16-5
Highland-wide Local Development Plan | Highland-wide Local Development Plan | The Highland Council The Highland Council 2012	Outlines the framework for land use and development in the region. Includes citations and datasets for Special Landscape Areas. https://www.highland.gov.uk/downloads/file/2937/assessment_of_highland_special_landscape_areas	SLVIA Study Area – see Figure 16-5
Google Earth Pro (2022), Aerial Photography. Google		Global
https://www.nts.org.uk/visit/places National Trust for Scotland	National Trust Scotland: Specific visitor attractions/tourist destinations.	National
https://www.nature.scot/doc/naturescot-commissioned-report-103-assessment-sensitivity-and-capacity-scottish-seascape-relation NatureScot 2005	An assessment of the sensitivity and capacity of the Scottish seascape in relation to windfarms Note: Used for guidance on seascape characterisation	National
https://www.nature.scot/national-coastal-character-map NatureScot 2010	National Coastal Character Map	National

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions NatureScot 2019	Scottish Landscape Character Map and Descriptions	National
Ordnance Survey N/A	OPEN internal dataset: Public Rights of Way	National
Ordnance Survey N/A	Ordnance Survey 1:50,000 scale mapping	National
Ordnance Survey N/A	Ordnance Survey 1:25,000 scale mapping	National
Ordnance Survey N/A	Ordnance Survey County	National
Ordnance Survey N/A	Ordnance Survey County Region, Local Unitary Authority, Railways, Road and Settlements	National
Ordnance Survey N/A	Ordnance Survey Terrain 50 Digital Terrain Model (DTM)	National
Ordnance Survey N/A	Ordnance Survey Terrain 5 Digital Terrain Model (DTM)	National
Royal Yachting Association	Cruising routes for recreational yachting	National
Sustrans	National Cycle Network	National
Met Office	Met Office weather station historic visibility data	National
Various N/A	Marine and coastal mapping data, ferry routes	National

16.4 Description of Baseline Environment

16.4.1.1 An initial desk-based review of literature and available data sources (see Table 16-1) has been undertaken to support this Inshore Scoping Report. The findings of this research, as well as information gathered from field work within the broad study area is presented below in order to provide an understanding of the Project environment and inform the Scoping process.

16.4.1.2 The key seascape, landscape and visual receptors which inform this Inshore Scoping Report and the subsequent Environmental Impact Assessment Report (EIAR) are illustrated in Figure 16-4, Figure 16-5 and Figure 16-6 and include:

- Coastal (seascape) character areas;
- Landscape character types;
- Landscape Planning Designations; and
- Visual receptors.

16.4.1.3 A large part of the broad study area is covered by the open sea of the Moray Firth. The Firth is contained by the long, undulating horizons of the Moray coastline to the south and the more uniform cliffs of the Highland coast to the west and north. Uplands rise inland and beyond these coastal areas.

16.4.1.4 The Moray Firth is an active maritime environment that is used by multiple marine users, leisure, commercial, & military for transit, operations and temporary anchorage. Existing marine activity and types and scales of structures will inform the baseline within the SLVIA.

16.4.1.5 The landward part of the study area is generally rural in character with a concentration of settlement along or set back from the coast, often coinciding with the mouths of rivers and harbours. The main transportation routes can follow the coast but are often set back from its edge with a number of settlements having grown alongside often at the crossing points of the rivers and Firths.

16.4.1.6 Further inland the river valleys continue to be a focus for settlements and transportation routes.

16.4.1.7 The lower lying land is put to agricultural use and subdivided by a pattern of fields and in some places shelter belts and blocks of forestry. Rising land has a generally unenclosed moorland or woodland/forestry land cover.

16.4.2 Coastal (Seascape) Character Areas

16.4.2.1 In Scotland, seascape characterisation can be defined as "*the focus is on the coast and its interaction with the sea and hinterland, relationships that are quite distinctive in the Scottish context*" (NatureScot, 2018). Coastal character is the "*distinct, recognisable and consistent pattern of elements on the coast, land and sea that makes one part of the coast different from another*" (NatureScot, 2018) and is made up of the margin of the coastal edge, its immediate hinterland, and areas of sea.

16.4.2.2 The extent of the coast is principally influenced by the dominance of the sea in terms of physical characteristics, views and experience. The landward extent of the coast can be narrow, for example where edged by cliffs or settlement; or broad where it includes raised beaches, dunes, or more open coastal pasture or machair. The major determinant in defining the landward and seaward components of the coast is where there is views to and experience of the key characteristic of the sea.

16.4.2.3 In accordance with the definitions set out in NatureScot's Coastal Character Assessment Guidance, the assessment of coastal character effects presented within this SLVIA focuses on areas of onshore landscape from which the coast, sea, or marine environment is experienced. The assessment therefore considers effects on coastal character, recognising that the principal influence of offshore development is on the perception and experience of the character of the coast

16.4.2.4 The coastal character of the SLVIA study area is defined at the national level within the research report NatureScot Seascapes Study (Scott et al., 2005). This broad classification still stands and three of the National Coastal Character Types (NCCTs) are located within the 20 km radius study area, as shown in Figure 16-4.

16.4.2.5 It is proposed that the effects on coastal character will be assessed at a regional scale based on the characterisation of Regional Coastal Character Areas (RCCAs) undertaken by SLR for Moray West Offshore Wind Farm SLVIA. The geographic coverage of the RCCAs that will be considered in the SLVIA will include the coastline to Tarbat Ness in the north, the narrowing of the Moray Firth between Gallow Hill and Whiteness Head in the west, and Lossiemouth in the east.

16.4.2.6 Where there are gaps in our RCCA dataset these will be completed using the layers of desk information available on NCCTs and terrestrial Landscape Character Types (LCTs), together with detailed site survey information and in accordance with Guidance on Coastal Character Assessment (NatureScot, 2017a).

16.4.3 Landscape Character Types

16.4.3.1 There is a hierarchy of published Landscape Character Assessments that describe the baseline landscape character in the refined 20 km radius SLVIA study area, at the national and local level.

16.4.3.2 The Scottish Landscape Character Types Map and Descriptions (NatureScot, 2019) will form the basis of the baseline landscape character assessment and inform the assessment of effects on the visual aspects of perceived character resulting from the Project within the 20 km radius SLVIA study area. These LCTs are shown in Figure 16-4.

16.4.4 Landscape Planning Designations

16.4.4.1 There are no specific designations to protect the character of the seascape. There are, however, terrestrial areas within the 20 km study area that have been attributed a landscape planning designation and some of these include areas of sea, close to the coast. These are shown on Figure 16-5.

16.4.4.2 Figure 16-5There are numerous Gardens and Designed Landscapes (GDLs), which are selected for inclusion in the Inventory of Gardens and Designed Landscapes by Historic Environment Scotland. Whilst the GDLs contribute to landscape character, the defined areas and the effects on their settings will be assessed within Chapter 14: Marine Archaeology and Cultural Heritage, unless they are also open to the public as visitor attractions. There are also locally important SLAs designated through the Highland-wide Local Development Plan (The Highland Council, 2012) and the Moray Local Development Plan, 2027.The most highly protected area that partially overlaps the study area on the northwest fringes is the nationally important Dornoch Firth National Scenic Area (NSA), of which only the eastern extent of the designated area overlaps the study area. (Figure 16-5). The initial assessment indicates that there will be no visibility of the FLOW-Park from the NSA and therefore scoping out the impact is covered in section 16.4.4.5.

16.4.4.3 In the preliminary appraisal, set out in Table 16-2, the potential effects of the Project are considered in respect of landscape designations. This considers the separation distance between the landscape designation and the Project, the extent and levels of visibility across the landscape designation, the association between the landscape designated area, and the Site location and character/scale of the Project.

16.4.4.4 The findings of this preliminary appraisal consider that the assessment of effect on the Dornoch Firth NSA be scoped out of the SLVIA. This due to the lack of any predicted visibility of the Moray FLOW-Park on the eastern extremity of the NSA in the study area. In addition, it could be that one of the Gardens and Designed Landscapes (GDLs) identified within the study area (House of the Geanies GDL in Highland) has the potential to be significantly affected by the Project and, therefore, requires a detailed assessment.

16.4.4.5 The closest SLAs to the Moray FLOW-Park are the Culbin and Burghead Coast, the 'Cromarty Sutors, Rosemarkie and Fort George', and the Burghead to Lossiemouth Coast.

16.4.4.6 The effect on these areas will be considered alongside the assessment of the effects on landscape and coastal character where they are coincidental with these areas, taking into account the higher sensitivity attributed to them due to their landscape and scenic value. Reference will be made to the Moray Council (adopted 2020) statements of importance and The Highland Council (2011) citations in undertaking this assessment.

16.4.4.7 Those landscape designations which will be assessed within the SLVIA are identified in Table 16-2 using a grey tone. Agreement to this is sought through this scoping exercise, in order to enable the SLVIA to be focussed on key considerations.

Table 16-2: Landscape Planning Designations.

Designated Site	Approx. distance to Moray FLOW-Park Area (km)	Approx. distance to Project Site Boundary (km)	Subject to Theoretical Visibility	Needs Assessment within SLVIA?
Dornoch Firth National Scenic Area	17	17	No	No
Registered Garden and Designed Landscape				
House of the Geanies	15		Yes.	Yes
Cromarty House	18	7	No	No. Due to very limited or no theoretical visibility of FLOW Foundations.
Brodie Castle	7	6	No.	No. Due to very limited or no actual visibility as a result of mature woodland within policies.
Darnaway Castle	8	7	Yes.	No. This property is characterised by its wooded policies and is not open to the public. Therefore, actual effects will be limited, and it is anticipated that the effects on its setting will be considered in the cultural heritage chapter.
Relugas	16	14	Yes.	No. This property is characterised by its wooded policies and is not open to the public. Therefore, actual effects will be limited, and it is anticipated that the effects on its setting will be considered in the cultural heritage chapter.
Grant Park and Cluny Hill	8	8	No	No. Due to very limited or no actual visibility as a result of mature woodland within policies.
Pluscarden Abbey (Priory)	13	13	No	No. Due to no theoretical visibility of FLOW Foundations.

Designated Site	Approx. distance to Moray FLOW-Park Area (km)	Approx. distance to Project Site Boundary (km)	Subject to Theoretical Visibility	Needs Assessment within SLVIA?
Innes House	20	20	Yes	No. Due to limited actual visibility as a result of mature woodland setting.
Special Landscape Area				
Culbin to Burghead Coast	1	1	Yes	Yes. Assessed in tandem with component landscape and coastal character types/areas.
Burghead to Lossiemouth Coast	4	4	Yes	Yes. Assessed in tandem with component landscape and coastal character types/areas.
Lossiemouth to Portgordon Coast	16	16	No	No. No predicted visibility within this area east of the Lossiemouth headland.
Findhorn Valley and the Wooded Estates	8	7	No	No. Very limited pockets of visibility predicted due to screening effects of characteristic woodland in this SLA, at distances of 12km and 17km.
Pluscarden Valley	13	13	No.	No. Due to distance and limited visibility.
Quarrelwood	11	11	No.	No. Due to limited or no visibility.
Spynie	15	15	No.	No. Due to distance and limited or no visibility.
Cromarty Sutors, Rosemarkie & Fort George	12	1	Yes.	Yes. Assessed in tandem with component landscape and coastal character types/areas.

16.4.5 Visual Receptors

16.4.5.1 The visual baseline resource experienced from the coastline within the SLVIA study area is diverse. The NCCT (2005) profiles that cover both the Moray and Highland coastlines, broadly describe that in views from within the study area the seascape is perceived as open and expansive.

16.4.5.2 The coastline of the study area is generally rural in character with a predominantly agricultural/afforested land use and a strong association with the sea. There are numerous settlements along the coastline, with the largest of these being Nairn, Burghead and Lossiemouth all of which are in the southern part of the study area. Larger towns such as Forres and Elgin area situated inland from the coast. Settlement along the northwestern Highland coast tends to be smaller in scale dictated by the confined nature of the steep cliff edge. These are connected by main 'A' or 'B' roads that generally run close to, or on, the coast.

16.4.5.3 Concentrations of visual receptors along routes, in settlements and at visitor attractions located along the coast are generally sited slightly above sea level due to the underlying geology of the area. The main transport routes tend to run along the coast or are set back from it, running along more even ground, and provide links between the various settlements and linking the bridging points of the numerous water bodies. Coastal locations around the confluences of the rivers and smaller water bodies which have been eroded and these flatter areas have often been exploited as areas suitable for bridging points and settlement. Sheltered coastal locations have historically been developed as harbours and provide a continued focus for settlement growth along the coast.

16.4.5.4 Older settlement areas and housing along the coast are typically sited and designed to maximise shelter and reduce exposure from the coastal weather conditions. This means that older properties often do not have open outlooks towards the sea (for example presenting gable ends with small windows).

16.4.5.5 Modern parts of settlements and individual properties still tend to be arranged in order to limit the effects of exposure through their orientation and planting. However, modern building and glazing technology mean that some newer properties or additions are designed in order to obtain or maximise sea views.

16.4.5.6 The FLOW Foundations of the Moray FLOW-Park will require maritime navigational lights, to the minimum standards as required by regulatory bodies (NLB and MCA). On this basis an assessment of lighting effects is scoped into the SLVIA, to be reviewed as the project design progresses.

Zone of Theoretical Visibility

16.4.5.7 The visual baseline described is largely defined by the ZTVs shown in Figures 16-2 to 16-6. These show the area from where the FLOW Foundations may be theoretically visible. In both instances, the ZTV has been generated based on a generic layout within the RLB, the precise design parameters and layout for which have not been defined at this stage. As such the ZTVs illustrate the maximum area from where the FLOW Foundations may be visible, as a maximum design (worst case) scenario, at this stage.

16.4.5.8 During the subsequent detailed design of the Project the maximum number of FLOW Foundations deployed at any one time may be less with a reduced ZTV, depending on the locations of the FLOW Foundations within the Moray FLOW-Park area. In addition, at times there will be no or lesser theoretical visibility of FLOW Foundations as there may be none or fewer in place due to the temporal nature of the Project.

16.4.5.9 The ZTVs presented at this early scoping stage are based on FLOW Foundations up to 30 m tall located at any of the anchor positions within the Moray FLOW-Park. In addition, the FLOW Foundations are assumed to be sitting on the sea's surface at Highest Astronomical Tide (HAT) level, which is considered to be a likely maximum height. This represents a likely maximum design parameter for the SLVIA considered in the inshore scoping assessment.

Visual Receptors

16.4.5.10 The ZTV figure highlights the different groups of people (visual receptors) who may experience views of the FLOW Foundations and assist in the identification of viewpoints where they may be affected.

16.4.5.11 The principal visual receptors in the study area (shown in Figure 16-6) are predominantly likely to be found along the closest sections of coastline. These include people within settlements, driving on roads, visitors to tourist facilities or historic environment assets, and people engaged in recreational activity such as those using walking and cycle routes. In addition, consideration will be given to the views of people recreating out at sea where part of their intent is appreciation of the seascape around them.

16.4.5.12 A detailed assessment will be undertaken in the SLVIA for those visual receptors that are most susceptible to changes and which may experience significant visual effects as a result of the Project. The assessment will focus on visual receptors where the sea is a strong influence in the baseline view, along the coastlines of the study area and immediate hinterland, including:

- **Coastal settlements** – the Highland coastal settlements of Balintore, Cromarty, and Nairn; and the Moray settlements of Findhorn, Burghead and Lossiemouth;
- **Recreational routes** – walkers, equestrians and cyclists using the public rights of way network including long-distance trails such as the Dava Way, the Moray Coast Trail and National Cycle Route 1;
- **Vehicular routes** – main transport routes including the A96, A940, and A939. The study area also includes a railway line running east from Inverness to Keith; and
- **Visitors to tourist facilities** – such as beaches and lighthouses.

Representative Viewpoints

16.4.5.13 A proposed list of representative viewpoints is presented in Table 16-3. This has been informed by the ZTV for the Project and the landscape and visual receptors described above.

16.4.5.14 The viewpoints represent sensitive visual receptors in the study area which have potential to be significantly affected. The selection of the viewpoints also considers the representation of different landscape and coastal character receptors, within which they are located, as well as the representation of the special qualities of the Special Landscape Areas. This means that the visual assessment is able to inform the wider assessment. While the aim is to achieve a distribution of viewpoints from different directions and distances across the study area, the priority is to ensure that the closer range or most sensitive receptors with the greatest potential to be significantly affected, are well represented.

16.4.5.15 Comment on the proposed viewpoint locations set out in Table 16-3 is invited as part of this request for an Inshore Scoping Opinion.

Table 16-3: Proposed viewpoint locations.

ID	Description	Approx. Grid Ref		Approx. distance to nearest FLOW Foundation (km)	Reason for selection
1	Findhorn sand dunes	304244	864850	3.0	Close proximity to Project site, tourist destination within Culbin to Burghead Coast SLA, on the Moray Coast Trail.
2	Burghead Pictish Fort	310842	869181	3.7	Close proximity to Project site, representative of coastal planned settlement of Burghead and cultural heritage tourist destination (Scheduled Monument) (signposted with

ID	Description	Approx. Grid Ref		Approx. distance to nearest FLOW Foundation (km)	Reason for selection
					Heritage Sign off the A96), within Culbin to Burghead Coast SLA and on the Moray Coast Trail.
3	Moray Coastal Trail, north of Hopeman	315534	870323	8.0	Representative of coastal receptors located to the east of the Project, using the Moray Coast Trail (and the northern extents of the settlement of Hopeman and its harbour) within Culbin to Burghead Coast SLA.
4	Nairn	287983	857024	13.9	Larger coastal settlement, south west of Project site.
5	Whiteness Head coast path	281540	858004	18.7	Southwest of the Project site, low lying coast orientated northeast towards the Site. Within the Cromarty Sutors, Rosemarkie & Fort George SLA.
6	Califer Braes Viewpoint	308409	857082	11.6	Inland elevated and publicised viewpoint and mapped on OS base mapping.
7	Tarbat Ness	294900	887729	20.2	North of the Project site, on edge of SLVIA Study Area, low lying coastal tourist destination, to illustrate effects at the very edge of the study area.
8	Balintore	286340	875559	14.7	West of the Project site, low lying coastal settlement. Situated on the National Cycle Route.
9	Cromarty	278851	867610	19.0	West of the Project site, low lying coastal settlement. Situated on the National Cycle Route and A832. Within the Cromarty Sutors, Rosemarkie & Fort George SLA.
10	Buckie Loch, Culbin Forest	300701	864691	1.7	Close proximity location south of the Project on a less developed stretch of coastline, waymarked as part of the Culbin Forest path network. Within Culbin to Burghead Coast SLA.
11	Hill 99 Viewing Platform, Culbin Forest	298644	862349	3.4	Close proximity visitor destination south of the Project. Elevated location on a purpose built viewing platform waymarked as part of the Culbin Forest path network. Within Culbin to Burghead Coast SLA.

ID	Description	Approx. Grid Ref		Approx. distance to nearest FLOW Foundation (km)	Reason for selection
12	Knock of Alves	316298	862952	11.3	Elevated location adjacent on local hill at Knock of Alves.
13	Findhorn settlement	303775	864540	3.0	Location at the northern end of the Findhorn Conservation Area, to consider potential effects from within the settlement (in addition to Viewpoint 1 which is located on the sand dunes north of the settlement edge).
14	Hillhead, east of Auldearn	295364	854509	11.8	Location inland to the south on the rising south facing slopes east of the settlement of Auldearn.

16.4.6 Future Baseline

16.4.6.1 In the SLVIA consideration will be given to the future baseline that may evolve in the study area without the presence of the Project. This is likely to include aspects of change to the landscape and visual resource that are driven by climate change or its mitigation. Housing development is also likely to be a factor.

16.5 Embedded Mitigation

16.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 16-4 and in the Embedded Commitments Register (Appendix A) and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 16-4: The proposed mitigation measures relevant to seascape, landscape and visual receptors.

Reference	Embedded Commitment/Mitigation
C4	Development of and adherence to a Design Statement (DS) to ensure that the Development is carried out in accordance with the approved details.
C6	The final layout and positioning for FLOW Foundations will be defined as far as possible, to limit impacts to the qualifying features of the Moray Firth Special Area of Conservation (SAC) and the Moray Firth

Reference	Embedded Commitment/Mitigation
	SPA and other environmental considerations. Foundations will also be stored sensitively to reduce environmental impacts.
C11	Development of and adherence to a Development Specification and Layout Plan (DSLP) to confirm final development specification and layout.
C16	Development of and adherence to a Lighting and Marking Plan (LMP), which details lights, marks, sounds, signals, and other aids to navigation which will be exhibited as required by NLB and MCA.
C35	Navigational Lighting of the Proposed Development (Inshore) will not be exhibited, altered or discontinued without the statutory sanction of Northern Lighthouses.
C38	Typical separation distance between foundations of 600 m.
C39	Foundations within the Moray FLOW-Park will be limited to 30 m Above Sea Level (ASL)
C45	Only foundations to be stored within Moray FLOW-Park.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.
C48	The Project does not plan to store FLOW Foundations in the FLOW-Park during the Summer months (1st June to 31st August).

16.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

16.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon seascape, landscape and visual receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

16.6 Scoping of Impacts

16.6.1.1 An initial assessment of the likelihood of effects on seascape, landscape and visual receptors due to Project activities for the Scoping stage of the EIA process is presented in Table 6-4. This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Table 16-4, together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for seascape, landscape and visual effects associated with Project activities; relevant policy; and the professional judgement of qualified seascape, landscape and visual specialists.

Table 16-5: Scoping assessment for Seascape, landscape and visual.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction & Decommissioning			
Impact of the construction of the Project on coastal character	C4, C6, C11, C38, C39, C45	Scoped In	Potential for short-term, temporary impacts on perceived coastal character, arising as a result of the construction vessels and activities in and around the Project site which may alter the coastal character through their visibility.
Impact of the construction of the Project on perceived landscape character	C4, C6, C11, C38, C39, C45	Scoped In	Potential for short-term, temporary impacts on perceived landscape character, arising as a result of the construction vessels and activities in and around the Project sites which may alter the landscape character through their visibility.
Impact of the construction of the Project on perceived special qualities of designated landscapes	C4, C6, C11, C38, C39, C45	Scoped In	Potential for short-term, temporary impacts on perceived landscape character and special qualities, arising as a result of the construction vessels and activities in and around the Project sites which may alter the landscape character or special qualities through their visibility.
Impact of the construction of the Project on visual receptors/ views	C4, C6, C11, C38, C39, C45	Scoped In	Potential for short-term, temporary impacts on views and visual receptors, arising as a result of the construction vessels and activities in and around the Project sites which may alter the view.
Construction phase seascape, landscape, and visual impacts of the inshore elements of the Proposed Development	N/A	Scoped Out	The 20 km SLVIA study area radius is defined to an outer limit within which significant effects could occur. Significant effects will not occur beyond 20 km due to the limited changes to views arising from the Project over such distances as well as taking into account the relatively limited vertical height of FLOW Foundations.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
outside the 20 km radius SLVIA study area			
Impacts of the construction of the Project on physical aspects of landscape character	C4, C6, C11, C45	Scoped In	There will be no change to the physical landscape above the Low Water Mark.
O&M			
Impact of the operation and maintenance of the Project on coastal character	C3, C6, C11, C38, C39, C45	Scoped In	Potential for long-term, intermittent impacts on perceived coastal character, arising as a result of the operation of the Project which may alter the coastal character through its visibility.
Impact of the operation of the Project on perceived landscape character	C4, C6, C11, C38, C39, C45	Scoped In	Potential for long-term, intermittent impacts on perceived landscape character, arising as a result of the operation of the Project which may alter the landscape character through its visibility.
Effects of the operation and maintenance of the Project on perceived special qualities of designated landscapes	C4, C6, C11, C38, C39, C45	Scoped In	Potential for long-term, intermittent impacts on perceived special qualities, arising as a result of the operation of the Project which may alter the special qualities through its visibility.
Effects of the operation and maintenance of the Project on visual receptors/views	C4, C6, C11, C38, C39, C45	Scoped In	Potential for long-term, intermittent impacts on views and visual receptors, arising as a result of the operation of the Project which may alter the view.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Cumulative effect of the operation of the Project on seascape coastal character, landscape character and views/ visual receptors	C4, C6, C11, C38, C39, C45	Scoped In	Potential for long-term, intermittent cumulative impacts on coastal/landscape character and views, arising as a result of the operation of the Project in the context of other similar development types.
Operation and maintenance phase seascape, landscape, and visual impacts of the inshore elements of the Project outside the 20 km radius SLVIA study area.	N/A	Scoped Out	The 20 km SLVIA study area radius is defined to an outer limit within which significant effects could occur. Significant effects will not occur beyond 20 km due to the limited changes to views arising from the Project over such distances as well as considering the relatively small vertical height of the FLOW Foundations.

16.7 Potential Nighttime effects

16.7.1.1 The FLOW Foundations will be lit in accordance with Marine Navigation and safety requirements. Depending on the scale, spatial extent and intensity of lighting, the landscape and visual effect of this lighting at night will be of importance to the statutory and non-statutory consultees, as well as people living and moving around in the study area. It is, therefore, proposed that an assessment of marine lighting be included as part of the SLVIA.

16.7.1.2 A night-time impact assessment and visualisations illustrating foundation lighting at night, will be prepared for inclusion in the SLVIA. An estimated maximum foundation height ZTV will be used to identify where there would be direct line of sight of the lights from the surrounding area. In order to inform this assessment, photographs will be taken from four readily accessible viewpoints (see Table 16-3) at dusk and visualisations will be prepared to represent the effects of lighting on these views in accordance with NatureScot (2024) guidance.

16.8 Potential Cumulative Effects

16.8.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will generally be assessed through a Cumulative Effect Assessment (CEA) and gives examples of the projects which are likely to be included in that assessment.

The assessment of seascape, landscape and visual cumulative effects will describe and assess the effects arising from the addition of the Project to a cumulative baseline of other same or similar marine and coastal development types. (i.e. shipping routes and use of the area as a maritime anchorage for large commercial vessels). Wind turbines are proposed to be scoped out of the cumulative assessment as their vertical scale and development form are dissimilar to the Proposed Development which accords with GLVIA3 paragraph 7.10).

16.8.1.2 The cumulative assessment will consider different future baselines in addition to the current baseline (operational/ under construction) including consented and application stage within a 20 km study area. This assessment will include supporting graphics such as cumulative ZTVs and cumulative wirelines where applicable.

16.8.1.3 Consultees will be asked to comment on the proposed scope of developments/marine activities to be included in the cumulative assessment and cut-off date for further updates prior to the completion of the SLVIA. This is not only to ensure the most up-to-date information is available, but also to allow sufficient time for the SLVIA to be produced. As with the assessment of significance of effects of the Project in isolation, the significance of cumulative effects is determined through a combination of the sensitivity of the coastal, landscape or visual receptor and the magnitude of change upon it.

16.8.1.4 The seascape, landscape and visual CEA will consider the Maximum Design Scenario (MDS) for each of the projects still in the planning stage, in line with the methodology outlined in Chapter 4: EIA Methodology.

16.9 Potential Transboundary Effects

16.9.1.1 Due to the relatively concentrated nature of any potential impacts on the seascape, landscape, and visual resource to Scotland's coastline within the 20 km SLVIA study area, transboundary impacts are unlikely to occur on seascape, landscape, or visual receptors. Therefore, transboundary impacts will be scoped out from further consideration within the SLVIA.

16.10 Proposed Approach to EIA

16.10.1 Guidance

16.10.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of seascape, landscape and visual impact will also take cognisance of the following guidance documents where they are specific to SLVIA or inform the development of the SLVIA methodology.

16.10.1.2 There are no forms of SLVIA guidance that are specific to this form of development. Although some of this guidance is specific to energy developments and wind farms these are accepted as good practice industry standards in the application of SLVIA irrespective of development type, i.e. FLOW-Park developments, and are therefore used for guidance in the SLVIA assessments conducted as part of the EIA:

- Landscape Institute with the Institute of Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment. Third Edition;
- Landscape Institute LITGN 2024 – 1 Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment (GLVIA3);
- Landscape Institute (2019). Visual Representation of Development Proposals Technical Guidance Note 06/19;

- Landscape Institute (2021). Assessing landscape value outside national designations;
- NatureScot (2017). Visual Representation of Windfarms: Version 2.2;
- NatureScot (2017a) Guidance on Coastal Character Assessment;
- NatureScot (2021). Assessing the Cumulative Impact of Onshore Wind Energy Developments;
- The Highland Council (2016). Visualisation Standards for Wind Energy Developments; and
- NatureScot (November 2024) Guidance on Aviation Lighting Impact Assessment

16.10.2 Additional Data Sources

16.10.2.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Inshore Scoping Report.

16.10.2.2 The SLVIA will be informed by desk-based studies and field survey work undertaken within the SLVIA study area. The landscape, seascape and visual baseline will be informed by desk-based review of landscape and seascape character assessments, and the ZTVs, to identify receptors that may be affected by the Project and produce written descriptions of their key characteristics and value.

16.10.2.3 A preliminary desk-based assessment will be undertaken of seascape, landscape and visual receptors using ZTV analysis, to identify which landscape and visual receptors are unlikely to be significantly affected, which will be subject to a simple assessment, and those that are more likely to be significantly affected by the Project, which require a detailed assessment.

