27 OFFSHORE TRANSMISSION WORKS COMMERCIAL FISHERIES

27.1 INTRODUCTION

1. This Section of the ES evaluates the likely significant effects of the OfTW on commercial fisheries. The assessment has been undertaken by Brown and May Marine Ltd (BMM).

2. This Section of the ES is supported by the following documents:

- Annex 16A: Commercial Fisheries Baseline; and
- Annex 16B: Salmon and Sea Trout Ecology and Fisheries Technical Report.

3. Commercial fishing is defined as any legal fishing activity undertaken for declared taxable profit. For the purpose of this assessment, commercial fisheries/fishing describes all commercial fishing activities with the exception of salmon and sea trout fisheries. Due to the distinct nature of salmon and sea trout fisheries from other commercial fisheries, they are assessed separately in this Section.

4. This Section includes the following elements:

- Assessment Methodology and Significance Criteria;
- Baseline Conditions;
- Development Design Mitigation;
- Assessment of Potential Effects;
- Mitigation Measures and Residual Effects;
- Summary of Effects;
- Statement of Significance; and
- References.

5. The cumulative effects of the OfTW are assessed in Section 16: Commercial Fisheries which assesses the Commercial Fisheries effects of the Wind Farm.

27.1.1 POLICY AND PLANS

27.1.1.1 Commercial Fisheries

6. The commercial fishing baseline and assessment for the OfTW has taken account of the following legislation and guidance:

- Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009;
- British Wind Energy Association 2004 Recommendations;
- Offshore Wind Farms, Guidance Note for Environmental Impact Assessment in Respect of FEPA and CPA Requirements – Version 2; CEFAS, MCUE, Defra, DTI, June 2004;
- Strategic Environmental Assessment (SEA) of Draft Plan for Offshore Wind Energy in Scottish Territorial Waters: Volume 1: Environmental Report; Marine Scotland 2010;
- UK Offshore Energy – Strategic Environmental Assessment; DECC, January 2009;
- Recommendations for Fisheries Liaison: FLOW, May 2008;
- Fisheries Liaison Guidelines – Issue 5: UK Oil & Gas, 2008;

- Guidelines to Improve Relations between Oil & Gas Industries and Near-shore Fishermen, UKOOA (renamed UK Oil & Gas), August 2006;
- Fishing and Submarine Cables – Working Together, International Cable Protection Committee (CPC), February 2009;
- Options and Opportunities for Marine Fisheries Mitigation Associated with Wind Farms, COWRIE 2010; and
- EIA scoping responses.

27.1.1.2 Salmon and Sea Trout Fisheries

7. The salmon and sea trout fisheries baseline and assessment for the OfTW takes account of the following guidance documents:

- Offshore Wind Farms, Guidance Note for Environmental Impact Assessment in Respect of FEPA and CPA Requirements – Version 2; CEFAS, MCUE, Defra, DTI, June 2004;
- Strategic Environmental Assessment (SEA) of Draft Plan for Offshore Wind Energy in Scottish Territorial Waters: Volume 1: Environmental Report; Marine Scotland 2010;
- UK Offshore Energy – Strategic Environmental Assessment: DECC, January 2009;
- Recommendations for Fisheries Liaison: FLOW, May 2008; and
- EIA scoping responses.

27.2 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

27.2.1 SCOPE OF ASSESSMENT

27.2.1.1 Commercial Fisheries

8. Establishing a commercial fisheries baseline upon which a robust assessment of effects can be made requires utilising a number of different data and information sources. It should be noted that the various data and information sources are subject to varying sensitivities and limitations which have been taken into account in the following assessment and are further described below. The aim has been to provide a detailed account of commercial fishing activities using all sources currently available.

9. Responses relating to commercial fisheries arising from the scoping exercise, as well as any subsequent issues raised during consultation have informed the following assessments.

10. Consultation with fisheries interests has been ongoing throughout the EIA and includes all known relevant bodies, associations and individuals. The appointment of FIRs at an early stage of the Project has assisted with the assessment.

27.2.1.2 Salmon and Sea Trout Fisheries

11. For the purposes of the baseline assessment, due to the migratory behaviour of salmon and sea trout, fisheries have been assessed for all rivers flowing into the Moray Firth. It is recognised that salmon is a qualifying feature or primary reason for SAC site selection of the following rivers in the Moray Firth.

- Berriedale and Langwell Waters SAC (primary reason);
- River Moriston SAC (qualifying feature);
- River Oykel SAC (qualifying feature); and
- River Spey SAC (primary reason).

27.2.2 CONSULTATION

27.2.2.1 Commercial Fisheries

12. Consultation, including written consultation responses received during the scoping phase of the OfTW, was undertaken with the organisations and individuals below. Responses relating to fish or shellfish ecology are separately discussed in Section 23: OfTW Fish and Shellfish Ecology.

- MS;
- SFF;
- SA;
- MF IFG;
- FAL;
- Caithness Static Gear Fishermen's Association;
- Scrabster Fishery Office;
- Buckie Fishery Office;
- Aberdeen Fishery Office; and
- A representative sample of regional fishermen.

27.2.2.2 Salmon and Sea Trout Fisheries

13. Consultation, including written consultation responses received during the scoping phase of the OfTW, was undertaken with the organisations and individuals below.

- MS;
- ASFB;
- SNFAS;
- DSFBs;
- Salmon Fishery Trusts and netsmen;
- MPFSPG; and
- MFSTP.

14. Table 27.1 below provides a summary of written consultation response received during the scoping phase of the OfTW. Responses relating to fish or shellfish ecology are separately discussed in Section 23: OfTW Fish and Shellfish Ecology.

Table 27.1 Summary of OfTW Scoping Responses

Consultee	Summary of Scoping Responses	Addressed in the EIA
Moray Firth Inshore Fisheries Group	Loss of fishing grounds during the construction/decommissioning phase. Safety risks to fishing vessels, particularly mobile gear following disturbance of the seabed.	Effects of loss of fishing grounds and displacement are considered in the predicted effects (Section 27.5). Safety risks are considered in the predicted effects (Section 27.5).

Consultee	Summary of Scoping Responses	Addressed in the EIA
	Use of protection methods in addition to burial should be considered to allow safe passage of fishing gear.	Safety risks are considered in the predicted effects (Section 27.5).

27.2.3 GEOGRAPHICAL SCOPE

27.2.3.1 Commercial Fisheries

15. The study area for the assessment of commercial fishing intensity with regards to the OfTW is shown in Figure 27.1. The approach has been to provide a study area which comprises of four ICES rectangles, 45E7, 45E6, 44E6 and 44E7) with the OfTW traversing through three of those (45E7, 45E6 and 44E6). This spatial extent allows fishing grounds in the general area of the OfTW to be described. An ICES rectangle is the smallest spatial unit available for the collation of fisheries statistics. It must be noted that the area of each rectangle in the study area is much larger than the area covered by the OfTW and therefore, where possible, the fishing activities along the OfTW itself have also been described.

27.2.3.2 Salmon and Sea Trout Fisheries

16. The study area for assessment of salmon and sea trout fisheries was defined at the local, regional and national level. The local study area focuses on the salmon fishery district where the landfall of the OfTW is located, the Spey, whilst the regional study area includes all salmon fishery districts with rivers flowing into the Moray Firth.

17. Given the migratory behaviour of salmon and sea trout and the importance of their fisheries across the country, a national scale has also been briefly described. The study areas defined for the salmon and sea trout fisheries assessment are given in Figure 27.2.

27.2.4 COMMERCIAL FISHERIES ASSESSMENT METHODOLOGY

18. The following section describes the assessment methodology, which has been applied to the baseline conditions provided in Section 27.3. In the absence of specific published guidelines by MS regarding the assessment of effects of electrical cable installation upon commercial fishing activities, where appropriate, the aspects as specified in the CEFAS/MCEU (2004) Guidelines have been considered, including the following.

- Adverse effects on commercially exploited fish and shellfish populations;
- Adverse effects on recreational fish populations;
- Complete loss or restricted access to traditional fishing grounds;
- Safety issues for fishing vessels;
- Interference with fisheries activities;
- Removal of obstacles on the sea bed post-installation to ensure vessel safety; and

- Any other concerns raised by local fishermen and fishing organisations.

19. In addition to the above, the following potential effect has been included subsequent to consultation with fishing interests:

- Displacement of fishing activity into other fishing areas.

20. In addition to an assessment of the direct effects to commercial fishing activities arising from the OfTW, indirect effects, such as changes to the behaviour of target species, are also assessed and where possible the significance of the effect is identified.

21. An assessment of the above effects will be separately applied to the construction phase and the operational phase. For the purposes of the assessment, and in the absence of detailed information on the decommissioning schedules and methodologies, it is considered that the potential effects associated with the decommissioning phase will be of no greater significance than those of the construction phase. Cumulative effects arising from other marine developments are separately discussed in Section **Error! Reference source not found.**

27.2.5 WORST CASE SCENARIO

22. A worst case scenario for the effects of the construction and operation of the OfTW upon commercial fishing activities has identified the Wind Farm design parameters which will realistically have the greatest potential effect upon the fishing activities described in the baseline (see Section 7: Project Description).

23. The principal factor in determining the design parameters that will constitute a worst case scenario is the consideration of how the fishing activities described in the baseline will be most affected. The following parameters constitute the worst case for the OfTW.

24. The total OfTW cable length is approximately 65 km.

25. The maximum number of cables, constituting the greatest potential loss of fishing ground as well as the greatest potential safety risk, is: three cables in three individual trenches. Each trench will have a width of up to 3 m.

26. Guidance published by the United Kingdom Cable Protection Committee (UKCPC) recommends that cable trenches should be separated by a distance based upon water depth. The maximum separation distance between the outermost trenches will be approximately 1.5 km.

27. The greatest length of unburied cable(s); whereby up to 45% of the cable will be protected by either rock placement or concrete mattresses.

28. The indicative duration of the OfTW installation will be 120 days per activity (cable lay and burial/protection constituting individual activities), 240 days in total, although there is the potential for overlap. There will be two offshore works vessels operating simultaneously during the installation of the OfTW, with an additional survey vessel for a limited period. There will be additional vessels to complete the landfall/near-shore operations; an anchored barge for cable laying, two anchor handlers for positioning the lay barge and a tug for transiting the lay

barge. Operations will be 24 hours, seven days a week. The timing of the installation period is not currently known and could potentially occur at any period throughout the year.

27.2.6 ASSESSMENT LIMITATIONS

29. The principal limitation of an assessment of effects upon commercial fishing activities is the potential of the established baseline to change over time. This may be for a number of reasons, as previously discussed. As a result, the scope of the assessment is limited by the baseline identified.

30. As discussed in the baseline, the scallop fishery is largely nomadic, variously targeting grounds around the UK (with the exception of several smaller category vessels). Although it is recognised that individual vessels may spend greater periods of time targeting specific fishing grounds in the Moray Firth, it is not possible within the scope of this assessment to consider the extent of an effect on a vessel by vessel basis. Instead, scallop grounds affected by the OfTW have been considered within the context of their relative importance to the Moray Firth, as well as to scallop grounds around the UK.

31. There is currently no established model for assessing the economic value of commercial fisheries in discrete sites such as offshore wind farms. National commercial fisheries datasets provide statistics of landings, values and effort for UK licensed fishing vessels of all lengths (and non-UK vessels landing into UK ports), however these are recorded by ICES rectangle, which are large relative to the OfTW corridor. Whilst additional data and information sources further contribute to describing fishing activities, it is not possible to ascribe a specific economic value to fisheries. Instead, activity is described as low, medium or high density, with a corresponding low, medium or high value.

32. As stated above, an assessment of salmon and sea trout fisheries describes the nature of the fisheries by Salmon Fishery District, principally using MSS catch data. Values are not ascribed within the dataset as the 'catch' for the most part (the rod-and-line fishery) has no direct saleable value (with the exception of net-caught fish). It is recognised, however, that rod-and-line fisheries on the east coast of Scotland generate significant economic value on both a regional and local scale.

27.2.7 SIGNIFICANCE CRITERIA

33. The significance criteria as defined in Section 4: EIA Process and Methodology of this ES have been used for this assessment. It should however be noted that the effects of the OfTW upon commercial fishing activities cannot be easily categorised and the application of the significance criteria to an assessment of effects is, as a result, subjective. Effects which are moderate or major are considered to be significant in relation to the EIA Regulations.

34. In the instances whereby the potential effect of the OfTW poses a risk to the health and safety of a fishing vessel and crew, the significance criteria used for the assessment cannot be applied. Instead, the risk is assessed to be within or outside acceptable limits. The parameter used to define acceptable limits follow the risk matrix provided in Section 18: Wind Farm Shipping and Navigation and given in

Table 27.2 below. It is considered that Intermediate Risk criteria falls within acceptable limits.

Table 27.2 Risk Matrix Description

Risk Region	Risk	Description
	Broadly Acceptable Region (Low Risk)	Generally regarded as insignificant and adequately controlled. Nonetheless the law requires further risk reductions if it is reasonably practicable. However, at these levels the opportunity for further risk reduction is much more limited.
	Tolerable Region (Intermediate Risk)	Typical of the risks from activities which people are prepared to tolerate to secure benefits. There is however an expectation that such risks are properly assessed, appropriate control measures are in place, residual risks are as low as is reasonably practicable (ALARP) and that risks are periodically reviewed to see if further controls are appropriate.
	Unacceptable Region (High Risk)	Generally regarded as unacceptable whatever the level of benefit associated with the activity.

35. It should however be noted that the assessment of risks provided below are evaluative and for the purposes of the EIA only. For further details see Section 18: Wind Farm Shipping and Navigation.

36. An assessment of the potential effects of the OfTW has been undertaken on a fishery by fishery basis. The sensitivity of the fishery (receptor) relative to the location of the OfTW is described in the baseline summary. The assessment subsequently considers the predicted effects on each fishery. Ascribing sensitivity to a receptor takes into account the following characteristics (effects upon the ecology of commercial species are described in Section 23: OfTW Fish and Shellfish Ecology):

- Adaptability: the ability of the fishing vessels (by fishery) to avoid or adapt to the effect;
- Tolerance: the ability of fishing vessels to be temporarily and/or permanently affected;
- Recoverability: how well fisheries recover following exposure to an effect; and
- Value: the scale of importance, rarity and relative worth of the fisheries affected.

37. The magnitude of an effect is considered for each predicted effect on a fishery by fishery basis. In each instance, the following characteristics are taken into account (effects upon the ecology of commercial species are described in Section 23: OfTW Fish and Shellfish Ecology):

- Spatial extent: the area that fishing vessels (by fishery) are unable to undertake normal fishing activities within as a result of the construction and operation of the OfTW, relative to available fishing grounds;
- Duration: the temporal extent that fishing vessels (by fishery) are unable to resume normal fishing activities as a result of the construction and operation of the OfTW; and

- Severity: the degree of change.

27.3 BASELINE CONDITIONS

27.3.1 DATA SOURCES

27.3.1.1 Commercial Fisheries

38. The principal sources of data and information used for the production of the commercial fisheries baseline were as follows.

- District Fishery Offices;
- Fishermen and their representatives;
- ICES;
- MMO;
- MS;
- NE IFG; and
- SFF.

39. Consultation with local fishermen was principally undertaken by BMM, in association with the SFF and the FIRs appointed on behalf of the Moray Firth Offshore Wind Farm Developers Group (MFOWDG).

40. The following reports were reviewed and relevant information included in the baseline.

- ICES Stock Assessment Reports and other ICES publications of relevance;
- EC/National and Local Fisheries Legislation;
- MS and MSS publications;
- Oil and Gas UK publications;
- CEFAS publications; and
- Other relevant publications.

41. The following statistical datasets were utilised in the baseline.

- MMO fisheries statistics (landings and effort);
- MMO surveillance sightings;
- MMO UK satellite tracking (Vessel monitoring system, VMS]) data;
- MS satellite tracking (VMS) data;
- MS (data analysis); and
- Fishery specific information (information provided by fishermen and their representatives).

27.3.1.2 Salmon and Sea Trout Fisheries

42. The principal sources of data and information used for the collation of the salmon and sea trout fisheries baseline were:

- MSS; and
- Consultation with DSFBs, netsmen and other fisheries stakeholders.

43. The principal datasets used to inform the salmon and sea trout fisheries baseline were:

- MSS Salmon and Sea Trout Catch Data by Fishery Region (1952 to2009);
- MSS Salmon and Sea Trout Catch Data by Salmon Fishery District (2000 to 2009); and
- MSS Salmon and Sea Trout Netting Effort Data (2001 to 2010).

44. Each fishery in Scotland is required to provide the number and total weight of salmon, grilse and sea trout caught and retained during each month of the fishing season. In this context, the term salmon refers to multi-sea -winter salmon (MSW) whilst grilse refers to one-sea- winter salmon (1SW).

45. The catch data used for the purposes of this assessment are as reported. Where there are no records of reported catches, it has been assumed that no fish have been caught. It is recognised, however, that there may be a degree of error as a result of misreporting of catches. In addition, further errors may also exist within the catch dataset due to misclassification of fish between the grilse and salmon categories. The catch data used are as provided by MSS in October 2010. The effort data used are as provided by MSS in September 2011.

46. Rod-and-line fisheries are also required to provide the monthly numbers and total weight of those salmon, grilse and sea trout which were caught and released back into the river, a practice which is known as "catch and release". As a result, MSS catch data for the rod-and-line fishery is broken down into two categories, "rod-and-line" and "catch and release". Note that the total catch by the rod-and-line fishery is in effect the sum of the catches recorded in both categories. Where appropriate, data from both categories have been combined to give an indication of the total rod-and-line catch. Similarly, the catch by net-and-coble and fixed engines (bag and stake nets) has been combined in some instances to provide an indication of the total catch by the net fishery.

47. The catch data used in this report are Crown copyright, used with the permission of MSS. MS is not responsible for interpretation of these data by third parties.

27.3.2 COMMERCIAL FISHERIES BASELINE

27.3.2.1 MMO Fisheries Statistics

48. Figure 27.3 and Figure 27.4 show the landings values recorded in the study area of the OfTW by species and methods, respectively. The OfTW passes through rectangles which record landings of local importance for nephrops, king scallops, squid, whitefish (including haddock, monkfish and cod) and crustaceans (including lobsters, edible crabs and velvet crabs).

49. Nephrops record the highest landings values for all species in rectangles 44E6 (45.0%, £1,022,460) and 44E7 (48.8%, £1,477,407), in the southern Moray Firth. Recorded landings values are lower in rectangle 45E7 (14.1%, £236,890), and relatively very low in 45E6 (4.8%, £54,300). Nephrops are targeted by single and twin demersal otter trawlers.

50. Landings of king scallops, which are targeted by boat dredge vessels, record the highest values for all species in rectangle 45E7 (56.9%, £957,355) and 45E6 (39.9%,

£446,964). Recorded landings are lower in 44E6 (18.8%, £426,610) and 44E7 (11.4%, £345,183), respectively.

51. Squid comprises a significant proportion of the landings values for rectangles 44E6 (22.6%, £513,252) and 44E7 (18.9%, £572,401), with values recorded in 45E6 (2.3%, £25,821) and 45E7 (5.2%, £87,850) comparably much lower. Squid are caught by single and twin demersal otter trawlers which are able to reconfigure their gear to target the species.

52. Whitefish landings, including haddock, monkfish and cod, targeted by demersal otter trawlers and Scottish seine netters, record moderate landings values in rectangles 44E7 (13.5%, £408,084) and 45E7 (20.1%, £337,428) to the east of study area. The rectangles in the west record relatively very low values (44E6: 4.2%, £95,810; 45E6: 4.2%, £46,953).

53. Crab and lobster are predominantly recorded in 45E6 (45.0%, £504,140), with lower values recorded in 44E6 (5.6%, £128,036) and 44E7 (3.1%, £92,907) and negligible values recorded in 45E7 (0.2%, £3,998). The species are targeted by potting, or static gear vessels. It is however presumed that the majority of this activity will take place in inshore waters and therefore only static gear vessels within the vicinity of the OfTW landfall (rectangles 44E6 and 44E7) will be affected by the OfTW.

54. Figure 27.5 shows the landings values recorded in the study area of the OfTW by vessel length category. It can be seen that a considerable proportion of vessels operating within the study area are over 15 metres in length and therefore tracked by VMS. It should be noted, however, that a higher percentage of vessels in the inshore rectangles are under 15 metres and hence will not be included within the VMS dataset.

Annual Variation

55. Plate 27.1 to Plate 27.5 show the annual variation in landings values of the top commercial species targeted in the study area (all vessel categories).

56. Plate 27.1 shows the annual variation in landings values of nephrops in the study area. Landings values range between £1.6 million in 2003 and a peak of £4.2 million in 2007. There has been a decrease in recorded landings in recent years (2008 to 2009).

