

CHAPTER 21: RESIDUAL IMPACTS

INTRODUCTION

- 21.1. This chapter of the ES summarises the significant residual impacts, which have been identified within the technical chapters (Chapters 7 to 20, excluding Chapter 9: Nature Conservation Designations, which does not include an impact assessment) of this ES. Significant residual impacts are those which will remain significant following the application of any mitigation measures that have been advised.
- 21.2. Significant impacts are those which have been identified by the EIA process as either moderate or major. A number of chapters do not identify any significant residual impacts, these are:
- Chapter 7: Physical Environment;
 - Chapter 8: Water and Sediment Quality;
 - Chapter 11: Benthic Ecology and Intertidal Ecology;
 - Chapter 15: Shipping and Navigation;
 - Chapter 17: Archaeology and Cultural Heritage;
 - Chapter 18: Military and Civil Aviation; and
 - Chapter 20: Other Marine Users and Activities.
- 21.3. Significant cumulative impacts are also considered in this chapter. In certain cases it is not possible to present mitigation measures which may be applied to the Seagreen Project and the other projects included within the cumulative impact assessment, therefore residual impacts in these cases are the same as those predicted by the initial assessment. This is the case with some residual effects predicted for fishing vessel safety during construction and decommissioning, for example. Clearly, if mitigation is applied which can reduce the significance of an impact, in which the Seagreen Project contributes to the level of the cumulative impact, then the overall cumulative impact will be reduced. Therefore, with regard to cumulative impacts, any mitigation already agreed to or expected is accounted for within the impact described (i.e. if this mitigation is standard practice or will be required by licence conditions).
- 21.4. A table of residual impacts can be seen in Table 21.1 below.

Table 21.1 Residual Impacts from Project Alpha, Project Bravo and the Transmission Asset Project

Parameter	Project Alpha	Project Bravo	Transmission Asset Project	Impact	Impact Context	Residual significant impact		
						Construction	Operation	Decommissioning
Ornithology	X	X	-	Indirect (construction noise impacts on prey species (the key prey species being herring and sandeel))	Species: Guillemot	Moderate	n/a	n/a
	X	X	-	Indirect (prey effects)	Species: Razorbill	Moderate	n/a	n/a
	X	X	-	Indirect (prey effects)	Species: Puffin	Moderate	n/a	n/a
Ornithology	X	X	-	Collision mortality	Species: Great Black-backed Gull (Regional)	n/a	Major	n/a
	X	X	-	Collision mortality	Species: Gannet (National/Regional)	n/a	Moderate	n/a
	X	X	-	Collision mortality	Species: Kittiwake (Regional)	n/a	Moderate	n/a
	X	-	-	Collision mortality (Project Alpha only)	Species: Herring Gull (Regional)	n/a	Moderate	n/a
Ornithology	X	X	*	Cumulative (the Seagreen Project) indirect (prey effects)	Species: Guillemot	Moderate	n/a	n/a
	X	X	*	Cumulative (the Seagreen Project) indirect (prey effects)	Species: Razorbill	Moderate	n/a	n/a
	X	X	*	Cumulative (the Seagreen Project) indirect (prey effects)	Species: Puffin	Moderate	n/a	n/a
Ornithology	X	X	*	Cumulative (the Seagreen Project) barrier effects	Species: Kittiwake	n/a	Moderate	n/a
	X	X	*	Cumulative (the Seagreen Project) collision mortality	Species: Great Black-backed Gull	n/a	Major	n/a
Ornithology	X	X	*	Cumulative (the Seagreen Project) collision mortality	Species: Kittiwake	n/a	Moderate	n/a
	X	X	*	Cumulative (the Seagreen Project) collision mortality	Species: Gannet	n/a	Moderate	n/a
	X	X	*	Cumulative (all projects) displacement due to boat traffic	Species: Gannet	Moderate	n/a	n/a
	X	X	*	Cumulative (all projects) displacement due to boat traffic	Species: Kittiwake	Moderate	n/a	n/a
	X	X	*	Cumulative (all projects) displacement due to boat traffic	Species: Lesser Black-backed Gull	Moderate	n/a	n/a
	X	X	*	Cumulative (all projects) displacement due to boat traffic	Species: Herring Gull	Moderate	n/a	n/a
	X	X	*	Cumulative (all projects) displacement due to boat traffic	Species: Guillemot	Moderate	n/a	n/a
	X	X	*	Cumulative (all projects) displacement due to boat traffic	Species: Razorbill	Moderate	n/a	n/a
	X	X	*	Cumulative (all projects) displacement due to boat traffic	Species: Puffin	Moderate	n/a	n/a
	X	X	*	Cumulative (all projects) displacement due to boat traffic	Species: Puffin	Moderate	n/a	n/a
	X	X	*	Cumulative (all projects) displacement due to boat traffic	Species: Puffin	Moderate	n/a	n/a