16.10.2.4 Interactions will be identified between the Project and seascape, landscape, and visual receptors, to predict potentially significant effects arising and measures may be proposed to mitigate effects.

16.10.2.5 For those receptors where a detailed assessment is required, primary data acquisition will be undertaken through a series of surveys. These surveys will include field survey verification of the ZTV from RCCAs/LCTs, micro-siting of viewpoint locations, panoramic baseline photography and visual assessment survey from all representative viewpoints (as listed in Table 16-3).

16.10.2.6 Further visual assessment surveys are then likely to be undertaken prior to the application submission, using the photomontage visualisations to undertake field survey assessment of visual effects from each representative viewpoint. Sea-based surveys are not proposed to be undertaken as part of the SLVIA. Illustrative wirelines (without baseline photography) will be prepared to represent views from sea-based receptors if required.

16.10.2.7 Detailed assessment methods will be based on quantifying impacts through modelling to enable prediction of seascape, landscape, and visual effects, both during the day and at night. Assessment of the sensitivity of seascape, landscape and visual receptors will be undertaken, together with an assessment of the magnitude of change arising as a result of the Project. Judgements on sensitivity and magnitude will be combined to arrive at an overall assessment as to whether the Project will have an effect that is significant or not significant on each seascape, landscape, and visual receptor.

16.10.2.8 The SLVIA undertaken as part of the EIA will prepare the necessary information to assess the night-time visual effects of the proposed lighting of the Project.

16.10.3 Assessment Methodology

16.10.3.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

16.10.3.2 The objective of the assessment of the Project will be to predict the significant effects on the seascape, landscape, and visual resource. In accordance with the EIA Regulations, the effects will be assessed to be either significant or not significant. The methodology to undertake the SLVIA will reflect the 'Guidelines for Landscape and Visual Impact Assessment: Third Edition' (Landscape Institute, 2013).

16.10.3.3 The SLVIA will assess the effects of changes resulting from the Project on coastal/landscape character as a resource, the views available to people and their visual amenity. The SLVIA will be undertaken using the following steps:

- The features of the Project that may result in seascape, landscape and visual effects will be described. The overall scope of the assessment will be defined, including the study area and range of possible coastal (seascape), landscape, and visual effects, both daytime and nighttime;
- The coastal (seascape)/landscape baseline will be established using seascape / landscape character assessment and the ZTV of the Project, to identify seascape and landscape receptors that may be affected and their key characteristics and value;
- The visual baseline will be established by identifying the ZTV, identifying the people who may be affected and identifying visual receptors and selecting representative viewpoints;
- A preliminary or 'simple' assessment will be undertaken of seascape, landscape and visual receptors using desk-based information, wirelines and ZTV analysis, to identify which seascape, landscape and visual receptors are unlikely to be significantly affected and can be scoped out of the assessment and those that are more likely to be significantly affected by the Project, which require to be assessed in full;

- Interactions are identified between the Project and coastal (seascape), landscape, and visual receptors, to predict likely significant effects arising and measures that are proposed to mitigate effects;
- An assessment of the susceptibility of coastal (seascape), landscape and visual receptors to specific change and the value attached to landscape receptors and views will be undertaken, combining these judgements to assess the sensitivity of the landscape and visual receptors to the Project;
- An assessment of the size/scale of coastal (seascape) / landscape impact, the degree to which seascape / landscape elements are altered and the extent to which the impacts change the key characteristics of the landscape will be undertaken, combining these judgements to assess the magnitude of change on each coastal / landscape receptor;
- An assessment of the size/scale of visual impact, the extent to which the change would affect views, whether this is unique or representative of a wider area, and the position of the Project in relation to the principal orientation of the view and activity of the receptor will be undertaken. These judgements are combined to assess the magnitude of change on the visual receptor;
- The assessments of sensitivity to change and magnitude of change will be combined to assess the significance of coastal (seascape), landscape, and visual effects (both daytime and nighttime);
- Given the nature of the Project a key consideration will be the duration, temporalty, and reversibility of the changes (informed by the Projects maximum design parameters and seasonal deployment of the FLOW Foundations) and how this influences magnitude and significance of effects; and
- The significance of effects will be assessed through a combination of two considerations – the sensitivity of the coastal/landscape or visual receptor / view and the magnitude of change that will result from the addition of the Project. In accordance with GLVIA3 (Landscape Institute, 2013), the SLVIA methodology requires the application of professional judgement, but generally, the higher the sensitivity and the higher the magnitude of change the more likely that a significant effect will arise.

16.10.3.4 While this methodology is not reliant on the use of a matrix to determine a significant or not significant effect (but is based on professional judgement), a matrix is included in Table 16-6 to illustrate how combinations of sensitivity and magnitude of change ratings can give rise to significant effects. On this basis potential impacts will be assessed as of negligible, minor, moderate-minor, moderate, major-moderate and major. In those instances where the magnitude is assessed as 'no change', the level of effect is recorded as 'no effect'.

16.10.3.5 Any effects with a significance level of major and major-moderate are deemed significant (dark grey shaded boxes in Table 16-6). Moderate levels of effect have the potential, subject to the assessor's professional judgement, to be considered as significant or not significant, depending on the sensitivity and magnitude of change factors evaluated (light grey shaded boxes in Table 16-6).

Table 16-6: Matrix used to guide determination of effect significance,

		Magnitude of Change					
		High	*Medium-High*	*Medium*	*Medium-Low*	*Low*	*Negligible*
Sensitivity	High	Major Significant	Major Significant	Major/ moderate Significant	Moderate Significant or Not Significant	Moderate/ minor Not Significant	Minor Not Significant
	Medium-High	Major Significant	Major/ moderate Significant	Major/ Moderate Significant	Moderate Significant or Not Significant	Moderate/ minor Not Significant	Minor Not Significant
	Medium	Major/ moderate Significant	Major/ Moderate Significant	Moderate Significant or Not Significant	Moderate/ minor Not Significant	Minor Not Significant	Minor Not Significant
	Medium-Low	Moderate Significant or Not Significant	Moderate Significant or Not Significant	Moderate/ minor Not Significant	Minor Not Significant	Minor Not Significant	Negligible Not Significant
	Low	Moderate Significant or Not Significant	Moderate/ minor Not Significant	Minor Not Significant	Minor Not Significant	Negligible Not Significant	Negligible Not Significant

16.10.3.6 The objective of the cumulative SLVIA is to describe, visually represent and assess the ways in which the Project will have additional effects when considered together with other existing, consented or application stage developments and to identify related significant cumulative effects arising. The guiding principle in preparing the cumulative SLVIA will be to focus on the likely significant effects and in particular those which are likely to influence the outcome of the consenting process.

16.10.4 Preparation of visualisations

16.10.4.1 It is proposed that the good practice approach followed in the preparation of visualisations for Moray East, Moray West and more recently the Caledonia OWF SLVIAs is emulated for the Project. The guidance for the production of these visualisations has been accepted as good practice industry standards for a range of development types, not just wind energy development. This includes visualisations prepared in accordance with the NatureScot (2017a) and Highland Council (2016) visualisation standards with the following visualisations to be prepared as appropriate:

- Baseline photographs and cumulative wirelines to include a 90-degree field of view (cylindrical projection) as well as further 90-degree increments needed to show other parts of the view as necessary to inform the assessment;
- Wireline view to include a 53.5-degree field of view (planar projection) for viewpoints to be agreed;
- Photomontages to include a 53.5-degree field of view (planar projection) for viewpoints to be agreed; and
- 75 mm single frame colour photomontage for viewpoints to be agreed (Highland viewpoints only).

16.10.4.2 Photomontages illustrating the Project should be possible to prepare out to 20 km.

16.11 Scoping Questions

16.11.1.1 The following Scoping questions refer to the seascape, landscape and visual Chapter and are designed to focus the Scoping exercise and inform the Inshore Scoping Opinion:

- Do you agree with the study area defined for coastal (seascape), landscape and visual assessment?
- Do you agree with the use of those data listed in Section 6.3 being used to inform the EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to coastal (seascape), landscape and visual assessment have been identified?
- Do consultees agree with the proposal to scope out the landscape planning designations where no further assessment is proposed in the SLVIA as set out in Table 16-2?
- Do consultees agree with the proposed list of representative viewpoints identified in Table 16-3 and shown on Figure 16-6.
- Do you agree with the Scoping in and out of impact pathways in relation to coastal (seascape), landscape and visual effects?

- Do you agree with the scoping out of transboundary effects in relation to coastal (seascape), landscape and visual assessment?
- Do you agree with the assessment of cumulative effects in relation to similar maritime activity including for example, vessel transits and anchorages, in relation to coastal (seascape), landscape and visual receptors?
- Do you agree with the assessment of cumulative effects (in particular the scoping out of wind turbines as part of the cumulative baseline) in relation to coastal (seascape), landscape and visual receptors?
- Do you agree with the proposed assessment methodology for coastal (seascape), landscape and visual effects?

17 Socio-Economics, Tourism and Recreation

17.1 Introduction

17.1.1.1 This Chapter of the Inshore Scoping Report identifies the Socio-Economics, Tourism and Recreation receptors of relevance to the Project and considers the potential impacts from the construction, O&M and decommissioning of the Project on Socio-Economics, Tourism, and Recreation receptors.

17.1.1.2 This Chapter should be read alongside the following chapters:

- Chapter 7: Marine Water and Sediment Quality;
- Chapter 12: Commercial Fisheries;
- Chapter 13: Shipping and Navigation;
- Chapter 16: Seascape, Landscape and Visual Impact Assessment; and
- Chapter 19: Infrastructure and Other Users;

17.2 Study Area

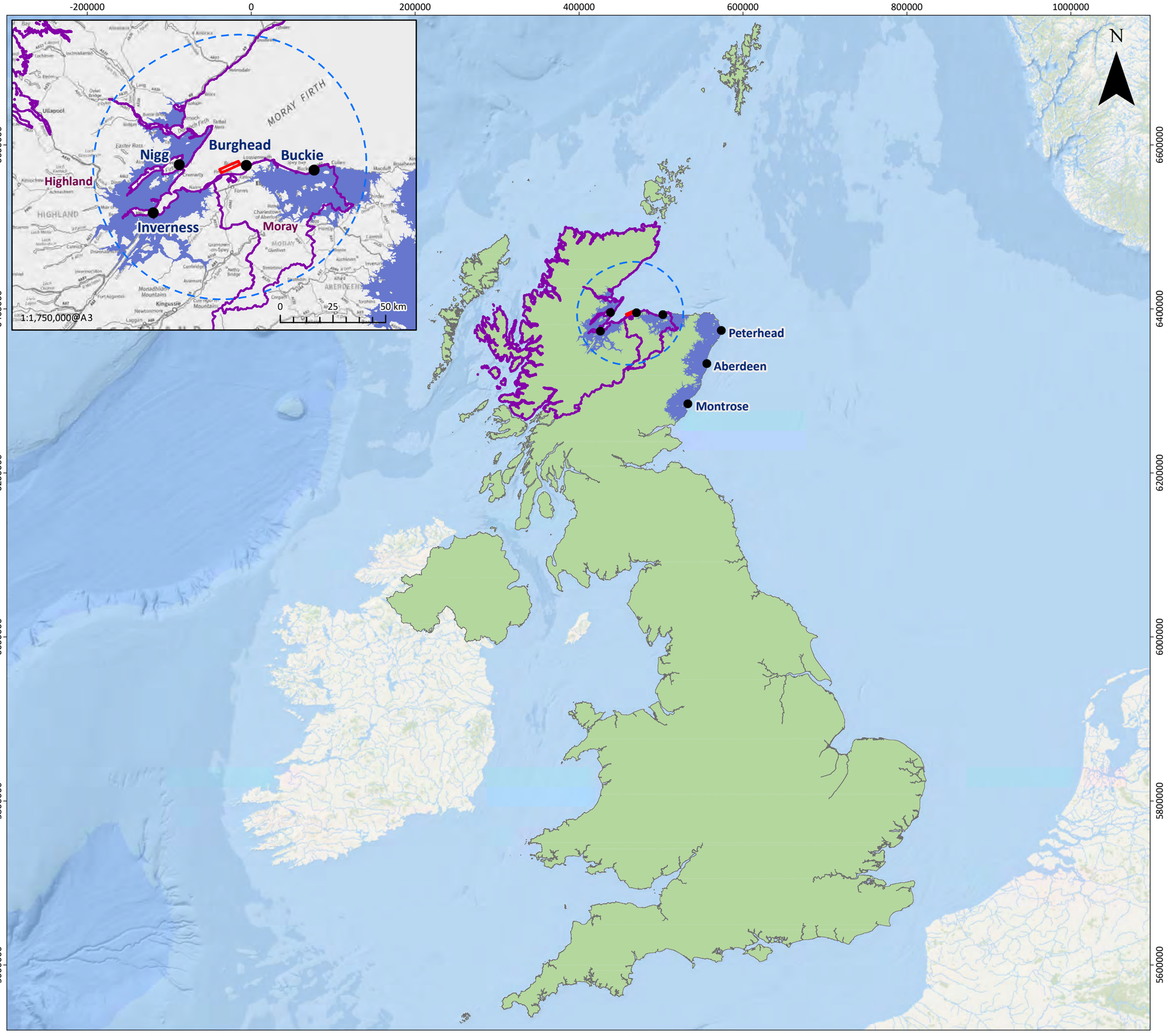
17.2.1.1 The nature of the effects to be considered by the socio-economic, tourism and recreation assessment apply at a range of spatial levels. A tiered approach has therefore been adopted to define the Study Areas. The study areas are presented in Figure 17-1. The three spatial levels and associated relevant receptors are defined as follows:

- Local Socio-Economic Study Area: The Local Socio-Economic Study Area is intended to encompass the local area within which significant effects on employment and the local economy could occur. The Local Socio-Economic Study Area is set at the boundary of the two 'host' local authorities, Moray and Highlands, within which the majority of the local supply chain and labour market effects that could occur are anticipated to be experienced;
- National Socio-Economic Study Area: Economic Impacts will also be assessed at the Scotland and UK level;
- Travel Time Study Area: A travel time-based area (45-minute drive time of the port(s) for which construction workers may be accommodated) will also be considered for potential impacts on housing and visitor accommodation. For the purpose of the assessment the construction workers are assumed to be accommodated within a 45-minute drive time of the departure ports of Inverness, Nigg, Peterhead, Aberdeen, Buckie or Montrose. Whilst the ports listed a generally larger ports, workers could also travel from local ports (such as Buckie) using small service/transport vessels. Local ports are also captured in the Travel Time Study Area; and
- Tourism and Recreation Study Area: This area will take account of the potential for effects on the visitor economy primarily as a result of the

visual impact of the presence of the Floating Foundations, but also the potential tourism and recreation effects resulting from potential disturbances to offshore activities.

- Based on the preliminary study area being used in the Seascape, Landscape and Visual Impact Assessment (SLVIA), a preliminary study area extending 60 km from the Moray FLOW-Park Area is proposed, to be consistent with the potential scope of the Zone of Theoretical Visibility (ZTV) for the turbines which will be illustrated in the SLVIA. It is expected that, as the project progresses, the Study Area will be reviewed and amended. This is expected to result in a significant reduction in the size of the Tourism and Recreation Study Area.
- The Moray FLOW-Park Area will also be considered in more detail in terms of visitors to this area engaging in tourism and recreation activities within the area – primarily due to potential restrictions on use of the area.

17.2.1.2 The assessment will also reference relevant study areas from other topics where appropriate. For example, the Commercial Fisheries study areas (see Figure 12-1 (Commercial Fisheries Study Area) will be used to inform the socio-economic assessment of commercial fisheries.



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Moray FLOW-Park
Inshore Scoping Report

Socio-Economics, Tourism and Recreation Study Area

Legend

- Moray FLOW-Park
- Tourism and Recreation Study Area
- Local Socio-Economic Study Area
- National Socio-Economic Study Area
- Potential Construction Port or Marine Logistics Port
- Travel Time Study Area



Notes

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Coordinate System:
WGS 1984 UTM Zone 30N

0 100 200 km

0 50 100 nm

Scale	Date	Drawn by	Checked by	Approved by
1:4,500,000@A3	05/02/2026	EV	BPHB	CC

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Figure 17-1

Figure Reference: MFP_SETR_Fig17-1_StudyArea_v2

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17.3 Data Sources to Inform the EIA Baseline Characterisation

17.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and future socio-economic, tourism and recreation baseline was undertaken using relevant data sources. The data sources that have been used to inform this Chapter are presented in Table 17-1. These data sources will be used to inform the EIA, in addition to any site-specific data that will be collected by the Project.

Table 17-1: Key sources of socio-economic, tourism and recreation data.

Source, Author and Year[22]	Summary	Coverage of the Moray FLOW-Park
Population estimates - local authority based by single year of age, Office for National Statistics (ONS), 2024 (latest revision published 2025)	The ONS population estimates provide detailed figures for each UK local authority, broken down by single year of age and sex. Based on census data and adjusted for migration and other demographic factors, the estimates help track population changes and support planning for services like health, education, and housing.	Relevant local authority area and National Population data, from 2014 to 2024 has been collected for the baseline data collection exercise.
Annual Population Survey (APS), ONS, 2024 (published 2025)	The APS is the UK's largest ongoing household survey, conducted by the ONS. It combines data from the Labour Force Survey and local sample boosts to provide detailed insights into social and economic conditions between censuses. Covering topics such as employment, unemployment, education, health, ethnicity, and housing, the APS supports local-level analysis and policy development.	Relevant local authority and National Population data, from 2014 to 2024 has been collected for the baseline data collection exercise.
Business Register and Employment Survey (BRES), ONS, 2024 (published 2025)	BRES is the UK's source for annual employee and employment estimates by detailed geography and industry. Conducted by the ONS, BRES provides data on full-time and part-time jobs across sectors, helping inform local planning,	Relevant local authority and National Population data, for 2023 has been collected for the baseline data collection exercise.

[22] For quantitative data sets, the year refers to the year of the latest reference data, rather than the year published. In some cases, the year published is 2025, but the data was collected in 2024 or prior years. The year published is also noted in brackets.

Source, Author and Year[22]	Summary	Coverage of the Moray FLOW-Park
	economic analysis, and policy development.	
STEAM Report for 2012-2023 Moray Speyside, Global Tourism Solutions, 2024	The visitor summary, or Scarborough Tourism Economic Activity Monitor (STEAM) Report, is produced by Global Tourism Solutions using information supplied at regional level and from the Visit Scotland national occupancy monitor. Visit Moray Speyside, have commissioned an annual visitor summary and economic impact report since 2010.	Moray Speyside
Visit Scotland, Research and insights on regions across Scotland	Visit Scotland is the national tourism organisation for Scotland, and it publishes a host of research, statistics from different sources including the Scotland Visitor Survey, Scottish Growth Sector Statistics and the International Passenger Survey 2024.	Scotland and Scottish Regions
Gross Value Added (GVA) (balanced) by industry, ONS, 2023 (published 2025)	Annual estimates of balanced UK regional GVA. Provides current price estimates, chained volume measures and implied deflators for local authority districts, London boroughs, unitary authorities and Scottish Council areas, with a detailed industry breakdown.	Local Authority and National

Source, Author and Year[22]	Summary	Coverage of the Moray FLOW-Park
The Highland Council Sustainable Tourism Strategy, 2024-2030	The Highland Council's Sustainable Tourism Strategy 2024-2030 provides the strategic direction for the Council and will shape how the Council organises itself and prioritise its resources to support the tourism industry.	Highlands
Visit Scotland, Local Area Factsheet: Highlands, 2023	Factsheet on tourism in the Highlands for 2023.	Highlands
Scottish Accommodation Occupancy Survey 2024	Data assessing the occupancy of serviced, non-serviced, hostel and self-catering accommodation across Scotland in 2024.	Scotland, Highlands and Moray
Visit Scotland, Local Area Factsheet: Moray Speyside, 2023	Factsheet on tourism in Moray Speyside for 2023.	Moray Speyside
Visit Scotland, International Tourism Performance, 2024	Statistics on Scotland's international visitors including the number of trips, nights and spend in 2024.	Scotland, Highlands and Aberdeen, Aberdeenshire and Moray
National Records of Scotland, Projected Population of Scotland: 2022 based, 2022-47 (published 2025)	Provides data on Scotland's projected population to mid-2047.	Scotland

17.4 Description of Baseline Environment

17.4.1.1 An initial desk-based review of literature and available data sources (see Table 17-1) has been undertaken to support this Inshore Scoping Report. The findings of this review are presented below to provide an initial understanding of the Project environment and inform the Inshore Scoping process.

17.4.1.2 The key socio-economic, tourism and recreation receptors which will inform this Inshore Scoping Report and the subsequent Inshore EIAR include:

- Economic receptors: Jobs and GVA
- Recreation receptors: Such users of coastal paths and users of the Moray FLOW-Park Area and surrounding inshore areas for recreational activities; and
- Tourism receptors: Visitor economy

17.4.2 Socio-Economic Baseline

Population

17.4.2.1 As of 2024, Moray had a total population of 95,000 and the Highlands had a total population of 237,300 (ONS, 2024a). Both authority areas are experiencing low levels of net inward migration, with Moray's net migration in 2024 totalling a net positive of 28 people and the Highlands net migration totalling a net positive of 714 people (National Record of Scotland, 2025b). Moray and the Highlands have a Working Age Population of 57,300 and 142,100 respectively (ONS, 2025a).

Employment

17.4.2.2 In 2024, there were 2.64 million jobs across Scotland which equates to an estimated[23] 2.13 million Full Time Equivalent (FTE) jobs. In the Highland and Moray local authority areas, employment was recorded at 128,000 and 39,000 respectively, with estimated FTE jobs equating to 95,500 in Highland and 30,000 in Moray (ONS, 2025b).

17.4.2.3 Five percent of the workforce in Moray and six percent in the Highlands are employed in the construction sector, which aligns with the national average. Moray's economy is characterised by a strong manufacturing base, with Moray's share (15%) more than double the national average of 7%. Highland's economy is more service-oriented, with tourism and hospitality acting as major employers, supported by the region's natural landscapes and cultural heritage.

[23] FTE jobs have been estimated by treating a full-time employee as 1 FTE and a part-time employee as 0.5 of an FTE.

17.4.2.4 Fishing and aquaculture account for 250 jobs in Moray and 1,250 in the Highlands, together representing 25% of Scotland's total employment in the sector (ONS, 2025b).

Economy

17.4.2.5 Both Moray and Highlands exhibit relatively high employment and low unemployment but face structural challenges linked to demographic trends and sectoral dependence. Moray's reliance on manufacturing and food processing creates sensitivity to global market conditions, while Highland's dependence on tourism introduces seasonal variability. The ageing population and rural geography may constrain future labour availability, highlighting a potential need for skills development and diversification.

17.4.2.6 In 2024, Moray had an employment rate of just over 73.6% and the Highlands had an employment rate of 74.5%. Scotland has an employment rate of 74.1%, falling below the Highlands average, yet above the Moray employment rate. Employment rates in both Moray and the Highlands fall below the UK which has an employment rate of 75.4% (ONS, 2025c).

17.4.2.7 In 2024, unemployment rates in Moray and the Highlands were 4.3% and 5.6% respectively, above both Scotland which has an unemployment rate of 3.7% and the UK which has an unemployment rate of 4.1% (ONS, 2025c).

17.4.2.8 GVA is the value generated by any unit engaged in the production of goods and services and is often used as a measure of prosperity. In Scotland as a whole, GVA per head was £52,500 in 2023. Moray and the Highlands are broadly in line with the Scotland average, with Moray falling slightly below the average at £51,700 and the Highlands slightly exceeding the average at £53,800. The figure for the UK as a whole is £56,600 per head (ONS, 2025d).

Qualifications

17.4.2.9 Across the period 2022–2024, Highland demonstrates relatively stable qualification levels. The proportion of residents aged 16–64 with higher-level qualifications (Regulated Qualifications Framework (RQF)4[24]+, remains around 48%, slightly below the Scottish average (53–55%) but consistently above the UK average (approximately 47%). Intermediate qualifications (RQF3+) are held by around 70–72% of Highland's working-age population, broadly in line with national trends. The share of individuals with no formal qualifications in Highland is modest, ranging from 7.2% to 8.7%, which is comparable to Scotland and slightly higher than the UK average. Moray exhibits more variability over the same period. In 2022 and 2023, RQF4+ attainment reached 47.6% and 51.1% respectively, and low levels of individuals with no qualifications (5.3% and 7.6%). However, in 2024, the proportion of residents with higher-level qualifications falls sharply to 43.9%, while the share with no qualifications rises significantly to 13.8%. This shift suggests potential challenges in workforce readiness and highlights the importance of targeted skills development initiatives to support participation in offshore wind supply chains (ONS, 2025c).

17.4.3 Tourism and Recreation Baseline

Visitor Accommodation

17.4.3.1 In the Highlands, 50% of visitors stayed in serviced accommodation and 60% stayed in non-serviced accommodation in 2023[25]. Of the 50% who stayed in serviced accommodation, 34% stayed in a motel, hotel or inn, 19% stayed in a guest house or B&B, and 4% stayed in a hostel. Of the 60% who stayed in non-serviced accommodation, 29% were staying in self-catering accommodation, 26% were camping, in a caravan or in a motorhome, and the remaining 4% were staying with friends or in a relative's home (Visit Scotland, 2023a).

17.4.3.2 In the Highlands in 2024, 75.9% of hotel rooms were occupied, 53.5% of guest houses and B&B rooms were occupied and self-catering units were 47.6% occupied (Visit Scotland, 2024).

17.4.3.3 In Moray, 64% of visitors stayed in serviced accommodation including hotels, B&Bs, motels and inns, 13% stayed in non-serviced accommodation including campsites, caravans, motorhomes and self-catering accommodation and 23% stayed with friends and family (Visit Scotland, 2023b).

[24] Level 4 is roughly equivalent to the first year of a university degree or a Higher National Certificate.
[25] Serviced and non-serviced adds to more than 100% due to some people staying in more than one accommodation type.

Value and Volume

17.4.3.4 Tourism in Scotland has grown significantly in recent years, and in 2024 international visitors made 4.4 million trips to Scotland with 30.7 million nights and £4 billion spent in total (Visit Scotland, 2025a).

17.4.3.5 In 2024, the Highlands had 1,790,000 overnight visitors. Of those visitors, 70% were domestic visitors and 30% were international. In total, domestic and international visitors spent £756,000,000 in 2024 (Visit Scotland, 2025b).

17.4.3.6 Visit Moray Speyside, which covers the area from the Moray Firth coastline to the Cairngorm Mountains, has reported on visitors and the economic impact of tourism since 2010. In 2023, Visit Moray Speyside reported that Moray had 877,600 overnight visitors (Global Tourism Solutions, 2024), generating £187,000,000 for the local tourism industry (Scottish Tourism Alliance, 2025).

17.4.3.7 In Aberdeen, Aberdeenshire and Moray, there were 1,360,000 overnight visitors in 2024, and of those visitors 82% were domestic visitors and 18% were international. In total, domestic and international visitors spent £395,000,000 in 2024 (Visit Scotland, 2025c).

Nature of Coastal Tourism and Recreation Offer

17.4.3.8 The Moray Firth Coastline offers a variety of inshore and offshore recreation activities, making it a popular destination for both locals and visitors. Notable inshore, offshore, and coastal activities include:

- Dolphin & Whale Watching: The Moray Firth is well known as a prime location in the UK and Europe to spot bottlenose dolphins, with tours operating from Findhorn, Buckie, and Lossiemouth (Whale and Dolphin Conservation, 2025);
- Sea Kayaking: Guided sea kayaking tours are available along the Moray Firth Coastline, providing access to sight of marine wildlife and coastal scenery, including caves and cliffs (Active Outdoor Pursuits, 2025);
- Boat Tours & Cruises: Operators such as North 58 Sea Adventures (North 58 Sea Adventures, 2026) offer wildlife cruises and scenic boat trips from Findhorn, Lossiemouth and other harbours (Trip Advisor, 2025);
- Recreational Fishing & Angling: The coast is popular for sea angling, with charter boats and shore-based fishing spots around Cullen, Buckie, and Portknockie (Visit Scotland, 2025c);
- Surfing & Watersports: Beaches like Findhorn, Nairn, Lossiemouth and Sandend are known for surfing, paddleboarding, and other water sports (Visit Scotland, 2025d);
- Sailing: Sailing is a popular inshore & offshore activity along the Moray Coast, with several opportunities for both recreational and training experiences; and

- Scuba Diving & Snorkeling: diving is an active and popular inshore & offshore recreation activity along the Moray Coast, with opportunities for both scuba diving and snorkelling.
    - Burghead Sub Aqua Club offers reef and wreck dives. Their RIB is moored at Lossiemouth during summer and used for expeditions across Scotland. The club supports divers of all experience levels and describes itself as having a strong social and training culture (Burghead Sub Aqua Club, 2025).
    - Macduff Marine Aquarium & Snorkel Trail offers snorkelling in kelp gullies and tide pools, with chances to see colourful marine species and even octopus. The site is part of the Moray Firth Snorkel Trail, developed by the Scottish Wildlife Trust and East Grampian Coastal Partnership (Scottish Wildlife Trust, 2025).
    - Local providers like Blue Coast Surf & Paddle (Cullen) and Suds Surf School (Sandend) offer snorkel and wetsuit hire, supporting accessible coastal recreation (Scottish Wildlife Trust, 2025).