57. Plate 27.2 shows the annual variation in landings values of scallops in the study area. Landings values have remained relatively consistent throughout the ten year period except for a decline in values during 2002 (£896,377). Anecdotal information suggests this is due to a number of larger vessels spending time fishing in the English Channel (Howell *et al*, 2006). Landings values have ranged from £1.8 million (2007) to £2.7 million (2004) for the remainder of the ten year period.

58. Plate 27.3 shows the annual variation of squid landings values in the study area. It can be seen that values vary considerably over the ten year period, with a peak of £2.4 million recorded during 2005 and 2009. Squid populations are however erratic and furthermore effort spent targeting the species may vary year on year.

59. Plate 27.4 shows the annual variation in landings values of the top three commercial whitefish species: haddock, monkfish and cod. It can be seen that over the ten year period, landings values of all three species have generally decreased. Haddock landings values show a downward trend, ranging from £793,240 in 2000 to £304,688 in 2007. Landings values of monkfish have generally declined, from £448,279 in 2000 to £138,465 in 2004, although values increased in 2006. Cod landings values have also declined over the ten year period, from £208,963 in 2000 to £45,948 in 2009.

60. Plate 27.5 shows the annual variation in landings values of the top three commercial species of crustacean; lobster, edible crab and velvet crab. Landings values of all three species have generally increased over the ten year period. Lobster landings values were at relatively low levels until 2006 when values increased from £160,000 to £850,000 in 2009. Landings values of edible crabs have stayed relatively consistent, although there was a decline in values between 2002 and 2006. Values over the ten year period have ranged from £156,000 in 2005 to £420,000 in 2000. Velvet crab landings values have increased in recent years, with £361,000 worth of landings in 2007 compared to £162,000 in 2006. It is considered that the overall increase in recorded crustacean landings values in the final three years of the period is in part due to improved recording of catches through the Shellfish Entitlement Scheme (2004) and the Registration of Buyers and Sellers Scheme (2005).

Plate 27.1 Annual Variations in Landings Values of Nephrops in the Study Area

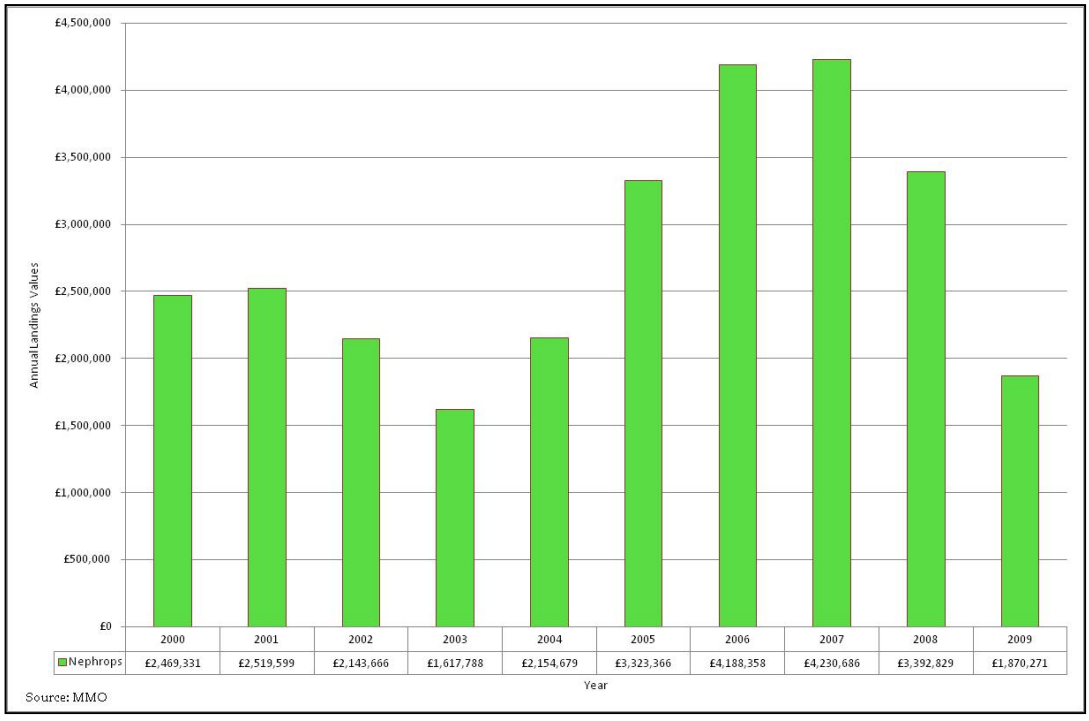


Plate 27.2 Annual Variations in Landings Values of Scallops in the Study Area

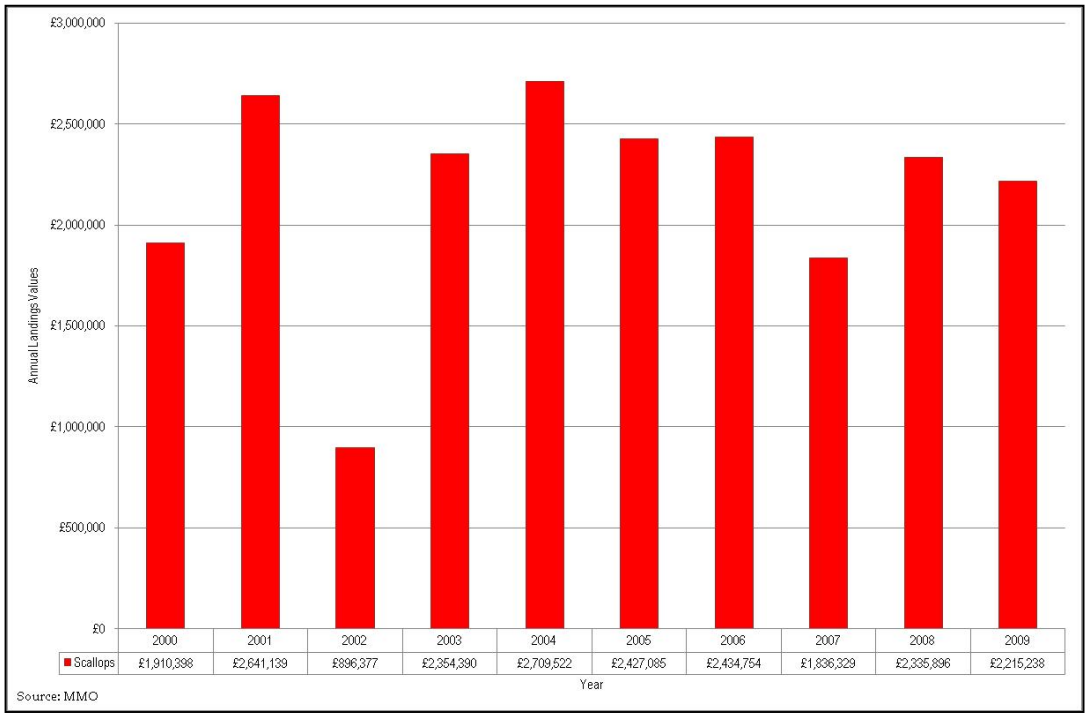


Plate 27.3 Annual Variations in Landings Values of Squid in the Study Area

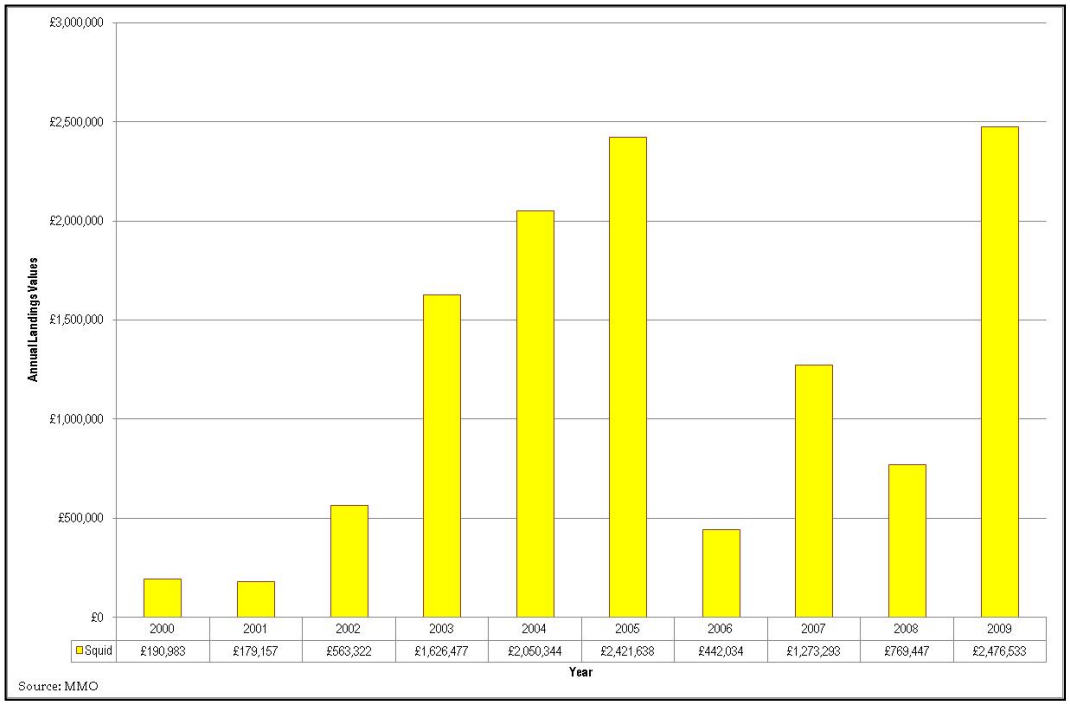
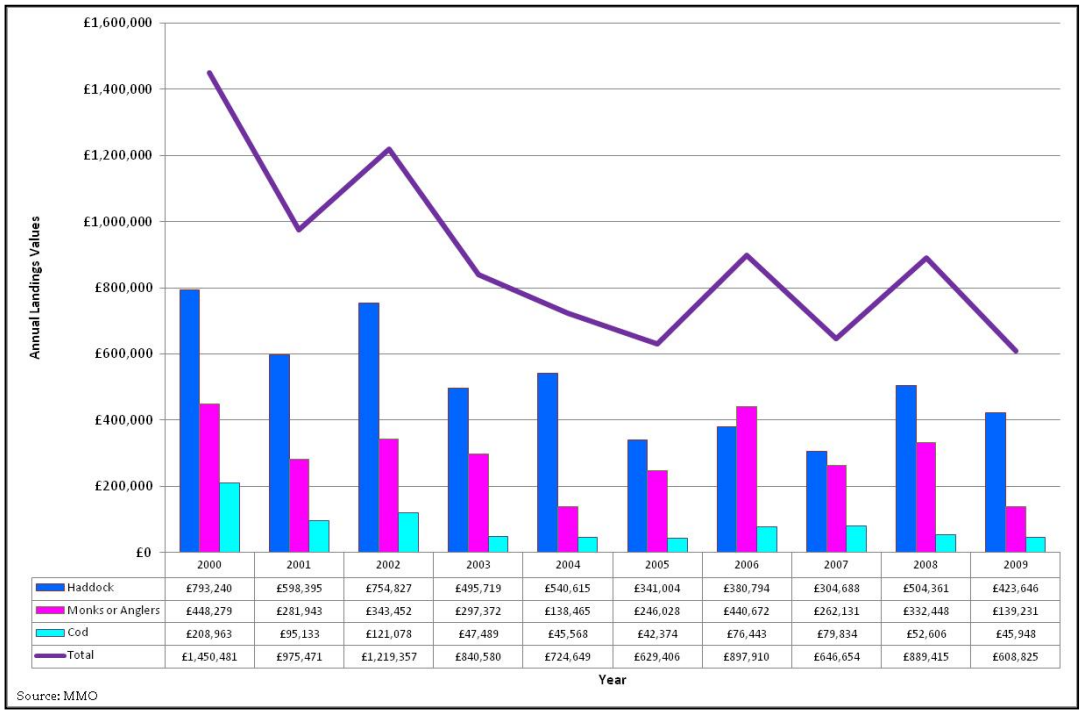


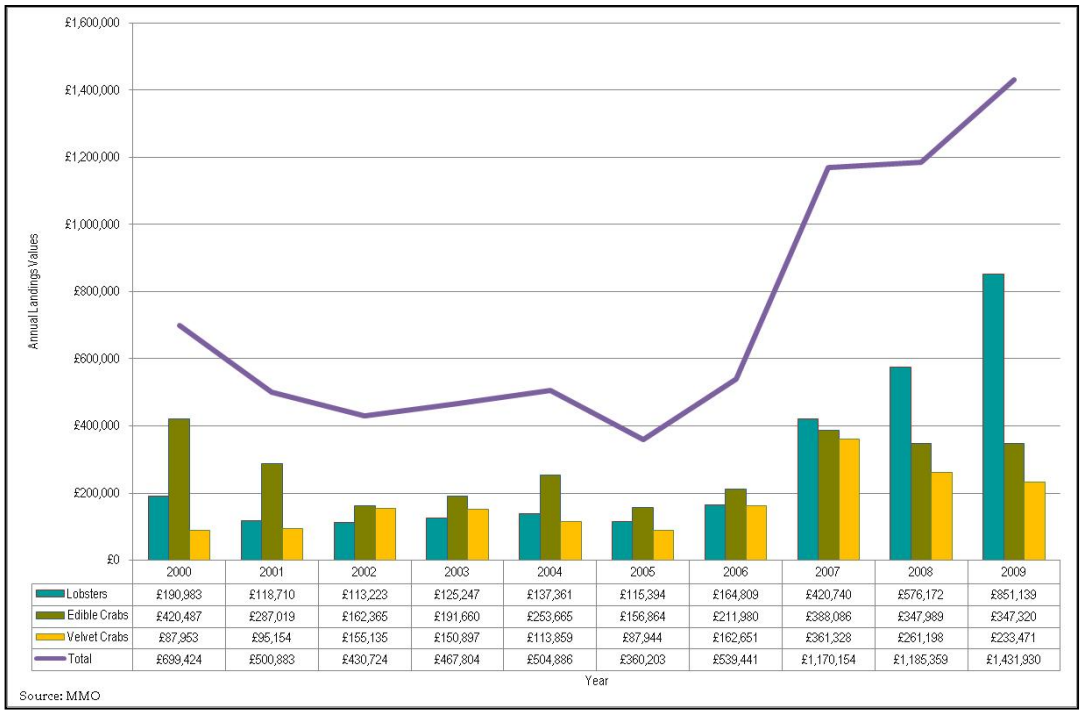
Plate 27.4 Annual Variations in Landings Values of Whitefish in the Study Area



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Haddock	£793,240	£598,395	£754,827	£495,719	£540,615	£341,004	£380,794	£304,688	£504,361	£423,646
Monks or Anglers	£448,279	£281,943	£343,452	£297,372	£138,465	£246,028	£440,672	£262,131	£332,448	£139,231
Cod	£208,963	£95,133	£121,078	£47,489	£45,568	£42,374	£76,443	£79,834	£52,606	£45,948
Total	£1,450,481	£975,471	£1,219,357	£840,580	£724,649	£629,406	£897,910	£646,654	£889,415	£608,825

Source: MMO

Plate 27.5 Annual Variations in Landings Values of Crustaceans in the Study Area



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Lobsters	£190,983	£118,710	£113,223	£125,247	£137,361	£115,394	£164,809	£420,740	£576,172	£851,139
Edible Crabs	£420,487	£287,019	£162,365	£191,660	£253,665	£156,864	£211,980	£388,086	£347,989	£347,320
Velvet Crabs	£87,953	£95,154	£155,135	£150,897	£113,859	£87,944	£162,651	£361,328	£261,198	£233,471
Total	£699,424	£500,883	£430,724	£467,804	£504,886	£360,203	£539,441	£1,170,154	£1,185,359	£1,431,930

Source: MMO

61. Plates 27.6 to 27.10 show the average seasonality of landings values of the top commercial species targeted in the study area.

62. Plate 27.6 shows the average seasonality of nephrops in the study area. Landings values are highest between June and August, inclusive, with significantly high average landings values recorded in July (£662,139). Relatively low landings are recorded for the remainder of the year, with the lowest in March (£65,946).

63. Plate 27.7 shows the average seasonality of scallops in the study area. The highest landings levels are recorded between May and October, inclusive, peaking in July (£340,608). Landings values for the remainder of the year are relatively low, with the lowest in November (£84,414).

64. Plate 27.8 shows the average seasonality of squid in the study area. Squid are almost exclusively targeted in the latter half of the year, with the highest landings values recorded in September and October (£362,270 and £346,333, respectively). Landings values are very low for the remainder.

65. Plate 27.9 shows the average seasonality of whitefish in the study area. Haddock landings values vary throughout the year but are broadly highest during the winter months. Monkfish landings values are relatively consistent, and cod landings values are generally low throughout.

66. Plate 27.10 shows the average seasonality of the top three commercial crustaceans targeted in the study area; lobsters, edible crabs and velvet crabs. Generally, the highest average landings values for all crustaceans are recorded in the later part of the year (August to December, inclusive). Lobster landings values are lowest in the initial months of the year, before rising relatively sharply in July (£32,649), and peaking in August (£51,352) and September (£51,107). Landings values of edible crabs are highest between September and January, inclusive, with a relatively sharp peak recorded in December (£53,729). Velvet crabs are lowest in the first three months of the year and higher in the latter period.

