EUROPA OIL & GAS (INISHKEA) LIMITED
INISHKEA PROSPECT SITE SURVEY

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

MGE0719RP0020

Europa Oil & Gas (Inishkea) Limited

Inishkea Prospect Site Survey – Response to Request for Additional Information
F02

17 January 2020

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Gareth McElhinney 17 January 2020

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1 INTRODUCTION

This document constitutes the response from Europa Oil & Gas (Inishkea) Limited ('Europa'), a wholly owned subsidiary of Europa Oil & Gas (Holdings) PLC, to the additional information requested by the EAU pursuant to regulation 42(3) of the Birds and Natural Habitats Regulations on notice dated 6th November 2019.

The EAU raised a total of 22No. requests for additional information for the purposes of carrying out a Stage 2 Appropriate Assessment.

Europa has considered all the requests for additional information raised by the EAU and presents below a detailed response to each query (see **Section 2.1** to **Section 2.22**).

2 REQUEST FOR ADDITIONAL INFORMATION

2.1 EAU Query No. 1

EAU Query

An anticipated line plan and expected line distance over which the geophysical data could be acquired including noise emissions during line turns for the proposed survey is required.

Europa Response

2.1.1 Line Plan

A line plan for provisional vessel survey lines is presented in **Figure 2.1** (survey lines are shown in red and blue). Coordinates for the line start- and end-points of the provisional vessel survey lines are presented in **Table 2-1**. Coordinates of the survey area node points illustrated in **Figure 2.1** are listed in **Table 2-2** below.

A total of 40No. provisional vessel survey lines are proposed:

- 29No. parallel 5,500 m survey lines orientated in a south-west to north-east direction (shown in red). Adjacent lines are separated by 150 m; and
- 11No. parallel 4,500 m survey lines orientated in a south-east to north-west direction (shown in blue). Adjacent lines are separated by 500 m.

Geophysical data will be acquired along survey lines using the following:

- Single-beam echosounder – hull mounted Kongsberg EA400 (or similar)
- Multi beam echosounder – hull mounted Kongsberg EM710 (or similar)
- Side Scan Sonar – towed fish – Edgetech EM400 (or similar)
- Sub-bottom Profiler– hull-mounted pinger or chirp system – Edgetech 3300 (or similar)
- Sub-bottom Profiler – 10 cu in airgun
- Magnetometer – towed fish – Geometrics G882 caesium vapour (or similar)

Provisional benthic habitat transects are shown in **Figure 2.2** (transects shown in orange, blue and red) relative to the approximate location of the well top-hole and relief well. Coordinates for the transects start- and end-points of the provisional transects are presented in **Table 2-3**. The provisional benthic habitat transects proposed comprise:

- 13No. 100 m drop down camera transects (shown in orange). Of these, 8No. orientated in a south-east to north-west direction while 5No. are orientated in a south-west to north-east direction;
- 4No. 500 m AUV transects (shown in blue); 2No. orientated in a south-east to north-west direction and 2 orientated in a south-west to north-east direction; and
- 3No. optional extended AUV transects (shown in red); 1No. 5,500 m line orientated south-west to north-east and 2No. 4,500 m lines orientated south-east to northwest.

Geophysical data will be acquired along AUV transects using:

- Multi beam echosounder – AUV mounted Simrad EM2040 (or similar);
- Side Scan Sonar – AUV mounted Tritech SeaKing (or similar); and
- Sub-bottom Profiler –AUV mounted Edgetech 2205 Chirp (or similar)

Seabed imagery will also be recorded along AUV transect lines using AUV mounted stills/ video cameras.

The identified provisional survey and transect lines may be subject to change. Final survey lines and transects will be confirmed to the PAD DCCAE prior to survey.

It should be noted that the final location of survey lines and transect lines will be affected by the accuracy (tolerance levels) of positioning equipment used during the survey, while survey operators may be required to change the final location of the survey lines and transect lines due to operational constraints (e.g. presence of seabed obstructions, inclement weather, local water currents etc.).