17.4.3.9 Other coastal activities, taking place onshore but still strongly tied to coastal scenery and landscape include:

- Coastal walking and hiking, especially along the Moray Coastal Trail, which offers coastal views, access to beaches, and links to historic fishing villages (Scotland's Great Trails, 2025);
- Birdwatching and wildlife observation, with opportunities to spot seabirds, seals, and dolphins from clifftop paths and beaches (Birds in Moray and Nairn, 2025);
- Beachcombing and rock pooling, popular at locations like Lossiemouth and Cullen, especially for families and nature enthusiasts (Lossiemouth Business Association, 2025);
- Photography and painting, inspired by the area's rugged coastline, sea stacks, and changing light conditions (Moray Art Centre, 2025);
- Cultural and heritage tourism, including visits to coastal castles, harbours, and maritime museums that reflect the region's fishing and seafaring history (Buckie and District Fishing Heritage Centre, 2025). Museums, heritage centres and historical sites are popular attractions along the coast including the Covesea Lighthouse (Covesea Lighthouse Community Company, 2025) and Royal Navy and Airforce Heritage Centre, the Lossiemouth Fisheries and Community Museum (Lossiemouth Fisheries and Community Museum, 2025), the Nairn Museum, the Findhorn Heritage Centre (Findhorn Village Conservation Company, 2025), Burghead Pictish Fort (Burghead Visitor Centre, 2025) and Duffus Castle (Historic Environment Scotland, 2025);
- Golf is a major coastal activity along the Moray Firth coastline, offering some of Scotland's most scenic and historic courses (Moray Golf Club, 2025).

17.4.3.10 There are a number of caravan and holiday parks directly lining the Moray coastline including Burghead Holiday Park, West Beach Caravan Park, Silver Sands Holiday Park, Findhorn Bay Holiday Park, Findhorn Sands Caravan Park and Parkdean Resorts Nairn Lochloy Holiday Park (Google Maps, 2025).

17.4.3.11 Dornoch Firth is the only National Scenic Area sitting within the Tourism and Recreation Study Area, located approximately 17km from the Moray FLOW-Park. It is considered one of the most pristine estuaries in the UK, with minimal industrial development, and is also the focus of restoration projects (Ramsar Sites Information Service, 2025a).Other notable areas within the Tourism and Recreation Study Area include the Moray Firth Special Area of Conservation (SAC), a designated area to protect the unique marine environment and in particular the resident population of bottlenose dolphins (Moray Firth Coastal Partnership, 2025), and the Moray Firth Special Protection Area (SPA), a designated marine site established to protect important bird species and their habitats (Ramsar Sites Information Service, 2025b). Both areas attract visitors and nature enthusiast to Moray, with the opportunity to see unique wildlife and marine life.

17.4.4 Future Baseline

17.4.4.1 Scotland's population is projected to grow by 6.2% to 5.8 million by mid-2047, which will be driven primarily by high levels of positive net migration. Population growth in Scotland is expected to lag behind population growth in the UK as a whole, meaning Scotland's share of the UK population is expected to fall from 8.1% to 7.1% by mid-2047. The working aged population is set to grow overall by mid-2047. However, the proportion of working aged people in Scotland will fall slightly from 64.7% (2022) to 64.4% (National Record of Scotland, 2025b).

17.4.4.2 Employment growth is a key objective of Scotland's National Strategy for Economic Transformation. Forecasts for employment in Scotland predict that employment will grow by only 0.1% in 2025/6, before increasing to 0.6% in 2026/7. It is then expected to increase by 0.5% and then 0.4% per annum in subsequent years to 2030-31. Unemployment is projected to be stable at its structural 4.1% rate (Scottish Fiscal Commission, 2025). The Highlands and Islands has established a Regional Economic Partnership to help grow the region's economy, with a focus on the creation of high value jobs including those in the renewable energy sector (Highland and Islands Regional Economic Partnership, 2025).

17.4.4.3 Tourism in Scotland has increased significantly in recent years and Scotland is committed to ensuring future tourism is sustainable and aligned with net zero by 2045 goals. The Highland Sustainable Tourism Strategy 2024-2030 (The Highland Council, 2025) outlines how a thriving visitor economy will be maintained and highlights the importance of strengthening links between tourism and local industry. By linking with local industry partners, the strategy seeks to ensure that economic value is retained within Highland communities and supported through responsible, year-round activity. The strategy also focuses on housing supply and affordability, which have been impacted by the growth in tourism, particularly in rural areas, and it anticipates that 24,000 new houses will be required in Highland in the next ten years to address future housing demand.

17.4.4.4 Moray is currently developing a tourism strategy. In development of the strategy, over the coming months, Scottish Community Tourism Consulting will work alongside Moray Council, businesses, community organisations, residents, and wider stakeholders to gather insights through workshops, one-to-one and group online meetings, and targeted engagement with underrepresented voices. A Moray-wide tourism strategy survey is now live, and open to all residents, businesses, community groups, and organisations (Interchange, 2025).

17.5 Embedded Mitigation

17.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic, tourism and recreation receptors. These measures are presented below in Table 17-2 and in the Embedded Commitment Register (Appendix A). This will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 17-2: The proposed mitigation measures relevant to Socio-Economics, Tourism and Recreation receptors

Reference	Embedded Commitment/Mitigation
C1	Adherence to the Scottish Marine Wildlife Watching Code during construction, operation and maintenance.
C2	Development of and adherence to a Construction Method Statement (CMS) setting out construction procedures and good working practices, roles and responsibilities and construction related mitigation to be delivered.

Reference	Embedded Commitment/Mitigation
C3	Development of and adherence to a Piling Strategy (PS) to mitigate the underwater noise impacts arising from piling activity.
C4	Development of and adherence to a Design Statement (DS) to ensure that the Development is carried out in accordance with the approved details.
C6	The final layout and positioning for FLOW foundations will be defined, as far as possible, to limit impacts to the qualifying features of the Moray Firth Special Area of Conservation (SAC) and the Moray Firth SPA and other environmental considerations. Foundations will also be stored sensitively to reduce environmental impacts.
C7	Development of and adherence to an Environmental Management Plan (EMP).This will ensure that all construction and operation activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the Application, or as otherwise agreed, are fully implemented.
C8	Development of and adherence to a Vessel Management Plan (VMP) to mitigate the impact of vessels.
C9	Development of and adherence to a Navigational Safety Plan (NSP) to mitigate the navigational risk to other legitimate users of the sea.
C10	Appointment of a Fisheries Liaison Officer (FLO) to facilitate engagement with the commercial fishing industry.
C11	Development of and adherence to a Development Specification and Layout Plan (DSLP) to confirm final development specification and layout.
C16	Development of and adherence to a Lighting and Marking Plan (LMP). This may ensure navigational safety and the safe marking and lighting of the Development. This would mitigate potential socio-economic, tourism and recreation impacts related to impacts on shipping.
C24	Development of and adherence to a Fisheries Mitigation Monitoring and Communication Plan (FMMCP) to mitigate impacts upon commercial fishermen.
C28	Development of and adherence to an Emergency Response Cooperation Plan (ERCoP) to identify measures in place to support emergency response. Prepared in line with Marine Coastguard Agency guidance. This may help to mitigate any potential socio-economic impacts on local emergency services.
C30	Local mariners and fishermen's organisations will be made fully aware of proposed works through a local notification. This will be issued at least 14 days before the commencement of any construction / operation and maintenance works through a Notice to Mariners (NtM).

Reference	Embedded Commitment/Mitigation
C35	Navigational lighting of the Project (Inshore) will not be exhibited, altered or discontinued without the statutory sanction of the Commissioners of Northern Lighthouses.
C36	Failure of lighting and marking will be appropriately reported and rectified as soon as practicable. Interim hazard warnings will be put in place as required.
C37	No fully integrated turbines will be installed within the Moray FLOW Park.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.
C47	All reasonable, appropriate and practicable steps will be taken at the end of the operational life of the Moray FLOW-Park to restore the site of the works to its original pre-construction condition, or to as close to its original condition as is reasonably practicable.

17.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

17.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon socio-economic, tourism and recreation receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

17.6 Scoping of Impacts

17.6.1.1 An initial assessment of the likelihood of effects on socio-economics, tourism and recreation due to Project activities for the Scoping stage of the EIA process is presented in Table 17-3. This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Section 17.5, together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for socio-economic, tourism and recreation effects associated with Project activities; relevant policy; and the professional judgement of qualified socio-economic specialists.

Table 17-3: Scoping assessment for Socio-Economics, Tourism and Recreation

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction & Decommissioning			
Impact on economy and jobs during the construction phase	N/A	Scoped In	Impacts on the local labour market, GVA and supply chain within the local and national socio-economic study areas are likely to be experienced during the construction phase. The inshore coastal nature of the Project combined with the technical requirements creates a significant local value opportunity during construction. Local value and local jobs can be supported by the provision of wet storage sites, bringing jobs and economic value to coastal areas. The impacts would be beneficial due to the creation of direct, indirect and induced jobs for local people
Impact on accommodation availability during the construction phase	N/A	Scoped In	An influx of workers during construction could create additional demand and competition for local tourism accommodation, potentially leading to pressure on supply of both tourism accommodation and private rented accommodation, particularly in the short-term housing rental market. If construction workers require short-term accommodation in nearby towns and villages, particularly in areas with limited hotel, Bed & Breakfast, or private rental capacity, this could lead to reduced availability and price inflation, especially during peak seasons. Tourism is a significant contributor to the Moray economy. Any reduction in visitor numbers or satisfaction due to

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			accommodation constraints could affect local businesses, including hospitality, retail, and visitor attractions. The impact of the growth of tourism in housing supply and affordability, particularly in rural areas, is highlighted in the Highland Sustainable Tourism Strategy 2024-2030 (The Highland Council, 2025), and any exacerbation of this issue would have implications for the local economy and tourism sector. The potential impact on tourism and private rented accommodation availability and affordability during the construction phase is therefore considered relevant for this topic. Local residents, visitors and businesses may experience both positive effects (increased occupancy and spending) and negative effects (reduced availability and price increases).
Pressure on emergency and health care services during the construction phase	C28	Scoped Out	General Practice's nationally are facing a serious and prolonged sustainability challenge. These challenges are felt acutely in Moray, with long standing recruitment and retention issues. Some practices are struggling to maintain services. Practice numbers in Moray decreased from 16 in 2007 to 12 in 2023, a decrease of 25%. Practice numbers in Grampian have gradually declined from 84 in 2007 to 69 in 2023, a decrease of just under 18% (Moray Council, 2023). The potential for an influx of workers during the construction period could create increased pressure on emergency and healthcare services. The construction phase of the Project may

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			bring a temporary influx of non-local, working-age contractors. However, these workers are typically rotational and rely on employer-provided occupational health services rather than local NHS provision. Given the scale of the Project, their short-term presence and the precedent from offshore wind farm infrastructure projects, which have not shown significant increases in local healthcare demand (in the EIAs), it is reasonable to scope out impact on demand for emergency and healthcare services.
Pressure on education services during the construction phase	N/A	Scoped Out	The potential for an influx of workers during the construction period could generate increased pressure on education services. Although some construction workers may have families, experience shows they rarely relocate with them for temporary work. As such, it is unlikely that the construction phase will result in additional pressure on local education infrastructure, since workers typically do not relocate and enrol children in local schools during short or medium-term work assignments.
Impact on the visitor economy if the visual impact of construction were to deter potential visitors	C11, C12, C13	Scoped In	There may be an impact on the visitor economy if the visual impacts of construction were to deter potential visitors. The potential for such an impact will depending on the number and size of foundations and construction vessels, and the duration and frequency of their visibility. Construction activities are likely to occur inshore, at distances where visibility from coastal tourism receptors (e.g. viewpoints, beaches, accommodation) is minimal. Any visual changes during construction are expected to be temporary and non-

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			permanent, with no lasting alteration to the seascape or coastal character from construction activities. Given the limited scale and duration of visual impacts (Chapter 16: SLVIA), it is considered unlikely that the visual impact of construction activities would deter visitors or materially affect tourism behaviour or spending.
Impact on the enjoyment of inshore recreation and visitor activities and businesses operating in the Moray FLOW-Park Area during the construction phase	C1, C2, C3, C4, C6, C7, C8, C9, C16, C35 & C36	Scoped In	There is a potential impact on inshore recreation and inshore visitor activities as a result of inshore construction activity as a result of access restrictions, visual and noise disturbance, safety concerns and perception effects. The impact on inshore recreation and visitor activities has been scoped into the EIA due to the potential presence of sensitive marine leisure uses such as boating, angling, wildlife watching, and diving that may be disrupted by construction related access restrictions and visual disturbance. These activities are enjoyed by both visitors and residents, contribute to the local tourism economy and are often seasonal, meaning overlap with construction could lead to reduced enjoyment and/or economic effects.
Socio-economic effects as a result of effects on commercial fishing during the construction phase	C6, C9, C10, C16, C24, C28, C30, C35 & C36	Scoped In	There is potential for changes in social and economic conditions experienced by individuals, communities, and industries that rely on commercial fishing, due to potential disruptions or alterations caused by construction activities. Impacts scoped into Chapter 12: Commercial Fisheries[26] have potential to impact negatively on the local fishing economy.

[26] Reduction in access to, or exclusion from, established fishing grounds, displacement of fishing activity leading to gear conflict and increased fishing pressure on adjacent grounds, disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity, increased vessel traffic associated with the Project within fishing grounds leading to interference with fishing activity, additional steaming to alternative fishing

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Socio-economic effects as a result of disruptions to port access during the construction phase	C5, C6, C8, C9, C11, C13, C16, C24, C28, C29, C30, C35, C36, C28, C42, C43 & C37	Scoped In	Socio-economic effects may be experienced by individuals, businesses, and communities that depend on the port for their livelihoods, trade, transportation, and services. These effects arise when construction activities limit, delay, or alter access to port infrastructure, affecting the flow of goods, services, and people.
Socio-economic, tourism and recreation effects during decommissioning	C46 & C47	Mirror construction phase scoping	The effects during decommissioning will be considered at a high level. In general, with respect to socio-economics, tourism, and recreation, there is currently insufficient certainty and information to support a detailed assessment. It is typically assumed that the impacts during decommissioning will be no greater than those experienced during construction.
O&M			
Impact on economy and jobs during the operational phase	C2, C10, C15, C30, C48, C49, C51	Scoped In	Impacts on the local labour market, GVA and supply chain within the local and national socio-economic study areas are likely to be experienced during the operational phase; the impacts may be beneficial due to the creation of direct, indirect and induced jobs for local people, including services provided for the maintenance of the Moray FLOW-Park infrastructure. The operational phase of the Project is expected to generate beneficial socio-economic impacts within the local, regional and national economy. These impacts justify inclusion in the

grounds for vessels that would otherwise fish within the Project, physical presence of infrastructure leading to gear snagging, disruption to seasonal fishing patterns and reduced safety and visibility for small vessels.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			EIA due to their potential significance and relevance to community wellbeing and economic development. The operation of the Project will require ongoing maintenance, monitoring, and logistical support, creating direct employment opportunities for local residents. These roles may include marine operations, technical maintenance, and administrative support. GVA: The economic activity associated with operations, particularly through employment and procurement, will contribute to local, regional and national GVA. This includes both the value of services provided and the multiplier effects from increased local spending. Supply Chain Development: The Project is likely to stimulate indirect and induced economic activity by engaging local suppliers for goods and services such as vessel support, equipment servicing, catering, and accommodation. This can strengthen existing supply chains and encourage new entrants, particularly in coastal and marine sectors. Given Moray's proximity to existing offshore wind infrastructure and its evolving role in Scotland's energy transition, these impacts may be strategically important for regional development.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Long term impact on tourism receptors and tourism during the operational phase	C4, C6, C11, C16, C35, C38, C37, C46, C48	Scoped In	The Moray coast is recognised for its scenic value, wildlife, and recreational opportunities, which contribute significantly to the local tourism economy. The introduction of the Project may result in long-term changes to the visual, environmental, and qualities of the area, which has potential to influence tourism activity and perceptions and therefore the tourism economy. Note this could also provide new industrial tourism as seen from Aberdeen harbour with the close proximity of Aberdeen Bay and Kincardine Windfarms.
Impact on inshore recreation and inshore visitor activities as a result of inshore activity during the operational phase	C5, C6, C8, C9, C11, C13, C16, C29, C30, C35, C36, C42, C48	Scoped In	The operational phase of the Project may result in long-term changes to inshore recreational use and visitor experiences, warranting inclusion in the EIA due to the potential for both disruption and opportunity. As set out within Section 17.4, the Moray Firth supports a range of inshore recreational uses, including sailing, kayaking, diving, wildlife watching, and sea angling. These activities contribute to the local tourism economy and are valued by residents and visitors alike. Operational activities such as vessel movements, maintenance works, and exclusion zones may affect access to inshore areas or alter the experience of recreational users. This could lead to displacement or reduced enjoyment. Inshore recreation also supports local businesses (for example charter operators, equipment hire, hospitality) and contributes to the identity and attractiveness of the region. With appropriate planning and stakeholder engagement, there may be opportunities to minimise conflict and enhance recreational value, safety measures, or educational

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			interpretation related to renewable energy. There are examples in the UK (e.g. Rampion) where local recreation business (for example boating tours) have utilised the offshore wind development as an attraction. Note this could also provide new industrial tourism as seen from Aberdeen harbour with the close proximity of Aberdeen Bay and Kincardine Windfarms.
Socio-economic effects as a result of effects on commercial fishing during the operational phase	C6, C9, C10, C16, C24, C28, C30, C35 and C36	Scoped In	Commercial fishing remains an important activity within parts of the Moray Firth region, contributing to local employment, livelihoods, and coastal economies. While the industry has declined over time, some coastal communities in Moray continue to depend on commercial fishing, with some individuals relying on it as a primary or supplementary source of income, particularly in areas with enduring fishing traditions. Even small scale disruptions could have disproportionate effects on household incomes, local businesses, and community resilience. The operational phase of the Project may result in limited spatial and operational interactions with fishing activity, which could lead to socio-economic consequences that warrant assessment within the EIA. The presence of the Project and associated vessel movements may limit access to small areas of established fishing grounds or alter fishing patterns, potentially resulting in reduced catch volumes or increased operational costs. Such operational impacts may persist over the lifespan of the facility and could interact with wider pressures on the fishing sector, such as

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
			evolving marine spatial planning requirements and environmental change, thereby amplifying socio-economic risks. Fishing stakeholders are often highly sensitive to changes in access and resource availability. Early identification and assessment of potential impacts can support constructive engagement, mitigation planning, and compliance with marine policy frameworks.
Socio-economic effects as a result of disruptions to port access during the operational phase	C5, C6, C8, C9, C11, C13, C16, C24, C28, C29, C30, C35, C36, C42, C43 & C37	Scoped in	The presence of the Moray FLOW-Park and associated vessel transits may impact access to local facilities.

17.7 Potential Cumulative Effects

17.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment. For socio-economics, tourism and recreation, cumulative interactions have greatest potential to occur with other major infrastructure projects developed within the local socio-economic study area and offshore (for example offshore wind farms).

17.7.1.2 Examples of cumulative effects to be considered include the potential economic impacts arising from the development of the Moray FLOW-Park in combination with other offshore wind projects in the region. This assessment will be informed by publicly available information, including planning documents and consenting portals.

17.7.1.3 In addition to economic considerations, the socio-economics, tourism and recreation CEA assessment will consider:

- Cumulative visual impacts from multiple offshore infrastructure developments and the potential knock-on effects on the tourism economy; and
- Cumulative disturbance to inshore recreation receptors, including sailing, wildlife watching, and other marine leisure activities, where overlapping operational footprints may affect access, safety, or experience.

17.7.1.4 The CEA for socio-economics, tourism and recreation will consider the MDS for each of the projects, plans and activities in line with the methodology outlined in Chapter 4: EIA Methodology.

17.8 Potential Transboundary Effects

17.8.1.1 No transboundary impacts on socio-economic, tourism and recreation pathways are anticipated to occur as a result of the Project activities during construction, O&M or decommissioning. while there may be limited economic value created outside the UK (via imported goods and services), any predicted impacts on these pathways will largely be within the national socio-economic study areas and will not give rise to effects on the marine environment beyond UK waters. therefore, it is proposed to scope out transboundary impacts with regards to socio-economics, tourism and recreation.

17.9 Proposed Approach to EIA

17.9.1 Guidance

17.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of socio-economics, tourism and recreation receptors will also comply with the following guidance documents where they are specific to this topic:

- Guidance on assessing the socio-economic impacts of offshore wind farms (Glasson et al, 2021) and the local socio-economic impacts of offshore wind farms (Glasson et al, 2022): The research undertaken by Oxford Brookes University provides good practice guidance and detail on impacts for stakeholders on the under-assessed socio-economic implications and opportunities emanating from the growth in the offshore wind industry.
- Marine Scotland. Defining 'Local Area' for assessing impact of offshore renewables and other marine developments: Guidance Principles (Scottish Government, 2022d)
- Green Book: Central Government Guidance on Appraisal and Evaluation (HM Treasury, 2022)
- Environmental Impact Assessment (Scotland) Regulations 2017: Marine Works (Environmental Impact Assessment) (Scotland) Regulation 2017 (Scottish Parliament, 2017a) & Town and Country Planning (EIA)(Scotland) Regulations 2017 (Marine Scotland, 2017b). Requires the assessment of likely significant effects on the environment, including population, human health, and socio-economic factors.
- Marine (Scotland) Act 2010: Governs marine planning and licensing in Scottish waters. Socio-economic impacts must be considered in marine licensing decisions.
- Land Reform (Scotland) Act 2003 (as amended 2016): Protects public access rights, which are relevant for assessing impacts on recreation and tourism.
- National Planning Framework 4 (NPF4, 2023): Policy 11: Energy – requires developments to demonstrate net economic impact, including local and community socio-economic benefits.
- National Marine Plan (Scottish Government, 2015b): Sets out objectives for sustainable development of marine resources, including consideration of socio-economic and cultural impacts.
- Sectoral Marine Plan for Offshore Wind Energy (Draft Updated 2025): Includes a Social and Economic Impact Assessment (SEIA) methodology for evaluating impacts on marine sectors and communities.
- Scottish Government Guidance on Socio-Economic Impact Assessment for Marine Protected Areas (2022a): Provides a framework for assessing

social and economic impacts, which can be adapted for offshore wind and marine infrastructure projects.
- ScotMER Socio-Economic Evidence Maps: Identifies knowledge gaps and priorities for socio-economic assessment in offshore renewable energy developments.

17.9.1.2 It is also important that the socio-economic, tourism and recreation assessment takes account of the local and national policy objectives. This will include key policy documents such as Scotland's National Strategy for Economic Transformation (Scottish Government, 2022e) and Offshore Wind Policy Statement (Scottish Government, 2020b).

17.9.1.3 In addition, best practice from Offshore Wind EIAs provide methodologies for assessing tourism, recreation, and socio-economic impacts.

17.9.2 Additional Data Sources

17.9.2.1 A more detailed baseline review will be developed for the EIA, building upon the high-level baseline provided within this Inshore Scoping Report. This will include:

- Primary research on potential tourism and recreation impacts.
- Data collection to inform an economic impact assessment.
- A literature review of the potential impacts of offshore wind on tourism economies, tailored to the Project context.

17.9.3 Assessment Methodology

17.9.3.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

17.9.3.2 The methodology will be further developed for each impact and outline the approach for assessing the socio-economic, tourism, and recreation impacts of the proposed FLOW Park in Moray during its construction and operational phases. It will draw on established EIA practice, Scottish Government guidance, and sector-specific evidence.

17.9.3.3 Receptors will be assessed using criteria adapted from established EIA practice:

- Sensitivity: Based on value, vulnerability, and adaptability of receptors.
- Magnitude: Based on scale, duration, reversibility, and spatial extent of change.

17.9.3.4 Significance will be determined using a matrix combining sensitivity and magnitude.

Economic Impact Assessment (Construction and Operational Phases)

17.9.3.5 An economic impact assessment will be undertaken for both the construction and operational phases of Moray FLOW-Park. This will build on the methodology used in the Floating Wind Temporary Storage (TS-FLOW™) UK North assessment. Evidence from that study will be used to produce estimates of the effects of increased local spending resulting from direct investment in goods and services, including multiplier effects within the local and national socio-economic study areas. Model inputs will be based on expenditure estimates provided by Offshore Solutions Group.

17.9.3.6 Impact magnitude will be assessed using thresholds commonly applied in offshore wind farm EIAs. Receptor sensitivity will be determined through professional judgement, informed by baseline data and relevant policy documents (such as economic strategies and sector-specific growth plans), with a focus on the relative importance of job creation and GVA in the local and national socio-economic study areas.

Visitor Economy Assessment (Operational Phase)

17.9.3.7 A detailed baseline of tourism and recreation businesses within the ZTV will be developed, supported by a literature review of tourism impacts. The assessment will combine:

- Primary research: Consultation with key stakeholders (e.g. VisitScotland, local tourism boards) and sensitive receptors such as coastal holiday parks; and
- Secondary research: Review of evidence on the impacts of wind turbine generators on tourism, focusing on UK offshore wind farms within 20 km of shore and UK onshore wind farms in areas with strong tourism economies or valued landscapes[27].

[27] Although this project involves temporary storage of FLOW foundations only and does not constitute an offshore wind farm or involve turbine installation, the concept of FLOW foundation wet storage is relatively new with a limited evidence base on tourism and recreation impacts. As a result, wind farm research is used only as a supplementary source where appropriate, recognising that fixed-bottom offshore and onshore wind developments provide the nearest available analogue for considering potential tourism responses to temporary structures in the marine environment, and landscape change. However, any parallels drawn are constrained, and findings from wind-farm studies are not assumed to directly represent effects from this temporary storage activity.

17.9.3.8 The assessment will consider visitor demographics and the nature of the tourism offer to provide a holistic view of potential impacts on tourism volume and value. Impact magnitude will be based on potential changes in visitor numbers and spend, assessed through professional judgement. Receptor sensitivity will be informed by the relative importance of tourism in the Tourism and Recreation Study Area, including reference to baseline data and local tourism strategies.

Accommodation Assessment (Construction Phase)

17.9.3.9 This assessment will evaluate supply and demand for both visitor and rental accommodation during the construction phase, based on data availability of an area within a 45-minute drive time of the construction port location(s). The Developer will consult with local authorities to identify relevant data sources, including VisitScotland and local tourism audits.

17.9.3.10 Workforce accommodation needs will be estimated using outputs from the economic impact assessment and technical input from the Developer. Receptor sensitivity will be informed by indicators such as occupancy rates and rental prices. Impact magnitude will consider the potential for the Project to contribute to a situation where demand exceeds supply.

Inshore Recreation Impact Assessment (Construction and Operational Phases)

17.9.3.11 A review of potential disturbance and access restrictions in the Moray FLOW-Park Area will be conducted, supported by consultation to understand recreational use. The assessment will focus on activities such as sailing, kayaking, and diving, and will account for seasonal variation in use.

17.9.3.12 Baseline data from Chapter 13: Shipping and Navigation will inform usage levels. Impact magnitude will consider the likelihood and scale of disruption. Receptor sensitivity will be assessed for each user group, based on their vulnerability to potential impacts.

Socio-Economic Effects from Commercial Fishing Impacts (Construction and Operational Phases)

17.9.3.13 This assessment will align with Chapter 12: Commercial Fisheries, including shared baseline data and stakeholder engagement. It will consider:

- Literature review and exclusion zones
- Nature and extent of fishing activity in the affected area
- Potential for spatial overlap and operational conflict
- Socio-economic implications for fleets, businesses, and communities.

17.9.3.14 The assessment will be contextualised within the baseline commercial fishing economy and will evaluate both direct and indirect socio-economic effects.

Socio-economic effects as a result of disruptions to port access

17.9.3.15 This assessment will align with Chapter 13: Shipping and Navigation, including shared baseline data and stakeholder engagement. It will consider the construction and O&M of the Moray FLOW-Park and how associated vessel transits may impact access to local facilities.

Effects During Decommissioning

17.9.3.16 The effects during decommissioning will be considered at a high level. In general, with respect to socio-economics, tourism, and recreation, there is currently insufficient certainty and information to support a detailed assessment. It is typically assumed that the impacts during decommissioning will be no greater than those experienced during construction.

17.10 Scoping Questions

17.10.1.1 The following Scoping questions refer to the Socio-Economics, Tourism and Recreation Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- do you agree with the study area(s) defined for socio-economics, tourism and recreation?
- Are there any specific local communities, tourism hotspots, or recreational areas that should be considered in more detail within the study area?
- Are there any seasonal or temporary populations (e.g. holidaymakers, migrant workers) that should be considered in the baseline?
- Do you agree with the use of those data listed in Section 17.3, and any additional anticipated data listed in Section 17.3, being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Are there any key stakeholders or organisations (e.g. local tourism associations, recreational clubs, fishing cooperatives) that should be consulted during the assessment?
- are there any community-led initiatives or local development plans that should be considered in the assessment?
- do you agree that all receptors related to socio-economics, tourism and recreation have been identified?
- Do you agree with the scoping in and out of impact pathways in relation to socio-economics, tourism and recreation?