Plate 27.6 Average Annual (2000-2009) Seasonality of Nephrops in the Study Area

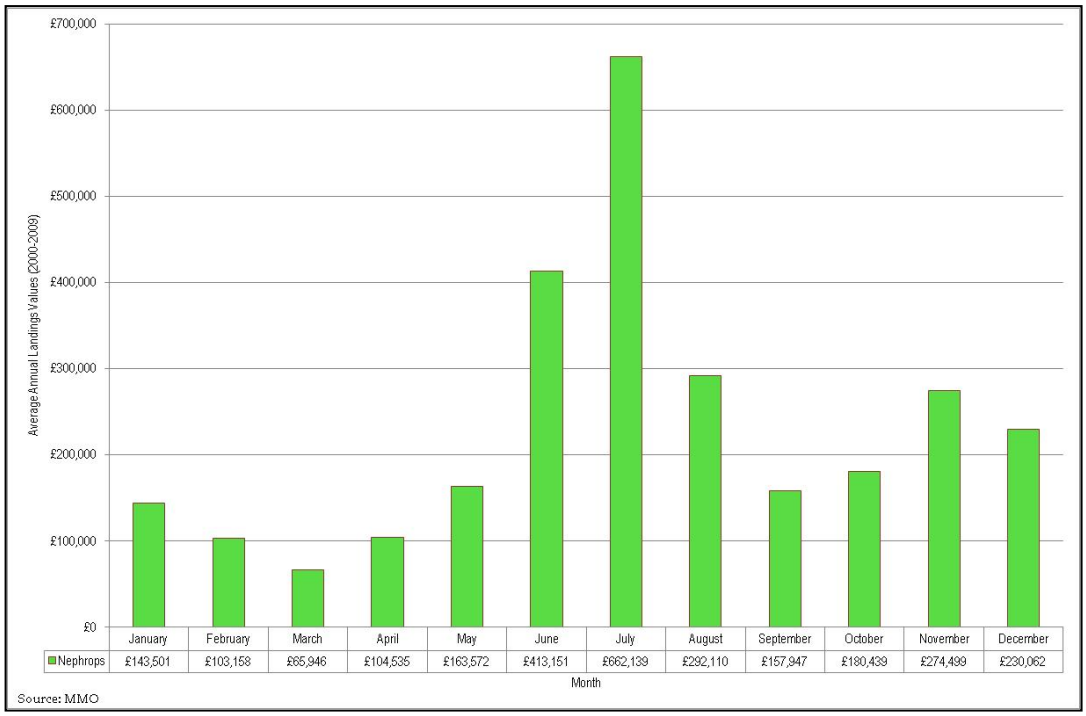


Plate 27.7 Average Annual (2000-2009) Seasonality of Scallops in the Study Area

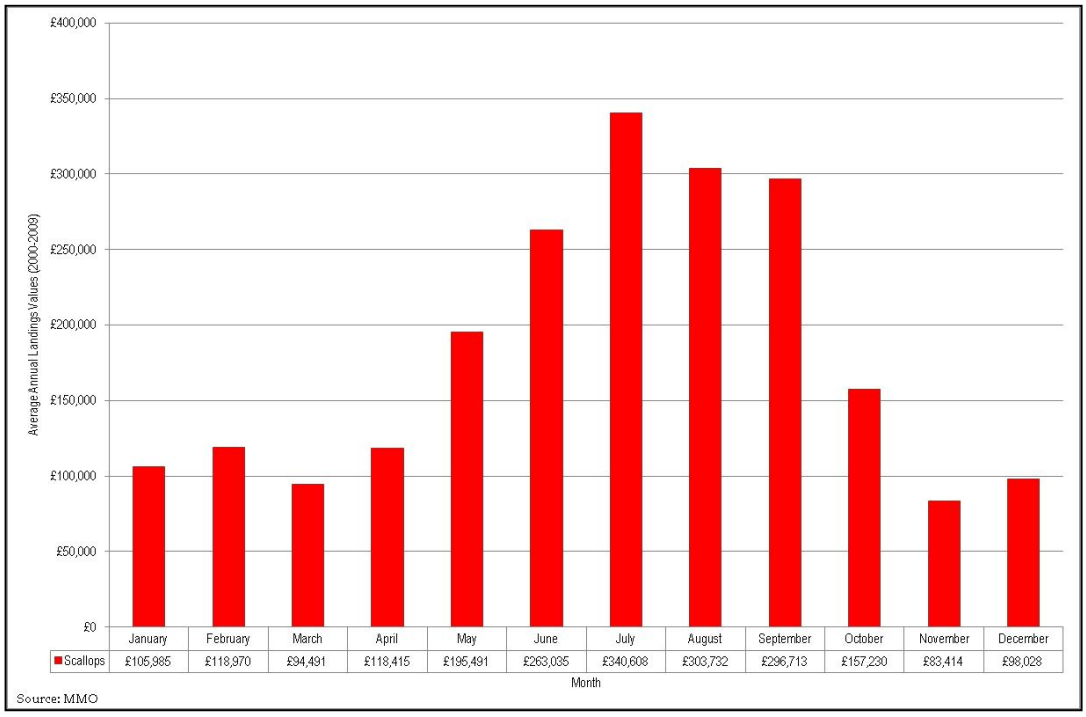


Plate 27.8 Average Annual (2000-2009) Seasonality of Squid in the Study Area

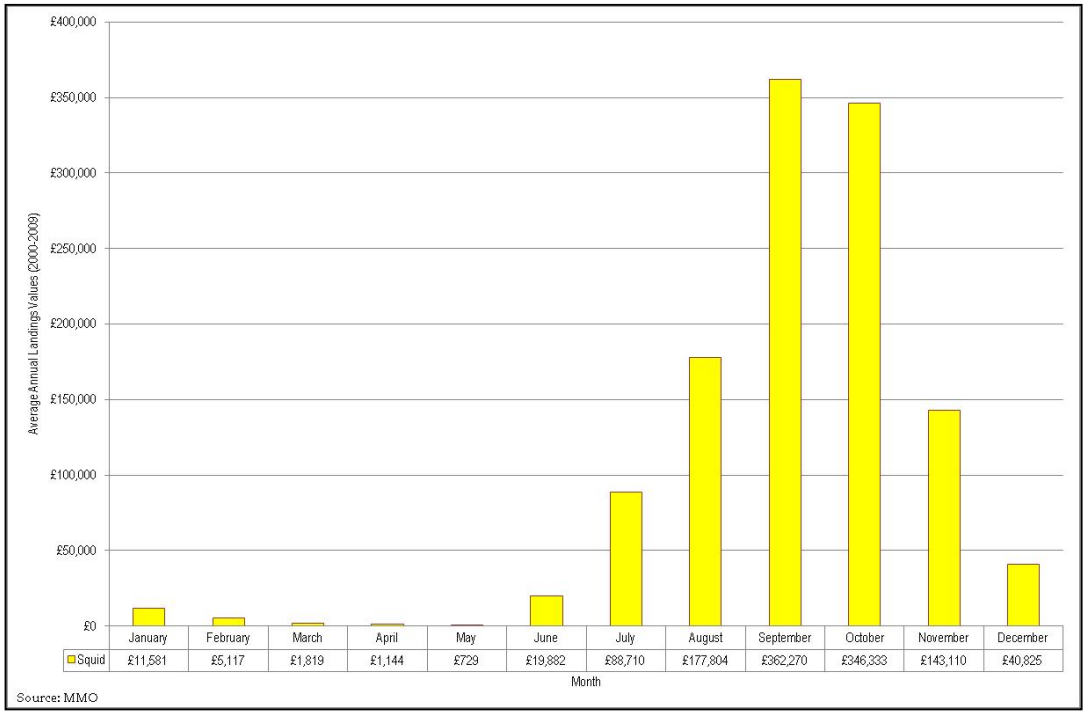
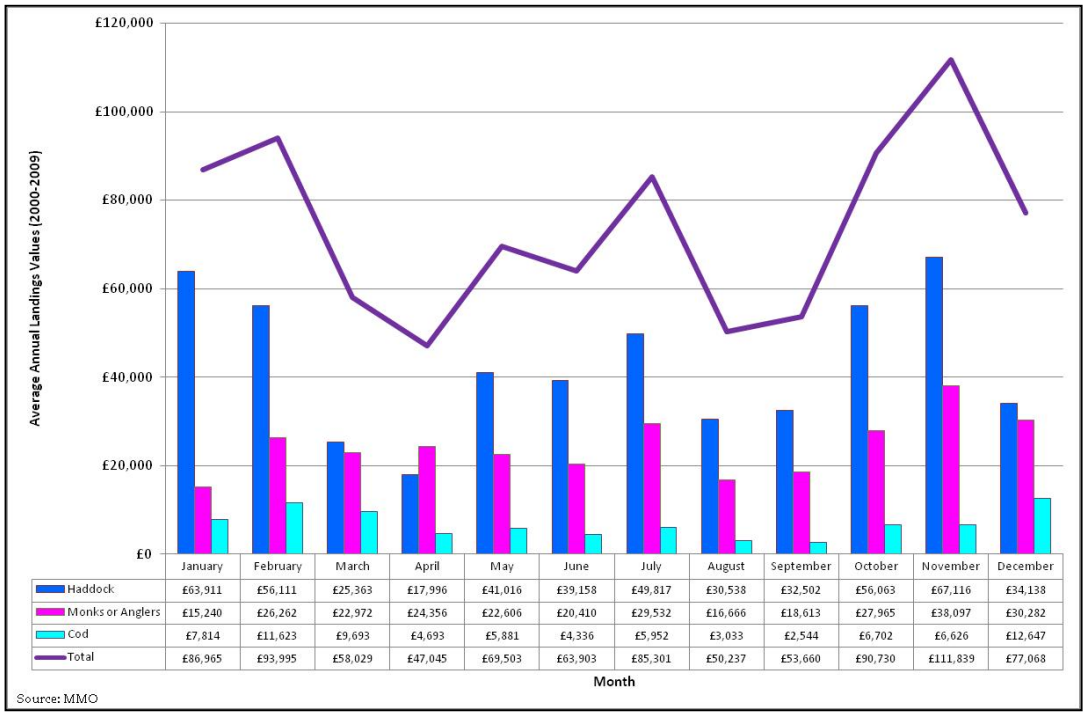
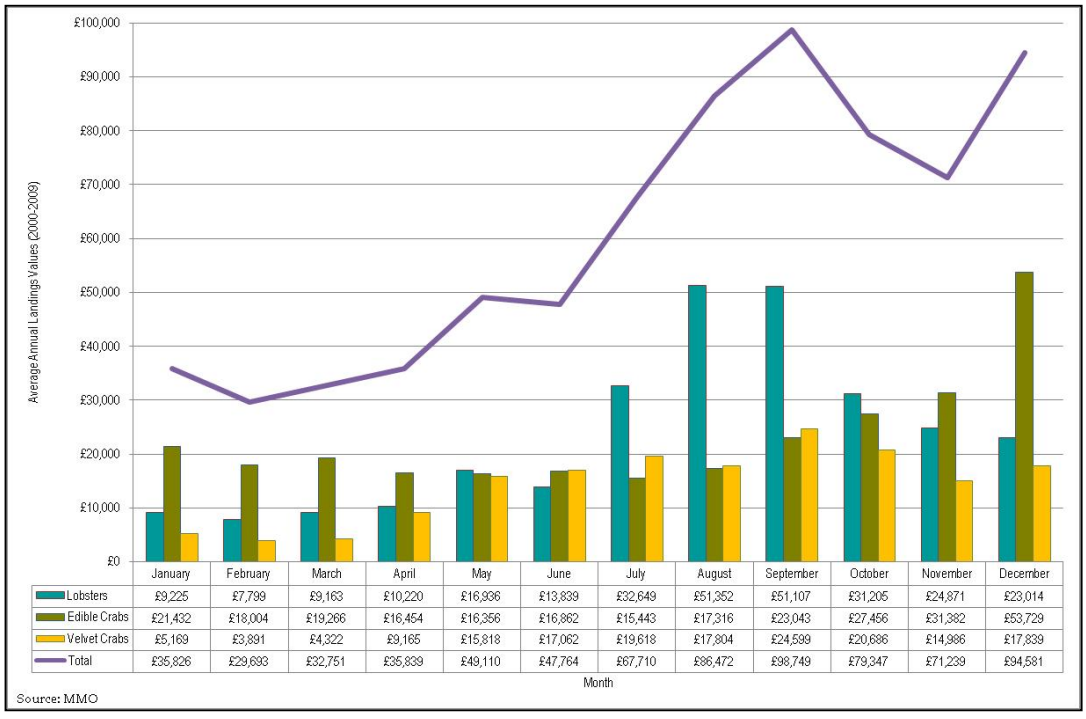


Plate 27.9 Average Annual (2000-2009) Seasonality of Whitefish in the Study Area



	January	February	March	April	May	June	July	August	September	October	November	December
Haddock	£63,911	£56,111	£25,363	£17,996	£41,016	£39,158	£49,817	£30,538	£32,502	£56,063	£67,116	£34,138
Monks or Anglers	£15,240	£26,262	£22,972	£24,356	£22,606	£20,410	£29,532	£16,666	£18,613	£27,965	£38,097	£30,282
Cod	£7,814	£11,623	£9,693	£4,693	£5,881	£4,336	£5,952	£3,033	£2,544	£6,702	£6,626	£12,647
Total	£86,965	£93,995	£58,029	£47,045	£69,503	£63,903	£85,301	£50,237	£53,660	£90,730	£111,839	£77,068

Plate 27.10 Average Annual (2000-2009) Seasonality of Crustaceans in the Study Area



	January	February	March	April	May	June	July	August	September	October	November	December
Lobsters	£9,225	£7,799	£9,163	£10,220	£16,936	£13,839	£32,649	£51,352	£51,107	£31,205	£24,871	£23,014
Edible Crabs	£21,432	£18,004	£19,266	£16,454	£16,356	£16,862	£15,443	£17,316	£23,043	£27,456	£31,382	£53,729
Velvet Crabs	£5,169	£3,891	£4,322	£9,165	£15,818	£17,062	£19,618	£17,804	£24,599	£20,686	£14,986	£17,839
Total	£35,826	£29,693	£32,751	£35,839	£49,110	£47,764	£67,710	£86,472	£98,749	£79,347	£71,239	£94,581

27.3.2.2 Satellite Tracking

67. Since January 2005, all EC vessels of over 15 metres in length have been fitted with satellite tracking equipment which transmits the vessels' position at a minimum of every two hours to the relevant Member States' fisheries authorities. It should be

recognised that all activity by vessels under 15 metres will not be included in this dataset.

68. Due to the differences in data provided for satellite tracked vessels in 2009, analysis of activity for this year is discussed separately.

2005 to 2008 Data

69. Figure 27.6 shows the relative density of all UK vessels over 15 metres (average 2005 to 2008). It can be seen that the highest density is located in the south of the study area. Density is broadly low along the OfTW in rectangles 45E6 and 45E7 and moderate through rectangles 44E6 and 44E7.

2009 Data

70. Figure 27.7 shows the satellite density of all UK vessels over 15 metre in 2009. Patterns are broadly commensurate to those in the 2005 to 2008 dataset, although the larger grid format of this dataset presents the activity as seeming to be of a higher intensity.

71. Figure 27.8 to Figure 27.11 provide a breakdown of density by gear type, which was not possible to apply to the dataset in the preceding years, showing nephrops gear, boat dredges, 'other', and whitefish gear, respectively.

72. Nephrops activity (Figure 27.8) is concentrated in rectangle 44E7. Activity is negligible in 45E6 and 45E7, along the northern section of the OfTW and moderate in 44E6, along the southern section.

73. Scallop dredge activity is concentrated in rectangle 45E7. Activity recorded in the remaining rectangles is moderate to low (Figure 27.9). Activity along the OfTW is high in areas immediately adjacent to the Wind Farm and low along the remainder of the corridor.

74. Figure 27.10 shows activity for all 'other' methods, which is considered to be vessels targeting squid. Activity is concentrated in the inshore area of the OfTW and immediately adjacent to the Wind Farm. Activity along the remainder of the route is low.

75. Whitefish activity (Figure 27.11) is low along the length of the OfTW.

27.3.2.3 Marine Scotland Data Analysis

76. Figure 27.12 to Figure 27.21 have been derived by MS and provided to assist in the establishment of a commercial fisheries baseline in the Moray Firth area. Limitations of this dataset apply, and the activity of vessels under 15 metres is not included.

77. Figure 27.12 to Figure 27.14 show the distribution of fishing gears in the Moray Firth for all over 15 metre UK vessels between 2007 and 2009, respectively, by landings and vessel position (VMS). In respect to the use of the bottom otter trawls, the mesh size is indicative of the species targeted: vessels employing mesh sizes of less than 100 mm will be targeting nephrops or squid, while those using mesh sizes greater than 100 mm will be targeting demersal finfish such as haddock.

78. It can be seen that generally trawlers targeting demersal finfish species are patchily distributed in the Moray Firth, becoming less concentrated over the three year period. Activity along the OfTW is sparsely concentrated along the southern section.

79. Demersal trawlers using small mesh nets are predominantly recorded in the southern section of the firth and the distribution of this activity has remained relatively consistent over the three years. Along the OfTW activity is concentrated in the mid section.

80. Boat dredges are recorded to the east and south of the firth, as well as in inshore areas. The distribution of vessels boat dredging has also remained relatively consistent over the three year period. Activity is concentrated along the northern section of the OfTW, with a band of activity recorded across the south of the route.

81. Figure 27.15 to Figure 27.17 show the commercial landings densities of demersal and pelagic finfish in the Moray Firth between 2007 and 2009, respectively. It can be seen that recorded activity is relatively low. Demersal finfish landings are primarily located along a small section of the OfTW in inshore areas, with levels fluctuating throughout the three year period. There is negligible pelagic activity recorded along the route.

82. Figure 27.18 shows the commercial landings densities of demersal finfish only in 2009. It can be seen that haddock and cod landings record the highest weight levels along the southern and mid portions of the OfTW.

83. Figure 27.19 to Figure 27.21 show the commercial landings densities of shellfish between 2007 and 2009, respectively. The distribution of activity is broadly consistent throughout the three year period, densities varying slightly during this time. It can be seen that there are low recorded landings for edible crab, although a cluster is recorded in the south east of the Moray Firth in 2007. It should however be recognised that the majority of the static gear fleet is under 15 metres and hence not recorded within this dataset.

27.3.2.4 Fishing Vessels, Patterns and Practices

84. Commercial fisheries in the Moray Firth are targeted by both local and visiting vessels. For the purposes of this report, local vessels are considered to be those based at home ports within the Moray Firth, which are often under 15 metres in length and as a result are limited in their operational range. Visiting vessels are those which will generally target grounds outside of the Moray Firth but may be present in the Moray Firth on a seasonal basis. Visiting vessels are generally, although not exclusively, over 15 metres in length.

85. The OfTW passes through grounds targeted by vessels described below; it should however be noted that the OfTW constitutes only a very small percentage of the total area fished by these vessels.

Nephrops Fishery

86. The majority of vessels targeting nephrops in the Moray Firth have home ports in the area, although it is possible that visiting vessels may occasionally target the fishery. Vessels known to be targeting nephrops in the Moray Firth are listed in Table 27.3 below. All of the vessels below are also able to reconfigure their gear to target the squid fishery.

87. Figure 27.22 shows the location of nephrops grounds targeted by the under-15 metre fleet, identified by a sample of nephrops fishermen, relative to the OfTW. It can be seen that grounds are, for the most part, located in the southern Moray Firth particularly in areas in the Inner Firth. Two of the vessels sampled have identified nephrops fishing grounds through which the OfTW will pass.

Table 27.3 Vessels Known to Target Nephrops in the Moray Firth

Vessel	Home Port	Length
Vessel BD	Buckie	8.10 m
Vessel BC	Buckie	9.80 m
Vessel BI	Burghead	6.76 m
Vessel BN	Burghead	8.53 m
Vessel BQ	Burghead	9.14 m
Vessel BU	Burghead	9.45 m
Vessel BM	Burghead	9.57 m
Vessel BR	Burghead	9.80 m
Vessel BJ	Burghead	9.89 m
Vessel AE	Burghead	9.90 m
Vessel H	Burghead	9.95 m
Vessel BO	Burghead	9.96 m
Vessel BP	Burghead	9.98 m
Vessel BS	Burghead	9.98 m
Vessel BL	Burghead	10.00 m
Vessel G	Burghead	11.35 m
Vessel BT	Burghead	11.48 m
Vessel BK	Burghead	11.98 m
Vessel T	Macduff	13.90 m
Vessel R	Macduff	14.10 m

88. As a result of the majority of nephrops vessels being located at ports within the Moray Firth and of limited operational range, but due to the relatively discrete area of nephrops grounds the OfTW encompass, the sensitivity of this fishery is considered to be medium.

Scallop Fishery

89. Vessels targeting scallops in the Moray Firth fall into two categories: smaller vessels with home ports based within the Moray Firth and larger, nomadic vessels which will variously target scallop grounds around the UK.

90. Table 27.4 lists scallop dredges known to be fishing grounds in the Moray Firth.

Table 27.4 Vessels Known to Target Scallops in the Moray Firth

Vessel	Home Port	Length	Grounds Targeted
Vessel AJ	Annan	15.90 m	Around the UK
Vessel AI	Annan	19.35 m	Around the UK
Vessel AK	Brixham	25.50 m	Around the UK
Vessel E	Buckie	18.00 m	Around the UK
Vessel AC	Buckie	18.17 m	Around the UK
Vessel D	Buckie	30.20 m	Around the UK
Vessel F	Burntisland	20.29 m	Scottish east coast
Vessel AM	Fleetwood	16.89 m	Around the UK
Vessel AL	Fleetwood	26.36 m	Around the UK
Vessel AD	Fraserburgh	26.60 m	Around the UK
Vessel J	Girvan	18.00 m	Around the UK
Vessel AN	Kirkcudbright	16.11 m	Around the UK
Vessel AQ	Kirkcudbright	16.15 m	Around the UK
Vessel AR	Kirkcudbright	17.13 m	Around the UK
Vessel AT	Kirkcudbright	17.83 m	Around the UK
Vessel AP	Kirkcudbright	18.25 m	Around the UK
Vessel AO	Kirkcudbright	18.27 m	Around the UK
Vessel AS	Kirkcudbright	23.66 m	Around the UK
Vessel AU	Kirkcudbright	24.80 m	Around the UK
Vessel AV	Kirkcudbright	26.24 m	Around the UK
Vessel AY	Oban	18.29 m	Around the UK
Vessel AX	Oban	18.90 m	Around the UK
Vessel AW	Oban	18.99 m	Around the UK
Vessel AZ	Oban	19.00 m	Around the UK
Vessel V	Peterhead	21.00 m	Scottish east coast
Vessel AA	Wick	11.45 m	Moray Firth

91. Figure 27.23 shows the location of scallop grounds relative to the OfTW, identified by a sample of scallop fishermen. It is understood that larger category vessels will not generally operate within the 12 nm limit due to the restrictions placed on the number of dredges that can be operated. Scallop grounds have been identified along the northern section of the OfTW and in a narrow band spanning the inshore section of the route.

92. Due to the relatively discrete area of scallops grounds the OfTW encompass and the large operational range of the majority of vessels targeting the fishery, the sensitivity of this fishery is considered to be low. The seasonality of peak fishing periods and the annual variation in landings relative to OfTW should however be noted as the fishery may be rendered more sensitive.

Squid Fishery

93. A number of demersal trawl vessels reconfigure gear to alternatively target squid on a seasonal basis in the Moray Firth. Dependent upon the productivity of the fishery and the pressure on fishermen targeting other, restricted stocks, both local and visiting vessels will target the species.