* Residual impacts associated with OWF elements of the Seagreen Project

Parameter	Project Alpha	Project Bravo	Transmission Asset Project	Impact	Impact Context	Residual significant impact		
						Construction	Operation	Decommissioning
Ornithology	X	X	-*	Cumulative (all projects) indirect (construction effect on prey)	Species: Guillemot (Breeding)	Major	n/a	n/a
	X	X	-*	Cumulative (all projects) indirect (construction effect on prey)	Species: Razorbill (Breeding)	Major	n/a	n/a
	X	X	-*	Cumulative (all projects) indirect (construction effect on prey)	Species: Puffin (Breeding)	Major	n/a	n/a
	X	X	-*	Cumulative (all projects) indirect (construction effect on prey)	Species: Kittiwake (Breeding)	Moderate	n/a	n/a
	X	X	-*	Cumulative (all projects) indirect (construction effect on prey)	Species: Arctic tern (Passage)	Moderate	n/a	n/a
	X	X	-*	Cumulative (all projects) displacement	Species: Razorbill	n/a	Major	n/a
Ornithology	X	X	-*	Cumulative (all projects) displacement	Species: Razorbill	n/a	Major	n/a
	X	X	-*	Cumulative (all projects) displacement	Species: Guillemot	n/a	Moderate	n/a
	X	X	-*	Cumulative (all projects) displacement	Species: Puffin	n/a	Moderate	n/a
	X	X	-*	Cumulative (all projects) barrier effects	Species: Kittiwake	n/a	Moderate	n/a
Ornithology	X	X	-*	Cumulative (all projects) collision mortality	Species: Gannet	n/a	Major	n/a
	X	X	-*	Cumulative (all projects) collision mortality	Species: Kittiwake	n/a	Major	n/a
	X	X	-*	Cumulative (all projects) collision mortality	Species: Herring Gull	n/a	Major	n/a
	X	X	-*	Cumulative (all projects) collision mortality	Species: Great Black-backed Gull	n/a	Major	n/a
	X	X	-*	Cumulative (all projects) collision mortality	Species: Lesser Black-backed Gull	n/a	Major	n/a
	X	X	-*	Cumulative (all projects) collision mortality	Species: Lesser Black-backed Gull	n/a	Moderate	n/a

* Residual impacts associated with OWF elements of the Seagreen Project

Parameter	Project Alpha	Project Bravo	Transmission Asset Project	Impact	Impact Context	Residual significant impact		
						Construction	Operation	Decommissioning
Natural Fish	X	X	-	Effect of noise from construction / decommissioning (behaviour)	Species Herring	Moderate	n/a	n/a
Natural Fish	X	X	-*	Cumulative (the Seagreen Project) behavioural impacts	Species: Herring	Major	n/a	n/a
Natural Fish	X	X	-*	Cumulative (all projects) behavioural impacts	Species: Herring	Major	n/a	n/a
Marine Mammals	X	-	-	Auditory injury (Project Alpha)	Species: Harbour seal	Moderate	n/a	n/a
Marine Mammals	-	X	-	Auditory injury (Project Bravo)	Species: Harbour seal	Moderate	n/a	n/a
Marine Mammals	X	-	-	Behavioural disturbance (Project Alpha)	Species: Harbour seal	Moderate	n/a	n/a
Marine Mammals	-	X	-	Behavioural disturbance (Project Bravo)	Species: Harbour seal	Moderate	n/a	n/a
Marine Mammals	X	X	-*	Cumulative (the Seagreen Project) behavioural impacts	Species: Harbour seal	Major	n/a	n/a
Marine Mammals	X	X	-*	Cumulative (the Seagreen Project) auditory injury	Species: Harbour seal	Moderate	n/a	n/a
Marine Mammals	X	X	-*	Cumulative (all projects) auditory injury	Species: Harbour seal	Major	n/a	n/a
Marine Mammals	X	X	-*	Cumulative (all projects) behavioural impacts	Species: Harbour seal	Major	n/a	n/a
Marine Mammals	X	X	-*	Cumulative (all projects) behavioural impacts	Species: Bottlenose dolphin	Moderate	n/a	n/a
Marine Mammals	X	X	-*	Cumulative (all projects) behavioural impacts	Species: Grey seal	Moderate	n/a	n/a
Marine Mammals	X	X	-*	Cumulative (all projects) indirect prey impacts	Species: Harbour seal	Moderate	n/a	n/a
Marine Mammals	X	X	-*	Cumulative (all projects) indirect prey impacts	Species: Bottlenose dolphin	Moderate	n/a	n/a
Marine Mammals	X	X	-*	Cumulative (all projects) indirect prey impacts	Species: Grey seal	Moderate	n/a	n/a