- Do you agree with the assessment of transboundary effects in relation to socio-economics, tourism and recreation?
- Do you agree with the assessment of cumulative effects in relation to socio-economics, tourism and recreation?
- Are there any other developments or plans in the area that should be considered in the cumulative assessment for socio-economics, tourism and recreation?
- Do you agree with the proposed assessment methodology for socio-economics, tourism and recreation?
- Do you agree with the proposed approach to assessing the sensitivity of receptors (e.g. tourism businesses, accommodation providers, recreational users)?
- Do you agree with the proposed use of professional judgement where the ability to assess quantitatively is limited?
- Are there any specific mitigation or enhancement measures you would expect to see considered for socio-economic, tourism or recreation impacts?

18 Climate

18.1 Introduction

18.1.1.1 This chapter of the Inshore Scoping Report identifies the climate receptors of relevance to the Project and considers the potential impacts from the construction, O&M and decommissioning phases of the Project on climate up to MHWS.

18.1.1.2 For the purposes of this Inshore Scoping Report and subsequent EIAR, the climate assessment includes the following three individual climate change assessments:

- **GHG Emissions[28] assessment (i.e., carbon assessment)** – This will quantify the estimated GHG emissions associated with the construction, O&M, and decommissioning phases of the Project, and will compare these against current and future baseline GHG emission levels. In addition, the assessment will identify appropriate mitigation measures aimed at minimising GHG emissions throughout the Project's life cycle. For the purposes of this assessment, the term 'carbon' is used interchangeably to refer to GHG emissions;
- **Climate Change Resilience Assessment (CCRA)** – this will identify what climate changes are expected to occur in the future, and the vulnerability and resilience of the Project to those identified changes in climate; and
- **In-combination Climate Change Impact (ICCI) assessment** – This will identify instances where projected climate change may interact with environmental impacts arising from the Project, resulting in potentially significant effects on environmental receptors within the scope of the EIA that would not occur under current climatic conditions.

18.2 Study Area

18.2.1.1 The study area that will apply to each type of assessment is set out below.

18.2.2 GHG Assessment

18.2.2.1 The study area for the GHG assessment encompasses all relevant sources and sinks of GHG emissions associated with the construction, O&M and decommissioning phases of the Project, as outlined below.

[28] The 'basket' of GHGs defined under the Kyoto Protocol (which will form the basis of this assessment) comprises carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), Sulphur hexafluoride (SF6), and nitrogen trifluoride (NF3).

18.2.2.2 For the construction phase assessment, the study area is defined by all emission sources linked to the development and installation of the Project. This includes emissions from the extraction, processing, and manufacture of construction materials; transportation of these materials and equipment to site (including long-distance supply chains where applicable); and on-site construction activities such as energy and fuel consumption, plant operation, and waste management.

18.2.2.3 For the O&M phase assessment, GHG emissions associated with the maintenance, repair, and replacement of FLOW-Park permanent infrastructure will be evaluated. GHG emissions resulting from user utilisation of infrastructure and operational energy use of the Project will be considered.

18.2.2.4 The assessment will also look to estimate the net carbon benefits of the Project with respect to its role in supporting the FLOW industry. This is dependent on the identification of suitable metrics to benchmark the carbon of the Project against a scenario where the FLOW Park is not constructed and operational.

18.2.2.5 The GHG assessment will adopt a whole-life carbon approach, in accordance with Publicly Available Specification (PAS) 2080: Carbon Management in Infrastructure (British Standards Institution, 2023) and the IEMA Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (IEMA, 2022).

18.2.2.6 A summary of GHG emission sources considered within the PAS 2080 lifecycle assessment informing this chapter is presented in Table 18-1.

Table 18-1: Summary of GHG study area components within the climate assessment

Project Stage	PAS 2080 Lifecycle Stage	Description	Justification for Assessment Inclusion/ Exclusion
Pre-construction	A0	Preliminary studies, consultation	Excluded – work predominantly office-based and assumed to be negligible.
Construction	A1-3	Raw material supply	Included.
	A4	Transport to works site	Included.
	A5	Construction/installation processes	Included – emissions associated with plant use and fuel for vehicles/ shipping during construction processes.
	D	Land use change	Excluded – inshore components assumed to be negligible.
Operation	B1	Use	Excluded – GHG emissions associated with fabric of products and materials once they have been installed is assumed to be negligible.
	B2, B3, B4	Maintenance, repair and replacement (permanent FLOW-Park infrastructure).	Included
	B5	Refurbishment	Excluded – the Project is not expected to undergo refurbishment during its lifetime.
	B6	Operational energy use	Excluded – GHG emissions associated with energy consumption (e.g., lighting) are likely to be negligible inshore. Any assessment of low carbon electricity generation benefits will

Project Stage	PAS 2080 Lifecycle Stage	Description	Justification for Assessment Inclusion/ Exclusion
			be included in this lifecycle stage.
	B7	Operational water use	Excluded – GHG emissions associated with water use on site are likely to be negotiable inshore.
	B8	Other operational processes	Excluded – other GHG emissions associated with the Project (such as management of operational waste) are likely to be negligible inshore.
	B9	User utilization of infrastructure	Included – emissions associated with energy use for storage of FLOW foundations.
	D	Ongoing land use emissions and sequestered	Excluded – offshore components assumed to be negligible.
Decommissioning	C1	Deconstruction	Included.
	C2	Transport	Included.
	C3	Waste processing for recovery	Included.
	C4	Disposal	Included.

18.2.2.7 The temporal boundary for GHG emissions assessment constitutes the construction phase (assumed to commence work in 2028 for a duration of approximately 3-6 months), O&M phase and decommissioning phase.

18.2.3 CCRA

18.2.3.1 The study area for the CCRA encompasses both the permanent and temporary construction footprints within the Project spatial boundary (see Figure 1.1). The assessment considers all relevant climate-related hazards that could affect the infrastructure and assets associated with the Project. Climate risks and potential effects are evaluated across the full appraisal period of the Project, reflecting its design life and operational timeframe.

18.2.3.2 The primary source of information to characterise future climate conditions is the UK Climate Projections 2018 (UKCP18) dataset (Met Office, 2023). These projections provide modelled climate change data for land and coastal zones, which, while not specific to inshore environments, are considered suitable for use in a proportionate assessment of climate risk.

18.2.3.3 For the purposes of this assessment, baseline and projected climate parameters derived from UKCP18 for the local region have been applied, on the basis that they are broadly representative of expected conditions in the adjacent inshore area. It is recognised that some UKCP18 parameters such as those relating to fluvial or surface water flooding are not directly applicable to inshore contexts.

18.2.4 ICCI Assessment

18.2.4.1 The study area for the ICCI assessment is the study area for each environmental discipline as described in the relevant technical chapters of this Scoping Report.

18.3 Data Sources to Inform the EIA Baseline Characterisation

18.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this Climate Chapter are presented below. These data sources will be taken forward and used to inform the EIA, in addition to any site-specific data that will be collected for the Project.

18.3.2 GHG Assessment

18.3.2.1 The information to inform the GHG assessment will be from a combination of Project specific information available at the current design stage alongside publicly available industry benchmarks, and assumptions based on industry knowledge, that can be used to provide a preliminary estimate of embodied carbon emissions and operational energy.

18.3.2.2 The carbon emissions for the Project will be calculated by converting 'activity' data into carbon emissions through the application of referenced typical emissions conversion factors widely used within the industry. These emissions may include the following:

- Greenhouse Gas Reporting: Conversion Factors (published annually);
- Inventory of Carbon and Energy database V3; and
- Valuation of energy use and GHG emissions for appraisal: supplementary guidance to the HM Treasury Green Book.

18.3.2.3 The main reference periods for assessing emissions will be in line with the UK Carbon Budget Periods, covering 2025-2037 (Fourth, Fifth and Sixth Budget), summarised in Table 18-2.

Table 18-2: Carbon budget periods.

Carbon Budget and Period	Carbon Budget Limit	Reduction below 1990 levels
Fourth (2023-2027)	1,950 $MtCO_2e$	50% by 2025
Fifth (2028-2032)	1.725 $MtCO_2e$	68% by 2030*
Sixth (2033-3037)	969 $MtCO_2e$	78% by 2035
* Originally 57% when Fifth Carbon Budget was enshrined in law, has recently been increased to 68% as the UK's National Determined Contribution ahead of the United Nations' Conference of the Parties (26) (COP26) in November 2021 (BEIS, 2020).		

18.3.3 CCRA

18.3.3.1 As part of the CCRA, future projected climate conditions and extreme weather events for the area encompassing the Project will be provided up to the 2060s. These time periods will cover the assumed operational life of the Project.

18.3.3.2 Using the historical baseline data, changes in average climate conditions will be obtained from the UKCP18 probabilistic projections of climate change to establish the future climate baseline.

18.3.3.3 In the Inshore EIAR, climate change projections for a range of meteorological parameters will be presented for different probability levels within the RCP8.5 high emission scenario for the near-term and long-term future time periods for the 2060s.

18.4 Description of Baseline Environment

18.4.1.1 Although Scotland has exceeded the interim carbon budgets established under the Climate Change (Scotland) Act 2009 (as amended in 2019), the UK as a whole remains off track to achieve its longer-term emission reduction targets, as highlighted in the COP27: Key Outcomes and Next Steps for the UK report (Climate Change Committee, 2022). Outcomes from the COP27 conference held in Egypt reaffirmed the critical role of offshore wind in supporting Scotland's pathway toward net-zero emissions. In this context, the Project represents a significant contribution to national decarbonisation objectives. The Project will be designed and delivered to minimise GHG emissions throughout its lifecycle, supporting the overarching aim of achieving carbon neutrality where practicable. The Project also supports indirectly through its key enabler role of assisting other OWF developers to deliver their projects and provide their contribution to net-zero

18.4.2 GHG Assessment

18.4.2.1 In accordance with the IEMA (2022) Guidance: Assessing Greenhouse Gas Emissions and Evaluating Their Significance, the baseline, or Do-Minimum (DM) scenario, has been established to provide a reference against which the potential GHG emissions associated with the Project can be assessed. This baseline represents the current environmental conditions in the absence of the Project. Namely, a situation in which no infrastructure is present within the Project boundary. The baseline scenario incorporates reasonable assumptions regarding projected cumulative GHG emissions within the study area, assuming the Project does not proceed.

18.4.2.2 At present, no inshore or offshore infrastructure exists within the Project area. Routine vessel transits and fisheries activity currently occur within the vicinity of the Project; however, associated GHG emissions are expected to be negligible. The Scottish Government's Climate Change Plan (ScotGov 2025) reports that direct GHG emissions from Scottish fishing vessels represent approximately 0.7 % of overall emissions and 2.4 % of the domestic transport sector's emissions. Accordingly, for the purpose of this assessment, the baseline GHG emissions within the study area are assumed to be zero.

18.4.3 CCRA

18.4.3.1 High level climatology observations are generated by the Met Office. The Project is based in the Moray Firth. Kinloss is the nearest point of reference. Historical observations recorded over a 30-year period are presented in Table 18-3.

Table 18-3: Average climatic conditions and observations, taken from Kinloss, between 1991-2020 (source Met Office, 2023).

Climatic Conditions	Climate observations (1991-2020) Kinloss
Temperature	The mean annual maximum temperature at Kinloss was 12.67 °C, and the mean annual minimum temperature was 5.42 °C. During winter months (November to February), average maximum daily temperatures ranged from 5.36 °C to 6.73 °C, and minimum daily temperatures ranged from 0.25 °C to 1.48 °C. In summer months (June to August), average maximum daily temperatures ranged from 14.53 °C to 15.56 °C, and minimum daily temperatures ranged from 7.03 °C to 8.73 °C
Sunshine	The average annual sunshine hours at Kinloss during this period were 1,383.55 hours, with the sunniest months being May and June, recording 203.36 hours and 198.6 hours, respectively.
Rainfall	The annual average amount of rainfall was 662 mm. The amount of days it rained in the year >1 mm on average was 136.
Wind	The annual average speed of the wind at 10 m was 9.00 knots, with a peak average in February of 10.28 knots.
Air Frost	Air frost occurs when the temperature at 1.25 m above the ground falls below 0°C. The average of number of days of air frost was 49.50 annually.

18.4.4 ICCI Assessment

18.4.4.1 The baseline for the ICCI assessment will be the baseline as described in each of the relevant technical chapters of this Inshore Scoping Report.

18.5 Embedded Mitigation

18.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 7-7 and in the Embedded Commitments Register (Appendix A) and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 18-4: The proposed embedded mitigation measures relevant to Climate receptors

Reference	Embedded Commitment/Mitigation
C2	Development of and adherence to a Construction Method Statement (CMS) setting out construction procedures and good working practices, roles and responsibilities and construction related mitigation to be delivered.
C4	Development of and adherence to a Design Statement (DS) to ensure that the Development is carried out in accordance with the approved details.
C7	Development of and adherence to an Environmental Management Plan (EMP). This will ensure that all construction and operation activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the Application, or as otherwise agreed, are fully implemented.
C8	Development of and adherence to a Vessel Management Plan (VMP) to mitigate the impact of vessels.
C9	Development of and adherence to a Navigational Safety Plan (NSP) to mitigate the navigational risk to other legitimate users of the sea.
C11	Development of and adherence to a Development Specification and Layout Plan (DSLP) to confirm final development specification and layout.
C38	Typical separation distance between foundations of 600 m
C43	Development of and adherence to an Operation and Maintenance Programme (OMP) to safeguard environmental interests during operation and maintenance.
C45	Only foundations to be stored within Moray FLOW-Park Area.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.

18.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

18.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon Climate receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

18.6 Scoping of Impacts

18.6.1.1 An initial assessment of the likelihood of effects on Climate due to Project activities and risks to the Project *from* climate change for the Scoping stage of the EIA process is presented below. This assessment is based on a combination of the following:

- The definition of the Project at the Scoping stage;
- Embedded mitigation (as presented in Section 17.5 and Appendix A, together with the means by which it will be secured);
- The level of understanding of the baseline at the present Scoping stage; and
- the existing evidence base for Climate effects associated with Project activities; relevant policy; and the professional judgement of qualified climate specialists.

18.6.2 CCRA

18.6.2.1 During the Project's construction period (currently assumed to be 2027), there is potential for climate scenarios (such as extreme weather events) to negatively impact on activities. However, as the construction period is limited to 3 months, these risks are considered to be limited. Climate conditions and climate change present a greater risk to the Project during the extended operational phase. During decommissioning, climate conditions will present increased risks compared to the construction period, due to climate change over time.

18.6.2.2 Climate risks during the construction phase may include:

- Increased wave heights and the occurrence of intense inshore storms have the potential to affect safe vessel navigation and inshore construction activities, as well as increasing the risk of physical damage to construction vessels, equipment, and associated infrastructure.

18.6.2.3 Key potential climate change risks during the O&M phase are summarised below:

- Higher air temperatures and the occurrence of more intense inshore storms may impact the safety of the maintenance workforce;
- Increased wave heights and the occurrence of more intense inshore storms may adversely affect vessel safety and the integrity of FLOW foundations during movement in and out of the FLOW Park. Maintenance operations, vessel safety, and the integrity of installed infrastructure and wet storage of FLOW foundations;
- Repeated exposure to extreme weather conditions can lead to cumulative fatigue in anchoring systems and increase the potential for mooring or

anchor line failure. Enhanced wave energy and shifting current regimes may further increase seabed scouring around anchors, reducing holding capacity and long-term structural stability;

- Sea level rise may amplify wave loading and hydrodynamic forces on moorings, and anchors, increasing the likelihood of fatigue and mechanical wear. Mooring systems designed for current sea levels may require adaptation or reinforcement over the operational lifetime of the Project;
- Higher humidity and increased winter precipitation may accelerate corrosion of metallic elements above the waterline. In parallel, lower seawater pH may enhance corrosion rates for submerged metallic structures, accelerate coating degradation, and increase maintenance requirements; and
- Rising sea temperatures may increase biofouling of mooring lines resulting in elevated hydrodynamic drag, greater structural fatigue, and higher maintenance and cleaning demands.

18.6.2.4 Key potential climate change risks during the decommissioning phase include:

- Higher air temperatures and the occurrence of more intense inshore storms may impact the safety of the decommissioning workforce;
- Increased wave heights and the occurrence of more intense inshore storms (2060s) may adversely affect safe vessel navigation and inshore decommissioning activities, potentially resulting in physical damage to vessels, equipment, and existing infrastructure; and
- Long-term climate influences acting on installed infrastructure throughout the operational period may increase the difficulty of decommissioning, for example, through enhanced corrosion, material degradation, or structural weakening.

18.6.3 GHG Assessment

18.6.3.1 The Project will lead to the generation of GHG emissions during construction. However, the Project will enable and support the generation of low carbon electricity once FLOW foundations are installed to their respective sites and are operational, which will (assuming it reduces or avoids fossil fuel use) provide a net benefit against a future baseline in the absence of the Project.

18.6.3.2 The potential sources of GHG emissions during the Project lifecycle are outlined in Table 18-5.

Table 18-5 Potential sources of GHG emissions during project lifecycle.

Sub-stage of PAS 2080 Lifecycle	Potential Source of GHG Emissions
Construction	
Product stage: including raw material supply, transport, and manufacture (A1-3).	Embodied GHG emissions associated with the required raw materials. Vehicle emissions for transportation prior to factory gate. Energy use for fabrication of marine project elements (e.g., anchors). Industrial and energy emissions in the manufacture of materials.
Construction process stage: including transport to and from works site as well as construction and installation processes (A4-5).	Vehicle and shipping emissions for transportation of materials to site. Energy and fuel use in construction processes.
O&M	
Operation and maintenance (including repair and replacement) (B2-B5).	Energy consumption for infrastructure operation and activities of organisations conducting routine maintenance including extraction, manufacture, transportation, and installation energy use. Embodied carbon associated with materials used for repair and replacement activities.
Decommissioning	
Decommissioning (C1-4).	Energy consumption in deconstruction process. Vehicle and shipping emissions for transportation of materials away from site. Waste management of decommissioning materials.

Table 18-6: Scoping assessment for Climate

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction and Decommissioning			
GHG emissions associated with construction materials (raw material supply, transportation, and manufacture).	C2, C4, C7, C11, C43, C46	Scoped In	Project will lead to generation of GHG emissions during construction in relation to the construction materials associated with the foundation anchors, buoys and foundation moorings.
GHG emissions associated with the construction phases including transportation to site and installation processes.	C2, C4, C7, C11, C43, C46	Scoped In	Construction and installation activities associated with the Project (foundation anchors, buoys and moorings) will lead to generation of GHG emissions.
CCRA of construction and decommissioning period.	C2, C4, C4, C7, C8, C9 C11, C37, C38, C43, C46	Scoped In	The Project has potential to be negatively impacted by changes in the climate (such as extreme weather events) during construction and decommissioning.
ICCI during decommissioning period.	C2, C4, C4, C7, C8, C9 C11, C37, C38, C43, C46	Scoped In	The Project has potential to be negatively impacted by significant effects on environmental receptors within the scope of the EIA which are not present under current climate conditions, during decommissioning.
GHG emissions associated with decommissioning processes and waste materials.	C2, C4, C7, C11, C43, C46	Scoped In	The decommissioning of the Project will lead to generation of GHG emissions.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
O&M			
GHG emissions associated with O&M including energy use.	C2, C4, C7, C11, C43, C46	Scoped In	The generation of low carbon electricity during the O&M phase will be supported by the Project, the net benefits against a future baseline will be assessed, dependent on the identification of suitable metrics to benchmark the carbon of the Project against a scenario where the FLOW Park is not constructed and operational.
GHG emissions that are associated with maintenance including materials used for repair and replacement activities.	C2, C4, C7, C11, C43, C46	Scoped In	There will be a generation of GHG emissions during the maintenance cycles associated with material replacement and repair activities for the Project.
CCRA of operational period.	C2, C4, C4, C7, C8, C9 C11, C37, C38, C46, C40	Scoped In	Anticipated changes of climate (like extreme weather events) may negatively impact the Project during O&M.
ICCI of operational period.	C2, C4, C4, C7, C8, C9 C11, C37, C38, C39 & C46	Scoped In	The Project has potential to be negatively impacted by significant effects on environmental receptors within the scope of the EIA which are not present under current climate conditions, during O&M.

18.7 Potential Cumulative Effects

18.7.1.1 As outlined in Chapter 4 (EIA Methodology), potential cumulative impacts will be assessed through a Cumulative Impact Assessment (CIA), which identifies and evaluates combined effects arising from the Project in conjunction with other existing, consented, or proposed projects. For the Climate topic, potential cumulative interactions may occur with other projects and infrastructure in the vicinity of the Project boundary, such as nearshore cable routes.

18.7.1.2 The CIA for Climate will consider the Maximum Design Scenario for the project, plan, and activity in accordance with the methodology set out in Chapter 4: EIA Methodology.

18.7.1.3 In accordance with IEMA guidance on GHG assessment (IEMA, 2022), cumulative impacts will be scoped out of the GHG Assessment, as GHG emissions are globally mixed pollutants and cumulative effects are not considered meaningful at a project level.

18.7.1.4 For CCRA, cumulative impacts would only arise where other project activities and infrastructure may exacerbate climate-related risks to the Project. Although such interactions are not considered likely, given the nearshore location with the Moray Firth, this will be scoped into the assessment.

18.7.1.5 For the ICCI assessment, cumulative effects could occur where climate change influences other environmental receptors that are themselves subject to cumulative pressures from multiple activities. While such cases are anticipated to be limited in extent, potential ICCI cumulative impacts will be scoped into the ICCI review to ensure these risks are appropriately addressed.

18.8 Potential Transboundary Effects

18.8.1.1 GHG emissions are inherently transboundary in nature, as they contribute to global atmospheric concentrations irrespective of the point of emission. Accordingly, GHG emissions associated with the Project will be considered in the context of national and international carbon reduction targets, which align with the global commitments established under the COP27 Agreement and other relevant climate accords.

18.8.1.2 The Project is located at a substantial distance from the nearest adjacent EEZ of any other state. Given this separation, it is not anticipated that any transboundary environmental effects will arise as a result of the Project. As such, transboundary impacts are scoped out of further assessment within this EIA.

18.8.1.3 Similarly, for the CCRA and ICCI assessments, no significant transboundary effects are anticipated, and these have therefore been scoped out of further consideration.

18.9 Proposed Approach to EIA

18.9.1 Guidance

18.9.1.1 In addition to the general approach and guidance outlined in Chapter 4 (EIA Methodology), the assessment of Climate receptors will also comply with the following guidance documents where they are specific to this topic:

- UKCP18 (UK Climate Projection data base office, 2018);
- Inventory of Carbon and Energy Database - Obtain emission factors for the GHG assessment;
- Climate Change Act (2008) - Help to reach the six carbon budgets;
- BEIS - Data for GHG emissions;
- IEMA (2022): EIA Guide to Assessing GHG Emissions and Evaluating their Significance; and
- IEMA (2020): EIA Guide to Climate Change Resilience and Adaptation.

18.9.2 Additional Data Sources

18.9.2.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this scoping report. The key data sources to be applied for the GHG, CCRA and ICCI assessments are as described in Section 18.3.

18.9.3 Assessment Methodology

18.9.3.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

GHG Assessment

18.9.3.2 The GHG assessment will be undertaken in accordance with best practice principles set out in the IEMA (2022) – Assessing Greenhouse Gas Emissions and Evaluating Their Significance. This guidance provides the established framework for the quantification, interpretation, and reporting of GHG emissions within Environmental Impact Assessments.

18.9.3.3 The assessment will quantify and report the GHG emissions anticipated to be generated or avoided as a result of the Project. Emissions will be expressed in tonnes of carbon dioxide equivalent (tCO_2e), a unified metric representing the Global Warming Potential (GWP) of the principal greenhouse gases.

18.9.3.4 The assessment methodology will focus on evaluating the net carbon impact of the Project by quantifying GHG emissions across all lifecycle stages, including construction, O&M, and decommissioning. Emissions will be compared against the Do-Minimum baseline scenario to determine the net change in GHG emissions attributable to the Project.

18.9.3.5 As part of this process, the Developer will identify and evaluate opportunities to reduce whole-life carbon emissions, ensuring that feasible measures to minimise emissions are integrated across both construction and operational phases of the Project.

18.9.3.6 While the construction phase of the Project is expected to result in a temporary increase in GHG emissions, the operational phase will deliver long-term benefits through the support the renewable energy industry, thereby contributing to national decarbonisation targets. These assumptions will be verified and reported within the EIAR and contextualised where possible against relevant sectoral and regional GHG emission baselines, dependent on the identification of suitable metrics to benchmark carbon of the Project against a scenario where the FLOW Park is not constructed and operational.

CCRA

18.9.3.7 The CCRA will evaluate the resilience of the Project to potential future climate change impacts. The assessment will identify and address potential climate-related hazards that could affect the Project during the construction, O&M and decommissioning phases, ensuring that risks to infrastructure, safety, and functionality are appropriately considered.

18.9.3.8 The CCRA will adopt a qualitative methodology, identifying future climate hazards and assessing their potential impacts and associated risks to the Project. The appraisal of significance will be based on a structured evaluation of likelihood and consequence in accordance with the IEMA Guidance on Climate Change Resilience and Adaptation (2020).

18.9.3.9 Key climate change-related factors, including extreme weather events, sea level rise, and storm surges, will be integral to the assessment process. These factors will be considered throughout the design, construction, and operational phases to ensure that the Project remains robust, adaptive, and resilient under projected future climate conditions.

18.9.3.10 The CCRA will identify where additional resilience measures may be required to address potentially significant impacts from climate change. The development of appropriate high-level resilience measures will be undertaken, involving key engineering, design, and environmental specialists to ensure that climate-related risks are effectively mitigated.

18.9.3.11 Appropriate mitigation and adaptation measures will be embedded within the overall environmental and engineering design framework for the Project. Through this integrated approach, it is anticipated that any potential deficiencies in climate resilience will be minimised. The EIAR will confirm and detail the adequacy of these measures and their effectiveness in ensuring the Project's long-term resilience to climate change.

ICCI Assessment

18.9.3.12 Following consideration of potential climate change impacts, professional judgement will be applied by environmental specialists to develop high-level qualitative assessments of potential topic-specific impacts arising from projected climate change, to determine their significance. These will consider both long-term climatic trends and extreme weather events in relation to receptors and resources within the area surrounding the Project. The assessment will also provide recommendations for appropriate mitigation measures and outline future monitoring requirements to ensure that any unexpected impacts on environmental receptors and resources are identified and addressed in a timely manner.

18.9.3.13 In-combination impacts will be evaluated across all relevant environmental topics to ensure a comprehensive understanding of potential effects and the adequacy of the proposed adaptive design measures.

18.10 Scoping Questions

18.10.1.1 The following Scoping questions refer to the Climate Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the study area(s) defined in Section 18.2 for climate?
- Do you agree with the use of those data listed in Section 18.3 being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to climate have been identified?
- Do you agree with the scoping in and out of impact pathways in relation to climate?

- Do you agree with the assessment of the potential for transboundary effects in relation to climate?
- Do you agree with the assessment of the proposed approach to cumulative effects in relation to climate?
- Do you agree with the proposed assessment methodology for climate?

19 Infrastructure and Other Users

19.1 Introduction

19.1.1.1 This Chapter of the Inshore Scoping Report identifies the Infrastructure and Other Users (IOU) receptors of relevance to the Project and considers the potential impacts from the construction, O&M and decommissioning of the Project on IOU receptors up to MHWS.

19.1.1.2 This Chapter should be read alongside the following other chapters:

- Chapter 6: Marine and Coastal Processes;
- Chapter 7: Marine Water and Sediment Quality;
- Chapter 9: Fish and Shellfish Ecology;
- Chapter 12: Commercial Fisheries;
- Chapter 13: Shipping and Navigation;
- Chapter 15: Military and Civil Aviation; and
- Chapter 17: Socio-economics, Tourism and Recreation.