94. Table 27.5 lists vessels which are known to be targeting squid in the Moray Firth.

Table 27.5 Vessels Known to Target Squid in the Moray Firth

Vessel	Home Port	Length	Target Species	Local or Visiting Vessel?
Vessel BD	Buckie	8.10 m	Nephrops	Local
Vessel BC	Buckie	9.80 m	Nephrops	Local
Vessel B	Buckie	21.72 m	Whitefish	Local
Vessel C	Buckie	24.00 m	Whitefish	Local
Vessel BI	Burghead	6.76 m	Nephrops	Local
Vessel BN	Burghead	8.53 m	Nephrops	Local
Vessel BQ	Burghead	9.14 m	Nephrops	Local
Vessel BU	Burghead	9.45 m	Nephrops	Local
Vessel BM	Burghead	9.57 m	Nephrops	Local
Vessel BR	Burghead	9.80 m	Nephrops	Local
Vessel BJ	Burghead	9.89 m	Nephrops	Local
Vessel AE	Burghead	9.90 m	Nephrops	Local
Vessel H	Burghead	9.95 m	Nephrops	Local
Vessel BO	Burghead	9.96 m	Nephrops	Local
Vessel BP	Burghead	9.98 m	Nephrops	Local
Vessel BS	Burghead	9.98 m	Nephrops	Local
Vessel BL	Burghead	10.00 m	Nephrops	Local
Vessel G	Burghead	11.35 m	Nephrops	Local
Vessel BT	Burghead	11.45 m	Nephrops	Local
Vessel BK	Burghead	11.98 m	Nephrops	Local
Vessel BA	Kirkwall	27.80 m	Whitefish	Visiting Vessel
Vessel T	Macduff	13.90 m	Nephrops	Local
Vessel R	Macduff	14.10 m	Nephrops	Local
Vessel S	Macduff	20.60 m	Whitefish	Local
Vessel BW	Orkney	9.80 m	Nephrops	Visiting Vessel
Vessel BV	Orkney	9.97 m	Nephrops	Visiting Vessel
Vessel U	Peterhead	9.70 m	Whitefish	Visiting Vessel
Vessel BB	Peterhead	30.50 m	Whitefish	Visiting Vessel

95. As has been previously stated, squid fishing grounds are reported to vary each year. Figure 27.24 illustrates the squid fishing areas in the Moray Firth. Squid

fishing areas are located throughout the Moray Firth, in both inshore and offshore areas. The OfTW passes through areas which are annually fished by a number of vessels.

96. The squid fishery in the Moray Firth is important on a national scale. However due to the discrete area of squid grounds the OfTW encompass, the short duration of the fishery and the annual variation in landings, the sensitivity of this fishery is considered to be low. It is however noted that the limited seasonality of this fishery and the productivity of the fishery relative to the OfTW may render the fishery more sensitive.

Whitefish Fishery

97. There are five vessels which are known to be targeting whitefish in the vicinity of the Moray Firth as well as in other areas around the UK (Table 27.6). It should be noted that whitefish activity around the OfTW is very low relative to fishing grounds elsewhere.

Table 27.6 Vessels Known to Target Whitefish in the Moray Firth

Vessel	Home Port	Length
Vessel B	Buckie	21.72 m
Vessel C	Buckie	24.00 m
Vessel S	Macduff	20.60 m
Vessel AF	Wick	25.90 m
Vessel Z	Wick	26.00 m

98. Figure 27.25 shows whitefish fishing grounds. Grounds are located to the north of the Moray Firth and in coastal areas to the south east. The OfTW does not pass through any of the grounds identified by the vessels sampled.

99. As a result of the very low fishing activity recorded in the area of the OfTW, the sensitivity of this fishery is low.

Crab and Lobster Fishery

100. Crab and lobster fishing grounds are located in inshore areas in the Moray Firth. There are five full time creel vessels which are known to be targeting crab and lobsters in the areas around the OfTW which are listed in Table 27.7 below. There are also a number of part time vessels who will set a small number of creels in inshore areas during the summer months. The basic specifications of one of these vessels, Vessel A, are provided in Table 27.8.

Table 27.7 Vessels Known to Target Crab and Lobster Grounds in the Vicinity of the OfTW

Vessel	Length
Vessel BH	8.26 m
Vessel BF	8.59 m
Vessel A	9.00 m
Vessel BE	9.99 m
Vessel BG	10.93 m

Table 27.8 Basic Specifications of a Creel Vessel

Fishing vessel	Vessel A
Home port	Buckie
Length	9.00 m
Main engine power	240 hp
Typical fishing trip duration	1 day
Typical distance steamed per trip	15 nm
Seasonality of activity	Crab and lobster – all year, peaks August and September Mackerel – June to September
Average number of days fishing per year	150 days per year
Pot dimensions	0.6 m x0.4 m
Number of fleets	14
Fleet length	350 m
Number of pots per fleet	20
Distance between each pot	17 m
Deployment method	Directional
Typical depth fished	8 to 50 m
Bait used	Fish
Typical soak time	2 to 3 days

101. As can be seen in Table 27.8, full-time creel vessels may also target mackerel in the summer months. This is a seasonal fishery and access is limited by available quota. The species is predominantly targeted using handlines.

102. Figure 27.26 shows the creel fishing grounds in the Moray Firth, identified by a sample of creel fishermen. The majority of crab and lobster fishing grounds identified are located along the Caithness coast and not located in the vicinity of the

OfTW, targeted in the main by vessels operating from ports on the north coast. There are however, additional creel fishing grounds identified along the southern coast, through which the OfTW will pass.

103. As a result of crab and lobster vessels being located at ports in proximity to the OfTW landfall and of limited operational range, but due to the relatively discrete area of grounds the OfTW encompass, the sensitivity of this fishery is considered to be medium.

Artisanal Fisheries

104. There is an active mussel site, operated by Spey Bay Mussel Farm, situated approximately ~5 km to the west of the OfTW route corridor. Within the Moray Firth, there are also fisheries for razor clams on the Navity Bank (The Moray Firth Partnership, 2007), mussels in the Dornoch Firth (The Moray Firth Partnership, 2003) and cockles in Inver Bay in the Dornoch Firth and in Culbin Sands in the Inner Moray Firth (The Moray Firth Partnership, 2006). The sensitivity of these bi-valve fisheries, as a result of their distance from the OfTW is considered to be very low.

105. There is a seasonal mackerel fishery in the Moray Firth, principally targeted by small, inshore vessels operating handlines. Vessels require entitlements to land mackerel, which is regulated by quota restrictions. Although activity is concentrated to the east of the OfTW towards Fraserburgh, there are a number of vessels from the ports of Burghead, Buckie and Lossiemouth who will target the species on a part-time basis. The sensitivity of this fishery, as a result of the mobile nature of the species and the discrete area of the OfTW is considered to be low.

27.3.2.5 Future Fisheries

106. A short summary of potential changes to the current fishing baseline identified above that may occur in the future is provided below.

Nephrops Fishery

107. Nephrops stocks in the Moray Firth are currently considered to be sustainably exploited (Keltz and Bailey, 2010). It is however considered that active vessels are diversifying into alternative fisheries with fewer restrictions, such as squid and crustaceans. Impending changes in fisheries management policies will likely see further changes to the fleet.

Scallop Fishery

108. The Moray Firth scallop fishery is reported to be fished at lower levels than grounds elsewhere, such as in the English Channel. The number of vessels in the national scallop fleet has however increased over the last ten years. Although scallop landings values are currently considered to be stable in the Moray Firth, this does not necessarily indicate durable stock levels and may instead indicate an overall decline in population levels (Beukers-Stewart and Beukers-Stewart, 2009).

109. The scallop fishery could face stricter management in the future with Marine Scotland Science (2010) advising that restrictions are placed on the number of vessels entering the scallop fleet and increases in landing size are recommended for future management of the fishery (Keltz and Bailey, 2010). In addition, it is possible that restrictions are imposed as a result of conservation management measures, such as those closures enforced in Cardigan Bay and the Isle of Man, may occur in the future. Environmental conditions have also affected scallop landings, with the warmer sea temperatures altering the distribution of scallop species (Shephard *et al*, 2010).

Squid Fishery

110. As has been previously discussed, restrictions on other fisheries have increased fishing effort on the squid fishery, both to local and visiting vessels. The fishery is currently unregulated, and it is possible that more fishermen will rely on this fishery to supplement their income.

111. Squid are seemingly resistant to fishing pressures due to their short lifespan; however squid stocks can be erratic and are sensitive to both environmental and human pressures. There are concerns over the resistance of squid stocks due to increases in fishing pressure and expansion of the fishing season. Increases in sea temperature could lead to squid populations moving north (Hastie *et al*, 2009).

112. As the Moray Firth is a potential spawning area (squid move to inshore, coastal areas to spawn and squid eggs have been found on creels in the area), it is considered that these grounds need to be identified and effectively managed in order to protect future stocks (Young *et al*, 2006). A number of inshore squid fishermen would also like to see measures implemented in the future to effectively manage the fishery and protect it from overfishing (pers. comm. squid fisherman, December 2010), which could limit activity by larger category, visiting vessels.

Whitefish and Flatfish Fishery

113. A number of fish species in the Moray Firth have historically been commercially targeted in the past. These included a flatfish fishery for plaice and sole, a directed whitefish fishery for species including cod and haddock, and a pelagic fishery for herring, mackerel and bass. Recent years have seen a return of the haddock and mackerel fisheries to the area (pers. comm. retired whitefish fisherman, December 2010) and therefore it is possible that other whitefish or flatfish species could once again become increasingly targeted species if stocks were to return to sustainable levels. Ability to target the species would however depend upon available quota, which is currently only allocated on the basis of recorded landings and hence would not be available to fishermen with no track record.

Crab and Lobster Fishery

114. Crab and lobster are not currently quota or effort restricted, unlike the whitefish and nephrops fisheries, being regulated in the main by licensing and minimum landing sizes. The number of vessels targeting the fishery has broadly increased in

recent years, and furthermore, vessels configured to target other species are additionally employing gear to seasonally target crustaceans. It is possible that the number of creel vessels will increase in the future, particularly in light of increasing restrictions upon other fisheries, unless additional management measures are implemented which will prevent this.

Artisanal Fisheries

115. All of the artisanal fisheries listed in the baseline are currently targeted at relatively low levels and in inshore areas away from the OfTW, although there is considered to be scope for expansion in the future.

Sandeel Fishery

116. There is currently no fishing for sandeels in the Moray Firth, although there has historically been a fishery, concentrated on the Smith Bank and targeted predominantly by the Danish fleet. The North Sea sandeel fishery was closed in 2000 as a result of concerns about marine top predators, particularly seabirds. The fishery was reopened in 2009 with a quota of 200,000 tonnes (MMO statistics), although there still remains a moratorium on the fishery along the Scottish east coast and grounds such as the Dogger Bank are targeted.

117. It has been reported that recent years have seen an increase in sandeel populations in harbours and bays of the Moray Firth and subsequently an increase in the numbers of species that prey on sandeels (in particular herring and mackerel; pers. comm. retired whitefish fisherman, December 2010). Furthermore, sandeel populations on the Smith Bank are reported to support a number of top predators, including birds, marine mammals and other fish species. It is possible that a fishery may recommence in the future, although it should be noted that the Danish fleet (to whom the vast majority of quota is allocated) only have access to grounds outside of 12 nm and possible activity in the area of the OfTW will be limited.

27.3.3 DATA/INFORMATION GAPS

118. Analysis of the data and information sources used in the compiling of this baseline are subject to the following qualifications, limitations, sensitivities and gaps.

119. ICES statistical rectangles are the smallest spatial unit used for the collation of fisheries statistics used by the European Commission (EC) and Member States. The boundaries of ICES rectangles align to 1˚ of longitude and 30′ of latitude, as is apparent from Figure 27.1, however, the areas of ICES rectangles are large relative to the area of the OfTW, which traverses several rectangles. Also, it is presumed that the spread of activity within a rectangle is not evenly distributed. Analysis of fisheries statistics by ICES rectangle should therefore take into account the very small proportion of a statistical area that the OfTW covers, and the uneven distribution of activity throughout the rectangle.

120. The MMO collects and collates fisheries data by ICES rectangle for the whole of the UK. The principal source of data comes from the EC daily log sheets that over 10 metre vessels are required to complete and submit. Vessels of under 10 metres in

length are currently not obliged to submit daily log sheets although voluntary submissions can be made and, in addition, local fisheries officers undertake dockside checks on under 10 metre vessels. The Shellfish Entitlement Scheme, introduced in 2004 and the 'Registration of Buyers and Sellers of First Sale Fish and Designation Auction Site Scheme' introduced in 2005, further contribute to the collection of fisheries data for the under 10 metre fleet. It should be noted that the MMO fisheries statistics for this category in years prior to the introduction of these schemes, may, to some extent, underestimate the true levels of fishing in areas where a large percentage of the activity is by vessels within this category. It should also be recognised that vessels referred to as 'non-UK' in the MMO fisheries data includes only foreign vessels landing into UK ports. Non-UK vessels fishing in the area but landing into non-UK ports are not recorded by the MMO. The values given for non-UK vessels derived from the analysis of this data set should therefore not be taken as an indication of the total foreign activity in the area.

121. Satellite tracking of European Union (EU) registered vessels currently applies to all vessels of more than 15 metres in overall length. The positions of the vessels are transmitted approximately every two hours via satellite link to the MMO and other national EU control centres. The MMO receives information on all UK vessels irrespective of location, and of foreign vessels within UK waters. The MMO however, cannot disclose data on foreign vessels without prior permission from the regulating body of the applicable Member State. Vessel position plots do not differentiate between vessels steaming and fishing and disclosure of UK vessels' identities is restricted under the Data Protection Act (1998). It should be noted that there has been a recent change in UK and EU policy with regards to the release of satellite tracking data. The coordinates of the vessels can no longer be released; instead the number of plots by vessel type in a grid of rectangles of approximately 70 nm^2 is given with a breakdown of density by gear type, which was not possible with the 2005 to 2008 data sets. The 2009 data was provided by MS and has been analysed independently from the 2005 to 2008 data sets given the differences in format.

122. Surveillance sightings in UK waters are recorded by fishery protection aircraft and surface craft as a means of policing fisheries legislation. This type of data provides a good indication of the distribution of activity by method and nationality, it should not however be used for quantitative assessments of activity, given the low frequency of the flights over an area, which is generally once a week and only during daylight hours.

123. Charts have been provided by MSS to assist in the establishment of a commercial fisheries baseline in the Moray Firth area, which are provided in Figure 27.12 to Figure 27.21. The figures show the distribution of commercial fishing landings from vessels exceeding 15 metres in length, by landing weight and value in Scottish waters for the years 2007 to 2009. The VMS records were applied to Fisheries Information Network (FIN), which is the Scottish Government's sea fisheries database. In addition to the VMS records, FIN also holds information on voyages (catches, gear, mesh size, etc.) and on landings (weight, price at sale, etc). The VMS

records are linked to landings data through one unique identifier common to both databases: the Registry of Shipping and Seamen (RSS) number, which indentifies the vessel (this identifier is otherwise protected information). Logtime, the date and time of each VMS transmission, identifies the voyage by laying within the voyage start and end date times. This allows the linking of the location of the vessel at each trip to the weight of the landings and the value of the sale from said trips. The speed of the vessel at the time of each VMS transmission has been used as a filter to eliminate those vessels steaming and not fishing, assuming that vessels travelling at five knots or over would be steaming. The information provided describes the landings of a fishing trip. Although a single trip will generally be comprised of a number of fishing events, information on catches per fishing event are not available and as a consequence multiple fishing events of a single trip are attributed with the overall landings weight and values for that entire trip. All information regarding the identity of individual trips or vessels is anonymous. As has been previously stated, the limitations of VMS monitoring is that only the over 15 metre fleet apply. It should also be noted that fishing grounds are not fixed year on year and exact locations of activity vary between years.

124. Consultation has been undertaken with individual skippers and their representatives, with information collected and collated from these sources. It is possible that certain individuals and some unaffiliated stakeholders may not have been identified during the course of this assessment, although every attempt has been made, through open and advertised fisheries stakeholder meetings, extensive field work and through the forum of the IFG.

27.3.4 SALMON AND SEA TROUT FISHERIES BASELINE

27.3.4.1 Overview

125. The right to fish for salmon in Scotland, whether inland or at sea, is a heritable right. The taking of salmon without the right or written permission to do so is prohibited under the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003.

126. The only lawful fishing methods to catch salmon and sea trout in inland waters are rod-and-line and net-and-coble. At sea it is prohibited to catch fish by enmeshment. Effectively, the only lawful methods to catch salmon and sea trout at sea are net-and-coble, fixed engines and rod-and-line.

127. All Scottish salmon fisheries are closed for a minimum of 168 days a year. Actual closure dates may vary but are mostly from late August to mid February, depending upon individual DSFB policy. Angling may continue for a few weeks either side of this. Weekly closed times are also nationally enforced, being 24 hours (Sunday) in the case of angling and 60 hours for all other methods.

128. Salmon fisheries are saleable and netsmen or companies may acquire fishing rights over relatively large areas. Coastal heritable rights extend out to 12 nm, although coastal salmon fishing is limited by virtue of gear restrictions. Other interested parties may also purchase rights. For example, the Atlantic Salmon Conservation Trust has historically bought coastal sites to close them down as a conservation

measure in order to halt coastal netting activities. Similarly, rod-and-line interests may buy up river or coastal netting rights to close them down, often through the DSFBs.

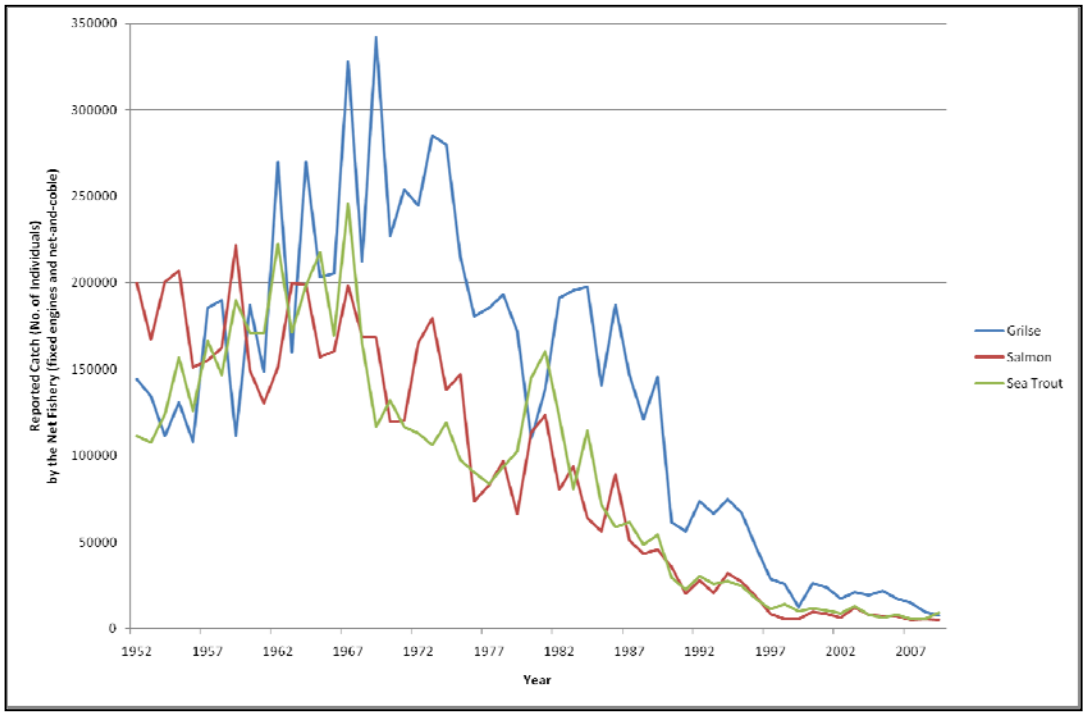
129. An indication of the contribution of each fishing method to the total reported catch by salmon fishery region in Scotland is given in Figure 27.27, expressed as annual (average 2000 to 2009) fish caught by method.

130. In general terms, rod-and-line (rod-and-line and catch and release combined) accounts for the majority of the reported catch in most salmon fishery regions, although in some areas, particularly in salmon fishery regions along the north and east coasts of Scotland, netting (fixed engines and net-and-coble) accounts for a relatively high percentage of the total catch.

131. It should be noted that the national trend is a decrease in netting effort and therefore the contribution of netting to the annual catch shown in Figure 27.27 may, depending on the fishery region and district under consideration, overestimate the current levels of exploitation.

132. The decrease in catches by the net fishery from historic levels is illustrated in Plate 27.11. This shows the number of fish caught by net-and-coble and fixed engines from 1952 to 2009 in Scotland.

Plate 27.11 Annual Catch in Scotland by Net Fisheries (Fixed Engines and Net and Coble) for the period 1952-2009



27.3.4.2 Salmon and Sea Trout Fisheries in the Regional Study Area

133. An indication of the annual reported catch by species and method in the regional study area is given in Figure 27.28 and Figure 27.29 respectively, expressed as the number of individuals caught by district (average 2000 to 2009).

134. Salmon and grilse account for the majority of the catch in all the districts within the regional study area, with the exception of the Lossie, where sea trout is the principal species caught.

135. The principal fishing method in the regional study area is rod-and-line, being the only method used in a number of districts (eg Spey, Deveron). Netting by both fixed engines and net-and-coble, however, occurs at varying degrees in a number of districts.