If the vessel appointed to undertake the survey is not equipped with an AUV, the AUV transect lines will be investigated using the vessel mounted geophysical equipment listed above. Features of note along transect lines identified using geophysical data will be visually inspected using drop down camera system deployed from the vessel.

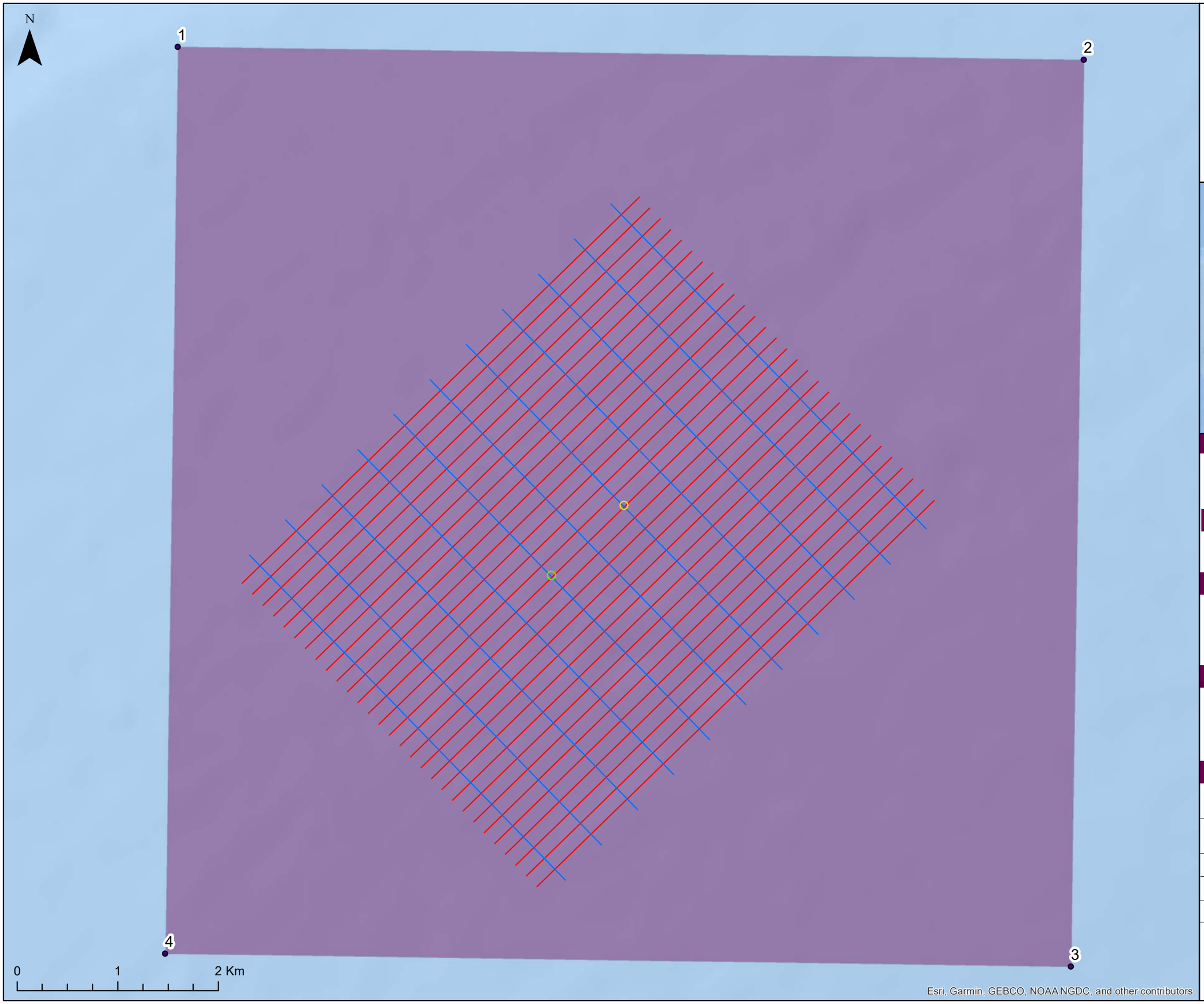
Details of seabed sampling are provided in response to **EAU Query 13** in **Section 2.13**.