19.2 Study Area

19.2.1.1 The spatial coverage of the IOU Study Area is dependent on the nature of the type of impact on the receptors identified. These types of impact are grouped into the following for the purposes of identifying Study Areas:

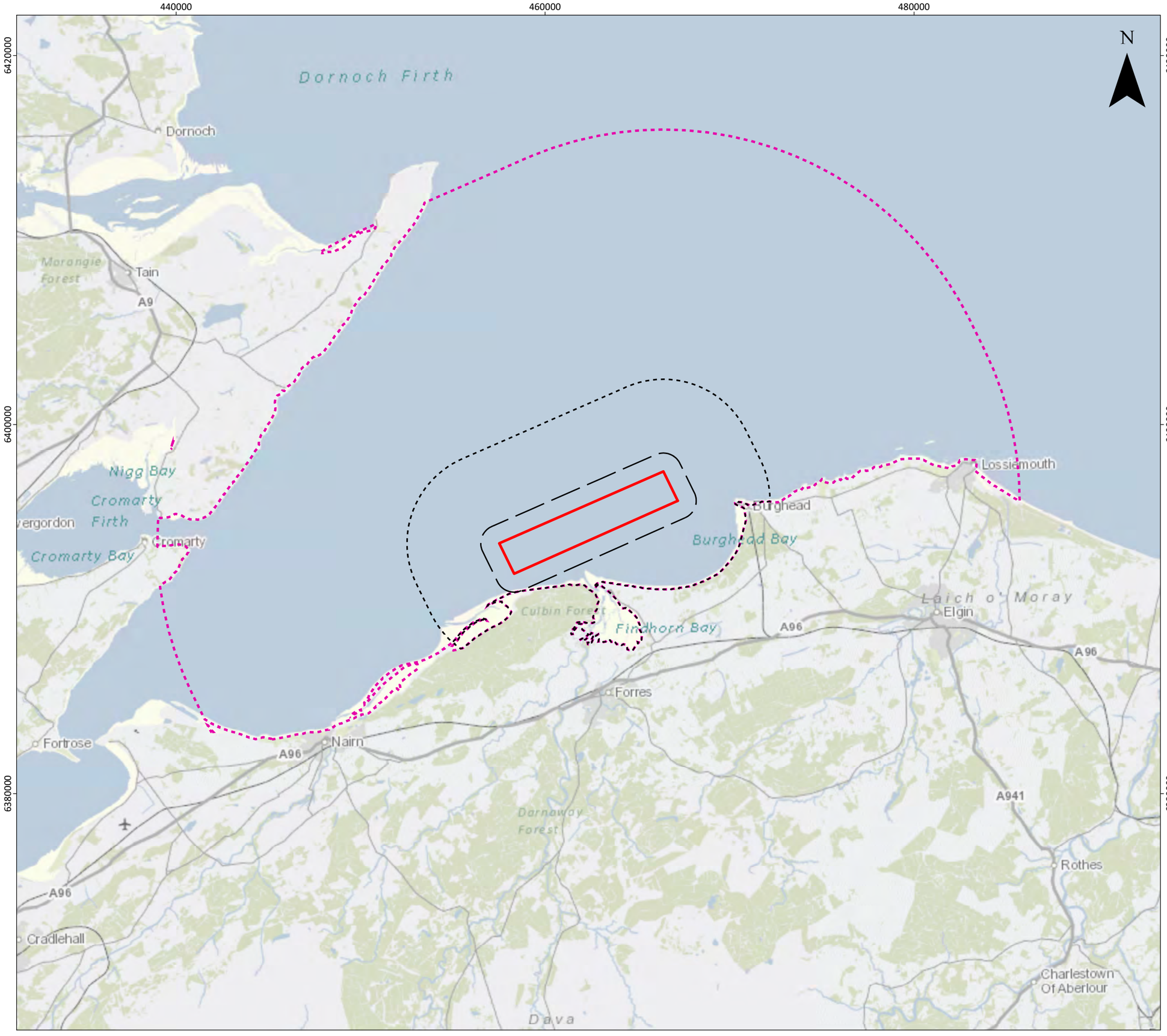
- Impacts associated with direct overlap of activities;
- Impacts associated with sediment deposition; and
- Impacts associated with vessel displacement.

19.2.1.2 For impacts associated with direct overlap of activities, the Study Area is limited to the Inshore Project Boundary plus a 1 km buffer around these areas (to account for a potential 500 m safety zone associated with the Project, as maybe required by MCA or NLB, and a 500 m safety zone associated with another marine user). This is hereafter referred to as the Direct Impacts Study Area.

19.2.1.3 For impacts associated with deposition, the Study Area has been determined as the extent of the spring tidal excursion, 5 km from the Inshore Project Boundary (extending into inlets and bays where appropriate). This is hereafter referred to as the Indirect Impacts Study Area. This is representative of the maximum area over which suspended sediments may be detected following disturbance as a result of construction activities, and therefore where deposition may occur. This is a precautionary approach, and a ZoI will subsequently be developed that will be informed by the physical processes assessment of tidal excursions and sediment plume pathways. This ZoI will provide a more refined area in which impacts associated with deposition have the potential to occur.

19.2.1.4 For impacts associated with vessel displacement, the Study Area extends 18.52 km (10 nm) from the Inshore Project Boundary, this is consistent with the approach used in Chapter 13: Shipping & Navigation and is based on standard practice for shipping and navigation assessment Study Areas. This is hereafter referred to as the Vessel Displacement Study Area.

19.2.1.5 These Study Areas are presented in Figure 19-1. It should be noted that as the application for the Project progresses, it may be subject to refinements and the Study Areas as described above may be refined as a result of this work and further assessments.



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Inshore Scoping Report

Infrastructure and Other Users Study Areas

Legend

- Moray FLOW-Park
- Direct Study Area (1km)
- Indirect Study Area
- Vessel Displacement Study Area (10nm/18.52km)



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Coordinate System:
WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

Scale	Date	Drawn by	Checked by	Approved by
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Figure 19-1

Figure Reference: MFP_IOU_Fig19-1_StudyAreas_v2

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19.3 Data Sources to Inform the EIA Baseline Characterisation

19.3.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this IOU Chapter are presented in Table 19-1. These data sources will be taken forward and used to inform the EIA, in addition to any site-specific data that will be collected for the Project.

Table 19-1: Key sources of IOU data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
Marine Themes Vector - Oceanwise	Offshore cables and pipelines, utilities and aquaculture activities	Full coverage of the IOU Study Area.
North Sea Transition Authority (NSTA) Open Data – Data Centre	Publicly available GIS data, details on oil and gas licensing rounds and UK oil and gas activity.	Full coverage of the IOU Study Area.
Crown Estate Scotland National Marine Plan Interactive (NMPi)	Aggregate production areas, disposal sites, carbon capture and storage, tourism and recreation, offshore wind farms, wave and tidal projects.	Full coverage of the IOU Study Area.
Kingfisher Information Service Offshore Renewables and Cable Awareness project (KIS-ORCA)	Locations of major subsea infrastructure including power cables and pipelines across the UK and Europe.	Full coverage of the IOU Study Area.
UKHO	Military Practice and Exercise and Danger Areas (PEXAs).	Full coverage of the IOU Study Area.

19.4 Description of Baseline Environment

19.4.1.1 An initial desk-based review of literature and available data sources (see Table 19-1) has been undertaken to support this Inshore Scoping Report. The findings of this research are presented below in order to provide an understanding of the Project environment and inform the Inshore Scoping process.

19.4.1.2 Figure 19-2 and Figure 19-3 illustrate the identified receptors within the context of the Study Areas. The key IOU receptors which will inform this Inshore Scoping Report and the subsequent Environmental Impact Assessment Report (EIAR) include:

- Offshore wind projects;
- Subsea cables and pipelines (telecommunications and subsea cables);
- Marine dredging and disposal (capital, maintenance, and aggregate);
- Aggregate extraction;
- Defence and security;
- Wastewater treatment and disposal;
- Oil and gas infrastructure;
- Carbon Capture, Utilisation and Storage (CCUS);
- Aquaculture;
- Marine recreational users;
- Wave and tidal projects; and
- Nuclear cooling and intake systems.

19.4.1.3 If a receptor is deemed not to occur and/or not have influence within the Project Study Area (based on the premise that there are no relevant or licensed activities), this has been detailed within the baseline environment and the receptor has not been considered further.

19.4.2 Summary of Key Receptors

19.4.2.1 A summary of the IOU baseline environment is provided in the following sections. The desk-based review identified the following key IOU receptors and activities (existing, consented and proposed) that overlap with the IOU Study Areas, the summary of baseline receptors is also provided in Table 19-2.

Offshore Renewable Energy (including OWFs, INTOG, Tidal Energy and Wave Energy Developments)

19.4.2.2 A review of existing or proposed offshore renewable energy developments overlapping with the IOU Study Areas identified no OWFs, tidal energy or wave energy developments within the Study Areas.

Subsea Cables and Utilities

Subsea Cables

19.4.2.3 There are two subsea cables present within the IOU Study Areas, which are not presently defined. One of the cables is present within both the Indirect and Direct Study Areas and one is present in just the indirect Study Area (Figure 19-2).

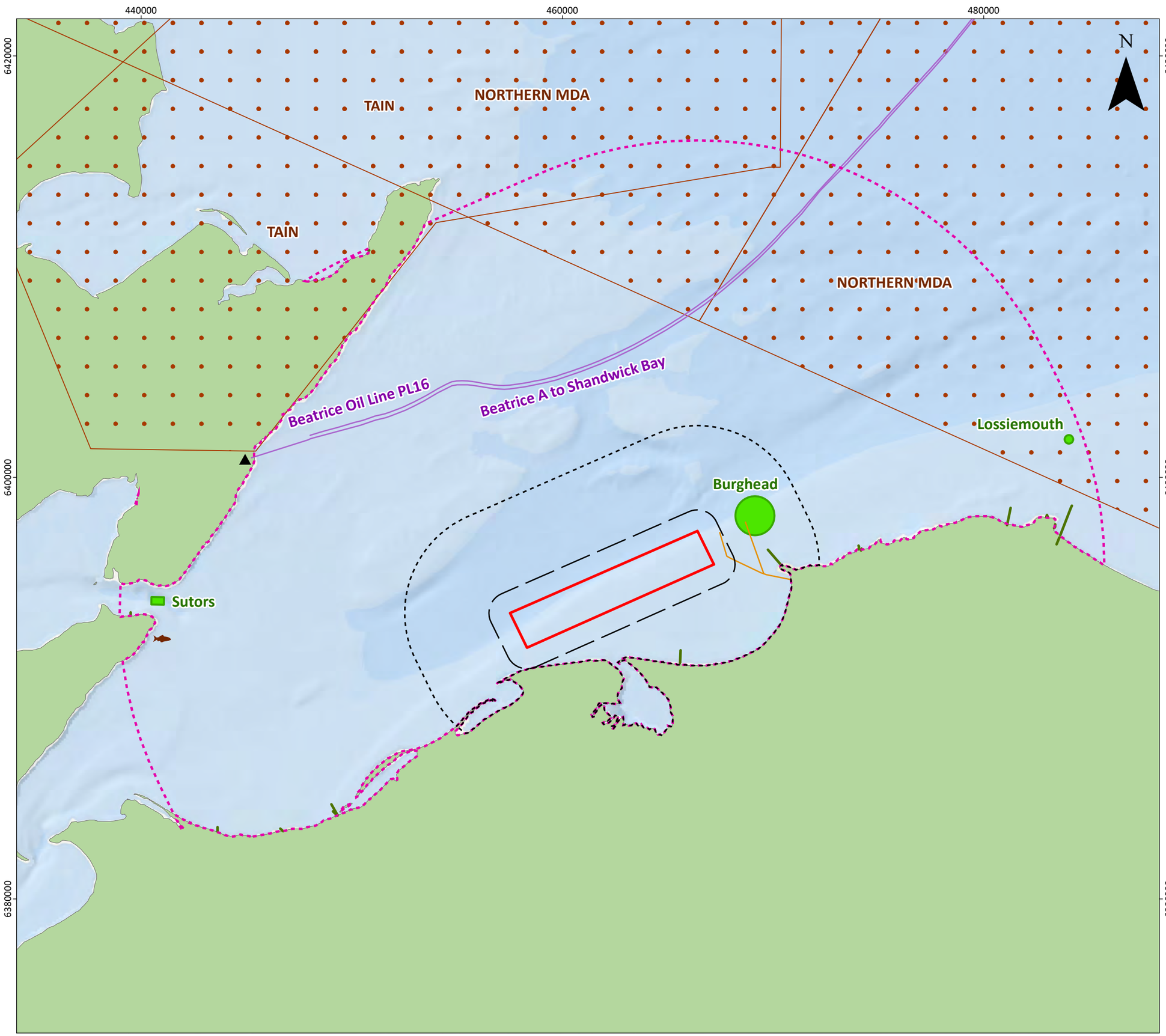
19.4.2.4 There is no information available on whether these assets are telecommunications cables or power cables. The most recent information available suggests that these cables are not in use. The nearest is 0.75 km from the Project, therefore as there are no direct impacts and the cables are not in use there are no impacts resulting from the Project.

Wastewater Treatment and Disposal

19.4.2.5 There are 18 outfall pipes located across the Vessel Displacement Study Area, as presented in Figure 19-2. However, none of these outfalls are located within the 1km buffer for direct impacts, and therefore there are no outfall pipes of relevance to impacts resulting from the Project.

Marine Dredging and Disposal Activities

19.4.2.6 Dredging and disposal activity within the Moray Firth is sporadic and associated with port and harbour maintenance and coastal marine disposal sites. The marine disposal sites within the Vessel Displacement Study Area and 5 km buffer for indirect impacts are Burghead, Sutors and Lossiemouth. These sites are presented in Figure 19-2 and Table 19-2.



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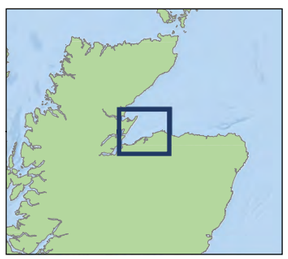
Subsea Cables and Utilities, Aquaculture, PEXA, O&G and Disposal Sites within the Infrastructure and Other Users Study Area

Legend

- Moray FLOW-Park
- Direct Study Area (1km)
- Indirect Study Area
- Vessel Displacement Study Area (10nm/18.52km)
- Open Disposal Sites
- PEXAs
- Surface Features - Active
- Fish Farm
- Outfall Pipes
- Pipelines - Not In Use

Subsea Cables (Type - Status)

- Submarine - Not In Use



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

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Figure 19-2

Figure Reference: MFP_IOU_Fig19-2_SubseaCablesDisposalSitesAndVariousInfrastructure_v2

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440000
460000
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N

PORTMAHOMACK HARBOR
INVERGORDON
CROMARTY
BURGHEAD
LOSSIEMOUTH

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Moray FLOW-Park
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Recreational Users and Activity within the Infrastructure and Other Users Study Area

Legend

- Moray FLOW-Park
- Direct Study Area (1km)
- Indirect Study Area
- Vessel Displacement Study Area (10nm/18.52km)
- Ports
- RYA Clubs

Marine Scotland Recreation Survey 2015

High : 80

Low : 0



Notes

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Coordinate System:
WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

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Figure 19-3

Figure Reference: MFP_IOU_Fig19-3_MarineRecreationalActivities_v2

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Oil and Gas Infrastructure

19.4.2.7 Most oil and gas fields on the UK Continental Shelf are located in the North Sea, with the nearest being Beatrice Field in the Moray Firth being closer to shore and within the 12 nm territorial sea limit but outside of the IOU Study Areas.

Licence Blocks

19.4.2.8 The are no oil and gas license blocks present within the IOU Study Areas:

Wells, Manifolds, Surface and Subsea Structures

19.4.2.9 The Nigg Bay Terminal is an oil and gas terminal located 12.8 km from the Project. The Nigg Bay Terminal was commissioned in 1981 as part of the Beatrice Field development and is currently undergoing decommissioning. The site is proposed to be redeveloped as a factory, which will extend the existing renewable energy sector work carried out at the Port of Nigg (Global Energy Group, 2025).

Pipelines

19.4.2.10 There are two not in use oil and gas pipelines within the IOU Study Areas, as presented in Figure 19-2 (Beatrice Oil Line PL16 and Beatrice A to Shandwick Bay). However, neither of these pipelines are located within the 1km buffer for direct impacts or 5 km buffer for indirect impacts, and therefore there are no pipelines of relevance to impacts resulting from the Project.

Carbon Capture, Utilisation and Storage

19.4.2.11 The Scottish Government has a clear policy to decarbonise electricity generation by 2030 and it is intended that CCUS will support this. The closest CCUS development to the Project is the Acorn CCUS development, which will target a reservoir in the Goldeneye Field, in the outer Moray Firth (Scottish Government, 2024).

19.4.2.12 It is understood that there are no current plans to develop CCUS projects in the Study Area and it is unlikely that any offshore storage opportunities in the Moray Firth will be further investigated prior to or during the installation of the Project (Marine Scotland, 2022a). On this basis, potential interactions between the Project and CCUS activity will not be assessed further.

Other Marine Infrastructure

PEXA

19.4.2.13 There is one PEXA area identified within the Study Areas for firing and demolition of unexploded ordnance. Tain is a PEXA area located approximately 14.33 km from the Project, and is designated for bombing, firing, demolition of unexploded ordnance, high energy manoeuvres, and parachute dropping, and is used by the Air Force Department. This site is presented in Figure 19-2 and Table 19-2. Areas of aerial activity (Northern Military Danger Area (MDA) (Figure 19-2)) will be considered in Chapter: 15 Military and Civil Aviation.

Aquaculture

19.4.2.14 A fish/shellfish farm is identified within the Study Areas this is located 16.56 km from the Project. This site is presented in Figure 19-2 and Table 19-2. This is outside of any direct impacts and outside of the 5 km Study Area for indirect impacts. The site is inside of the Vessel Displacement Study Area however impacts will not arise through vessel displacement as the location of the aquaculture sites is outside of any direct sailing route from the Project to any Port or offshore location.

Nuclear

19.4.2.15 There are no nuclear facilities or plans for future nuclear developments in the Moray Firth (Scottish Government, 2023a).

Recreational Activities

19.4.2.16 The inshore location of the Project means that there is the potential for recreational use to overlap with the Project and its IOU Study Areas. This section focuses on the marine activities associated with tourism and recreation.

19.4.2.17 The NMPi Marine Recreation and Tourism Survey (2015) showed in general a low to high activity level along the coastline in this region, with it being highest nearest the coast. Tourism and recreational activities are highly seasonal with peak levels of tourism occurring in the summer months. During the peak season the Scottish Marine Recreation and Tourism Survey (2015) assessed marine activity levels. Using this dataset several recreational activities have been identified of being of importance along the coast of the Moray Firth. These are highlighted below:

- Sea angling, pockets of high activity for sea angling exist within the IOU Study Areas and the area is popular with charter boats and shore-based fishing spots (Visit Scotland, 2025);

- Watersports and surfing e.g. wind surfing, surfing and sea kayaking: Findhorn Bay is popular for personal watercraft such as windsurfing and dinghy sailing;
- Recreational sailing;
- Bird and Wildlife watching: The Moray Firth is well known as a prime location for dolphin and whale watching, with tours operating from Findhorn, Buckie and Lossiemouth (Whale and Dolphin Conservation, 2025); and
- Scuba diving and snorkelling particularly at wreck sites.

19.4.2.18 Water sports businesses have been identified along the coastline surrounding the Project. Moray Firth and the Findhorn area is utilised by companies and individuals specialising in wind sports such as kitesurfing, WingSurfing, WingFoiling and eFoiling (Figure 19-3). Findhorn Water sports, Findhorn RYA Club is located 2.83 km from the Project and specialises in dinghy sailing, canoeing, in addition to offering RYA courses (Figure 19-3). Lossiemouth Cruising and Sailing Clubs and Nairn Sailing Club are also present with the Study Areas.

19.4.2.19 There are also businesses providing wildlife tours from Findhorn Marina, running daily trips around the Moray coastline seven days a week in Summer and private charters in Winter.

19.4.2.20 Several harbours and ports exist within the wider Vessel Displacement Study Area, namely, Lossiemouth, Burghead, Cromarty, Invergordon and Portmahomack Harbour as shown in Figure 19-3. Impacts to vessel activity from these Ports will be assessed in Chapter 13: Shipping and Navigation, the IOU chapter will assess only the receptors undertaking recreational activity.

19.4.3 Summary of Baseline

19.4.3.1 A summary of the baseline receptors identified is presented in Table 19-2.

Table 19-2: Summary of baseline receptors.

Receptor	Phase	Distance to site
Subsea cables		
Undefined cable	Not in use	0.75 km
Undefined cable	Not in use	2.11 km
Dredging and disposal		
Burghead	Operational	1.86 km
Sutors	Operational	16.44 km
Lossiemouth	Operational	17.68 km

Receptor	Phase	Distance to site
Oil and gas infrastructure		
Beatrice A to Shandwick Bay Pipeline	Not in use	9.10 km
Beatrice Oil line Pipeline PL16	Not in use	9.26 km
Nigg Bay Terminal – Port of Nigg Energy Park	Active/Consented	14.59 km
PEXA		
Tain	Operational	14.33 km
Aquaculture		
Marine fish farm	Unknown	16.56 km
Recreational activities		
Various recreational activities	Various	Various

19.4.4 Future Baseline

19.4.4.1 The baseline environment is not static and will exhibit some degree of change over time, with or without the Project in place. Therefore, when undertaking impact assessments, it will be necessary to place any potential effects in the context of the envelope of change that might occur naturally over the lifetime of the Project. This future baseline will be defined for the purposes of the EIA.

19.4.4.2 However, for the purposes of assessment, projects that are in planning or where development may reasonably occur have been included in the list of key receptors identified in the baseline Section 19.4 and will be assessed. Therefore, a level of uncertainty and precaution must be attributed to any receptors that are not currently operational, as there is no complete certainty that they will be developed or developed exactly according to the information currently available.

19.5 Embedded Mitigation

19.5.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 7-7 and in the Embedded Commitments Register (Appendix A) and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 19-3: The proposed mitigation measures relevant to IOU receptors

Reference	Embedded Commitments/Mitigation
C1	Adherence to the Scottish Marine Wildlife Watching Code during construction, operation and maintenance.
C2	Development of and adherence to a Construction Method Statement (CMS) setting out construction procedures and good working practices, roles and responsibilities and construction related mitigation to be delivered.
C3	Development of and adherence to a Piling Strategy (PS) to mitigate the underwater noise impacts from piling activity.
C4	Development of and adherence to a Design Statement (DS) to ensure that the Development is carried out in accordance with the approved details.
C5	Layout approval in consultation with Maritime and Coastguard Agency (MCA) and National Lighthouse Board (NLB).
C6	The final layout and positioning for FLOW foundations will be defined, as far as possible, to limit impacts to the qualifying features of the Moray Firth Special Area of Conservation (SAC) and the Moray Firth SPA and other environmental considerations. Foundations will also be stored sensitively to reduce environmental impacts.
C7	Development of and adherence to an Environmental Management Plan (EMP). This will ensure that all construction and operation activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the Application, or as otherwise agreed, are fully implemented.
C8	Development of and adherence to a Vessel Management Plan (VMP) to mitigate the impact of vessels.
C9	Development of and adherence to a Navigational Safety Plan (NSP) to mitigate the navigational risk to other legitimate users of the sea.
C11	Development of and adherence to a Development Specification and Layout Plan (DSLP) to confirm final development specification and layout.
C13	Development of and adherence to a Construction Programme (CoP) to confirm the timeline for construction.
C16	Development of and adherence to a Lighting and Marking Plan (LMP). This will ensure navigational safety and the safe marking and lighting of the Development.
C28	Development of and adherence to an Emergency Response Cooperation Plan (ERCoP) to identify measures in place to support emergency response. Prepared in line with MCA guidance.

Reference	Embedded Commitments/Mitigation
C29	All debris or waste materials arising during construction and O&M will be removed for disposal at an approved location above the tidal level of Mean High Water Spring tide.
C30	Local mariners and fishermen's organisations will be made fully aware of proposed works through a local notification. This will be issued at least 14 days before the commencement of any construction / O&M works.
C35	Navigational lighting of the Project (Inshore) will not be exhibited, altered or discontinued without the statutory sanction of the Commissioners of Northern Lighthouses.
C36	Failure of lighting and marking will be appropriately reported and rectified as soon as practical. Interim hazard warnings will be put in place as required.
C43	Development and adherence to an Operation and Maintenance Programme (OMP) to safeguard environmental interests during operation and maintenance.
C44	Applications to be made, where appropriate, for Safety Zones (500 m) for construction and major maintenance works, and for pre commissioning works (50 m). Where / if consultation indicates safety zones do not apply, advisory safe passing distances may be used.
C46	Development of a Decommissioning Programme in line with the recommendations of the Energy Act 2004.
C47	All reasonable, appropriate and practicable steps will be taken at the end of the operational life of Moray FLOW Park to restore the site of the works to its original preconstruction condition, or to as close to its original condition as is reasonably practicable.
C52	The Project will develop a permanent no infrastructure channel in the FLOW Park to support vessel transit, safe access through the site, avoid and respect seabed wrecks and potential war graves. The size and location are currently being developed in consultation with regulators and stakeholders and will be finalised during the EIA Phase. Additional temporary access channels will be considered and developed in direct consultation with marine stakeholders during the EIA Phase.

19.5.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

19.5.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon IOU receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

19.6 Scoping of Impacts

19.6.1.1 An initial assessment of the likelihood of effects on IOU due to Project activities for the Scoping stage of the EIA process is presented in Table 6-4. This assessment is based on a combination of the following: the definition of the Project at the Scoping stage; embedded mitigation (as presented in Section 18.5, together with the means by which it will be secured); the level of understanding of the baseline at the present Scoping stage; the existing evidence base for IOU effects associated with Project activities; relevant policy; and the professional judgement of qualified IOU specialists.

19.6.1.2 Construction, O&M and decommissioning activities, such as the installation of anchors for FLOW foundations have the potential to directly impact on infrastructure and other marine users within the Scoping Boundary.

19.6.1.3 Impacts associated with the Project on Shipping and Navigation will be assessed as part of the Shipping and Navigation Assessment (see Chapter 13).

19.6.1.4 On the basis of no known spatial overlap several receptors and the associated impacts are proposed to be scoped out. These impacts are described in Table 19-5, together with a justification for scoping them out.

Table 19-4: Scoping assessment for IOU

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Construction and Decommissioning			
Direct disturbance and damage impacts from construction activities and vessels to existing infrastructure during construction phase.	C1, C2, C3, C4, C5, C6, C7, C8, C9, C11, C13, C16, C28, C29, C30, C35, C36, C,43, C44, C46 & C47	*Scoped Out:* • No IOU identified within the Direct Impacts Study Area.	No marine users have been identified that would be directly affected by overlapping construction activities.
Displacement or access impacts associated with construction activities and use of advisory safety zones during construction phase.	C1, C2, C3, C4, C5, C6, C7, C8, C9, C11, C13, C16, C28, C29, C30, C35, C36, C,43, C44, C46 & C47	*Scoped in:* • Recreational Users • Dredging and disposal *Scoped Out:* • Offshore renewable energy • Nuclear • Aquaculture • CCUS • Utilities/wastewater • Oil and Gas (active) • PEXA • Subsea cables (active) The rationale for receptors scoped out of the assessment is provided in Table 19-5.	This assessment will consider the Project construction phase and the activities of other users with particular consideration of the displacement of other users by the construction activities and use of Safety Zones. This affects user groups in close proximity to the Project and those user groups with existing transit routes through the Project boundary. Therefore, all receptors that are not in close proximity or do not have transit routes through the Project boundary are scoped out.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
Indirect displacement or disturbance caused by temporary increases to suspended sediment concentrations / deposition during construction phase.	C1, C2, C3, C4, C5, C6, C7, C8, C9, C11, C13, C16, C28, C29, C30, C35, C36, C,43, C44, C46 & C47	*Scoped in:* • Recreation users *Scoped Out:* • Offshore renewable energy • Nuclear • CCUS • Subsea cables (active) • Utilities/wastewater • Oil and Gas (active) • PEXA • Dredging and disposal • Aquaculture The rationale for receptors scoped out of the assessment is provided in Table 19-5.	This assessment will consider other users that could be affected by increases of SSC during the construction phase of the Project within the Indirect Impacts Study Area, the assessment will be informed by Chapter 6: Physical Processes and Chapter 7: Marine Water and Sediment Quality for assets within the zone of influence of SSC/deposition impacts whereby increased SSC may cause an impact to activities.
Indirect displacement or disturbance caused by increased Project vessel movements during construction phase causing an impediment to other users.	C1, C2, C3, C4, C5, C6, C7, C8, C9, C11, C13, C16, C28, C29, C30, C35, C36, C,43, C44, C46 & C47	*Scoped in:* • Recreational Users • Dredging and disposal *Scoped Out:* • Offshore renewable energy • Nuclear • CCUS • Aquaculture • Utilities/wastewater	This assessment will be informed by the maximum number and types of vessels associated with the construction of the Project. The sensitivity of each of the potential receptors will be considered for increased vessel activity. This assessment will also be informed by and draw on, the conclusions of the Shipping and Navigation chapter and the NRA.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
		• Subsea cables (active) • Oil and Gas (active) • PEXA The rationale for receptors scoped out of the assessment is provided in Table 19-5.	
O&M			
Direct disturbance and damage impacts from construction activities and vessels to existing infrastructure during O&M phase.	C1, C2, C3, C4, C5, C6, C7, C8, C9, C11, C13, C16, C28, C29, C30, C35, C36, C,43, C44, C46 & C47	*Scoped Out:* No IOU identified within the direct impacts Study Area.	No marine users have been identified that would be directly affected by directly overlapping O&M activities.
Displacement or access impacts associated with O&M activities and use of advisory safety zones during the O&M phase.	C1, C2, C3, C4, C5, C6, C7, C8, C9, C11, C13, C16, C28, C29, C30, C35, C36, C,43, C44, C46 & C47	*Scoped in:* • Recreational Users • Dredging and disposal *Scoped Out:* • Offshore renewable energy • Nuclear • CCUS • Utilities/wastewater • Oil and Gas (active) • PEXA • Aquaculture • Subsea cables (active)	The same approach will be adopted as for the construction phase.