136. An indication of the annual variation in fishing effort by net fisheries in the regional study area, broken down by fixed engines and net-and-coble in districts where these methods are used, is given in Plate 27.12 and Plate 27.13 respectively (2001 to 2010).

137. An overview of the salmon and sea trout fishery by district within the regional study area is given below.

Plate 27.12 Annual Fixed Engines Effort (Max. No. of Traps) by SFD (2001-2010)

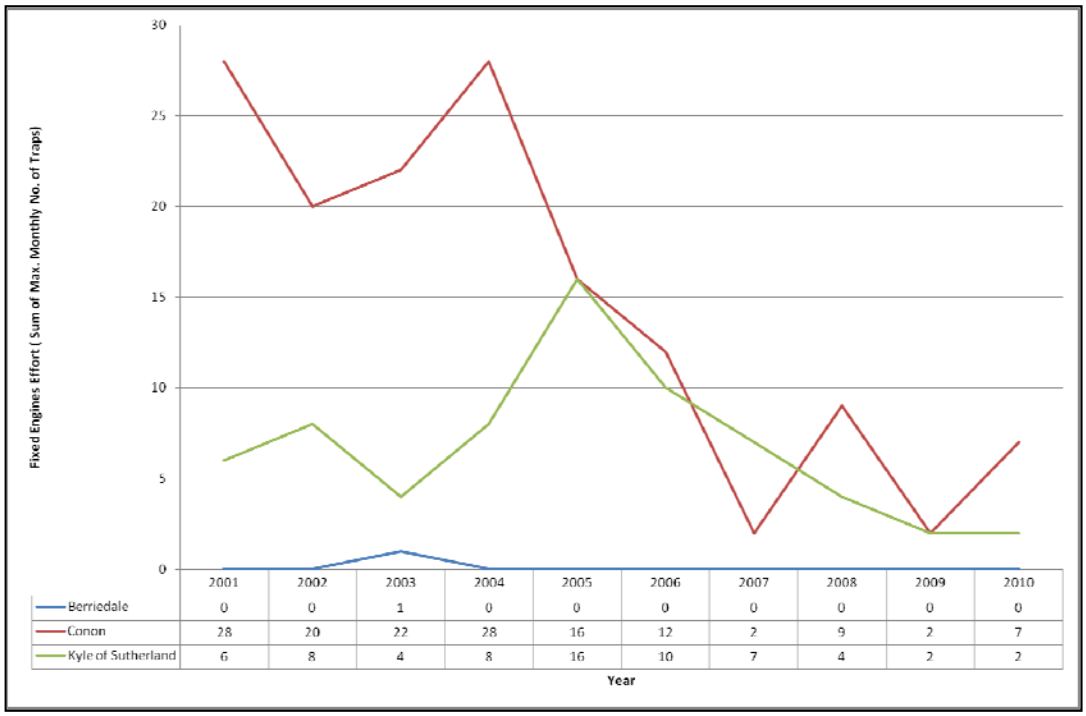
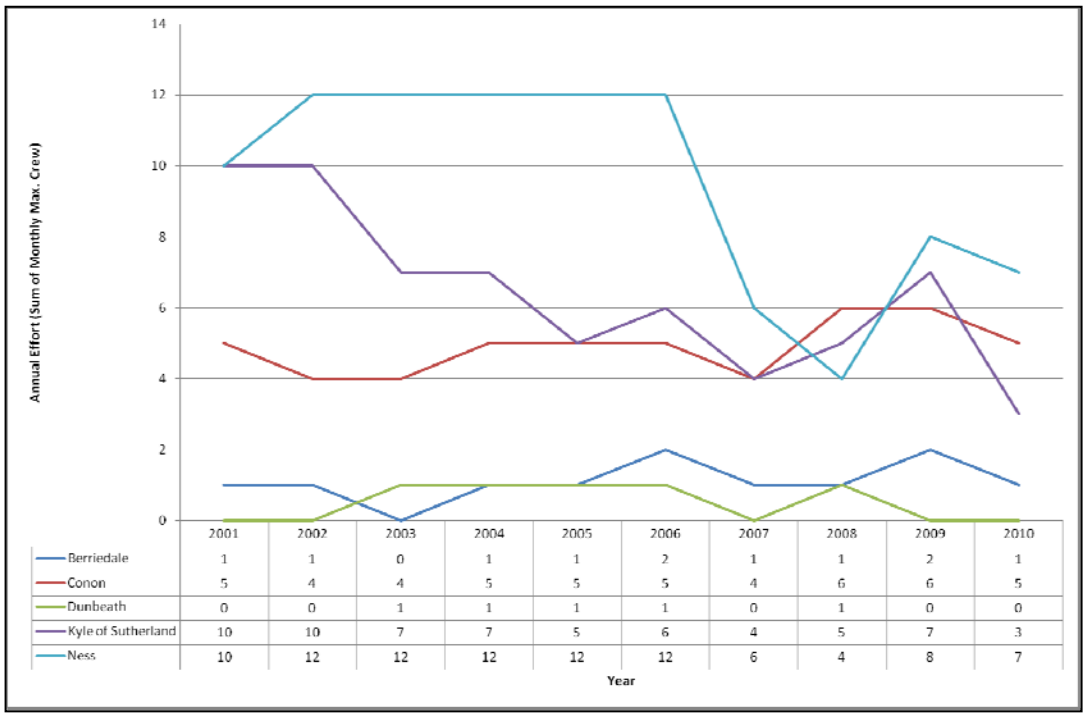


Plate 27.13 Annual Net and Coble Effort (Max. Crew) by SFD (2001-2010)



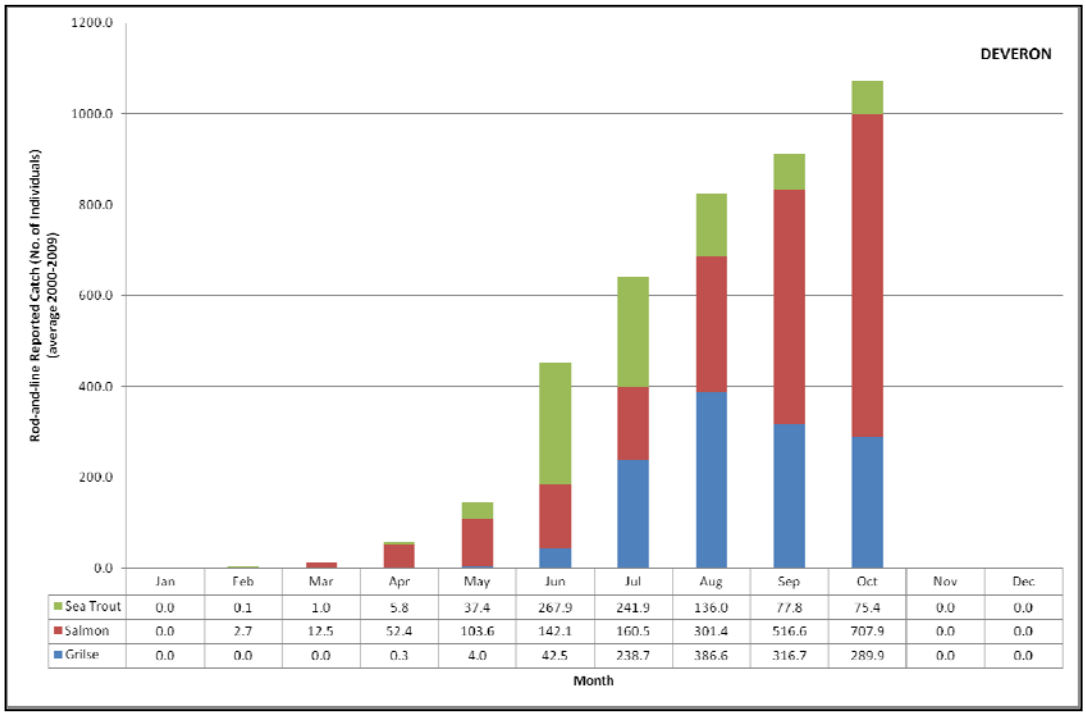
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Berriedale	1	1	0	1	1	2	1	1	2	1
Conon	5	4	4	5	5	5	4	6	6	5
Dunbeath	0	0	1	1	1	1	0	1	0	0
Kyle of Sutherland	10	10	7	7	5	6	4	5	7	3
Ness	10	12	12	12	12	12	6	4	8	7

The Deveron

138. The Deveron is mainly a salmon river although sea trout is of importance during the summer months. Rod-and-line is the only method currently used in this district.

139. The seasonality of the catch by species is given in Plate 27.14 (average reported catch 2000 to 2009). Overall (all species combined) the highest catches are recorded from August to October. Sea trout are caught in highest numbers in June and July. Grilse catches peak in August, although July, September and October also record relatively high catches. Salmon are caught throughout the season, however comparatively higher catches are recorded in September and October.

Plate 27.14 Seasonality of the Rod-and-line Reported Catch by Species in the Deveron District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	0.1	1.0	5.8	37.4	267.9	241.9	136.0	77.8	75.4	0.0	0.0
Salmon	0.0	2.7	12.5	52.4	103.6	142.1	160.5	301.4	516.6	707.9	0.0	0.0
Grilse	0.0	0.0	0.0	0.3	4.0	42.5	238.7	386.6	316.7	289.9	0.0	0.0

The Spey

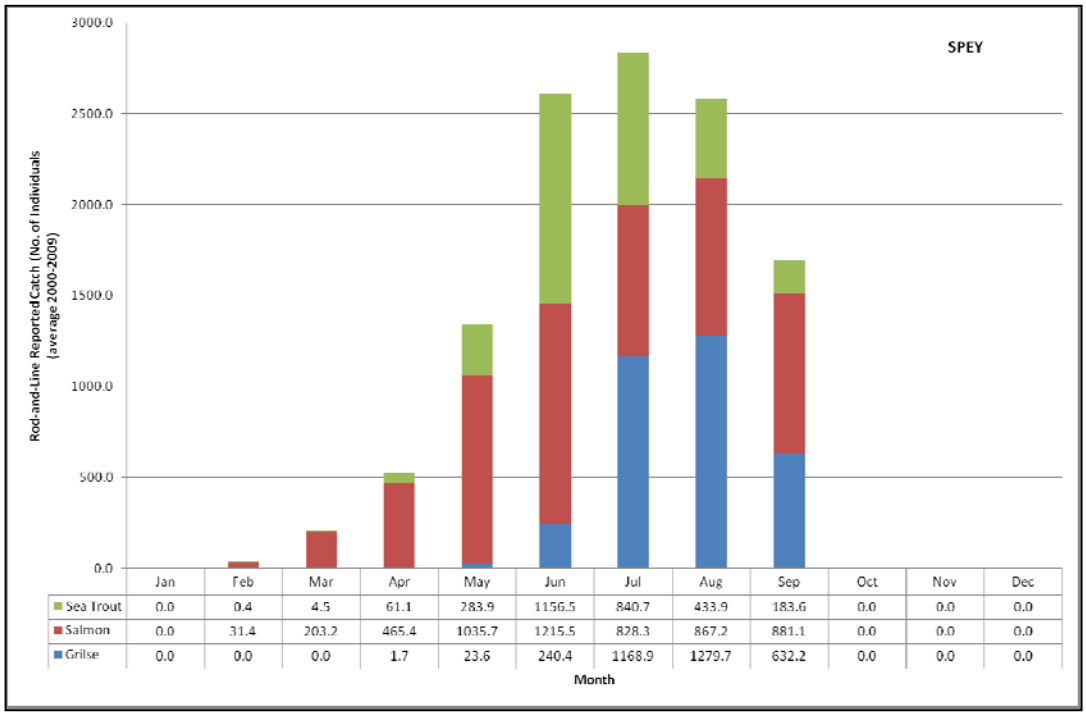
140. The Spey district records the largest salmon and sea trout catches in the regional study area, and is the most commercially important in the Moray Firth (Riddlington *et al*, 2004). Salmon has been a primary reason for the selection of the River Spey SAC, where the salmon population is considered to be of high quality.

141. Rod-and-line is currently the only fishing method used in the Spey. Overall, the highest catches in the district (all species) are recorded from June to August with May and September also recording relatively high catches.

142. The seasonality of the catch by species is given in Plate 27.15 (average reported catch 2000 to 2009). Salmon are principally caught from May to September, although March and April also record relatively high salmon catches reflecting the variety of salmon runs in the district. Grilse catches are highest in July and August. The sea trout season starts on 30th April and runs until the end of September. Within this period the highest sea trout catches are recorded in June and July.

143. As a result of the proximity of the landfall to the River Spey, the river's conservation status and fishery are further discussed in Section 27.3.4.3.

Plate 27.15 Seasonality of the Rod-and-line Reported Catch by Species in the Spey District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	0.4	4.5	61.1	283.9	1156.5	840.7	433.9	183.6	0.0	0.0	0.0
Salmon	0.0	31.4	203.2	465.4	1035.7	1215.5	828.3	867.2	881.1	0.0	0.0	0.0
Grilse	0.0	0.0	0.0	1.7	23.6	240.4	1168.9	1279.7	632.2	0.0	0.0	0.0

Nairn, Lossie and Findhorn

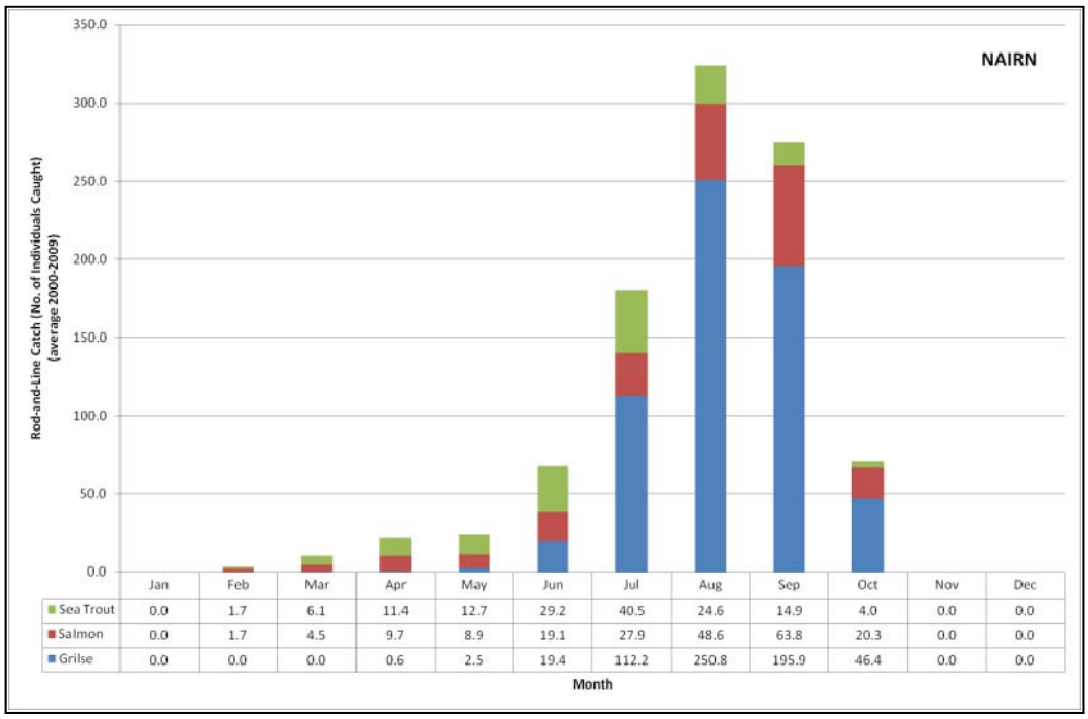
144. Rod-and-line is currently the only fishing method used in the three districts. An indication of the seasonality of the fishery in the Nairn, Lossie and Findhorn districts is given in Plate 27.16 to Plate 27.18 respectively, based on monthly reported catches by species (average 2000 to 2009).

145. In the Nairn the highest salmon and grilse catches are recorded from July to September. Sea trout are caught in greatest numbers from June to August.

146. In the Lossie sea trout catches are highest from May to October peaking in July and August. Salmon and grilse are principally caught from August to October.

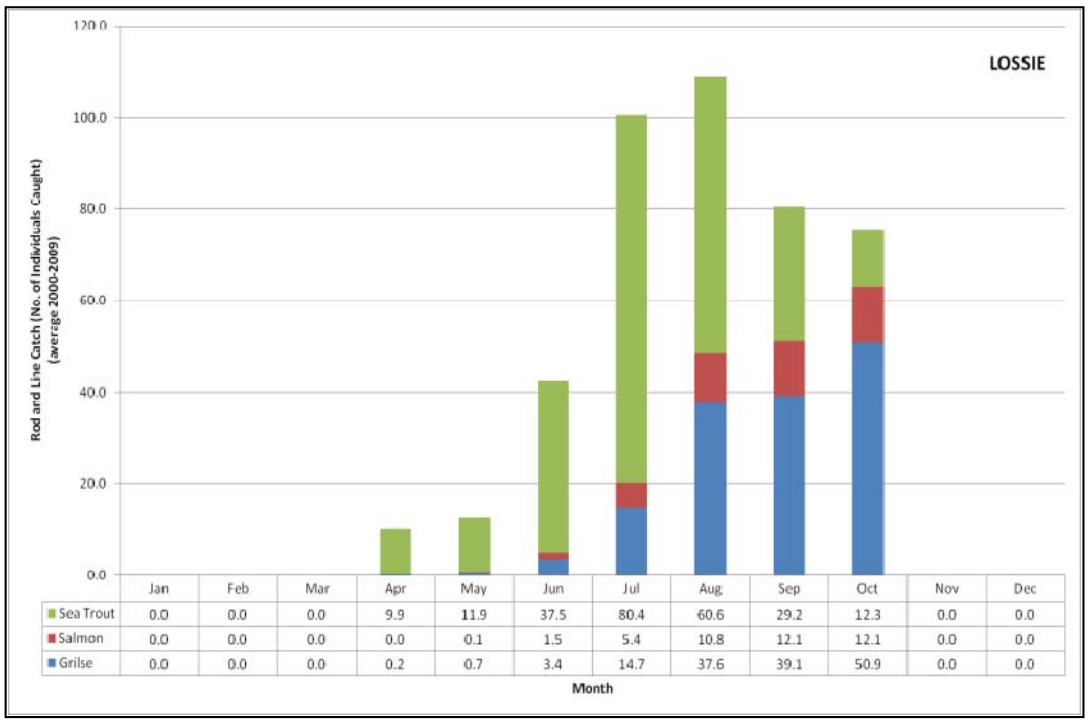
147. In the Findhorn salmon catches are highest from May to September. Grilse are principally caught from July to September whilst sea trout are caught from June to September.

Plate 27.16 Seasonality of the Rod-and-line Reported Catch by Species in the Nairn District (average 2000-2009)



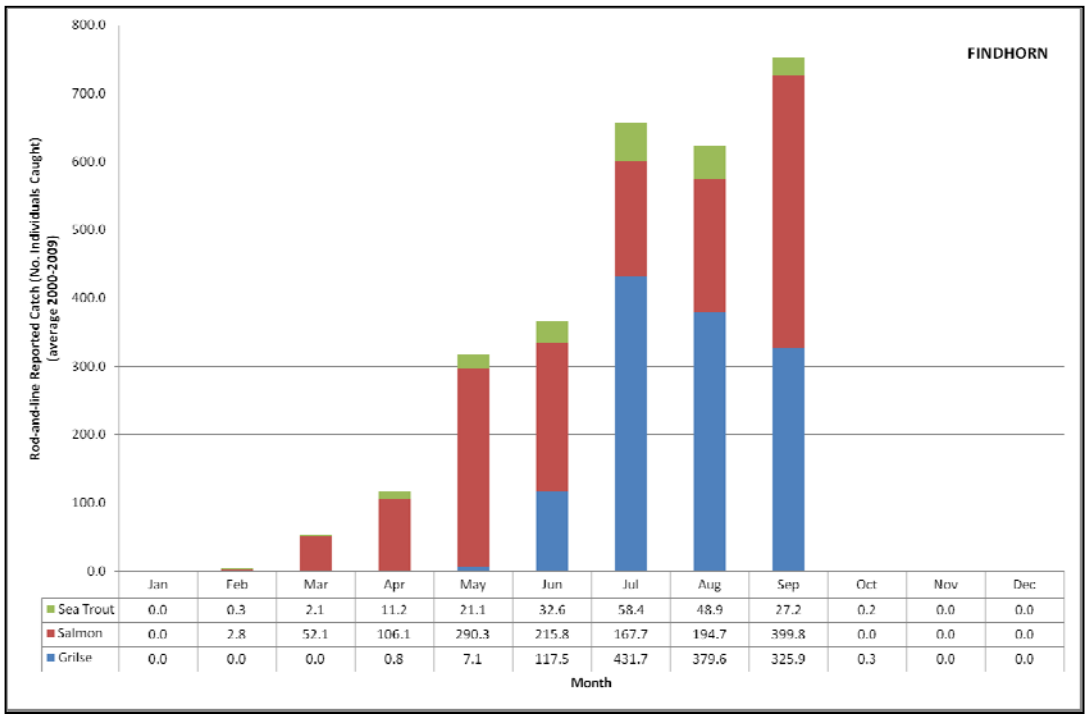
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	1.7	6.1	11.4	12.7	29.2	40.5	24.6	14.9	4.0	0.0	0.0
Salmon	0.0	1.7	4.5	9.7	8.9	19.1	27.9	48.6	63.8	20.3	0.0	0.0
Grilse	0.0	0.0	0.0	0.6	2.5	19.4	112.2	250.8	195.9	46.4	0.0	0.0

Plate 27.17 Seasonality of the Rod-and-line Reported Catch by Species in the Lossie District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	0.0	0.0	9.9	11.9	37.5	80.4	60.6	29.2	12.3	0.0	0.0
Salmon	0.0	0.0	0.0	0.0	0.1	1.5	5.4	10.8	12.1	12.1	0.0	0.0
Grilse	0.0	0.0	0.0	0.2	0.7	3.4	14.7	37.6	39.1	50.9	0.0	0.0

Plate 27.18 Seasonality of the Rod-and-line Reported Catch by Species in the Findhorn District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	0.3	2.1	11.2	21.1	32.6	58.4	48.9	27.2	0.2	0.0	0.0
Salmon	0.0	2.8	52.1	106.1	290.3	215.8	167.7	194.7	399.8	0.0	0.0	0.0
Grilse	0.0	0.0	0.0	0.8	7.1	117.5	431.7	379.6	325.9	0.3	0.0	0.0

Ness and Beauly

148. The Ness and Beauly districts have both important salmon and sea trout fisheries, although there has been a marked decline in sea trout catches over the past two decades. The River Moriston, which flows into the northern side of Loch Ness, has been designated as Special Area of Conservation and lists salmon as a qualifying feature.