2.1.2 Noise Emissions During Line Turns

Europa intends to keep all active equipment operating as normal during line-turns. The assessment of the underwater noise effects included in Sections 2.4, 3.1, 3.2 and 3.3 of the Screening for Appropriate Assessment (AA) and NIS report, as updated in **Section 2.2** of this report, will therefore apply.

No start-up will occur during hours of darkness as confirmed in **Section 2.5** below.

Where equipment must be turned off during line-turns, the start-up procedures outlined in the mitigation measures included in Section 3.3 of the *Screening for AA and NIS* Report, and reproduced in **Section 2.5.1** below will be followed.



Inishkea Survey greater working area

Survey area nodal points

Approximate location of well top-hole

Approximate location of relief well

Client

Europa Oil & Gas

Figure

2.1

Title

Provisional vessel survey lines relative to the proposed greater working area

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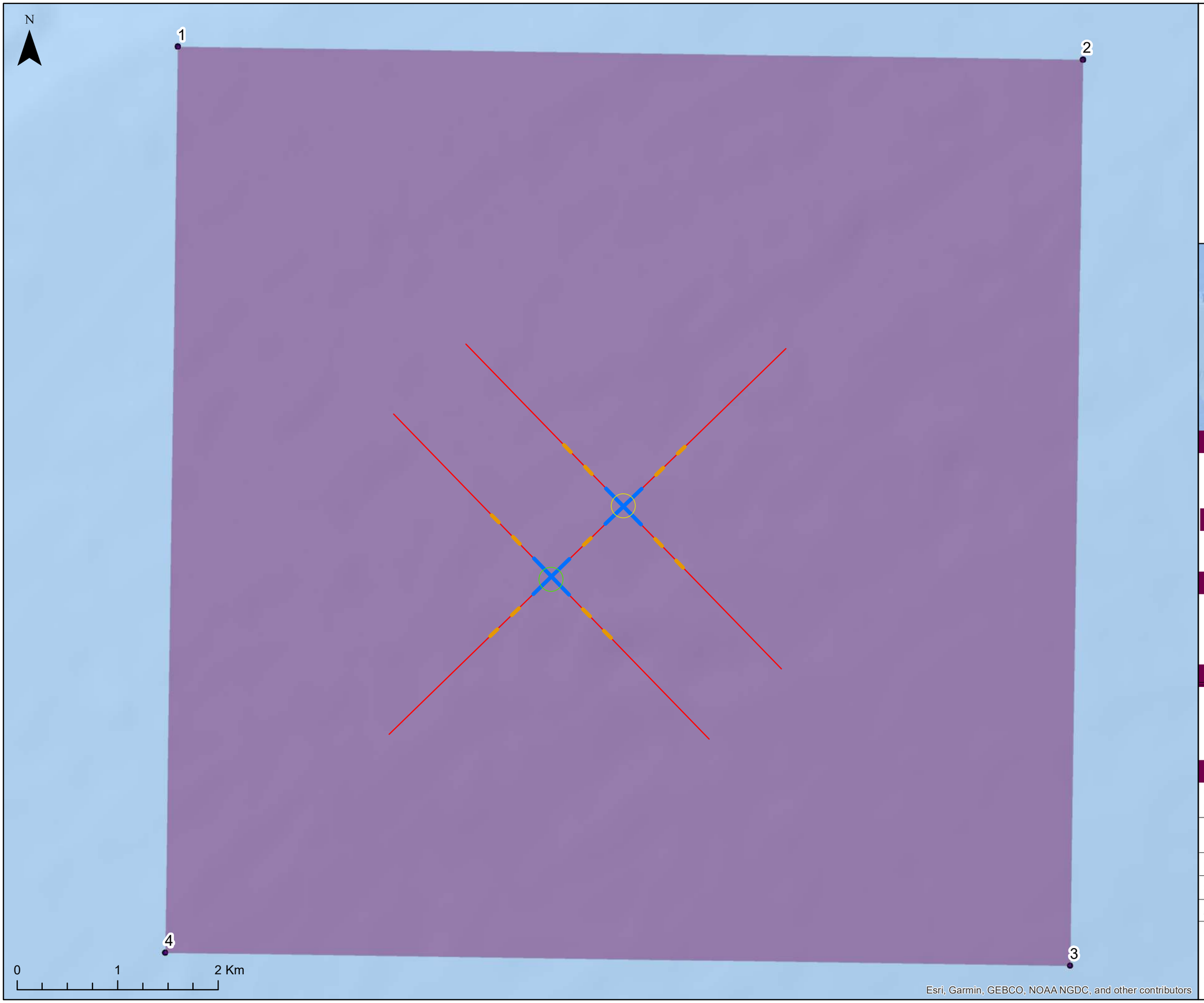
Table 2-1: Coordinates of provisional vessel line start- and end-points