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
		The rationale for receptors scoped out of the assessment is provided in Table 19-5.	
Indirect displacement or disturbance caused by temporary increases to SSC / deposition during O&M phase.	C1, C2, C3, C4, C5, C6, C7, C8, C9, C11, C13, C16, C28, C29, C30, C35, C36, C,43, C44, C46 & C47	*Scoped in:* • Recreation users *Scoped Out:* • Offshore renewable energy • Nuclear • CCUS • Subsea cables (active) • Utilities/wastewater • Oil and Gas (active) • PEXA • Dredging and disposal • Aquaculture The rationale for receptors scoped out of the assessment is provided in Table 19-5.	This assessment will consider other users that could be affected by increases of SSC during the O&M phase of the Project within the Indirect Impacts Study Area, the assessment will be informed by Chapter 6: Physical Processes and Chapter 7: Marine Water and Sediment Quality for assets within the zone of influence of SSC/deposition impacts whereby increased SSC may cause an impact to activities.
Indirect displacement or disturbance caused by increased Project vessel movements during O&M phase causing an	C1, C2, C3, C4, C5, C6, C7, C8, C9, C11, C13, C16, C28, C29, C30, C35, C36, C,43, C44, C46 & C47	*Scoped out:* • Recreational Users • Oil and Gas (active) • PEXA • Dredging and disposal	The presences of vessels associated with operation and maintenance activities of the Project will be imperceptible with respect to the baseline vessel movement in the area. This effect is therefore

Impact Pathway	Embedded Mitigation	Scoped In or Scoped Out	Justification
impediment to other users.		• Aquaculture • Subsea cables (active) • Offshore renewable energy • Nuclear • CCUS • Utilities/wastewater	scoped out for the operation and maintenance phase.

Table 19-5: Scoped Out Receptors

Receptor	Justification
Aggregate extraction	There are no specific aggregate extraction users identified the Study Areas; therefore these receptors have been scoped out of further assessment.
Nuclear	There are no specific nuclear users identified the Study Areas; therefore these receptors have been scoped out of further assessment.
Carbon Capture, Utilisation and Storage	There are no specific CCUS users identified the Study Areas, therefore these receptors have been scoped out of further assessment.
Wastewater treatment and disposal	There are several wastewater disposal sites identified the wider Study Areas; however these are outside of the direct impacts study area and the construction, O&M and decommissioning phases of the Project are not expected to interact with this infrastructure, therefore these receptors have been scoped out of further assessment.
Subsea cables	Although two undefined subsea cables exist within the Study Area, they are not in use and are outside of the Direct Impacts Study Area, they are therefore scoped out of the assessment.
Oil & Gas	Although two oil & gas pipelines exist within the wider Vessel Displacement Study Area, they are not in use and outside of the Direct Impacts Study Area, they are therefore scoped out of the assessment. Nigg Terminal is within the Vessel Displacement Study Area, however considering the distance of this site from the Project, the likely sailing routes for the Project vessels to ports in the area, the short construction programme and the small number of vessels used during the construction, decommissioning and operation and maintenance phases it is therefore scoped out of the assessment.
Aquaculture	The aquaculture site identified within the Study Areas is outside of any direct impacts and outside of the 5 km Study Area for indirect impacts. The site is inside of the Vessel Displacement Study Area however impacts will not arise through vessel displacement as the location of the aquaculture sites is outside of any direct sailing route from the Project to any port or offshore location. This site is therefore scoped out of any further assessment.
PEXA	The PEXA site identified within the Study Areas is outside of any direct impacts and outside of the 5 km Study Area for indirect impacts. The site is inside of the Vessel Displacement Study Area however impacts will not arise through vessel displacement as the location of the aquaculture sites is outside of any direct sailing route from the Project to any port or offshore location. These sites are therefore scoped out of any further assessment.

19.7 Potential Cumulative Effects

19.7.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment. For IOU, cumulative interactions may occur with all of the identified impact pathways where the activities overlap temporally and spatially with the activities of other plans/projects.

19.7.1.2 The CEA for IOU will consider the MDS for each of the projects, plans and activities in line with the methodology outlined in Chapter 4 EIA Methodology.

19.8 Potential Transboundary Effects

19.8.1.1 No transboundary impacts on IOU pathways are anticipated to occur as a result of the Project activities during construction, O&M or decommissioning. Any predicted impacts on these pathways will largely be localised to within the Study Area and will not give rise to effects on the marine environment beyond UK waters. Therefore, it is proposed to scope out transboundary impacts with regards to IOU.

19.9 Proposed Approach to EIA

19.9.1 Guidance

19.9.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of IOU receptors will also comply with the following legislation, policy and guidance documents where they are specific to this topic.

Policy and Legislation

19.9.1.2 The relevant policy and legislation to IOU is summarised in Table 19-6 and Table 19-7 and will be considered within the assessment process:

Table 19-6: Legislation of relevance to IOU

Legislation	Relevance to the Assessment
Energy Act (2004)	The Energy Act 2004 makes provisions for, among other aspects, the development, regulation, and encouragement of the use of renewable energy sources and giving effect to international agreements relating to pipelines and offshore installations. Safety Zones can be created by Scottish Ministers, under section 95 of the Energy Act 2004. This will ensure the safety of the renewable energy installation or other installations in the vicinity during construction, operation, extension, or decommissioning. Safety Zones may create exclusion zones for non-OWF vessels from navigating through a designated area for a specific period.
The Submarine Telegraph Act (1885)	Article 6 states that any person who injures or breaks another submarine cable or pipeline during the laying or repair of its own cable, it will be liable to the cost of repairing the break or injury. It also states that where the owner of a ship has sacrificed an anchor, a net or any other fishing gear in order to avoid injuring a cable laid in or under Territorial Seas, having taken all reasonable precautions beforehand, he shall be indemnified by the holder of the relevant cable authorisation under the Act.
United Nations Convention on the Law of the Sea (UNCLOS) – Article 79: Submarine cables and pipelines on the continental shelf (United Nations (UN), 1982)	Article 79 of UNCLOS protects submarine cables and requires signatories to have due regard for any existing cables or pipelines in position and not prejudice the possibilities of repair.
UNCLOS – Article 113: High Sea Areas	Article 113 states that a punishable offence will be implemented if an existing submarine or power cable is broken or injured. If any cables or pipelines are damaged during the laying or repairing of another cable, the Applicant will be required to compensate the repair costs.

Table 19-7: Policy of relevance to IOU

Policy	Relevance to the Assessment
Sectoral Marine Plan for Offshore Wind (draft updated Scottish Government 2025a)	General Policy: Minimise the potential adverse effects on other marine users and economic sectors resulting from further commercial scale offshore wind development. As the Project is facilitating offshore wind in Scotland, the sentiment of this policy is relevant to the assessment.
Scottish National Marine Plan (NMP), Scottish Government 2015 and draft updated NMP 2 (Scottish Government 2025b)	This National Marine Plan identifies users of the marine environment and has specific policies for each user. Oil and Gas Policies 1-6 Offshore Wind, wave and tidal projects Policies 1-10 Submarine cables policies 1-4 Recreation and Tourism Policies 1-6. The Inshore Scoping Report has considered these user groups and the user groups will be considered by way of a robust EIA in the next phase of the assessment.
Moray Firth Regional Marine Plan	Regional marine plans are currently in the process of being prepared within those SMRs where there is an established Regional Marine Planning Partnership. The planning competence of these Regional Marine Planning Partnerships extends out to 12 nm. Regional marine plans are required to be developed in accordance with Scotland's National Marine Plan (unless relevant considerations indicate otherwise). Elements of the Project are within the Moray Firth SMR which encompasses the coastal waters from Fraserburgh to Duncansby Head, extending from MHWS out to 12 nm (Marine Scotland, 2024).

19.9.1.3 The following guidance documents are relevant to the consideration of impacts on other marine users:

- European Subsea Cables Association (ESCA) (2023). ESCA Guideline No.6 The Proximity of Offshore Renewable Energy Installations & Subsea Cable Infrastructures; and
- Maritime and Coastguard Agency (MCA) MGN 654 (M+F) Offshore Renewable Energy Installations (OREI) safety response.
    - This guidance is mainly for offshore fixed renewable energy installations and includes guidance on marine cable protection and burial within UK waters (there are no cables or burial activities associated with the Moray FLOW-Park).

- IALA, Recommendation O-139 on the marking of manmade offshore structures, Edition 2 (IALA, 2013).
    - These recommendations apply to all offshore structures and/or platforms and make specific reference to Offshore Wind Farms and are required for safe navigation, protection of the environment and protection of the structures themselves.

19.9.1.4 More detail on the guidance provided by the MCA and NLB is presented in Chapter 13: Shipping and Navigation.

19.9.2 Additional Data Sources

19.9.2.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Inshore Scoping Report. Project-specific survey outputs will be used to enhance the understanding of the baseline conditions.

19.9.3 Assessment Methodology

19.9.3.1 The EIA will follow the general approach outlined in Chapter 4: EIA Methodology of this Inshore Scoping Report.

19.9.3.2 The proposed assessment methodology will also cover relevant embedded commitments to minimise any potential LSE on the IOU receptors scoped into the assessment.

19.9.3.3 Existing and planned licensable activities will be identified and a timeline for future activities associated with the existing or planned infrastructure will be established. Where proposed developments are identified which have limited levels of information or certainty, potential effects will not be fully determined and therefore they will not be assessed.

19.9.3.4 Aligning with other chapters, such as Chapter 13: Shipping and Navigation or Chapter 15: Military and Civil Aviation, for the EIAR the information from both direct and indirect impacts will be incorporated. The magnitude of an impact will be drawn from the reasonable worst-case scenario of the Project, while the sensitivity of a receptor will be based on the capacity to accommodate any change and the value/importance of each receptor.

19.9.3.5 Cumulative effects will be assessed by taking into consideration other relevant developments that are in the IOU Study Area and which have the potential to affect the same receptors. This includes existing developments as well as proposed developments which have a high level of certainty or information available. Where other developments are expected to be completed prior to the construction of the Project, and the effects of these developments are fully determined, the effects arising from the developments are considered as part of the baseline and assessed as a receptor but where ongoing operational effects are identified they will also be considered as part of the CEA.

19.9.4 Criteria for Assessment

19.9.4.1 The process for determining the significance of effects is a two-stage process that involves defining the magnitude of the potential impacts and the sensitivity of the receptors. This section describes the criteria that will be applied in the EIAR to assign values to the magnitude of potential impacts and the sensitivity of the receptors.

Magnitude

19.9.4.2 The magnitude criteria for IOU are provided in Table 19-8 and are based upon the technical expert's experience and judgement. In determining magnitude, each assessment will consider the spatial extent, duration, frequency, and reversibility of impact and these are outlined within the magnitude section of each assessment of impact.

Table 19-8: Impact Magnitude Criteria for IOU

Magnitude Value	Description
Negligible	• Very slight change from baseline condition; • Physical extent of impact is highly localised and short-term duration, with full and rapid recovery expected; • Frequency of repetition is very low; and/or • Effect is very unlikely to occur, if it does it is reversible.
Low	• Minor shift away from baseline, leading to a reduction in level of activity that maybe undertaken; • Physical extent of impact is local to medium spatial extent and has a short to medium term duration (i.e. construction period); • Frequency of repetition is low to continuous; and/or • Effect is unlikely to occur or is at low frequency/low intensity, if it does it is reversible.

Magnitude Value	Description
Medium	• Loss or alteration to one or more portions of key components or elements of the baseline conditions; • Physical extent of impact over a medium scale/spatial footprint and is over a moderate and medium-term duration; • Frequency of repetition is medium to high or continuous for a moderate period of time; and/or • Effect may result in partial loss of damage to the asset which results in medium term inoperability or minor loss of access.
High	• Total loss of ability to carry on activities or total change to key elements/features of baseline conditions; • Impact is of extended large scale physical extent; • Long-term duration (i.e. total lifetime of Proposed Development); • Frequency of repetition is high or continuous over a long period of time; and/or • Effect may result in damage to the asset which results in permanent or long-term inoperability or complete loss of access.

Sensitivity

19.9.4.3 The sensitivity criteria for IOU receptors are provided in Table 19-9.

Table 19-9: Receptor sensitivity Criteria for IOU

Sensitivity Value	Description
Negligible	• Receptor or the activities of the receptor is of negligible value to the local, regional or national economy; • The receptor or the activities of the receptor is not vulnerable to impacts that may arise from the Proposed Development; and/or • The receptor has high adaptability and tolerance to change and high recoverability.
Low	• Receptor or the activities of the receptor is of low value to the local, regional or national economy; • The receptor or the activities of the receptor is not generally vulnerable to impacts that may arise from the Proposed Development; and/or has • The receptor can easily adapt to change and has high recoverability.
Medium	• Receptor or the activities of the receptor is of moderate value to the local, regional or national economy; • The receptor or the activities of the receptor is somewhat vulnerable to impacts that may arise from the Proposed Development; and/or

Sensitivity Value	Description
	• The receptor has limited adaptability or can tolerate minor changes; it has moderate to high levels of recoverability.
High	• Receptor or the activities of the receptor is of high value to the local, regional or national economy; • The receptor or the activities of the receptor is generally vulnerable to impacts that may arise from the Proposed Development; and/or • The receptor cannot adapt or tolerate change; recoverability is slow and/or costly.

19.10 Scoping Questions

19.10.1.1 The following Scoping questions refer to the IOU Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the Study Area(s) defined for IOU?
- Do you agree with the use of those data listed in Section 19.3, and any additional anticipated data listed in Section 19.9, being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to IOU have been identified?
- Do you agree with the Scoping in and out of impact pathways in relation to IOU?
- Do you agree with the assessment of cumulative effects in relation to IOU
- Do you agree with the proposed assessment methodology for IOU?
- Do you agree that the embedded mitigation measures described provide a suitable means for managing and mitigating the potential effects of the Project on fixed infrastructure and other marine users receptors?

20 Major Accidents and Disasters

20.1 Introduction

20.1.1.1 This Chapter of the Inshore Scoping Report identifies the Major Accident and Disasters receptors of relevance to the Project and considers the potential impacts from the construction, O&M and decommissioning of the Project on Major Accident and Disasters receptors up to MHWS.

20.1.1.2 This Chapter should be read alongside the following other chapters:

- Chapter 3: Project Description;
- Chapter 12: Commercial Fisheries;
- Chapter 13: Shipping and Navigation;
- Chapter 15: Military and Civil Aviation
- Chapter 17: Socio-economics, Tourism and Recreation;
- Chapter 18: Climate; and
- Chapter 19: Infrastructure and Other Users.

20.2 Key Definitions

20.2.1.1 At present, there are no clear definitions for the terms 'major accident' or 'disaster' within the context of the EIA Directive. For the purpose of this assessment, key terms used in this Chapter are set out below and are based on suggested definitions from the Institute of Sustainability & Environmental Professionals (ISEP) Major Accidents and Disasters in EIA – A Primer (ISEP, 2020):

- Accident – something that happens by chance or without expectation;
- Disaster – a natural hazard (e.g. earthquake) or a man-made / external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident;
- Major Accident – events that threaten immediate or delayed serious environmental effects to human health, welfare and / or the environment and require the use of resources beyond those of the Developer or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events;
- Risk – the likelihood of an impact occurring, combined with the effect or consequence(s) of the impact on a receptor if it does occur;

- Risk event – an identified, unplanned event, which is considered relevant to the Project and has the potential to result in a major accident and / or disaster, subject to assessment of its potential to result in a significant adverse effect on an environmental receptor;
- Vulnerability – describes the potential for harm as a result of an event, for example due to sensitivity or value of receptors. In the context of the EIA Directive, the term refers to 'exposure and resilience' of the Project to the risk of a major accident and / or disaster. Vulnerability is influenced by sensitivity, adaptive capacity and magnitude of impact; and
- Significant environmental effect (in relation to a major accident and / or disaster assessment) – includes the loss of life, permanent injury and temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration.

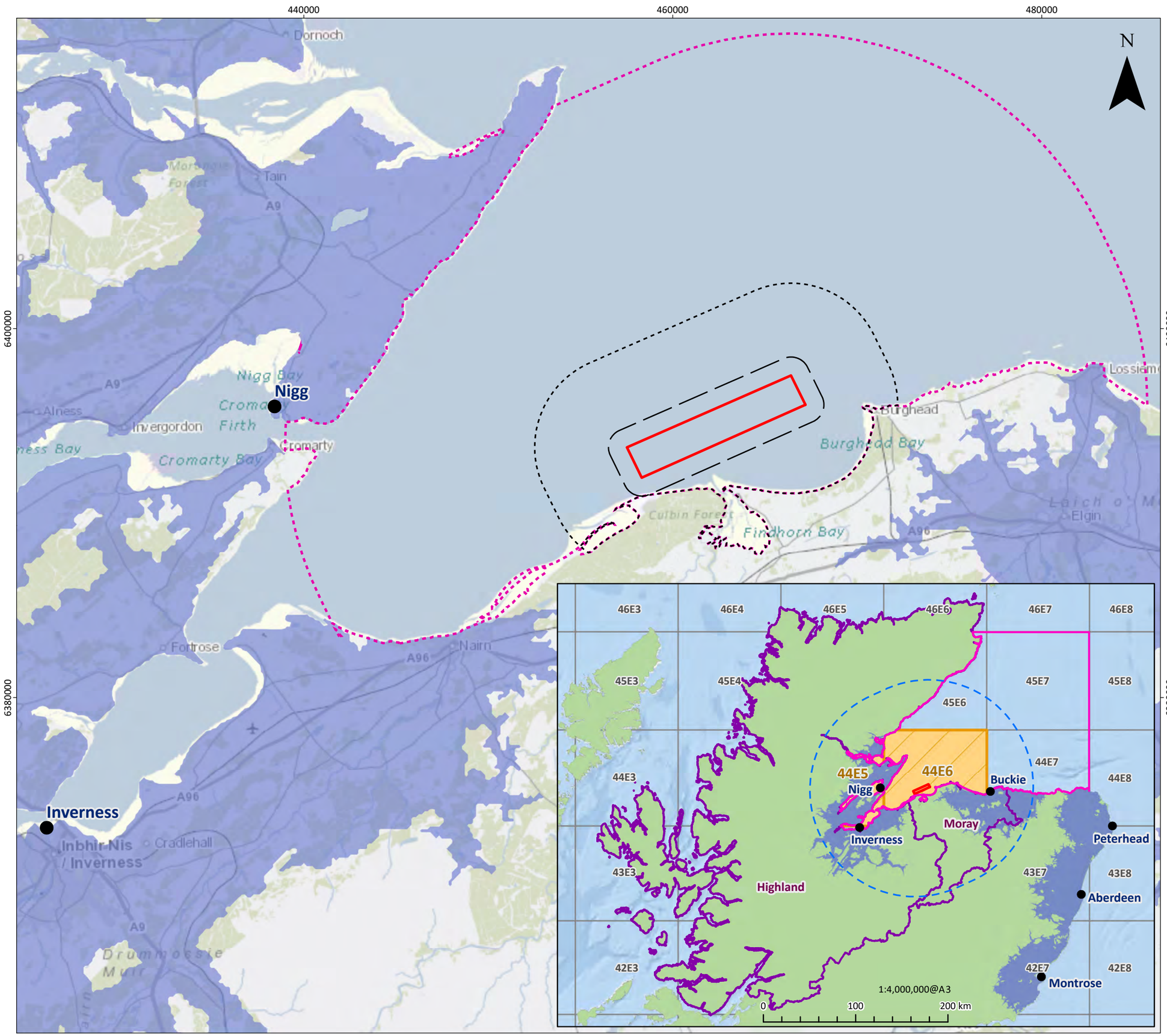
20.2.1.2 The assessment of major accidents and disasters reported in this Chapter considers the occurrence of extreme and highly unlikely incidences. As such, it considers accident scenarios that would not reasonably be covered by other topics.

20.3 Study Area

20.3.1.1 There is no specific regulatory guidance or standardised methodology for defining a study area in relation to major accidents and disasters.

20.3.1.2 The Major Accident and Disasters study area is therefore defined using the Moray FLOW-Park area in addition to the buffer zones used in specialist topic assessments, based on their individual receptors. For instance, assessment of major accidents related to shipping will use the Chapter 13: Shipping and Navigation study area and buffer zone.

20.3.1.3 These study areas are presented in Figure 20-1.



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Moray FLOW-Park
Inshore Scoping Report

Study Areas relevant to Major Accidents and Disasters

Legend

- Moray FLOW-Park
- Direct Study Area (1km)
- Indirect Study Area
- Vessel Displacement Study Area (10nm/18.52km)
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- Tourism and Recreation Study Area
- Local Socio-Economic Study Area
- Potential Construction Port or Marine Logistics Port
- Travel Time Study Area



Notes

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Coordinate System: WGS 1984 UTM Zone 30N

0 5 10 km

0 2.5 5 nm

Scale	Date	Drawn by	Checked by	Approved by
1:200,000 @A3	04/02/2026	EV	BPHB	CC

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Figure 20-1

Figure Reference: MFP_MADS_Fig20-1_StudyAreas_v2

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20.4 Data Sources to Inform the EIA Baseline Characterisation

20.4.1.1 For the purposes of this Inshore Scoping Report, a desk-based review of existing and planned activities and projects was undertaken using relevant spatial and scientific data sources. The data sources that have been used to inform this Major Accident and Disasters Chapter are presented in Table 20-1.

20.4.1.2 . These data sources will be taken forward and used to inform the EIA, in addition to any site-specific data that will be collected for the Project.

20.4.1.3 As with the study areas for the Major Accident and Disasters assessment, many of the data sources overlap directly with the following technical chapters:

- Chapter 12: Commercial Fisheries;
- Chapter 13: Shipping and Navigation;
- Chapter 15: Military and Civil Aviation
- Chapter 17: Socio-economics, Tourism and Recreation;
- Chapter 18: Climate; and
- Chapter 19: Infrastructure and Other Users.

20.4.1.4 To avoid duplication, only unique data sources for Major Accidents and Disasters are listed in Table 20-1. Data sources for the above topics are listed in the relevant section within their technical chapters.

Table 20-1: Key sources of Major Accident and Disasters data.

Source, Author and Year	Summary	Coverage of the Moray FLOW-Park
National Risk Register, HM Government 2025	The National Risk Register (NRR) is the external version of the National Security Risk Assessment (NSRA), which is the government's assessment of the most serious risks facing the United Kingdom. The risks that meet the threshold for inclusion in the NRR would have a substantial impact on the UK's safety, security and/or critical systems at a national level. The NRR includes information about 89 risks, within 9 risk themes – although several risks could be categorised under more than one theme.	Full coverage

20.5 Description of Baseline Environment

20.5.1.1 An initial desk-based review of literature and available data sources (see Table 20-1) has been undertaken to support this Chapter. The findings of this research are presented below, in order to provide an understanding of the Project environment and inform the Inshore Scoping process.

20.5.1.2 The key Major Accident and Disasters receptors which will inform this Inshore Scoping Report and the subsequent Environmental Impact Assessment Report (EIAR) include:

- Commercial Fisheries;
- Shipping and Navigation;
- Military and Civil Aviation
- Socio-economics, Tourism and Recreation;
- Climate; and
- Infrastructure and Other Users.

20.5.2 Commercial Fisheries

20.5.2.1 This section summarises the baseline relevant to Major Accidents and Disasters presented in Chapter 12: Commercial Fisheries.

20.5.2.2 For statistical and fisheries management purposes, the Moray Firth region falls within the ICES Division IVa (Northern North Sea), which is subdivided into standardised statistical rectangles measuring 30 minutes of latitude by 1 degree of longitude equating to approximately 30 nm^2, or 103 km^2 per rectangle (Figure 12-1, Chapter 12: Commercial Fisheries).

20.5.2.3 The commercial fisheries baseline is mainly characterised by publicly available MMO fisheries statistics data for ICES rectangles 43E5, 44E5 and 44E6. These MMO data are for UK vessels only, however, VMS data from EU vessels (including the UK) between 2019 and 2022 have been analysed to take account of international fisheries operating within the study area:

- VMS data from EU vessels (12 m and over in length) in terms of average total fishing effort and average Swept Area Ratio (SAR).

20.5.2.4 Based on the data gathered to inform the commercial fisheries scoping exercise, the key fleets operating across the study area include (in no particular order):

- Local inshore Scottish creel fleet (vessels typically <15 m) targeting brown crab, lobster, velvet crab and whelk operating year-round;

- Local inshore Scottish otter trawl fleet (vessels typically <15 m) targeting *Nephrops* focused on muddy substrates with seasonal peaks in spring and autumn;
- Local inshore Scottish dredge fleet (vessels typically <15 m) targeting demersal species operating year-round; and
- Local inshore Scottish demersal trawl fleet (vessels typically <15 m) targeting finfish and other demersal species operating year-round across mixed grounds.

20.5.2.5 ICES rectangles 43E5, 44E5 and 44E6 cover a portion of the inner reaches of the Firth, however 44E6 extends into deeper waters at its furthest boundary extents. In ICES rectangle 43E5, the highest level of activity is undertaken by vessels 10 m and under in length deploying pots and traps. Significantly lower levels of demersal trawling targeting demersal finfish and other species is undertaken by vessels 10 m and under. Low levels of dredge and other passive gears activity have been identified for vessels over 10 m.

20.5.2.6 The fleet operating within the local study area is dominated by vessels 10 m and under in length. These vessels typically conduct short trips within the firth and adjacent coastal waters, with fishing effort concentrated in spring and summer months when shellfish activity peaks.

20.5.2.7 Fishing intensity ranged from inshore areas of low to moderate fishing intensity by vessels deploying demersal bottom towed gear, with less than 0.5 (or 50%) of those grid cells overlapping the Moray Firth FLOW-Park Area being swept by fishing gear on average, over the course of a year. This indicates minimal bottom-contact gear disturbance across the seabed by vessels 12 m and over within the inshore portion of the local study area and suggests the predominance of static fishing methods such as creels. Areas further offshore outside the Moray FLOW-Park area are subject to higher fishing intensity, increasing as waters get deeper within the local study area, ranging from 0.2 up to 10. Higher SAR values (more than 1.0) indicate repeated trawling, often associated with degraded benthic habitats and reduced biodiversity, therefore 10 represents an area of very high bottom towed gear intensity.

20.5.2.8 Within the Moray Firth, ICES statistical rectangles 44E5 and 44E6 encompass key inshore fishing grounds used by small-scale vessels, particularly those deploying static gear such as creels for shellfish targeting brown crab, lobster and *Nephrops*. ScotMap data for these rectangles indicates low to moderate levels of creel fishing activity along the coastal margins, especially near harbour approaches and rocky substrates.

20.5.2.9 EMSA fishing vessel density track data indicates low - medium levels of activity by fishing vessels (including both steaming and active fishing) in the vicinity of the Project, particularly within 6 nm inshore area, and potentially indicate traditionally used fishing grounds by the inshore fleet overlapping the Moray FLOW-Park Area.

20.5.3 Shipping and Navigation

20.5.3.1 This section summarises the baseline data relevant to Major Accidents and Disasters presented in Chapter 13: Shipping and Navigation. Please refer to Chapter 13 for the full Shipping and Navigation baseline.

20.5.3.2 The Shipping and Navigation study area is defined by the Moray FLOW-Park area in addition to the buffer zone which extends ten nautical miles (nm) from the boundary of the Moray FLOW-Park area. This is considered an industry standard for assessing impacts to shipping and navigation receptors from proposed developments.

20.5.3.3 The Moray FLOW-Park area is located approximately 1.5 nm north of Findhorn and 1.7 nm west of Burghead. Burghead Harbour is described by the Admiralty Sailing Directions as mainly a fishing harbour. A preferred anchorage is located 1 nm west of the harbour and approximately 0.7 nm southeast of the Moray FLOW-Park area.

20.5.3.4 A spoil ground is also located in the vicinity, at 1 nm east of the Moray FLOW-Park area. Numerous wrecks and obstructions are noted within the Shipping and Navigation study area, two of which are located within the Moray FLOW-Park area itself. The Guillam Bank is located 3 nm northwest of the Moray FLOW-Park area with minimum water depths of 12 m. This bank was seen to be a factor in commercial vessel routeing.

20.5.3.5 The nearest PEXA is located 8.9 nm north of the Moray FLOW-Park area, noting one is also present to the west.

20.5.3.6 A total of 28 days of AIS-only vessel traffic was collected from coastal and satellite receivers between 18 January 2025 and 31 January 2025, as well as between 05 July 2025 and 18 July 2025.

20.5.3.7 During the winter 2025 period, there was an overall average of between four and five unique vessels recorded per day within the Shipping and Navigation study area, with an average of one unique vessel recorded every one to two days within the Moray FLOW-Park area itself. The most common vessel type recorded during the winter 2025 period within the Shipping and Navigation study area were cargo vessels (32%).

20.5.3.8 During the summer 2025 period, there was an average of 22 unique vessels recorded within the Shipping and Navigation study area per day, with an average of between four and five unique vessels per day within the Moray FLOW-Park area itself. The most common vessel type recorded within the Shipping and Navigation study area during the summer 2025 period were recreational vessels (47%). The increase in vessels compared to the winter 2025 period is primarily due to a notable increase in recreational traffic, noting the period chosen has been selected to include local recreational sailing events including the annual Findhorn Sailing Regatta.