149. Rod-and-line is the principal method used in both districts and is undertaken in coastal areas and in freshwater. Net-and-coble fishing takes place to a limited extent in coastal areas in the Ness district whilst rod-and-line is the only fishery currently active in the Beauly.

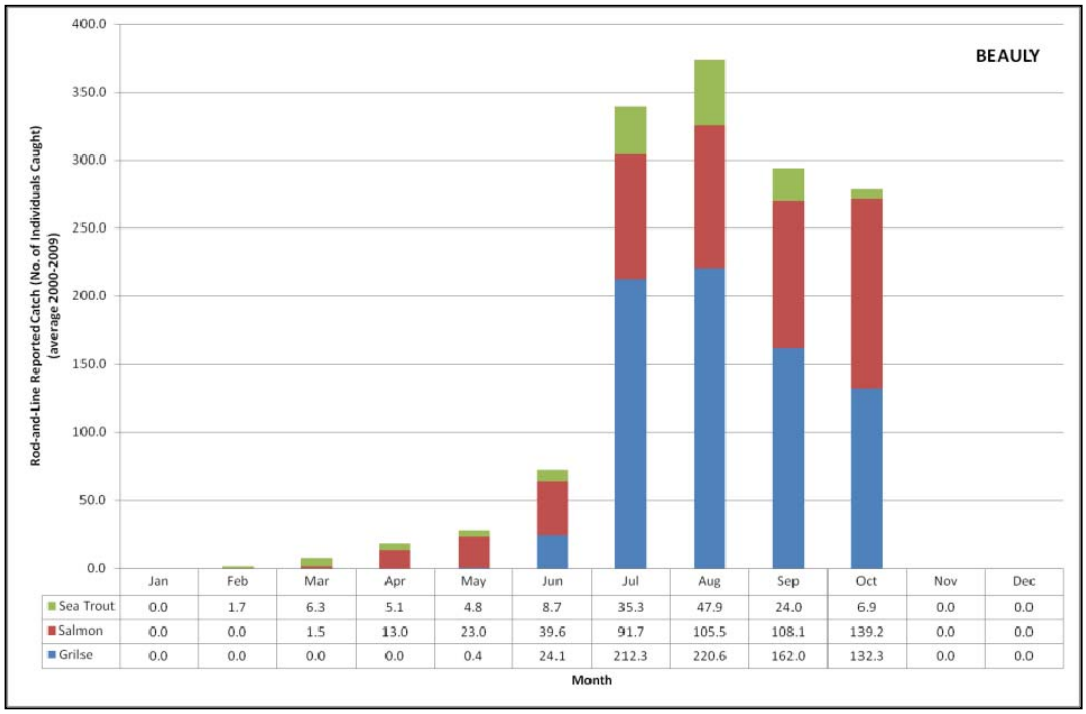
150. The seasonality of the rod-and-line catch by species in the Beauly and the Ness is shown in Plate 27.19 to Plate 27.20 respectively.

151. Salmon and grilse are principally caught from July to October in both districts. Salmon are however also caught in relatively high numbers earlier in the season (from April to June in the Beauly and from March to June in the Ness).

152. Sea trout are principally caught from July to September, but are also caught in some numbers earlier in the season generally from March onwards.

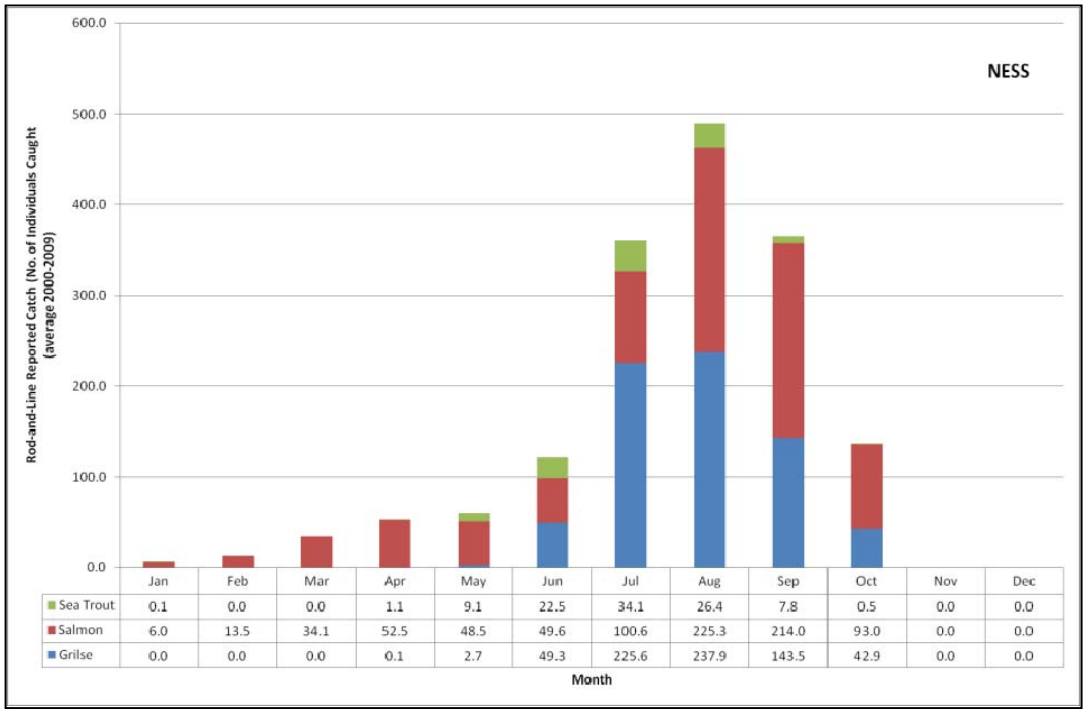
153. In the Ness the net fishery (net-and-coble) is open from 28th February to 26th August. An indication of the seasonality of the fishery is given in Table 27.9. The majority of reported catches are recorded from June to August, peaking in July.

Plate 27.19 Seasonality of the Rod-and-line Reported Catch by Species in the Beauly District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	1.7	6.3	5.1	4.8	8.7	35.3	47.9	24.0	6.9	0.0	0.0
Salmon	0.0	0.0	1.5	13.0	23.0	39.6	91.7	105.5	108.1	139.2	0.0	0.0
Grilse	0.0	0.0	0.0	0.0	0.4	24.1	212.3	220.6	162.0	132.3	0.0	0.0

Plate 27.20 Seasonality of the Rod-and-line Reported Catch by Species in the Ness District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.1	0.0	0.0	1.1	9.1	22.5	34.1	26.4	7.8	0.5	0.0	0.0
Salmon	6.0	13.5	34.1	52.5	48.5	49.6	100.6	225.3	214.0	93.0	0.0	0.0
Grilse	0.0	0.0	0.0	0.1	2.7	49.3	225.6	237.9	143.5	42.9	0.0	0.0

Table 27.9 Seasonality of Catch (No. of Individuals Caught) by the Net-and-Coble Fisheries in the Ness District (average 2000 to 2009)

Ness	Month				
	April	**May**	**June**	**July**	**August**
Net-and-coble	0.5	0.9	64.5	189.7	84.5

Source: MSS 2010

Conon and Alness

154. Most rivers in the Conon and Alness districts have a combination of both salmon and sea trout.

155. Rod-and-line is the main fishery in the two districts. Rod-and-line is used in the river, but also in the estuary for sea trout. In the Conon district, fixed engines are used in coastal areas and net-and-coble in the estuary, although to a limited extent.

156. The seasonality of the rod-and-line fishery (including catch and release) is given in Plate 27.21 to Plate 27.22 for the Alness and Conon districts respectively.

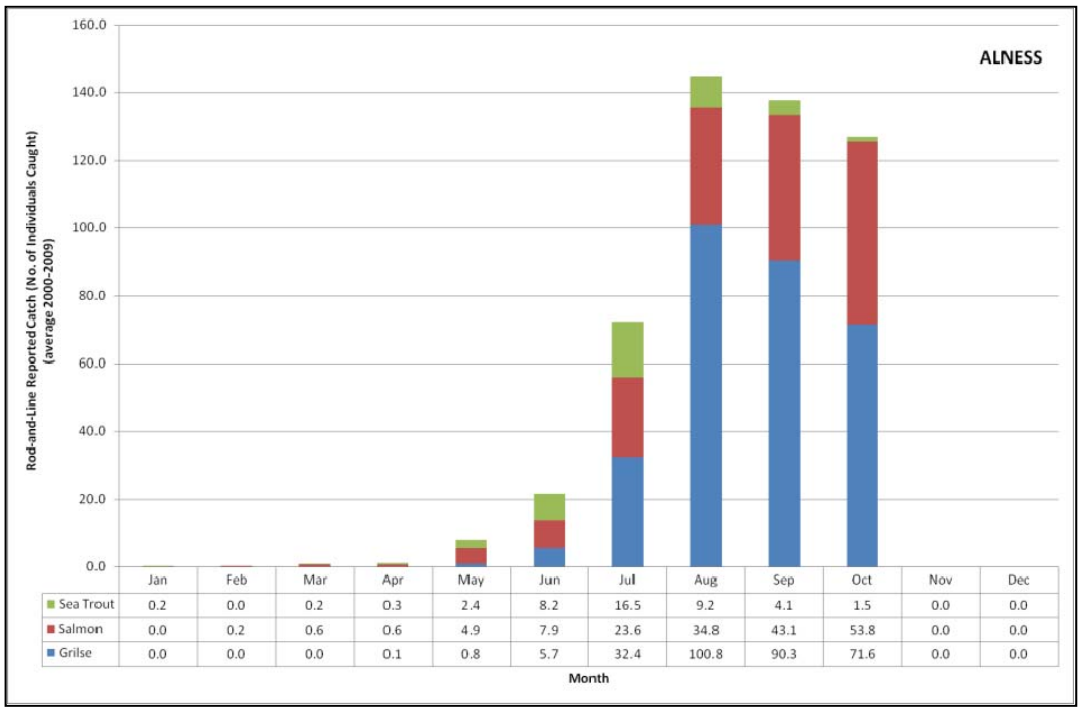
157. In the Alness, salmon are principally caught from July to October. Grilse are caught in highest numbers from August to October whilst sea trout are principally caught from June to August, peaking in July.

158. In the Conon, salmon are caught from May to September peaking around June. Grilse are principally caught from July to September whilst sea trout are caught from June to September, peaking in July.

159. The seasonality of the net fishery in the Conon district is given in Table 27.10, based on monthly catches (averaged 2000 to 2009) by net-and-coble and fixed engines. Both fixed engines and net-and-coble record highest catches in July. The netting season runs from 11th February to 26th August.

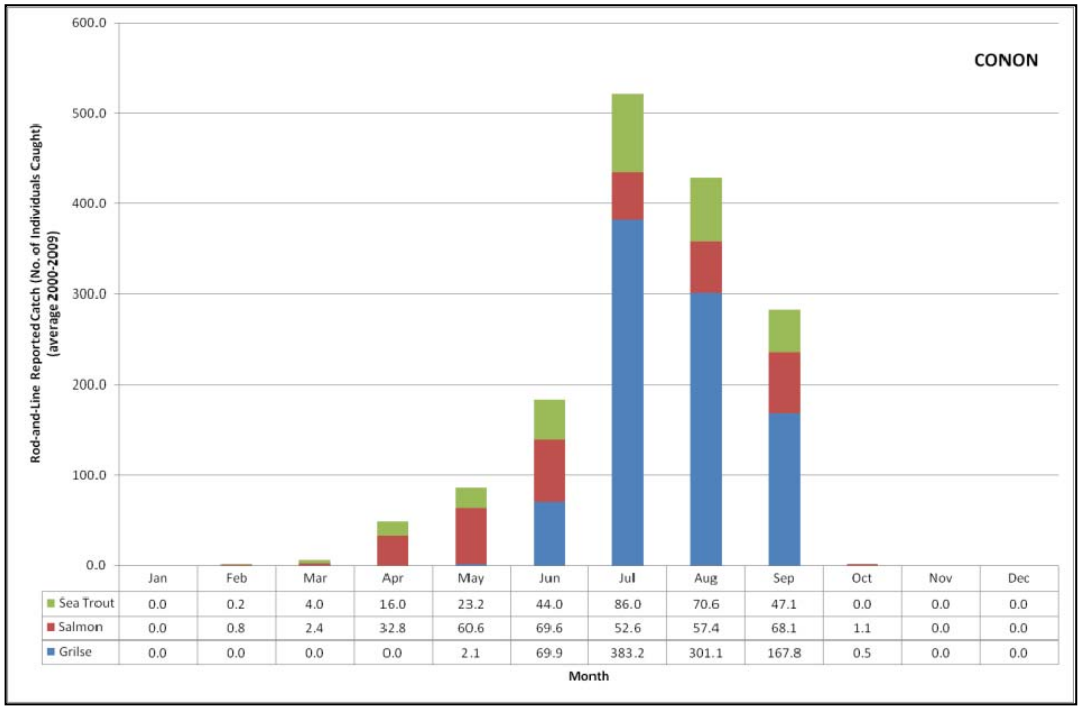
160. Active coastal netting stations in the Conon are located from Tarbat Ness inwards toward the firth. Stations are currently operational off Balintore and Hilton and from Tarbat Ness Lighthouse south to Ballone Castle.

Plate 27.21 Seasonality of the Rod-and-line Reported Catch by Species in the Alness District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.2	0.0	0.2	0.3	2.4	8.2	16.5	9.2	4.1	1.5	0.0	0.0
Salmon	0.0	0.2	0.6	0.6	4.9	7.9	23.6	34.8	43.1	53.8	0.0	0.0
Grilse	0.0	0.0	0.0	0.1	0.8	5.7	32.4	100.8	90.3	71.6	0.0	0.0

Plate 27.22 Seasonality of the Rod-and-line Reported Catch by Species in the Conon District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	0.2	4.0	16.0	23.2	44.0	86.0	70.6	47.1	0.0	0.0	0.0
Salmon	0.0	0.8	2.4	32.8	60.6	69.6	52.6	57.4	68.1	1.1	0.0	0.0
Grilse	0.0	0.0	0.0	0.0	2.1	69.9	383.2	301.1	167.8	0.5	0.0	0.0

Table 27.10 Seasonality of Catch (No. of Individuals Caught) of the Net Fisheries in the Conon District (average 2000 to 2009)

Conon	Month				
	April	**May**	**June**	**July**	**August**
Fixed Engines	1.4	17.3	55.9	106.9	9.5
Net-and-coble	0.0	0.0	5.5	110.3	11.9

Source: MSS 2010

Kyle of Sutherland

161. The River Oykel, which flows into the Kyle of Sutherland, is designated as an SAC and lists salmon as a qualifying feature.

162. The majority of the catch in the Kyle of Sutherland district comes from the rod-and-line fishery although there are a limited number of active net fisheries (both net-and-coble and fixed engines) which account for comparatively low catches.

163. The seasonality of the rod-and-line fishery (including catch and release) based on reported catches by species (averaged 2000 to 2009) is shown in Plate 27.23. Overall (all species combined), the highest reported catches are recorded from July to September.

164. Salmon are caught in relatively high numbers from April to September and grilse from July to September. Sea trout are predominantly caught from June to August, peaking in July.

165. As previously mentioned, the net fishery accounts for a comparatively small percentage of the total catch in the district. During the 2000 to 2009 period catches by fixed engines and net-and-coble were only recorded from April to August, with the highest catches by both methods corresponding to the month of July (Table 27.11).

Plate 27.23 Seasonality of the Rod-and-line Reported Catch by Species in the Kyle of Sutherland District (average 2000-2009)

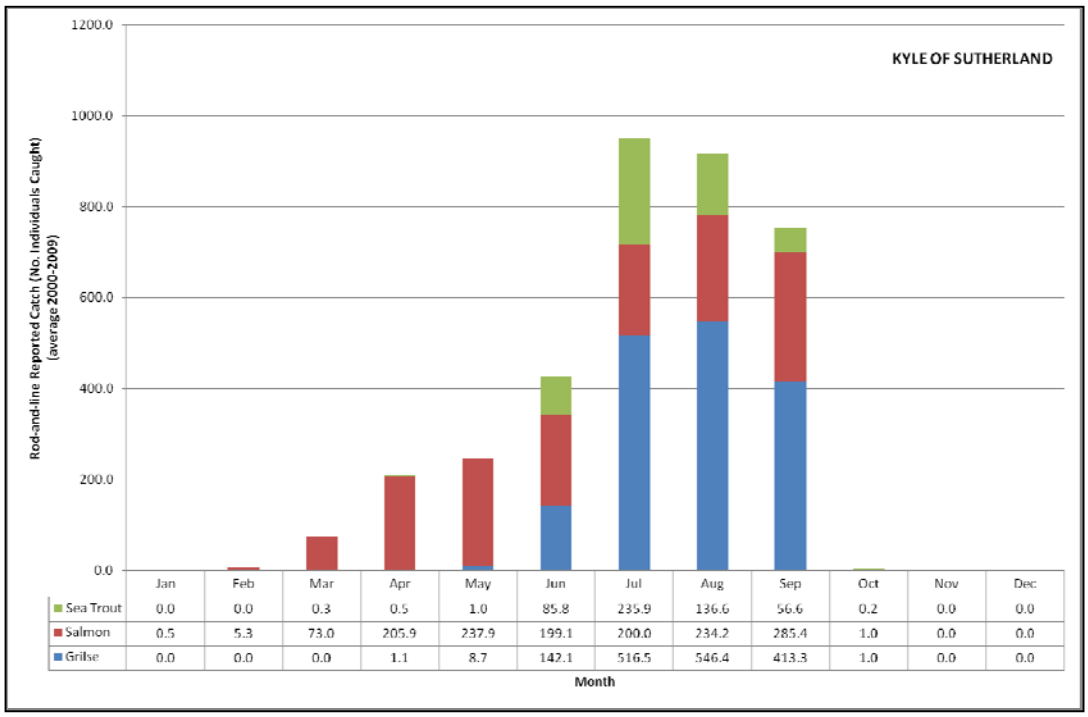


Table 27.11 Seasonality of Catch (No. of Individuals Caught) by the Net Fisheries in the Kyle of Sutherland District (average 2000 to 2009)

Kyle of Sutherland	Month				
	April	May	June	July	August
Fixed Engines	0.6	0.0	19.2	115.4	37.2
Net-and-coble	1.2	4.7	63.5	107.3	12.5

Source: MSS 2010

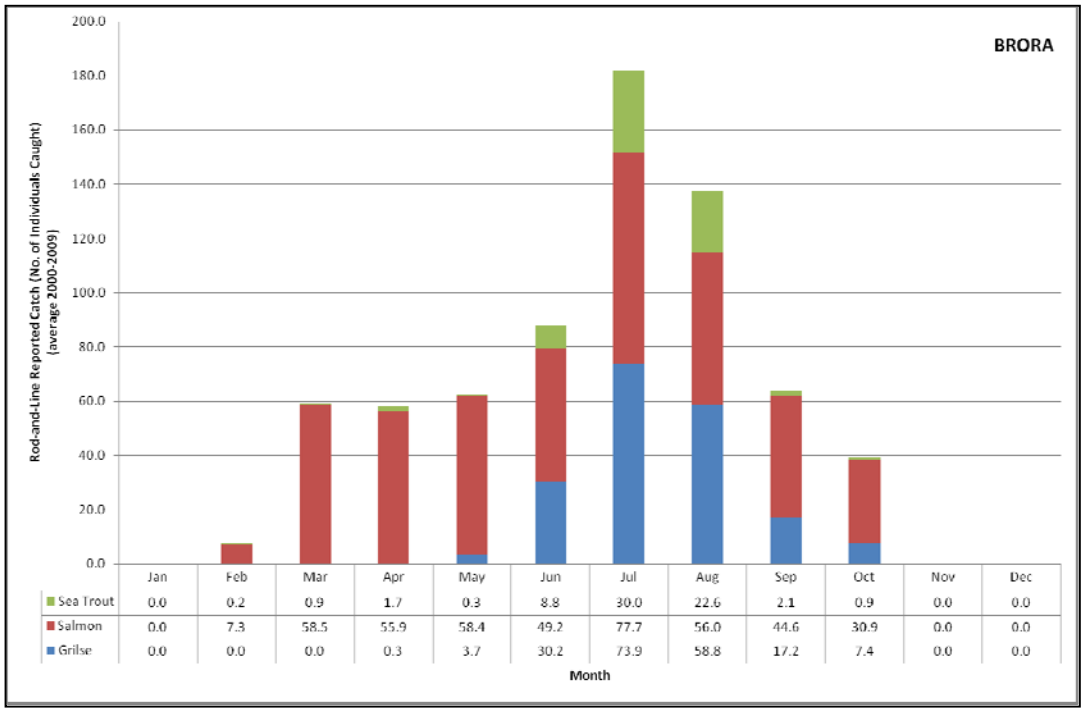
Brora

166. Rod-and-line is the only method used in the Brora district. Netting rights are held by Sutherland Estates at the mouth of the River Brora, however these are no longer exploited. Netting activity stopped in the late 1970s.