* Residual impacts associated with OWF elements of the Seagreen Project

Parameter	Project Alpha	Project Bravo	Transmission Asset Project	Impact	Impact Context	Residual significant impact		
						Construction	Operation	Decommissioning
Commercial Fisheries	-	-	X	Temporary loss or restricted access to fishing grounds (Transmission Asset)	Crab and lobster fishery	Moderate	n/a	Moderate
Commercial Fisheries	-	-	X	Displacement of fishing vessels (Transmission Asset)	Crab and lobster fishery	Moderate	n/a	Moderate
Commercial Fisheries	X	X	.*	Cumulative (the Seagreen Project) behavioural impacts	Species: Herring	Major	n/a	n/a
Commercial Fisheries	X	X	X	Cumulative (the Seagreen Project) loss or restricted access to fishing grounds	Scallop fishery	Moderate	Moderate	Moderate
Commercial Fisheries	X	X	X	Cumulative (the Seagreen Project) safety issues for fishing vessels	Array and export cabling	Outside of Acceptable Limits (Significant)	Within of Acceptable Limits	Outside of Acceptable Limits (Significant)
Commercial Fisheries	X	X	X	Cumulative (the Seagreen Project) displacement of fishing vessels	Scallop fishery	Moderate	Moderate	Moderate
Commercial Fisheries	X	X	.*	Cumulative (all projects) behavioural impacts	Species: Herring	Major	n/a	n/a
Commercial Fisheries	X	X	X	Cumulative (all projects) loss or restricted access to fishing grounds	Scallop, squid, nephrops, crab and lobster fisheries (construction) (Scallop and squid only for operation)	Moderate	Moderate	Moderate
Commercial Fisheries	X	X	X	Cumulative (all projects) safety issues for fishing vessels	Array and export cabling	Outside of Acceptable Limits (Significant)	Within of Acceptable Limits	Outside of Acceptable Limits (Significant)
Commercial Fisheries	X	X	X	Cumulative (all projects) displacement of fishing vessels	Scallop and squid fisheries	Moderate	Moderate	Moderate
Commercial Fisheries	X	X	X	Cumulative (all projects) interference to fishing vessels	Crab and lobster fishery	Moderate	n/a	n/a

* Residual impacts associated with OWF elements of the Seagreen Project

Parameter	Project Alpha	Project Bravo	Transmission Asset Project	Impact	Impact Context	Residual significant impact		
						Construction	Operation	Decommissioning
Seascope, Landscape and Visual Amenity	X	-	-	Impacts on seascope character (Project Alpha)	Applies to only two of the nine seascope character areas – SA3: Cove Bay to Milton Ness and SA4: Montrose Bay	n/a	Moderate	n/a
Seascope, Landscape and Visual Amenity	X	-	-	Impacts on visual amenity (Project Alpha)	Applies to two of the 14 view points only – VP2: Beach Road, Kirkton, St Cyrus and VP5: Braehead of Luman	n/a	Moderate	n/a
Seascope, Landscape and Visual Amenity	-	-	X	Impacts on seascope, landscape, visual amenity (Transmission Asset)	Impacts are short term and only of concern in the inshore areas where local interest areas will have greater visibility of construction vessels and activities	Moderate	n/a	n/a
Seascope, Landscape and Visual Amenity	X	X	-*	Cumulative (the Seagreen Project) seascope character	Applies to only two of the nine seascope character areas – SA3: Cove Bay to Milton Ness and SA4: Montrose Bay	n/a	Moderate	n/a
Seascope, Landscape and Visual Amenity	X	X	-*	Cumulative (the Seagreen Project) simultaneous visibility	Applies to two of the 14 view points only – VP2: Beach Road, Kirkton, St Cyrus and VP5: Braehead of Luman	n/a	Moderate	n/a
Seascope, Landscape and Visual Amenity	X	X	-*	Cumulative (all projects) seascope character	Applies to four of the nine seascope character areas – SA3: Cove Bay to Milton Ness, SA4: Montrose Bay, SA5: Long Craig and SA6: Luman Bay.	n/a	Moderate	n/a
Seascope, Landscape and Visual Amenity	X	X	-*	Cumulative (all projects) simultaneous visibility	Applies to two of the 14 view points only – VP2: Beach Road, Kirkton, St Cyrus and VP5: Braehead of Luman	n/a	Moderate	n/a

* Residual impacts associated with OWF elements of the Seagreen Project

Parameter	Project Alpha	Project Bravo	Transmission Asset Project	Impact	Impact Context	Residual significant impact		
						Construction	Operation	Decommissioning
Socio-Economics	X	X	X	Capex - Scotland	Positive impacts are identified	Moderate	n/a	n/a
Socio-Economics	X	X	X	Employment - Scotland	Positive impacts are identified	Moderate	Moderate	n/a
Socio-Economics	X	X	X	Opex - Scotland	Positive impacts are identified	n/a	Moderate	n/a

SUMMARY

- 21.5. A number of residual adverse impacts have been identified within the technical chapters of this ES, the majority of which are within the lower of the significant categories (moderate adverse), however, certain potential impacts upon ornithology, marine mammals and natural fish and shellfish resource, have been predicted to be of major adverse significance.
- 21.6. A number of residual beneficial impacts have also been identified, relating to economic and employment gains during construction and operation of the Seagreen Project. These are characterised as moderate beneficial in significance.