20.5.3.9 Cargo vessels were observed to route to and from Invergordon and Inverness, with the majority of cargo traffic passing parallel to the north of the Moray FLOW-Park area. Tankers displayed clear routeing within the Shipping and Navigation study area, transiting parallel to the north of the Moray FLOW-Park area, passing at a distance of approximately 1.4 nm. The majority of commercial vessels were observed to transit south of the Guillam Bank, in areas where water depths were greater.

20.5.3.10 Recreational vessels were primarily recorded transiting close to the coast and operating out of the Cromarty Firth and Inverness Firth, as well as several local harbours. Recreational vessels were recorded intersecting the Moray FLOW-Park area. All but one recreational vessel transit was recorded during the summer 2025 period.

20.5.3.11 Fishing vessels were also common during both the winter and summer periods, the vast majority of which displayed potential active fishing behaviour. These vessels were seen to operate out of Burghead with activity noted within the Moray FLOW-Park area.

20.5.3.12 Passenger vessel recorded within the Shipping and Navigation study area mostly comprised of a local ferry operating between Cromarty and Nigg and cruise liners transiting to and from Invergordon.

20.5.3.13 Between 2015 and 2024, 30 incidents were recorded within the MAIB dataset in the Shipping and Navigation study area, equating to an average of three incidents per year. No incidents were recorded within the Moray FLOW-Park area itself.

20.5.3.14 During the ten-year period between 2015 and 2024, there was a total of 109 incidents recorded within the RNLI dataset in the Shipping and Navigation study area, equating to an average of approximately 11 incidents per year. One incident was recorded in the Moray FLOW-Park area.

20.5.4 Military and Civil Aviation

20.5.4.1 This section summarises the baseline data relevant to Major Accidents and Disasters presented in Chapter 15: Military and Civil Aviation. Please refer to Chapter 15 for the full Military and Civil Aviation baseline.

20.5.4.2 The key military and civil aviation receptors which will inform this Inshore Scoping Report include:

- NATS En Route facilities;
- MOD;
- Other aviation activities (helicopter traffic); and

20.5.4.3 Receptors associated with civil aerodromes and airspace management are not considered relevant due to the 30 m maximum height of the FLOW floating foundations not representing a significant risk to aviation. Further details on the Project design are presented in Chapter 3: Project Description.

NATS En Route Facilities

20.5.4.4 The Moray FLOW-Park Area is out-with the NATS detailed primary and secondary radar protected areas and does not overlap with any en-route navigation aids area around Inverness Airport, which is located approximately 26 km southwest of the Project.

20.5.4.5 HIAL have confirmed that the 30 m foundations will have no impacts on any IFP, OLS or Technical Aids. As the foundations do not exceed 100 m, there is no mandatory requirement to notify the CAA (NATS, 2026).

MOD

20.5.4.6 The proposed FLOW floating foundations have an approximate maximum height of 30 m above water level, which is significantly below the threshold at which marine structures pose a constraint to civil or military aviation activity and does not exceed existing variance in local topography. At this height, the structures do not present a collision risk, do not infringe safeguarded airspace, and are not of a scale that would give rise to material interference with aviation radar or navigation systems. Initial engagement with the DIO also suggests that the presence of foundations will not result in any significant impacts on radar infrastructure.

Helicopter Operations

20.5.4.7 Helicopter operations have been screened out as no helicopter use is proposed or required during construction, O&M and decommissioning.

20.5.5 Socioeconomics, Tourism and Recreation

20.5.5.1 This section summarises the baseline data relevant to Major Accidents and Disasters presented in Chapter 17: Socio-Economics, Tourism and Recreation. Please refer to Chapter 17 for the full socio-economics, tourism and recreation baseline.

20.5.5.2 The nature of the effects considered by the socio-economic, tourism and recreation assessment apply at a range of spatial levels. A tiered approach has therefore been adopted to define the Study Areas. The spatial levels and associated relevant receptors are defined as follows:

- Local socio-economic study area: the local socio-economic Study Area is intended to encompass the local area within which significant effects on employment and the local economy could occur.;
- National socio-economic study area: economic impacts will also be assessed at the UK level;
- Travel Time Study Area: A travel time-based area (45-minute drive time of the port(s) for which construction workers may be accommodated) will also be considered for potential impacts on housing and visitor accommodation; and
- Tourism and Recreation Study Area: This area will take account of the potential for effects on the visitor economy primarily as a result of the visual impact of the presence of the FLOW foundations, but also the potential tourism and recreation effects resulting from potential disturbances to inshore activities. The Moray FLOW-Park Area will also be considered in more detail in terms of visitors to this area engaging in tourism and recreation activities within the area – primarily due to potential restrictions on use of the area.

20.5.5.3 The Moray Firth coastline offers a variety of inshore & offshore recreation activities, making it a popular destination for both locals and visitors. Notable inshore and coastal activities include:

- Dolphin & Whale Watching;
- Sea Kayaking;
- Boat Tours & Cruises;
- Recreational Fishing & Angling;
- Surfing & Water sports; and
- Scuba Diving & Snorkelling.

20.5.5.4 Other coastal activities, taking place onshore but still strongly tied to coastal scenery and landscape include:

- Coastal walking and hiking;
- Birdwatching and wildlife observation;
- Beachcombing and rock pooling;

- Photography and painting;
- Cultural and heritage tourism; and
- Golf.

20.5.5.5 In 2024, the Highlands had 1,790,000 overnight visitors. Of those visitors, 70% were domestic visitors and 30% were international. In total, domestic and international visitors spent £756,000,000 in 2024 (Visit Scotland, 2025b).

20.5.5.6 In Aberdeen, Aberdeenshire and Moray, there were 1,360,000 overnight visitors in 2024, and of those visitors 82% were domestic visitors and 18% were international. In total, domestic and international visitors spent £395,000,000 in 2024. In 2023, Moray specifically had 877,600 overnight visitors, generating £187,000,000 for the local tourism industry.

20.5.6 Climate

20.5.6.1 This section outlines a summary of the baseline presented in Chapter 18: Climate.

20.5.6.2 The study area for the GHG assessment encompasses all relevant sources and sinks of GHG emissions associated with the construction, O&M and decommissioning phases of the Project.

20.5.6.3 The study area for the CCRA encompasses both the permanent and temporary construction footprints within the Project spatial boundary. The assessment considers all relevant climate-related hazards that could affect the infrastructure and assets associated with the Project. Climate risks and potential effects are evaluated across the full appraisal period of the Project, reflecting its design life and operational timeframe.

20.5.6.4 At present, no inshore infrastructure exists within the Project area. Routine vessel transits and fisheries activity currently occur within the vicinity of the Project; however, associated GHG emissions are expected to be negligible. Accordingly, for the purpose of the GHG assessment, the baseline GHG emissions within the study area are assumed to be zero.

20.5.6.5 High level climatology observations are generated by the Met Office. The Project is based in the Moray Firth with Kinloss as the nearest point of reference. Historical observations recorded over a 30-year period are presented below:

- The mean annual maximum temperature at Kinloss was 12.67 °C, and the mean annual minimum temperature was 5.42 °C. During winter months (November to February), average maximum daily temperatures ranged from 5.36 °C to 6.73 °C, and minimum daily temperatures ranged from 0.25 °C to 1.48 °C;

  - In summer months (June to August), average maximum daily temperatures ranged from 14.53 °C to 15.56 °C, and minimum daily temperatures ranged from 7.03 °C to 8.73 °C;

- The average annual sunshine hours at Kinloss during this period were 1,383.55 hours, with the sunniest months being May and June, recording 203.36 hours and 198.6 hours, respectively;
- The annual average amount of rainfall was 662 mm. The number of days it rained in the year >1 mm on average was 136;
- The annual average speed of the wind at 10 m was 9.00 knots, with a peak average in February of 10.28 knots; and
- Air frost occurs when the temperature at 1.25 m above the ground falls below 0°C. The average of number of days of air frost was 49.50 annually.

20.5.7 Infrastructure and Other Users (IOU)

20.5.7.1 This section outlines a summation of the baseline presented in Chapter 19: Infrastructure and Other Users.

20.5.7.2 The spatial coverage of the IOU Study Area is dependent on the nature of the type of impact on the receptors identified. These types of impact are grouped into the following for the purposes of identifying Study Areas:

- Impacts associated with direct overlap of activities;
- Impacts associated with sediment deposition; and
- Impacts associated with vessel displacement.

20.5.7.3 For impacts associated with direct overlap of activities, the Study Area is limited to the Project Boundary Area plus a 1 km buffer around these. This is hereafter referred to as the Direct Impacts Study Area.

20.5.7.4 For impacts associated with deposition, the Study Area has been determined as the extent of the spring tidal excursion, 5 km from the Inshore Project Boundary. This is hereafter referred to as the Deposition Impacts Study Area.

20.5.7.5 For impacts associated with vessel displacement, the Study Area extends 10 nm from the Inshore Project Boundary. This is hereafter referred to as the Marine Traffic Impacts Study Area.

20.5.7.6 The key IOU receptors which informed the Inshore Scoping Report include:

- Offshore wind projects;
- Subsea cables and pipelines (telecommunications and subsea cables);
- Marine dredging and disposal (capital, maintenance, and aggregate);
- Aggregate extraction;
- Defence and security;
- Wastewater treatment and disposal;
- Oil and gas infrastructure;

- CCUS;
- Aquaculture;
- Marine recreational users;
- Wave and tidal projects; and
- Nuclear cooling and intake systems.

20.5.7.7 A review of existing or proposed offshore renewable energy developments overlapping with the IOU Study Area identified no OWFs, tidal energy or wave energy developments within the 10 nm Study Area. There are a number of OWF developments within the wider Moray Firth.

20.5.7.8 There are three potential subsea cables present within the IOU Study Areas, which are not presently defined. One of the cables is present within both the indirect and direct Study Areas, one is present in just the indirect Study Area, and one is present in the Vessel Displacement Study Area. For the two nearest cables to the Project, there is no information available on whether these assets are telecommunications cables or power cables. The most recent information available suggests that these cables are not in use. Within the Vessel Displacement Study Area is Cromarty Firth active power cable (18.1 km from the Project).

20.5.7.9 There are 57 outfall pipes located across the largest IOU Study Area. However, none of these outfalls are located within the 1km buffer for direct impacts, and therefore there are no outfall pipes of relevance to impacts resulting from the Project.

20.5.7.10 Dredging and disposal activity within the Moray Firth is sporadic and associated with port and harbour maintenance and coastal marine disposal sites. The marine disposal sites within the 10 nm buffer for vessel disturbance impacts and 5 km buffer for indirect impacts are Burghead, Sutors and Lossiemouth. Dredging operations at Ardersier will be ongoing with the designated disposal ground being Burghead.

20.5.7.11 The are no oil and gas license blocks present within the Project Study Areas.

20.5.7.12 The Nigg Bay Terminal is an inactive oil and gas terminal located 12.8 km from the Project. The Nigg Bay Terminal is currently undergoing decommissioning. It is expected that the site will be handed back to the leaseholder at the end of 2025.

20.5.7.13 There are no active and two not in use oil and gas pipelines within the IOU Study Areas, as presented in Figure 19–5.

20.5.7.14 It is understood that there are no current plans to develop CCUS projects in the Study Area.

20.5.7.15 One fish/shellfish farm was identified within the IOU Study Areas and is located 16.56 km from the Project. This is outside of any direct impacts and outside of the 5 km Study Area for indirect impacts. The site is inside of the Vessel Displacement Study Area however impacts will not arise through vessel displacement as the location of the aquaculture sites is outside of any direct sailing route from the Project to any Port or offshore location.

20.5.7.16 There are no nuclear facilities or plans for future nuclear developments in the Moray Firth (Scottish Government, 2023a).

20.5.7.17 The NMPi Marine Recreation and Tourism Survey (2015) showed in general a low to medium activity level along the coastline in this region. Tourism and recreational activities are highly seasonal with peak levels of tourism occurring in the summer months. During the peak season the Scottish Marine Recreation and Tourism Survey (2015) assessed marine activity levels. Using this dataset several recreational activities have been identified of being of importance along the coast of the Moray Firth. These are highlighted below:

- Sea angling, pockets of high activity for sea angling exist within the IOU Study Areas;
- Personal watercraft e.g. wind surfing, Findhorn Bay is popular for personal watercraft such as windsurfing;
- Recreational sailing;
- Canoeing
- Bird and Wildlife watching; and
- Scuba diving.

20.5.7.18 Water sports businesses have been identified along the coastline surrounding the Project. Moray Firth and the Findhorn area is utilised by companies and individuals specialising in wind sports such as kitesurfing, WingSurfing, WingFoiling and eFoiling. Findhorn Watersports, Findhorn RYA Club is located 2.84 km from the Project and specialises in dinghy sailing, canoeing, in addition to offering RYA courses.

20.5.7.19 There are also businesses providing wildlife tours from Findhorn Marina, running daily trips around the Moray coastline seven days a week in Summer and private charters in Winter.

20.5.7.20 Several harbours and ports exist within the wider Marine Traffic Impacts Study Area, namely, Lossiemouth, Burghead, Cromarty, Invergordon and Portmahomack Harbour. Impacts to vessel activity from these Ports is assessed in Chapter 13: Shipping and Navigation.

20.6 Embedded Mitigation

20.6.1.1 As the Project design has evolved, a number of designed-in measures have been considered and proposed to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 20-2 and in the Embedded Commitments Register (Appendix A) and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 20-2: The proposed mitigation measures relevant to Major Accident and Disasters receptors

Reference	Embedded Commitment/Mitigation
C2	Development of and adherence to a Construction Method Statement (CMS) setting out construction procedures and good working practices, roles and responsibilities and construction related mitigation to be delivered.
C4	Development of and adherence to a Design Statement (DS) to ensure that the Development is carried out in accordance with the approved details.
C5	Layout approval in consultation with MCA and NLB.
C8	Development of and adherence to a Vessel Management Plan (VMP) to mitigate the impact of vessels.
C9	Development of and adherence to a Navigational Safety Plan (NSP) to mitigate the navigational risk to other legitimate users of the sea.
C10	Appointment of a Fisheries Liaison Officer (FLO) to facilitate engagement with the commercial fishing industry.
C11	Development of and adherence to a Development Specification and Layout Plan (DSLP) to confirm final development specification and layout.
C13	Development of and adherence to a Construction Programme (CoP) to confirm the timeline for construction.
C16	Development of and adherence to a Lighting and Marking Plan (LMP). This will ensure navigational safety and the safe marking and lighting of the Development.
C24	Development of and adherence to a Fisheries Mitigation Monitoring and Communication Plan (FMMCP) to mitigate impacts upon commercial fishermen.
C27	Development of and adherence to a Marine Pollution Contingency Plan to identify potential pollution sources and response / reporting procedures.
C28	Development of and adherence to an Emergency Response Cooperation Plan (ERCoP) to identify measures in place to support emergency response. Prepared in line with Marine Coastguard Agency guidance

Reference	Embedded Commitment/Mitigation
C29	All debris or waste materials arising during construction, operation and maintenance will be removed for disposal at an approved location above the tidal level of Mean High Water Spring tide.
C30	Local mariners and fishermen's organisations will be made fully aware of proposed works through a local notification. This will be issued at least 14 days before the commencement of any construction / operation and maintenance works.
C35	Navigational lighting of the Proposed Development (Inshore) will not be exhibited, altered or discontinued without the statutory sanction of the Commissioners of Northern Lighthouses.
C36	Failure of lighting and marking will be appropriately reported and rectified as soon as practicable. Interim hazard warnings will be put in place as required.
C37	No fully integrated turbines will be installed within the Moray FLOW Park
C38	Typical separation distance between foundations of 600 m
C39	Foundations within the Moray FLOW-Park will be limited to 30m ASL.
C42	Appropriate depiction on UKHO Admiralty Charts. This will involve provision of the positions and heights of structures to the UKHO, MoD and DGC.
C44	Applications to be made, where appropriate, for Safety Zones (500m) for construction and major maintenance works, and for pre commissioning works (50 m). Where / if consultation indicates safety zones do not apply, advisory safe passing distances may be used.
C45	Only foundations to be stored within Moray FLOW-Park.
C52	The Project will develop a permanent no infrastructure channel in the FLOW Park to support vessel transit, safe access through the site, avoid and respect seabed wrecks and potential war graves. The size and location are currently being developed in consultation with regulators and stakeholders and will be finalised during the EIA Phase. Additional temporary access channels will be considered and developed in direct consultation with marine stakeholders during the EIA Phase.

20.6.1.2 Due to the commitment to implement these measures and to ensure alignment with established sectoral practices and procedures, the embedded mitigations are considered an integral part of the Project's design. These measures will be included in the EIA.

20.6.1.3 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects upon Major Accident and Disasters receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

20.7 Scoping of Impacts

20.7.1.1 Table 20-3 provides the level of harm representing a major accident or disaster for a series of receptors as defined by the Control of Major Accident Hazards Regulations (COMAH) Regulations (HSE, 2015). If the receptor is not at risk to this level of harm from a potential accident linked to Project activities, then it has been discounted for further assessment. It is not considered to be a major accident or disaster under commonly accepted criteria drawn from standard industry practice endorsed by the HSE (HSE, 2001) and the Environment Agency (Chemical and Downstream Oil Industries Forum (CDOIF), 2016).

20.7.1.2 The criteria for a major accident or disaster are set at different levels based upon the relative sensitivity and scarcity of the receptors. The thresholds have been determined using industry best practice based upon:

- Criteria for notification of a major accident to the European Commission under Article 18(1) of Seveso III Directive and Regulation 26 of the COMAH Regulations 2015 (cited in ISEP, 2020); and
- The Control of Major Accident Hazards Regulations 1999 (Department of the Environment, Transport and the Regions (DETR),1999).

Table 20-3: Major Accident and Disaster Thresholds by Receptor Type (Source: COMAH Regs 2015)

Receptor Type	Major Accident/Disaster Threshold
Population and Human Health – Human Populations (public)	Substantial number (5+) of people requiring medical attention or any life-changing injuries/fatalities. Events of this magnitude may also involve some damage to housing, with small numbers of people being displaced. Potential for localised interruption to utilities and damage to infrastructure.
Population and Human Health – Human Populations (workers)	Multiple life changing injuries or fatalities.
Designated Land or Water Sites (Internationally important)	>0.5 hectares (ha) or 5-25% of site area or 5-25% of associated linear feature or population.
Designated Land or Water Sites (Nationally important)	>0.5 ha or 10-50% of site area, associated linear feature or population.
Other Designated Land	10-100 ha or 10-50% of land.
Scarce Habitat	2-20 ha or 10-50% of habitat.
Widespread Habitat – non-designated land	Contamination of 10-100 ha of land, preventing growing of crops, grazing of domestic animals or renders the area inaccessible to the public because of possible skin contact with dangerous substances.

Receptor Type	Major Accident/Disaster Threshold
	Alternatively, contamination of 10ha or more of vacant land.
Widespread Habitat – non-designated water	Contamination of aquatic habitat prevents fishing or aquaculture or renders it inaccessible to the public.
Species	Loss of 1-10% of animal population or 5-50% of plant ground cover.
Marine	2-20ha littoral or sub-littoral zone, 100-1,000ha of open sea benthic community, 100-1,000 dead sea birds (500-5,000 gulls), 5-50 dead or significantly impaired sea mammals.
Fresh and Estuarine Water Habitats	Water Framework Directive (European Commission, 2000) chemical or ecological status lowered by one class for 2-10km of watercourse or 2-20ha or 10-50% area of estuaries or ponds. Interruption of drinking water supplies, as per Groundwater Source of Drinking Water.
Groundwater (drinking water source)	Interruption of drinking water supplied from a ground or surface source (where persons affected x duration in hours [at least 2] >1,000) or for England and Wales only 1-10ha of SPZ where drinking water standards are breached.
Groundwater (non-drinking water source)	1-100ha of aquifer where water quality standards are breached (or hazardous substance is discernible).
Soil or Sediment	Contamination of 10-100ha of land etc. as per widespread habitat; contamination sufficient to be deemed environmental damage (Environmental Liability Directive).
Built Environment (designated buildings/sites)	Damage sufficient for designation of importance to be withdrawn.

20.7.1.3 The justification for each potential hazard, as defined by the NRR (2025) is scoped in or out of the EIA assessment is presented in Table 20-4. All potential hazards are scoped in or out to provide a comprehensive review. This assessment is based on a combination of the following:

- The definition of the Project at the Scoping stage;
- Embedded mitigation (as presented in Section 20.6, together with the means by which it will be secured);
- The baseline as defined at the Scoping stage; and
- The existing evidence base for Major Accident and Disasters effects associated with Project activities;
- Relevant legislation and policy; and
- The professional judgement of qualified Major Accident and Disasters specialists.

Table 20-4: Scoping assessment for Major Accident and Disasters (Source NRR 2025)

Hazard	Embedded Mitigation	Scoped In/Out	Justification for why the Hazard is Scoped in/out of assessment
Terrorism			
International terrorist attack with strategic implications	N/A	Scoped out	This risk is defined by a terror attack occurring internationally. The Project is in UK territory.
Northern Ireland (NI) related terrorism	N/A	Scoped out	The NRR defines NI related terrorism as acts that would target sites of British symbolic importance in NI. The Project is not in NI and would not be a symbol of the British State.
Terrorist attacks in publicly accessible locations	N/A	Scoped out	The Project is not in a publicly accessible location.
Terrorist attacks on transport	N/A	Scoped out	The Project is not a transport infrastructure project.
Strategic hostage taking	N/A	Scoped out	The NRR defines this risk as low likelihood with limited impact and would therefore not constitute a major accident or disaster.
Assassination of high-profile figure	N/A	Scoped out	The Project does not involve a high-profile public figure.
Larger scale Chemical, Biological, Radiological and Nuclear (CBRN) attacks	N/A	Scoped out	A CBRN attack is designed to cause mass casualties. As the Project is not in a public place and will have minimal people on site, it would not be a target.
Smaller scale CBRN attacks	N/A	Scoped out	As above.
Medium scale CBRN attacks	N/A	Scoped out	As above.
Conventional attacks on infrastructure	N/A	Scoped out	The NRR states that there have been no successful attacks on electricity infrastructure in the UK and that both the government and the Electricity System Operator have robust response plans in place in the unlikely event that significant electricity supply disruption should occur. A reasonable worst-case scenario would

Hazard	Embedded Mitigation	Scoped In/Out	Justification for why the Hazard is Scoped in/out of assessment
			be a regional loss of power, likely to be resolved in the short term. The Project will not be an active part of the UK electricity infrastructure and therefore this hazard can be scoped out of the assessment.
Cyber-attacks on infrastructure	N/A	Scoped out	This event would likely result in a short-term incident revolving around financial gain for the attacker(s) and not result in a major accident or disaster.
Geographic and Diplomatic			
Disruption to global oil trade routes	N/A	Scoped out	The Project is not on a global oil trade route.
Accidents and System Failures			
Major adult social care provider failure	N/A	Scoped out	The Project is not part of adult social care provision.
Insolvency affecting fuel supply	N/A	Scoped out	This event would likely result in delays to construction, O&M or decommissioning activities which does not in itself constitute a major accident or disaster.
Large passenger vessel accident	C5, C8, C9, C11, C13, C16, C24, C28, C30, C35 C36, C37, C42, C44	Scoped in	The NRR defines this hazard as a large passenger vessel sinking in UK waters. Risk of loss of life, environmental damage and damage to Project infrastructure and other marine users. This hazard represents a potential risk to the Project and is therefore considered under Vessel Interactions (collision, allision)
Major maritime pollution incident	C2, C4, C27, C28, C29	Scoped in	The NRR defines this hazard as a spillage of oil from a tanker or leakage from a pipeline. Marine pollution is a potential risk from the Project and is therefore considered under Project specific risks below.

Hazard	Embedded Mitigation	Scoped In/Out	Justification for why the Hazard is Scoped in/out of assessment
Incident of a vessel blocking a major port	N/A	Scoped out	This event would likely result in delays to construction, O&M or decommissioning activities which is not considered a major accident or disaster. Should the vessel that is blocking the port be related to the Project, the assessment considers it under Vessel Interactions (collision, allision). The Project is no more vulnerable to this type of hazard than any other project.
Aviation collision (multiple aircraft colliding)	N/A	Scoped out	The NRR defines the reasonable worst case aviation collision in relation to a major accident as two aircraft colliding during landing manoeuvres over a major urban area. As the Project is not an airport, this hazard can be scoped out of the assessment. The hazard of potential aviation collisions with infrastructure is being considered in Chapter 15: Military and Civil Aviation.
Disruption of space-based services	N/A	Scoped out	This event would likely not result in a major accident or disaster.
Insolvency of supplier(s) of critical services to the public sector	N/A	Scoped out	The Project is not a supplier of critical services for the public sector.
Loss of Positioning, Navigation and Timing (PNT) services	N/A	Scoped out	The Project is no more vulnerable to this type of hazard than any other project and managing the event would be a national effort. Loss of navigation systems would likely result in vessel collisions or allisions which are considered separately under Vessel Interactions (collision, allision).
Simultaneous loss of all fixed and mobile forms of communication	N/A	Scoped out	The Project is no more vulnerable to this type of hazard than any other project and managing the event would be a national effort. Ofcom places a regulatory obligation on communications providers to take “all necessary measures to ensure uninterrupted access to emergency organisations.” Loss of communication systems would most likely result in vessel collisions or allisions

Hazard	Embedded Mitigation	Scoped In/Out	Justification for why the Hazard is Scoped in/out of assessment
			which are considered separately under Vessel Interactions (collision, allision).
Failure of the National Electricity Transmission System (NETS)	N/A	Scoped out	The NRR defines this risk event as a total failure of the NETS resulting in a nationwide loss of power including critical systems. The Project is no more vulnerable to this type of hazard than any other project and managing the event would be a national effort. As the infrastructure is not connected to the grid and construction / O&M vessels will run off their own electricity systems (battery / generator).
Rail accident	N/A	Scoped out	The Project is not a railway, is not located close to a railway nor supplied by one.
Regional failure of the electricity network	N/A	Scoped out	The infrastructure at the Project site will not be connected to the electricity network and would therefore be unaffected by this hazard.
Technological failure at a systemically important retail bank	N/A	Scoped out	No systemically important retail bank is associated with the Project.
Technological failure at a UK critical financial market infrastructure	N/A	Scoped out	The Project is not associated with a UK critical financial market.
Accidental fire or explosion on an offshore oil or gas installation	N/A	Scoped out	The Project is not an offshore oil or gas installation and is not located in close proximity to one.
Major fire	C2, C4, c37, C38, C42, C45	Scoped in	A major fire may lead to severe damage to the environment through harmful emissions into the air and sea and create a localised fire hazard. A major fire may also be harmful to people working in the area, cause significant damage to infrastructure and/or vessels.

Hazard	Embedded Mitigation	Scoped In/Out	Justification for why the Hazard is Scoped in/out of assessment
Accident involving high consequence dangerous goods	N/A	Scoped out	The Project does not involve high consequence, dangerous goods.
Radiation exposure from transported, stolen or lost goods	N/A	Scoped out	The Project will not be transporting radioactive goods.
Failure of gas supply infrastructure	N/A	Scoped out	The Project is not part of gas supply infrastructure.
Civil nuclear accident	N/A	Scoped out	The Project is not a nuclear development.
Radiation release from overseas nuclear site	N/A	Scoped out	The Project is not an overseas development. Impacts on UK sites would be highly dependent on weather patterns and distance from the UK. The NRR defines this risk as extremely unlikely.
Accidental fire or explosion at an onshore major hazard (COMAH) site	N/A	Scoped out	The Project is an inshore marine site.
Accidental large toxic chemical release from an onshore major hazard (COMAH) site	N/A	Scoped out	The Project is an inshore marine site.
Accidental fire or explosion at an onshore fuel pipeline	N/A	Scoped out	The Project is an inshore marine site.
Accidental fire or explosion at an onshore major accident hazard pipeline	N/A	Scoped out	The Project is an inshore marine site.
Accidental work-related (laboratory) release of a hazardous pathogen	N/A	Scoped out	The Project is an inshore marine site with no laboratory. It is also not closely located to any known laboratory that handles pathogens.