167. An indication of the seasonality of the fishery in the district is given in Plate 27.24 expressed as monthly catches by species (average 2000 to 2009).

168. Salmon are caught throughout the season principally from March to October. Catches are relatively consistent throughout this period with July recording peak catches. Sea trout are principally caught from June to August peaking in July. Similarly, grilse are caught in greatest numbers from June to August, also peaking in July. Overall, the greatest catches (all species combined) are recorded in July and August.

Plate 27.24 Seasonality of the Rod-and-line Reported Catch by Species in the Brora District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	0.2	0.9	1.7	0.3	8.8	30.0	22.6	2.1	0.9	0.0	0.0
Salmon	0.0	7.3	58.5	55.9	58.4	49.2	77.7	56.0	44.6	30.9	0.0	0.0
Grilse	0.0	0.0	0.0	0.3	3.7	30.2	73.9	58.8	17.2	7.4	0.0	0.0

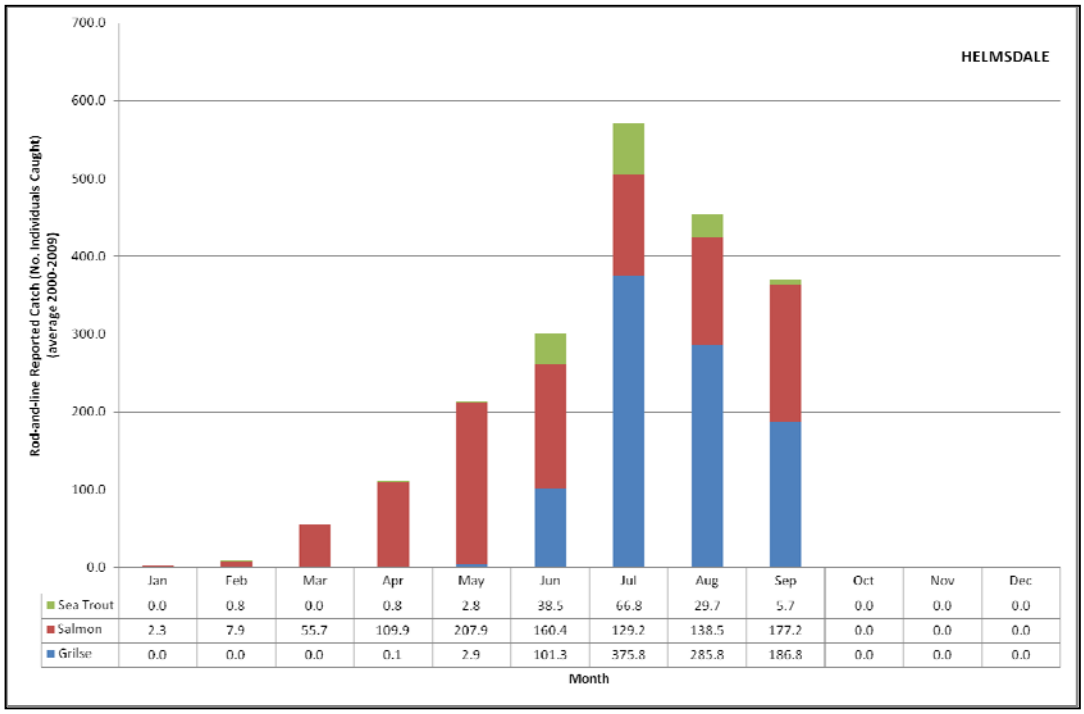
Helmsdale

169. In the Helmsdale district, rod-and-line is currently the only method used. Netting activity ceased approximately 20 years ago.

170. The fishing season runs from 11th January until the end of September. An indication of the seasonality of the fishery is shown in Plate 27.25, based on monthly catches by species (average 2000 to 2009). Overall (all species combined) the highest catches in the district are recorded in July and August.

171. Salmon catches are relatively consistent throughout the season with high catches being recorded during the periods April to May, June to August and August to September. Grilse are principally caught from June to September with catches peaking in July. Similarly, sea trout are principally caught from June to August also peaking in July.

Plate 27.25 Seasonality of the Rod-and-line Reported Catch by Species in the Helmsdale District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	0.8	0.0	0.8	2.8	38.5	66.8	29.7	5.7	0.0	0.0	0.0
Salmon	2.3	7.9	55.7	109.9	207.9	160.4	129.2	138.5	177.2	0.0	0.0	0.0
Grilse	0.0	0.0	0.0	0.1	2.9	101.3	375.8	285.8	186.8	0.0	0.0	0.0

Wick, Dunbeath and Berriedale

172. Salmon is a primary reason for the SAC site selection of the Berriedale and Langwell waters.

173. An indication of the seasonality of the rod-and-line fishery (including catch and release) in the Wick, Dunbeath and Berriedale districts is given in Plate 27.26 to Plate 27.28 respectively. Overall (all species combined), the highest catches are recorded in July and August. Sea trout catches are comparatively low. The highest catches are recorded from July to September.

174. Salmon catches are highest from June to September in Wick, July to October in Dunbeath and June to September in Berriedale.

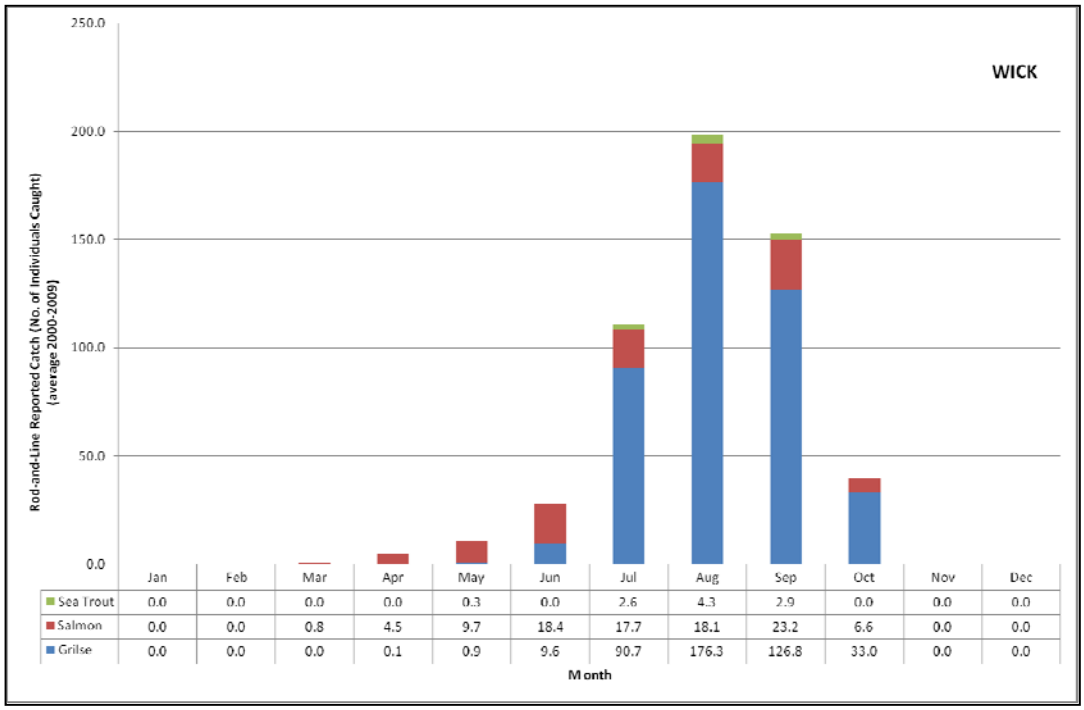
175. Grilse are principally caught from July to September in Wick, July to August in Dunbeath and in July in Berriedale.

176. An indication of the seasonality of the net fishery (net-and-coble and fixed engines) in the Berriedale and Dunbeath districts is given in Table 27.12.

177. In the Berriedale district, the month of July records the highest catches both by fixed engines and net-and-coble.

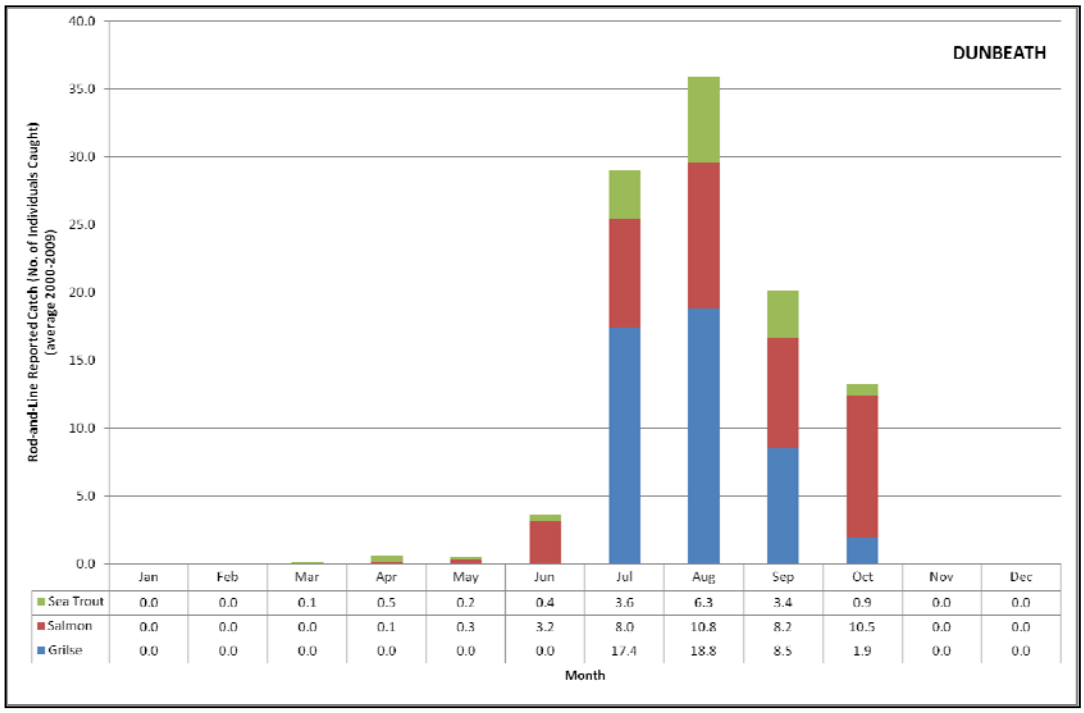
178. Similarly, in Dunbeath the highest catches by net-and-coble are recorded in July and August.

Plate 27.26 Seasonality of the Rod-and-line Reported Catch by Species in the Wick District (average 2000-2009)



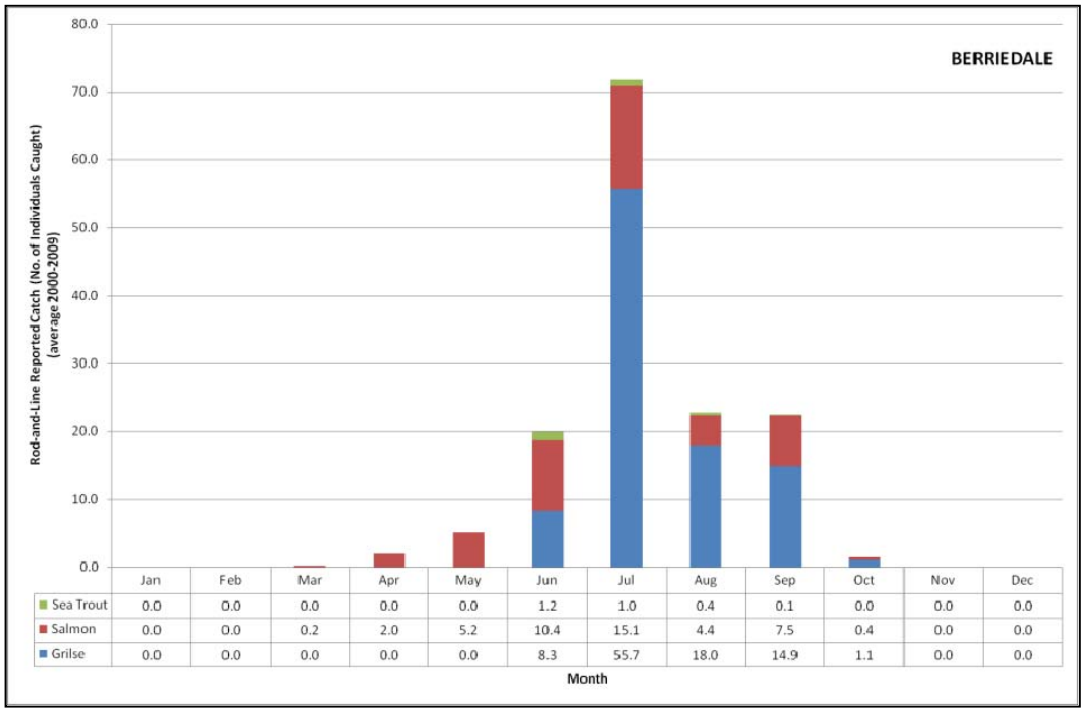
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	0.0	0.0	0.0	0.3	0.0	2.6	4.3	2.9	0.0	0.0	0.0
Salmon	0.0	0.0	0.8	4.5	9.7	18.4	17.7	18.1	23.2	6.6	0.0	0.0
Grilse	0.0	0.0	0.0	0.1	0.9	9.6	90.7	176.3	126.8	33.0	0.0	0.0

Plate 27.27 Seasonality of the Rod-and-line Reported Catch by Species in the Dunbeath District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	0.0	0.1	0.5	0.2	0.4	3.6	6.3	3.4	0.9	0.0	0.0
Salmon	0.0	0.0	0.0	0.1	0.3	3.2	8.0	10.8	8.2	10.5	0.0	0.0
Grilse	0.0	0.0	0.0	0.0	0.0	0.0	17.4	18.8	8.5	1.9	0.0	0.0

Plate 27.28 Seasonality of the Rod-and-line Reported Catch by Species in the Berriedale District (average 2000-2009)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea Trout	0.0	0.0	0.0	0.0	0.0	1.2	1.0	0.4	0.1	0.0	0.0	0.0
Salmon	0.0	0.0	0.2	2.0	5.2	10.4	15.1	4.4	7.5	0.4	0.0	0.0
Grilse	0.0	0.0	0.0	0.0	0.0	8.3	55.7	18.0	14.9	1.1	0.0	0.0

Table 27.12 Seasonality of Catch (No. of Individuals Caught) of the Net Fisheries in the Berriedale and Dunbeath Districts (average 2000 to 2009)

District	Method	Month		
		June	July	August
Berriedale	Fixed Engines	0.0	9.2	0.0
	Net-and-coble	0.8	27.9	1.0
Dunbeath	Net-and-coble	0.0	18.3	13.6

Source: MSS 2010

27.3.4.3 Salmon and Sea Trout Fisheries in the Local Study Area

179. The location of the landfall of the OfTW relative to the River Spey and the boundary of the Spey DSFB is given in Figure 27.30.

180. The jurisdiction of the Spey DSFB extends to 20 miles along the coast, from Borsehead rock to just past Cullen and 3 nm out to the sea.

181. As mentioned above, the only fishing method currently used in the Spey district is rod-and-line and there are no operational coastal netting stations. There used to be nets at the mouth of the river; however these were bought by the Board in 1993. The fishing season for salmon is closed from the 31st September to the 11th February (Consultation Spey DSFB 23/09/2011).

182. There are two migrations in the Spey district: smolts migrate out of the river in April/May and adults migrate into the river between March and April. Spawning occurs in river beds between the end of October and March (Consultation Spey DSFB 23/09/2011).

183. Salmon, sea lamprey, freshwater pearl mussels and otter populations have been the primary reason for SAC site selection of the River Spey. The Spey is a braided river that is highly mobile and has been designated as a Site of Special Scientific Interest (SSSI) (Consultation Spey DSFB 23/09/2011). The fast-flowing waters of the river, in particular the middle and lower reaches of the river, provide ideal spawning conditions for sea lampreys (JNCC 2011).

184. Salmon in the Spey system are little affected by artificial barriers to migration, and the waters in the catchment are largely unpolluted. For a system of its size, the Spey is also relatively free from flow modifications such as abstractions, diversions and impoundments (JNCC, 2011).

185. The population dynamics of the freshwater pearl mussel (*M margaritifera*) is closely linked to the presence of salmonids in the rivers (JNCC, 2011). During the larval stage it attaches itself to the gills of salmonids in river in mid to late summer. The following spring it drops off its host to settle in the riverbed gravel where the juvenile grows into an adult. In the Spey the population is estimated at several millions and is considered of international significance (JNCC, 2011).

27.3.5 DATA/INFORMATION GAPS

186. The principal sources of data and information used for the collation of the salmon and sea trout fisheries baseline were:

- MSS; and
- Consultation with DSFBs, netsmen and other fisheries stakeholders.

187. The principal datasets used to inform the salmon and sea trout fisheries baseline were:

- MSS salmon and sea trout catch data by Fishery Region (1952 to 2009);
- MSS salmon and sea trout catch data by salmon Fishery District (2000 to 2009); and
- MSS salmon and sea trout netting effort data (2001 to 2010).

188. Each fishery in Scotland is required to provide the number and total weight of salmon, grilse and sea trout caught and retained during each month of the fishing season. In this context, the term salmon refers to multi sea winter salmon (MSW) whilst grilse refers to one sea winter salmon (1SW).

189. The catch data used for the purposes of this assessment are as reported. Where there are no records of reported catches, it has been assumed that no fish have been caught. It is recognised, however, that there may be a degree of error as a result of misreporting of catches. In addition, errors may exist within the catch dataset due to misclassification of fish between the grilse and salmon categories. The catch data used are as provided by MSS in October 2010. The effort data used are as provided by MSS in September 2011.

190. Rod-and-line fisheries are also required to provide the monthly numbers and total weight of those salmon, grilse and sea trout which were caught and released back into the river, a practice which is known as 'catch and release'. As a result, MSS catch data for the rod-and-line fishery is broken down into two categories, 'rod-and-line' and 'catch and release'. Note that the total catch by the rod-and-line fishery is in effect the sum of the catches recorded in both categories. Where appropriate, data from both categories have been combined to give an indication of the total rod-and-line catch. Similarly, the catch by net-and-coble and fixed engines (bag and stake nets) has been combined in some instances to provide an indication of the total catch by the net fishery.

191. The catch data used in this Section are Crown copyright, used with the permission of MS. MS is not responsible for interpretation of these data by third parties.

192. It should be noted that due to the lack of current knowledge in relation to the migratory behaviour and the use that salmon and sea trout make of the OfTW Corridor, a number of conservative assumptions were made for the undertaking of the assessment on these species.

