

Key issue 14 - Direct loss of breeding habitat used by coastal breeding birds due to the installation of shoreline wave energy converters

What are the relevant technologies and support structures?

The following technologies were identified during the assessment process to have the potential to significantly affect marine birds through direct loss of breeding habitat due to the installation of shoreline energy converters and should therefore, be subject to further investigation on a project specific basis.

Relevant technologies and support structures	Relevant features, components or activities	Phase
Wave technologies		
Oscillating water column (shoreline) Overtopping device (shoreline)	<i>Potential for loss of habitat new structures are directly installed on shoreline.</i>	Operation

What species / groups may be vulnerable?

The following species were identified during the assessment process as being particularly sensitive to loss of habitat and should therefore, be considered further on a project specific basis.

Relevant species / groups		Possible consequences
Common Eider Red-breasted Merganser Northern Fulmar Manx Shearwater European Storm-petrel Leach's Storm-petrel Northern Gannet Great Cormorant European Shag Black-headed Gull Mew Gull (Common Gull) (Western) Lesser Black-backed Gull	(Western) Herring Gull Great Black-backed Gull Black-legged Kittiwake Little Tern Sandwich Tern Common Tern Roseate Tern Arctic Tern Common Guillemot Razorbill Black Guillemot Atlantic Puffin	<i>Potential loss of breeding habitat for coastal nesting species. Impact will depend on the availability of suitable alternative habitat in the surrounding area.</i>

What species / groups are affected by which technologies and support structures

The following table provides a summary of the assessment results for each species or habitats in combination with each technology & Moorings/Support structures listed above.

Potentially significant at a 10MW scale	Unknown whether this will be significant at a 10 MW scale	Not Applicable	Assessed as not significant at a 10MW scale
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Common Name	Technology & Moorings and Support structures	
	Oscillating water column (shoreline)	Overtopping device (shoreline)
Common Eider		
Red-breasted Merganser		
Northern Fulmar		
Manx Shearwater		
European Storm-petrel		
Leach's Storm-petrel		
Northern Gannet		
Great Cormorant		
European Shag		
Black-headed Gull		
Mew Gull (Common Gull)		
(Western) Lesser Black-backed Gull		
(Western) Herring Gull		
Great Black-backed Gull		
Black-legged Kittiwake		
Little Tern		
Sandwich Tern		
Common Tern		
Roseate Tern		
Arctic Tern		
Common Guillemot		
Razorbill		
Black Guillemot		
Atlantic Puffin		

How could the issue be addressed on a project and site specific basis?

The following tables provide a series of suggested activities and recommendations that may be taken forward to address the potential for loss of habitat on marine birds for those technologies and/or support structures, and species/habitats, assessed as significant in the assessment. This information is not prescriptive and should be used as a platform for discussion on a project and site specific basis in order to develop an appropriate impact assessment strategy and monitoring programme for the project.

Single test deployments

Preliminary desk based studies

Activity	Objective	Recommendation / comment
Establish numbers of breeding birds in an area	To establish whether any bird nest sites could be affected by the proposed scheme	Use existing published information, backed up by local knowledge and data held by conservation bodies.
Undertake impact assessment	To identify any particular areas of concern regarding the proposed development and to determine what/if further baseline characterisation is required (see below).	This should follow the normal project specific EIA procedures.

Baseline characterisation surveys

Activity	Objective	Recommendation / comment
If suitable breeding habitat is present, establish which species use the site and the number of individuals breeding at the site	To confirm if any bird nest sites could be affected by the proposed scheme	Three site visits during the breeding period.

Further desk based studies

Activity	Objective	Recommendation / comment
Impact assessment	To determine, based on baseline characterisation surveys, whether or not there are likely to be any potentially significant effects on the species identified	This should follow the normal project specific EIA procedures.

Monitoring during and post installation

Activity	Objective	Recommendation / comment
No activity recommended	N/A	N/A

Demonstration arrays (up to 10MW)

Preliminary desk based studies

Activity	Objective	Recommendation / comment
Establish numbers of breeding birds in an area	To establish whether any bird nest sites could be affected by the proposed scheme	Use existing published information, backed up by local knowledge and data held by conservation bodies.
Undertake impact assessment	To identify any particular areas of concern regarding the proposed development and to determine what/if further baseline characterisation is required (see below).	This should follow the normal project specific EIA procedures.

Baseline characterisation surveys

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Further desk based studies

Activity	Objective	Recommendation / comment
Impact assessment	To determine, based on baseline characterisation surveys, whether or not there are likely to be any potentially significant effects on the species identified	This should follow the normal project specific EIA procedures

Monitoring during and post installation

Activity	Objective	Recommendation / comment
No activity recommended	N/A	N/A