Hazard	Embedded Mitigation	Scoped In/Out	Justification for why the Hazard is Scoped in/out of assessment
Reservoir/dam collapse	N/A	Scoped out	The Project is an inshore marine site.
Water infrastructure failure or loss of drinking water	N/A	Scoped out	The Project is an inshore marine site and not part of water infrastructure.
Food supply contamination	N/A	Scoped out	The Project is an inshore marine site and is not related to food supply.
Natural and Environmental Hazards			
Wildfire	N/A	Scoped out	The Project is an inshore marine site.
Volcanic eruption	N/A	Scoped out	The Project is not located near to any known volcanic activity
Earthquake	N/A	Scoped out	The Project is not located in a geologically active area.
Severe space weather	N/A	Scoped out	This event would have a negligible effect on the Project.
Storms (extreme weather)	N/A	Scoped out	Chapter 18: Climate considers the effect of extreme weathers; however, such events are considered unlikely and would have minimal interaction with the Project.
High temperatures and heatwaves	N/A	Scoped out	Chapter 18: Climate considers the effect of high temperatures; however, such events are considered unlikely and would have minimal interaction with the Project.
Low temperatures and snow	N/A	Scoped out	Chapter 18: Climate considers the effect of low temperatures; however, such events are considered unlikely and would have minimal interaction with the Project.
Coastal flooding	N/A	Scoped out	Chapter 6: Marine and Coastal Processes considers the potential effects on tidal current speeds, wave energy and turbulence caused by the interactions between stored foundations and the baseline metocean regime. They may result in localised changes but would not be likely to cause coastal flooding resulting in a major accident or disaster

Hazard	Embedded Mitigation	Scoped In/Out	Justification for why the Hazard is Scoped in/out of assessment
Drought	N/A	Scoped out	This event would not result in a major accident or disaster related to the Project.
Poor air quality	N/A	Scoped out	This event would not result in a major accident or disaster related to the Project.
Humanitarian crisis overseas – natural hazard event	N/A	Scoped out	The Project is within UK territory and therefore cannot be involved in an overseas disaster.
Disaster response in the Overseas Territories	N/A	Scoped out	The Project is within UK territory and therefore cannot be involved in an overseas disaster.
Fluvial flooding	N/A	Scoped out	The Project is an inshore marine site and would have no impact on rivers.
Surface water flooding	N/A	Scoped out	The Project is an inshore marine site and would have no impact on flood risk or defence.
Human, Animal and Plant Disease			
Pandemic	N/A	Scoped out	This event would likely result in delays to construction, O&M or decommissioning activities, which is not considered a major accident or disaster.
Outbreak of an emerging infections disease	N/A	Scoped out	This event would likely result in delays to construction, O&M or decommissioning activities, which is not considered a major accident or disaster.
Animal Disease – major outbreak of: ▪ Foot and Mouth Disease; ▪ Highly pathogenic avian influenza; ▪ African horse sickness; or	N/A	Scoped out	The Project is an inshore marine site with no connection to animal husbandry.

Hazard	Embedded Mitigation	Scoped In/Out	Justification for why the Hazard is Scoped in/out of assessment
African swine fever.			
Major outbreak of plant pests: ▪ *Xyella fastidiosa; or* ▪ *Agrilus planipennis*.	N/A	Scoped out	The Project is an inshore marine site with no connection to terrestrial plants.
Societal			
Public disorder	N/A	Scoped out	This event could result in delays to construction, O&M or decommissioning activities, which is not considered a major accident or disaster.
Industrial Action	N/A	Scoped out	This event would likely result in delays to construction, O&M or decommissioning activities, which is not considered a major accident or disaster.
Reception and integration of British Nationals arriving from overseas	N/A	Scoped out	The Project has no impact on British Nationals arriving from overseas.
Conflict and Instability			
Attack on a UK ally or partner outside NATO or a mutual security agreement requiring international assistance	N/A	Scoped out	The Project is within UK territory and therefore cannot be involved in an overseas agreement.
Nuclear miscalculation not involving the UK or its allies	N/A	Scoped out	The Project has no connection to overseas nuclear usage.
Project Specific Hazards			
Vessel interactions (collision, allision)	C5, C8, C9, C11, C13, C16, C24,	Scoped in	Risk of loss of life, environmental damage, and damage to Project infrastructure and other marine users

Hazard	Embedded Mitigation	Scoped In/Out	Justification for why the Hazard is Scoped in/out of assessment
	C28, C30, C35 C36, C37, C42, C44		
Aviation collision with infrastructure	C5, C11, C14, C16, C28, C35, C36, C42	Scoped in	Risk of loss of life, environmental damage, and damage to Project infrastructure and other marine users
Workplace accidents	C2, C4, C8, C9, C16, C28, C35, C36	Scoped in	Risk of loss of life and/or major injuries impacting human health.
FLOW Floating foundations breaking free from moorings	N/A	Scoped in	Risk of loss of life and damage to Project infrastructure and other marine users.
FLOW Floating foundation breaking free during connection/disconnection	C16, C35, C36, C44	Scoped in	Risk of loss of life and damage to Project infrastructure and other marine users.
Marine Pollution (vessel fuel)	C2, C4, C27, C28, C29	Scoped in	Risk of environmental damage and impacts on human health.

20.8 Potential Cumulative Effects

20.8.1.1 Chapter 4: EIA Methodology details how potential cumulative effects will be assessed through a CEA and gives examples of the projects which are likely to be included in that assessment. For Major Accident and Disasters, cumulative interactions are unlikely to occur.

20.8.1.2 Major Accidents and Disasters are defined as very low likelihood and it is therefore extremely unlikely that two unrelated major accidents or disasters could occur within the same time period or affect the same receptors. Cumulative effects will not be scoped into the EIA.

20.9 Potential Transboundary Effects

20.9.1.1 No transboundary impacts on Major Accident and Disasters pathways are anticipated to occur as a result of the Project activities during construction, O&M or decommissioning. Any predicted impacts on these pathways will largely be localised to the Project and will not give rise to effects on the marine environment beyond UK waters. Therefore, it is proposed to scope out transboundary impacts with regards to Major Accident and Disasters.

20.10 Proposed Approach to EIA

20.10.1 Guidance

20.10.1.1 In addition to the general approach and guidance outlined in Chapter 2: Policy and Legislation, the assessment of Major Accident and Disasters receptors will also comply with the following guidance documents where they are specific to this topic:

- ISEP Major Accidents and Disasters in EIA – A Primer (ISEP, 2020)

20.10.2 Additional Data Sources

20.10.2.1 A more detailed literature review will be developed for the EIA, building upon the summary within this Inshore Scoping Report. Project-specific survey outputs, taken from specialist topic chapters, will be used to enhance the understanding of baseline conditions.

20.10.3 Assessment Methodology

20.10.3.1 The EIA will follow the guidance of Major Accidents and Disasters in EIA – A Primer (ISEP, 2020) and the general approach outlined Chapter 4: EIA Methodology of this Inshore Scoping Report.

20.10.3.2 The assessment of Major Accidents and Disasters will be conducted using a staged approach:

- Identifying potential risk events related to the scoped in major event types (source / pathways and receptors);
- Defining the reasonable worst-case consequence if the event did occur;
- Identifying any possible prevention, minimisation and / or mitigation measures;
- Assessing the likelihood; and
- Determining whether the risk has been mitigated to 'As Low As Reasonably Practicable' (ALARP) and identification of any residual risks and their significance.

20.10.3.3 The reasonable worst-case consequence will be identified for each grouped risk event, using professional judgement. The worst-case consequence will then be assessed against the criteria set out in Table 20-5 to understand the potential for the consequence to constitute a major accident and/or disaster.

20.10.3.4 The criteria for assigning consequence are informed by FSA criteria (IMO, 2018) and are provided separately for each group of receptors: people and human health, material assets, and environment.

Table 20-5: Consequence Criteria

Severity of Consequence	Definition
Negligible	All receptors: No perceptible effect
Minor	Population and human health: Minor injury or very short-term health concerns. Material assets: Minor damage. Environment: Local (on site) assistance required.
Moderate	People and human health: Multiple minor injuries or injuries resulting in medium health concerns (e.g. multiple days off work). Material assets: Damage to a level that is not critical to operations. Environment: Limited external assistance required.
Serious	Population and human health: Single fatality or injury resulting in permanent disability. Material assets: Damage to a level that results in a critical impact on operations. Environment: Regional assistance required.
Major	Population and human health: Multiple fatalities or injuries resulting in permanent disability. Material assets: Total loss of asset. Environment: National assistance required.

20.10.3.5 The likelihood of the reasonable worst-case consequence occurring relates both to the likelihood of the grouped risk event and the likelihood of the receptor being affected, and in both instances, embedded mitigation will be considered.

20.10.3.6 The likelihood criteria are set out in Table 20-6 and are based on FSA criteria (IMO, 2018).

Table 20-6: Likelihood Criteria

Likelihood	Definition
Negligible	Less than 1 occurrence per 10,000 years.
Extremely Unlikely	1 occurrence per 100 to 10,000 years.
Remote	1 occurrence per 10 to 100 years.
Reasonably Probable	1 occurrence per 1 to 10 years.
Frequent	Yearly occurrence

20.10.3.7 The tolerability matrix used to determine the significance of effects from the frequency of occurrence and the severity of consequences is presented in Table 20-7. The risks are ranked as low (broadly acceptable), intermediate (tolerable with mitigation) and high (unacceptable). Low and intermediate risks are considered to be managed to an acceptable level. High risks are considered to be unacceptable.

Table 20-7: Tolerability Matrix

Likelihood / Consequence	Negligible	Extremely Unlikely	Remote	Reasonably Probable	Frequent
Negligible	Broadly acceptable	Broadly acceptable	Broadly acceptable	Broadly acceptable	Tolerable with mitigation
Minor	Broadly acceptable	Broadly acceptable	Broadly acceptable	Tolerable with mitigation	Tolerable with mitigation
Moderate	Broadly acceptable	Broadly acceptable	Tolerable with mitigation	Tolerable with mitigation	Unacceptable
Serious	Broadly acceptable	Tolerable with mitigation	Tolerable with mitigation	Unacceptable	Unacceptable
Major	Tolerable with mitigation	Tolerable with mitigation	Unacceptable	Unacceptable	Unacceptable

20.11 Scoping Questions

20.11.1.1 The following Scoping questions refer to the Major Accident and Disasters Chapter and are designed to focus the Scoping exercise and inform the Scoping Opinion:

- Do you agree with the study area(s) defined for Major Accident and Disasters?
- Do you agree with the use of those data listed in Section 20.4, and any additional anticipated data listed in Section 20.10, being used to inform the Inshore EIA?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors related to Major Accident and Disasters have been identified?
- Do you agree with the Scoping in and out of impact pathways in relation to Major Accident and Disasters?
- Do you agree with the assessment of transboundary effects in relation to Major Accident and Disasters?
- Do you agree with the assessment of cumulative effects in relation to Major Accident and Disasters?
- Do you agree with the proposed assessment methodology for Major Accident and Disasters?

21 Summary of Inshore EIA Scoping and Next Steps

21.1 Impacts and Commitments

21.1.1.1 Each technical topic assessment within this Inshore Scoping Report has identified the potential impacts that may arise because of the construction, O&M and decommissioning of the Project, and therefore the potential impacts that are proposed to be scoped into the Inshore EIAR for the Project. For the relevant impacts and receptors that have been scoped into the Inshore EIAR, the proposed approach for the analysis and assessment has been described and questions have been posed to consultees to comment. Additional impacts identified following receipt of the Scoping Opinion, or as a result of stakeholder engagement or public consultation will be documented within the Inshore EIAR that will be prepared to support the Marine Licence applications.

21.1.1.2 Each technical chapter and assessment within this Inshore Scoping Report has made reference to embedded commitments that have been made by the Developer as part of the project design process. These are detailed within Appendix A (Embedded Commitments) in relation to the corresponding technical topics. This Embedded Commitments Register will be a live document and will be developed further as the EIA progresses and in response to stakeholder consultation.

21.1.1.3 As a result of the commitment to implement these measures, and to align the Project with various standard sectoral practices and procedures, the embedded commitments are considered inherently part of the design of the proposed development and have therefore been included in the assessment presented in each of the technical chapters.

21.2 Topics Scoped into the Inshore EIA

21.2.1.1 The following environmental topics are scoped into the Inshore EIAR for the Project:

- Marine and Coastal Processes;
- Marine Water and Sediment Quality;
- Benthic Subtidal and Intertidal Ecology;
- Fish and Shellfish Ecology;
- Inshore and Intertidal Ornithology;
- Marine Mammals;
- Commercial Fisheries;
- Shipping and Navigation;

- Marine Archaeology and Cultural Heritage;
- Seascape, Landscape and Visual Resources;
- Socio-economics, Tourism and Recreation;
- Climate;
- Infrastructure and Other Users; and
- Major Accidents and Disasters.

21.2.1.2 The following topics have been scoped out of further assessment within the Inshore EIAR for the Project:

- Human Health;
- Offshore Airborne Noise and Vibration; and
- Offshore Air Quality.

21.2.1.3 Justification for the scoping out of the above impacts is presented in Section 4.9 of Chapter 4: EIA Methodology.

21.2.1.4 Military and Civil Aviation has also been scoped out of further assessment within the Inshore EIAR for the Project, with justification presented in Section 15.6.

21.2.1.5 The Inshore EIAR will be written in accordance with relevant and latest legislation and policy, with particular focus on EIA Regulations and relevant good practice guidance available at the time of writing. As with this Inshore Scoping Report, each individual technical topic set out in the EIAR will have specific guidance and standards for assessment that will be applied alongside the generic EIA guidance and standards.

21.2.1.6 The Inshore EIAR will follow the proposed content outlined in Table 20-1.

21.2.1.7 The Inshore EIAR will be prepared by relevant technical experts and will utilise the most recent guidance, assessment methodology, latest desk-based data and any relevant site-specific survey data. Information on the competent experts for respective topics will be provided within the Inshore EIAR.

21.2.1.8 The technical chapters will likely include the following topics:

- Introduction;
- Policy and guidance;
- Consultation;
- Baseline environment;
- Design basis for assessment;
- Impact assessment methodology;
- Assessment of potential effects;
- Commitments and mitigation;
- Consideration of whether it is appropriate to include proportionate measures to monitor the predicted impacts of the Project;

- Transboundary and inter-related effects (where relevant for the EIA topic in question); and
- Cumulative effects.

21.2.1.9 It is envisaged that a range of Technical Appendices will support the Inshore EIAR, as listed in Table 21-2.

Table 21-1: Proposed structure of the EIAR

Volume	Contents	Sections	Outline
Volume 1	Overview	• Introduction • Legislation and Policy Context • Project Description • Site Selection, Alternatives and Design Evolution • Consultation • Environmental Impact Assessment Methodology • Cumulative Effects	The introductory chapters of the EIAR will introduce the Project, providing the relevant project context; including an introduction, the planning and policy context, the EIA methodology being used, any alternative design options that have been considered, as well as a description of the Project and construction strategy. This section should summarise the findings of the EIAR in a clear, accessible format that uses non-technical language and supporting graphics.
Volume 2	Inshore EIAR	• Marine and Coastal Processes • Marine Water & Sediment Quality • Benthic, Subtidal and Intertidal Ecology • Fish and Shellfish Ecology • Ornithology • Marine Mammals • Commercial Fisheries • Shipping and Navigation • Marine Archaeology and Cultural Heritage • Seascape, Landscape and Visual Resources	Assessment chapters will provide a description of the relevant environmental receptors, a description of the existing baseline characterisation within the appropriate study area, relevant project committed embedded commitments, identification of potential impacts and the anticipated significant effects. Any additional mitigation measures will be identified, and residual effects summarised. The assessment of cumulative effects will be considered within each technical chapter.

Volume	Contents	Sections	Outline
		• Socio-Economics, Tourism and Recreation • Climate • Infrastructure and Other Users • Major Accidents and Disasters	
Volume 3	Summary	• Schedule of Mitigation • Summary and Conclusions	Summary chapters will provide a concise presentation of the key findings and mitigation commitments.
Volume 4	Technical Appendices	• See Table 21-2	Technical appendices for the assessment chapters that support and are cross-referenced with Volume 2 will be included. These may include modelling outputs, background reports and/or supporting documents.

Table 21-2: Indicative list of technical appendices to support the EIAR.

Technical Appendices
Draft Environmental Management Plan
Draft Decommissioning Programme
Inshore Scoping Opinion
Scoping and Consultation Gap Analysis
Cumulative Impact Assessment Screening List
Commitments Register
Marine and Coastal Processes Technical Report
Benthic Subtidal and Intertidal Technical Report
Marine Mammal Technical Report
Underwater Noise Modelling Report
Draft EPS Risk Assessment / Licence Application(s)
Ornithology Baseline Technical Report
Ornithology Displacement Technical Report
Commercial Fisheries Technical Report
Draft Fisheries Management and Mitigation Strategy
NRA
Greenhouse Gas Assessment
Socio-economics Technical Report
Marine Archaeology and Cultural Heritage Technical Report
Unexploded Ordnance Risk Assessment
WFD Compliance Assessment

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Appendix A – Embedded Commitments Register

Moray FLOW-Park

Appendix A
Embedded Mitigation and Commitments Register

Environmental Topic Key

Abbreviation	Topic
MPP	Marine Physical Processes
MWSQ	Marine Water and Sediment Quality
B&I	Benthic and Intertidal Ecology
F&SM	Fish, Shellfish and Megafauna
MM	Marine Mammals
OO	Offshore Ornithology
CF	Commercial Fisheries
A&CH	Marine Archaeology and Cultural Heritage
SLVIA	Seascape, Landscape and Visual Impact
S&N	Shipping and Navigation
A&R	Aviation and Radar
STR	Socioeconomics, Tourism and Recreation
OMU	Other Marine Users
CCRA/ GHG	Greenhouse Gas and Climate Change
MAD	Major Accidents and Disasters

Reference No	Embedded Mitigation / Commitment	Relevant Development Stage	Relevance to Environmental Topic (✓)														Securing Mechanism
			MCP	MWSQ	BSIE	FSE	MM	O	CMF	MA&CH	SLVIA	S&N	MCA	SETR	IOU	CC	MAD	
C1	Adherance to the Scottish Marine Wildlife Watching Code during construction, operation and maintenance.	All stages				✓	✓							✓	✓			Marine Licence
C2	Development of and adherance to a Construction Method Statement (CMS) setting out construction procedures and good working practices, roles and responsibilites and construction related mitigation to be delivered.	Pre-construction, Construction	✓	✓										✓	✓	✓	✓	Marine Licence
C3	Development of and adherance to a Piling Strategy (PS) to mitigate the underwater noise impacts arising from piling activity.	Pre-construction, Construction				✓	✓							✓	✓			Marine Licence
C4	Development of and adherance to a Design Statement (DS) to ensure that the Development is carried out in accordance with the approved details.	Pre-construction, Construction	✓								✓			✓	✓	✓	✓	Marine Licence
C5	Layout approval in consultation with MCA and NLB.	Pre-construction, Construction										✓			✓		✓	Marine Licence
C6	The final layout and positioning for FLOW foundations will be defined, as far as possible, to limit impacts to the qualifying features of the Moray Firth Special Area of Conservation (SAC) and the Moray Firth SPA and other environmental considerations. Foundations will also be stored sensitively to reduce environmental impacts.	Pre-construction, Construction, Operation and Maintenance			✓	✓	✓	✓	✓		✓			✓	✓			Site Selection and Route Optioneering Process. Environmental Management Plan (EMP), a consent condition requirement.
C7	Development of and adherance to an Environmental Management Plan (EMP).This will ensure that all construction and operation activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the Application, or as otherwise agreed, are fully implemented.	Pre-construction, Construction, Operation and Maintenance		✓	✓	✓	✓							✓	✓	✓		Marine Licence
C8	Development of and adherance to a Vessel Management Plan (VMP) to mitigate the impact of vessels.	Pre-construction, Construction, Operation and Maintenance		✓			✓	✓				✓		✓	✓	✓	✓	Marine Licence
C9	Development of and adherance to a Navigational Safety Plan (NSP) to mitigate the navigational risk to other legitimate users of the sea.	Pre-construction, Construction, Operation and Maintenance							✓			✓		✓	✓	✓	✓	Marine Licence
C10	Appopintment of a Fisheries Liaison Officer (FLO) to facilitate engagement with the commercial fishing industry.	Pre-construction, Construction, Operation and Maintenance							✓					✓			✓	Marine Licence

Reference No	Embedded Mitigation / Commitment	Relevant Development Stage	Relevance to Environmental Topic (✓)														Securing Mechanism
			MCP	MWSQ	BSIE	FSE	MM	O	CMF	MA&CH	SLVIA	S&N	MCA	SETR	IOU	CC	MAD	
C11	Development of and adherance to a Development Specification and Layout Plan (DSLP) to confirm final develpoment specification and layout.	Construction								✓	✓	✓		✓	✓	✓	✓	Marine Licence
C12	Appointment of an independent Environmental Clerk of Works (ECoW) to ensure effective monitoring and compliance of environmental mitigation and management measures.	Construction				✓	✓	✓										Marine Licence
C13	Development of and adherance to a Construction Programme (CoP) to cofirm the timeline for construction.	Construction			✓			✓	✓			✓			✓		✓	Marine Licence
C14	Development of and adherence to an Invasive Non-Native Species (INNS) Mitigation Plan (Biosecurity Plan)	Construction, Operation and Maintenance		✓	✓	✓												Marine Licence
C15	Advance warning and accurate location details of operations will be given via notifications to mariners and Kingfisher Bulletins.	Construction, Operation and Maintenance							✓			✓			✓		✓	Marine Licence
C16	Development and adherence to a Lighting and Marking Plan (LMP) which details lights, marks, sounds, signals, and other aids to navigation which will be exhibited as required by NLB and MCA.	Construction, Operation and Maintenance						✓	✓		✓	✓	✓	✓	✓		✓	Marine Licence
C17	Where required by risk assessment, guard vessels or alternative suitable marine assets such as buoys or autonomous assets will be used to ensure adherence with safety zones or advisory passing distances.	Construction, Operation and Maintenance										✓						Marine Licence
C18	Compliance with Marine Guidance Note (MGN) 654 (Maritime and Coastguard Agency (MCA), 2021) and its annexes where applicable to the Project.	Construction, Operation and Maintenance										✓						Marine Licence
C19	Compliance with the Regulatory Expectations on Moorings for Floating Wind and Marine Devices (MCA and Health and Safety Executive (HSE), 2017).	Construction, Operation and Maintenance										✓						Marine Licence
C20	Marine coordination will be implemented to manage project vessels during mooring installation and decommissioning, as well as during deployment or retrieval of FLOW foundations. Coordination activities will be managed by the FLOW Park Management and Control System.	Construction, Operation and Maintenance										✓						Marine Licence
C21	Project vessels will comply with international marine regulations as adopted by the Flag State including the COLREGs (International Maritime Organization (IMO), 1972/77) and SOLAS (IMO, 1974).	Construction, Operation and Maintenance										✓						Marine Licence
C22	The FLOW Park Management and Control System, a fully integrated operational safety & risk management system designed specifically for wet storage facilities, fully compliant with maritime regulations and industry best practice, and providing 24/7/365 live monitoring for safety and security.	Construction, Operation and Maintenance										✓						Marine Licence
C23	Development of and adherance to a Project Environmental Monitoring Programme (PEMP) to ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.	Construction, Operation and Maintenance		✓	✓	✓	✓	✓	✓									Marine Licence
C24	Development of and adherance to a Fisheries Mitigation Monitoring and Communication Plan (FMMCP) to mitigate impacts upon commercial fishermen.	Construction, Operation and Maintenance							✓			✓		✓			✓	Marine Licence
C25	Development of and adherence to a Written Scheme of Investigation (WSI) setting out the agreed mitigation measures to be in place during construction, operation and maintenance and decommissioning, including where necessary Archaeological Exclusion Zones (AEZs), archaeological review of geophysical and/or geotechnical datasets, micrositing of project infrastructure, ground-truthing of anomalies and reporting of results.	Construction, Operation and Maintenance								✓								Marine Licence

Reference No	Embedded Mitigation / Commitment	Relevant Development Stage	Relevance to Environmental Topic (✓)														Securing Mechanism
			MCP	MWSQ	BSIE	FSE	MM	O	CMF	MA&CH	SLVIA	S&N	MCA	SETR	IOU	CC	MAD	
C26	Development of and adherence to a Protocol for Archaeological Discoveries (PAD) as part of the WSI setting out the process of reporting on discovery of any unexpected marine archaeology during construction, operation and maintenance and monitoring of works.	Construction, Operation and Maintenance								✓								Marine Licence
C27	Development of and adherance to a Marine Pollution Contingency Plan (MPCP) to identify potential pollution sources and response / reporting procedures.	Construction, Operation and Maintenance		✓	✓		✓	✓				✓					✓	Marine Licence
C28	Development of and adherance to an Emergency Response Cooperation Plan (ERCoP) to identify measures in place to support emergency response. Prepared in line with Marine Coastguard Agency guidance.	Construction, Operation and Maintenance							✓			✓	✓	✓	✓		✓	Marine Licence
C29	All debris or waste materials arising during construction, operation and maintenance will be removed for disposal at an approved location above the tidal level of Mean High Water Spring tide.	Construction, Operation and Maintenance		✓					✓			✓			✓		✓	Marine Licence
C30	Local mariners and fishermen's organisations will be made fully aware of proposed works through a local notification. This will be issued at least 14 days before the commencement of any construction / operation and maintenance works.	Construction, Operation and Maintenance							✓			✓		✓	✓		✓	Marine Licence
C31	Appointment of a Marine Mammal Observer (MMO) to maintain a record of any sightings of marine mammals and maintain a record of the action taken to avoid any disturbance caused to marine mammals during noisy activities.	Construction, Operation and Maintenance					✓											Marine Licence
C32	Return of the seabed to its original profile, or as close as reasonably practicable following completion of construction works.	Construction, Operation and Maintenance	✓	✓	✓				✓									Marine Licence
C33	Provision of scour protection where there is potential for scour to develop around infrastructure (foundations, moorings).	Construction, Operation and Maintenance	✓	✓	✓					✓								Marine Licence
C34	Completion of post-installation hydrographic surveys of the Proposed Development (Offshore) and periodic hydrographic surveys thereafter.	Construction, Operation and Maintenance	✓															Marine Licence
C35	Navigational lighting of the Project (Inshore) will not be exhibited, altered or discontinued without the statutory sanction of the Commissioners of Northern Lighthouses.	Construction, Operation and Maintenance							✓		✓	✓	✓	✓	✓		✓	Marine Licence
C36	Failure of lighting and marking will be appropriately reported and rectified as soon as practicable. Interim hazard warnings will be put in place as required.	Construction, Operation and Maintenance							✓			✓		✓	✓		✓	Marine Licence
C37	No fully integrated turbines will be installed within the Moray FLOW Park.	Construction, Operation and Maintenance												✓			✓	To be detailed in the Construction Method Statement (CMS) and Development Specification and Layout Plan (DSLP).
C38	Typical separation distance between foundations of 600m	Construction, Operation and Maintenance	✓								✓	✓				✓	✓	To be detailed in the NSP, DP, LMP, consent conditions under Marine Licence.
C39	Foundations within the Moray FLOW-Park will be limited to 30m ASL.	Construction, Operation and Maintenance						✓			✓		✓				✓	To be detailed in the NSP, DP, LMP, consent conditions under Marine Licence.
C40	Adherence to JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys (JNCC, 2017) and piling noise (JNCC, 2010b).	Construction, Operation and Maintenance					✓											To be detailed in the PEMP, a consent condition under Marine Licence.
C41	Development of and adherence to MMMP, including the investigation and use of low noise anchor solution where technically viable.	Construction					✓											To be detailed in the MMMP, a consent condition under Marine Licence.
C42	Appropriate depiction on UKHO Admiralty Charts. This will involve provision of the positions and heights of structures to the UKHO, MoD and DGC.	Construction, Operation and Maintenance							✓			✓	✓				✓	To be detailed in the NSP and LMP and reflected in specific marine and aeronautical charting requirements as consent conditions under Marine Licence.

Reference No	Embedded Mitigation / Commitment	Relevant Development Stage	Relevance to Environmental Topic (✓)														Securing Mechanism
			MCP	MWSQ	BSIE	FSE	MM	O	CMF	MA&CH	SLVIA	S&N	MCA	SETR	IOU	CC	MAD	
C43	Development of and adherance to an Operation and Maintenance Programme (OMP) to safeguard environmental interests during operation and maintenance.	Operation and Maintenance	✓	✓	✓		✓		✓	✓		✓			✓	✓		Marine Licence
C44	Applications to be made, where appropriate, for Safety Zones (500m) for construction and major maintenance works, and for pre commissioning works (50m). Where / if consultation indicates safety zones do not apply, advisory safe passing distances may be used.	Construction, Operation and Maintenance										✓			✓		✓	Marine Licence
C45	Only foundations to be stored within Moray FLOW-Park.	Operation and Maintenance									✓		✓			✓	✓	To be detailed in the NSP, OMP, DS - consent conditions under Marine Licence.
C46	Development of a Decommissioning Programme inline with the recommendations of the Energy Act 2004.	Decommissioning	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓		Marine Licence
C47	All reasonable, appropriate and practicable steps will be taken at the end of the operational life of the Moray FLOW-Park to restore the site of the works to its original pre-construction condition, or to as close to its original condition as is reasonably practicable.	Decommissioning	✓	✓	✓									✓	✓			Marine Licence
C48	The Project does not plan to store Floating Foundations in the FLOW-Parks during the Summer months (1st June to 31st August).	Operation and Maintenance							✓		✓							Site Selection and Route Optioneering Process.
C49	Commitment to public updates/live status report online of the FLOW-Park activity – exact method /details to be confirmed (i.e. on FLOW-Park website)	Construction, Operation and Maintenance							✓									Marine Licence
C50	The Project will avoid all wrecks as identified by the Archaeological review and site surveys.	Construction								✓								Site Selection and Route Optioneering Process.
C51	The Project will develop a no infrastructure channel in the FLOW Park to support vessel transits and access through the site. This will be developed in consultation with regulators and stakeholders during the EIA Phase.	All stages							✓			✓			✓		✓	Site Selection and Route Optioneering Process.