27.4 DEVELOPMENT DESIGN MITIGATION

193. BOWL is committed to ensuring that the post installation status of the OfTW enables fishing activities to be safely resumed. Embedded design mitigation to facilitate this includes:

- Cable burial where feasible (minimum 55%);
- Protection of cable where burial is not feasible (up to 45%); and
- Post construction surveys will be undertaken to assess the seabed status in the immediate vicinity of construction and installation activities to ensure that the seabed is at an appropriate and reasonable standard determined in consultation with the fishing industry for fishing activities to be safely resumed.

27.5 ASSESSMENT OF POTENTIAL EFFECTS

27.5.1 COMMERCIAL FISHERIES

194. In the case of each predicted effect given below, the implications for fisheries during the construction and operational phases are separately described.

27.5.1.1 Construction Phase

Adverse Effects on Commercially Exploited Fish and Shellfish Populations

195. Adverse effects on commercially exploited fish and shellfish populations arising from the construction phase of the OfTW may have an indirect effect upon commercial fisheries of those species, possibly as a result of a decline in abundance or changes in behaviour. Predicted effects on fish and shellfish populations arising from the construction of the OfTW are described in Section 23: OfTW Fish and Shellfish Ecology. It should be noted that the methodology used to assess effects on fish and shellfish species (including significance criteria) differs from the one used

to assess commercial fisheries, being largely based on the IEEM (2010) guidelines for ecological impact assessment (see Section 23: OfTW Fish and Shellfish Ecology).

196. The effects of the construction phase on the principal species targeted in areas relevant to the OfTW (scallops, nephrops, squid and to a lesser extent lobster and crab) are summarised in Table 27.13 below. In general terms effects on these species are predicted to be minor (See Section 23: OfTW Fish and Shellfish Ecology for further details). The effect is therefore considered to be not significant in relation the EIA Regulations.

Table 27.13 Summary of Assessment on Scallops, Nephrops, Squid, Lobster and Crab

Effect	Receptor	Predicted Significance	Mitigation Proposed	Residual Effect Significance
Increased SSC and sediment re-deposition	Shellfish (general)	Negative Minor	None Proposed	Minor
	Squid	Negative Minor	None Proposed	Minor
	Post-settled king scallops	Negative Minor	None Proposed	Minor
Noise	Shellfish (general)	Negative Minor	None Proposed	Minor

Adverse Effects on Recreational Fish Populations

197. There is not considered to be a directed recreational fishing activity occurring along the OfTW, although it is recognised that there may be potential effects upon migratory fish species such as salmon and sea trout, which have significant socio-economic importance as recreational fish species. As previously stated, salmon and sea trout fisheries are separately assessed in Section 27.5.2.

Complete Loss or Restricted Access to Traditional Fishing Grounds

198. The OfTW transects: nephrops grounds in the southern Moray Firth; scallop grounds in the section of the OfTW closest to the Wind Farm, and to a lesser extent in an inshore area; seasonal squid grounds and, to a lesser extent, creel grounds for lobster and crab in the inshore section of the route.

199. The seasonality of the fisheries in the Moray Firth should be considered relevant to the proposed installation schedule of the OfTW: scallops are targeted throughout the year, with the highest landings levels recorded between May and October, inclusive; nephrops landings are recorded at their highest levels in the summer months, with a significant peak in July; squid grounds are highly seasonal and landings are for the most part recorded between August and November, inclusive; and crab and lobster fishery is broadly highest between July and September, inclusive.

200. The principal effects of installation considered to incur restricted access to the fishing grounds described above are as follows:

- Exclusion zones around construction activities; and
- Installed cables which preclude fishing activity occurring.

201. Safety zones of 500 m are normally imposed around construction works, from which all vessels are excluded. Depending upon the installation vessels used, fishing activities will be excluded from the area of OfTW works throughout the installation phase. Three trenches will be required for the OfTW, with a maximum separation depth of approximately 1.5 km between outermost trenches. The duration of installation activities (estimated 240 days for all OfTW installation works) will result in a temporary loss of access to fishing grounds in the immediate vicinity of the OfTW.

202. There is the potential for OfTW installation works to preclude fishing activities safely resuming, as a result of the associated risks with snagging fishing gear, particularly in the case of towed gear fishing activities, such as bottom otter trawling for nephrops and squid and boat dredging for scallops. It is considered that normal towed gear fishing practices cannot safely resume in the immediate vicinity of the OfTW until the necessary cable protection measures, including rock placement and/or mattressing, have been completed. As has been previously stated, up to 45% of the OfTW will be protected and the remainder will be buried. Three trenches will be required for the OfTW, with a maximum separation depth of approximately 1.5 km between outermost trenches. It is considered that access to fishing grounds within the 1.5 km corridor will not resume until these measures are satisfactorily complete. Post construction surveys will be undertaken to assess the seabed status in the immediate vicinity of construction and installation activities to ensure that the seabed is at an appropriate and reasonable standard determined in consultation with the fishing industry for fishing activities to be safely resumed.

203. The OfTW principally transects nephrops, squid, scallop and creel grounds. These activities will be necessarily excluded from OfTW areas until the appropriate burial and protection measures are complete. This will affect a number of fishing vessels operating in the Moray Firth. The relatively small proportion of grounds the OfTW encompasses compared to available grounds in the Moray Firth, and, in the case of the scallop fishery, a relatively very small proportion of available scallop grounds in the UK, should be noted. The extent of effect will be further determined by the seasonality of installation: in the event that installation works coincide with peak fishing periods (i.e. the summer months), it is considered that the fisheries occurring along the OfTW route will be of medium sensitivity, the effect will be of medium magnitude and therefore assessed to be moderate. The effect is therefore considered to be significant in relation to the EIA Regulations.

Safety Issues for Fishing Vessels

204. Safety zones of 500 m are normally imposed around construction works, from which all vessels are excluded. Depending upon the installation vessels used, fishing activities will be excluded from the area of OfTW works throughout the

installation phase. Three trenches will be required for the OfTW, with a maximum separation depth of approximately 1.5 km between outermost trenches. The duration of installation activities (estimated 240 days for all OfTW installation works) will result in a temporary loss of access to fishing grounds in the immediate vicinity of the OfTW. Risks to fishing vessels posed by installation works will therefore only occur if these safety zones are infringed. It should also be recognised that in line with standard practice, the ultimate responsibility with regards to safety lies with the master of a vessel. Compliance with the safety zones will ensure the safety risks posed by installation works are within acceptable limits (Section 18: Wind Farm Shipping and Navigation).

205. There is the potential for cable trenching activities resulting in spoil berms to pose risks to the safety of fishing vessels and/or damage to fishing gear, either through snagging or nets becoming filled with spoil. A minimum of 55% of the OfTW will be trenched. In areas where the OfTW is unburied but protected, it is considered that fishing activities will not be able to resume in the immediate vicinity of these areas until the completion of cable protection measures (i.e. rock placement and/or mattresses) as a result of the potential risks to the safety of fishing vessels associated with snagging of the exposed cable(s). It is anticipated that up to 45% of the OfTW may require protection.

206. It is considered that cable laying activities will take 120 days to complete and cable protection activities will take a further 120 days. The worst case would therefore be 240 days to complete cable installation, although there may be some overlap. Post construction surveys will be undertaken to assess the seabed status in the immediate vicinity of construction and installation activities to ensure that the seabed is at an appropriate and reasonable standard determined in consultation with the fishing industry for fishing activities to be safely resumed. It is considered that fishing vessels will not be able to safely fish in the vicinity of these cables until burial and protection measures are complete.

Interference with Fishing Activities

207. All of the potential effects included in this assessment could cause interference to fishing activities. An additional effect to be considered is the potential for navigational conflicts arising between fishing vessels and construction vessels transiting to and from site. This could include the fouling of static gear marker buoys and dhan buoys, or towed gear vessels being required to alter towing direction.

208. The potential for interference will be in part determined by the seasonality of installation works and the location of the construction port. In light of the relatively limited duration of OfTW installation works, however, it is considered that the potential for interference to fishing activities as a result of navigational conflicts between installation vessels and fishing boats will therefore be a small magnitude effect occurring on a receptor of medium sensitivity, and is therefore assessed as being of minor significance. The effect is therefore considered to be not significant in terms of the EIA Regulations.

Increased Steaming Times to Fishing Grounds

209. The implementation of safety exclusion zones during the installation phase, described above, could result in some short term increases in steaming distances and times. These will however be very discreet (500 m around installation vessels) and relatively short term (estimated 240 days) and are therefore considered to be an effect of negligible magnitude occurring on a receptor of medium sensitivity and is assessed to be negligible. The effect is therefore considered to be not significant in terms of the relevant EIA Regulations.

Removal of Obstacles on the Seabed to ensure Fishing Vessel Safety

210. There is the potential for obstacles to be left on the seabed during the construction phase of the OfTW which could result in damage to or loss of fishing gears, as well as representing a safety hazard. Additionally, offshore works such as construction vessel anchoring, jack up legs or cable trenching can produce seabed obstructions that can cause fastenings for fishing nets and damage to fishing gears.

211. Contractors (those engaged to undertake development works offshore) will be obliged and monitored to ensure compliance with standard offshore policies prohibiting the discarding of objects or waste at sea (IMO 1996). The reporting and recovery of any accidentally dropped objects is also required. Post construction surveys will be undertaken to assess the seabed status in the immediate vicinity of construction and installation activities to ensure that the seabed is at an appropriate and reasonable standard determined in consultation with the fishing industry for fishing activities to be safely resumed.

212. Provided there is compliance to obligatory standards by contractors and, if necessary, the implementation of seabed rectification measures, the effect is considered to be within acceptable limits.

Displacement of Fishing Vessels into Other Areas

213. Concerns were raised during consultation with fishermen that wind farm related activities, including installation of the OfTW, which may limit access to fishing grounds could result in increased competition for grounds outwith the site. This might result in either conflict between vessels competing for the same resource, or between different fishing methods (i.e. static and towed gear vessels).

214. In light of the fishing grounds the OfTW transects, which includes nephrops grounds, scallop grounds, squid grounds and to a lesser extent, creel grounds, and the necessary exclusion of these activities from these areas until the appropriate burial and protection measures are complete, a number of fishing vessels operating in the Moray Firth will be affected by the installation of the OfTW. The extent of effect will be further determined by the seasonality of installation. In the event that installation works coincide with peak fishing periods (i.e. the summer months), there is the potential for a number of fishing vessels to be displaced into other areas during the installation phase, resulting in increased competition for grounds and potential conflict. It is therefore considered that the effects will be of medium magnitude occurring on a receptor of medium sensitivity and therefore assessed to

be moderate during the installation phase. The effect is therefore considered to be significant in terms of the relevant EIA Regulations.

27.5.1.2 Operational Phase

Adverse Effects on Commercially Exploited Fish and Shellfish Populations

215. Predicted effects on fish and shellfish populations arising from the operation of the OfTW are described in detail in Section 23: OfTW Fish and Shellfish Ecology, and summarised in Table 27.14 below. The electromagnetic fields (EMFs) that are generated from the OfTW are expected to constitute the main effect on commercially exploited shellfish species. As mentioned above for the operational phase, it should be noted that the methodology used to assess effects on fish and shellfish species (including significance criteria) differs from that used to assess commercial fisheries, being largely based on the IEEM (2010) guidelines for ecological impact assessment (see Section 23: OfTW Fish and Shellfish Ecology).

216. In general terms, the predicted effect of EMFs on the principally exploited shellfish species (scallops, nephrops, squid and to a lesser extent lobster and crab) during operation are considered to be minor (See Section 23: OfTW Fish and Shellfish Ecology for further details). The effect is therefore considered to be not significant in terms of the relevant EIA Regulations.

Table 27.14 Summary of Assessment on Scallops, Nephrops, Squid, Lobster and Crab

Effect	Receptor	Predicted Significance	Mitigation Proposed	Residual Effect Significance
Electromagnetic Fields (EMFs)	Shellfish (general)	Negative Minor	None proposed	Minor

Adverse Effects on Recreational Fish Populations

217. There is not currently considered to be a directed recreational fishing activity occurring along the OfTW. It is however recognised that there may be potential effects upon migratory fish species such as salmon and sea trout, which have significant socio-economic importance as recreational fish species. Effects upon salmon and sea trout fisheries are separately assessed in Section 27.5.2.

Complete Loss or Restricted Access to Traditional Fishing Grounds

218. Post construction surveys will be undertaken to assess the seabed status in the immediate vicinity of construction and installation activities to ensure that the seabed is at an appropriate and reasonable standard determined in consultation with the fishing industry for fishing activities to be safely resumed. Provided the appropriate measures are taken at the end of the installation phase to ensure the safety of fishing vessels (ie appropriate cable protection measures and seabed rectification procedures), it is considered that fishing vessels will be able to continue with normal fishing practices once the OfTW are operational. The effect is considered to be of small magnitude occurring on a receptor of medium sensitivity

and is assessed to be of minor significance. The effect is therefore considered to be not significant in terms of the relevant EIA Regulations.

Safety Issues for Fishing Vessels

219. Provided the appropriate measures are taken at the end of the installation phase to ensure the safety of fishing vessels (ie appropriate cable protection measures and seabed rectification procedures), it is considered that fishing vessels will be able to safely continue with normal fishing practices once the OfTW are operational. The effect is therefore considered to be within acceptable limits.

27.5.1.3 Decommissioning Phase

220. In the absence of detailed information on the decommissioning schedules and methodologies, it is considered that the potential effects associated with the decommissioning phase will be of no greater significance than those of the construction phase. The significance of the effects in terms of the EIA Regulations is therefore considered to be the same as outlined in Section 27.5.1.1.

27.5.2 SALMON AND SEA TROUT FISHERIES

221. As a result of salmon and sea trout fisheries being either in-river, or to a lesser extent, coastal, and the location of the OfTW landfall, direct effects arising from the construction and operation of the OfTW will not occur. It is possible, however that indirect effects on the fisheries may occur if the ecology of these species is adversely impacted in the offshore marine environment as a result of the development of the OfTW.

222. The effects on fish and shellfish ecology, including salmon and sea trout, are described in Section 23: OfTW Fish and Shellfish Ecology.

223. It should be noted that due to the lack of current knowledge in relation to the migratory behaviour and the use that salmon and sea trout make of the OfTW area, a number of conservative assumptions had to be made for the undertaking of the ecological impact assessment on these species.

27.5.2.1 Predicted Effects

224. A summary of the effects on salmon and sea trout populations derived from the construction and operational phases of the OfTW is given in Table 27.16 based on information provided in Section 23: OfTW Fish and Shellfish Ecology.

225. Effects on salmon and sea trout during the construction and operational phases are, in general terms, expected to be of minor significance and mitigation measures have not been proposed. These effects are considered to be not significant in terms of the EIA Regulations.

27.6 MITIGATION MEASURES AND RESIDUAL EFFECTS

27.6.1 COMMERCIAL FISHERIES

27.6.1.1 Mitigation Measures

Construction and Operation

226. It is recognised that the sensitivity of the fisheries along the OfTW route to the loss of fishing areas as a result of construction activities will vary on a seasonal basis. Consultation will be ongoing with fisheries interests to minimise, where possible, the effect of construction activities that will result in the temporary loss of fishing grounds. This may result in reducing the significance of the effect for both loss of fishing grounds and displacement of fishing vessels.

227. It should be noted that ensuring seabed protection measures and post installation seabed rectification procedures are sufficient to ensure continued fishing activities have been considered as 'embedded' mitigation, and therefore included within the assessment of potential effects.

27.6.1.2 Residual Effects

228. The residual effects after taking into account the mitigation proposed above are not considered to be different to those described for predicted effects.

27.6.1.3 Monitoring and Enhancements

229. No monitoring in addition to the post installation and seabed rectification surveys discussed previously are proposed with regard to commercial fishing activities.

27.6.2 SALMON AND SEA TROUT FISHERIES

27.6.2.1 Monitoring and enhancements

230. BOWL will work with key stakeholders and MS to identify future monitoring programmes as necessary.

27.7 SUMMARY OF EFFECTS

27.7.1 COMMERCIAL FISHERIES

231. As described in the baseline, the OfTW transects fishing grounds for nephrops, scallops, squid, and to a lesser extent creel grounds for crab and lobster. The grounds for nephrops, squid and scallops, respectively, are important on a regional level in the Moray Firth.

232. The installation of the OfTW will result in temporary loss of fishing grounds from a limited proportion of these grounds (estimated maximum width between outermost trenches being approximately 1.5 km) until all measures have been undertaken to ensure that the area is in a satisfactory condition for fishing activities to safely resume. The estimated duration of activities will be in the order of 240 days.

233. Table 27.15Table 27. below provides a summary of the key findings and effects of the OfTW upon commercial fishing activities. Consultation with commercial fishing

interests will be ongoing to identify potential mitigation measures that may reduce any significant effects identified.

Table 27.15 Summary Table of Effects to Commercial Fisheries

Potential Effects	Sensitivity of Receptor	Magnitude of Effect	Nature	Significance of Effect
Installation				
Adverse effects to commercial fish and shellfish populations	See Section 23: OfTW Fish and Shellfish Ecology	See Section 23: OfTW Fish and Shellfish Ecology	Negative	Minor
Adverse effect on recreational fish populations	See Section 23: OfTW Fish and Shellfish Ecology	See Section 23: OfTW Fish and Shellfish Ecology	Negative	N/A
Complete loss or restricted access to traditional fishing grounds	Medium	Medium	Negative	Moderate
Safety Issues for fishing vessels	N/A	N/A	Negative	Within acceptable limits
Interference with fishing activities	Medium	Small	Negative	Minor
Increased steaming times to fishing grounds	Medium	Negligible	Negative	Negligible
Removal of obstacles on the sea bed post construction	N/A	N/A	Negative	Within acceptable limits
Displacement of fishing vessels into other areas	Medium	Medium	Negative	Moderate
Operation				
Adverse effects to commercial fish and shellfish populations	See Section 23: OfTW Fish and Shellfish Ecology	See Section 23: OfTW Fish and Shellfish Ecology	Negative	Minor
Adverse effect on recreational fish populations	See Section 23: OfTW Fish and Shellfish Ecology	See Section 23: OfTW Fish and Shellfish Ecology	Negative	N/A
Complete loss or restricted access to traditional fishing grounds	Medium	Small	Negative	Minor
Safety Issues for fishing vessels	N/A	N/A	Negative	Within acceptable limits

27.7.2 SALMON AND SEA TROUT FISHERIES

234. A summary of the effects on salmon and sea trout populations derived from the construction/operational and decommissioning phases of the OfTW is given in Table 27.16 based on information provided in Section 23: OfTW Fish and Shellfish Ecology.

235. Effects on salmon and sea trout fisheries will indirectly occur if the ecology of the species is negatively affected as a result of the construction/decommissioning and operational phases of the OfTW. In general terms, effects on salmon and sea trout are expected to be of minor significance.

236. BOWL will work with key stakeholders and MS to identify future monitoring programmes as necessary.

Table 27.16 Summary of Assessment on Salmon and Sea Trout

Potential Effects	Receptor	Sensitivity of Receptor	Magnitude of Effect	Nature	Significance of Effect
Construction					
Increased SSC and sediment re-deposition	Salmon and Sea Trout (except River Spey)	Low	Small	-	Negligible
Increased SSC and sediment re-deposition	River Spey Salmon and Sea Trout	Medium	Small	Negative	Minor
Noise	Salmon and Sea Trout	Low	Negligible	-	Negligible
Operation					
EMFs	Salmon and Sea Trout	Medium	Small	Negative	Minor

27.8 STATEMENT OF SIGNIFIANCE

27.8.1 COMMERCIAL FISHERIES

237. The principal effects of the OfTW upon commercial fishing activities will occur during the construction phase. The seasonality of the fisheries during this period relative to construction activities will render them more sensitive. The significance of effect has been assessed to be moderate. Safety zones will be applied around construction works and provided there is compliance with these zones, the safety risks to vessels are considered to be within acceptable limits. Post construction surveys will be undertaken to assess the seabed status in the immediate vicinity of construction and installation activities to ensure that the seabed is at an appropriate and reasonable standard determined in consultation with the fishing industry for fishing activities to be safely resumed.

238. As a result of the embedded mitigation that BOWL is committed to, there is not considered to be a significant effect upon commercial fishing activities during the operational phase.

239. There is the potential for the construction of the OfTW to cumulatively contribute to the temporary loss of fishing grounds and displacement of vessels together with a number of developments planned in the Moray Firth and the wider area. The relatively small contribution of the OfTW, as well as the temporary nature of construction activities, should however be noted. An assessment of the potential cumulative effects of the OfTW in conjunction with other proposed offshore developments is described in Section 16: Wind Farm Commercial Fisheries.

27.8.2 SALMON AND SEA TROUT FISHERIES

240. Effects on salmon and sea trout fisheries will indirectly occur if the ecology of the species is negatively affected as a result of the construction and operational phases of the OfTW. The assessment (See Section 23: OfTW Fish and Shellfish Ecology) concludes that the effects on salmon and sea trout during all phases of development are expected to be minor and not significant in terms of the relevant EIA Regulations.

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