Line	Start of Line		End of Line		Start of Line		End of Line	
ID	ED 50 Latitude	ED 50 Longitude	ED 50 Latitude	ED 50 Longitude	WGS 84 Latitude	WGS 84 Longitude	WGS 84 Latitude	WGS 84 Longitude
V01	54° 25' 13.069" N	11° 12' 54.541" W	54° 23' 33.396" N	11° 09' 52.717" W	54° 25' 09.739"N	11° 13' 00.691"W	54° 23' 30.066"N	11° 09' 58.859"W
V02	54° 25' 01.279" N	11° 13' 13.523" W	54° 23' 21.614" N	11° 10' 11.700" W	54° 24' 57.948"N	11° 13' 19.672"W	54° 23' 18.283"N	11° 10' 17.843"W
V03	54° 25' 24.858" N	11° 12' 35.557" W	54° 23' 45.177" N	11° 09' 33.730" W	54° 25' 21.528"N	11° 12' 41.707"W	54° 23' 41.847"N	11° 09' 39.873"W
V04	54° 24' 49.488" N	11° 13' 32.502" W	54° 23' 09.831" N	11° 10' 30.681" W	54° 24' 46.157"N	11° 13' 38.651"W	54° 23' 06.499"N	11° 10' 36.824"W
V05	54° 25' 36.646" N	11° 12' 16.569" W	54° 23' 56.958" N	11° 09' 14.740" W	54° 25' 33.318"N	11° 12' 22.719"W	54° 23' 53.629"N	11° 09' 20.883"W
V06	54° 24' 37.697" N	11° 13' 51.477" W	54° 22' 58.047" N	11° 10' 49.659" W	54° 24' 34.365"N	11° 13' 57.627"W	54° 22' 54.715"N	11° 10' 55.801"W
V07	54° 25' 48.434" N	11° 11' 57.578" W	54° 24' 08.737" N	11° 08' 55.747" W	54° 25' 45.106"N	11° 12' 03.729"W	54° 24' 05.409"N	11° 09' 01.890"W
V08	54° 24' 25.904" N	11° 14' 10.450" W	54° 22' 46.263" N	11° 11' 08.634" W	54° 24' 22.572"N	11° 14' 16.599"W	54° 22' 42.930"N	11° 11' 14.775"W
V09	54° 26' 00.220" N	11° 11' 38.585" W	54° 24' 20.516" N	11° 08' 36.751" W	54° 25' 56.893"N	11° 11' 44.735"W	54° 24' 17.188"N	11° 08' 42.895"W
V10	54° 24' 02.317" N	11° 14' 48.386" W	54° 22' 22.692" N	11° 11' 46.574" W	54° 23' 58.983"N	11° 14' 54.535"W	54° 22' 19.357"N	11° 11' 52.716"W
V11	54° 23' 53.100" N	11° 14' 51.804" W	54° 26' 02.791" N	11° 11' 23.021" W	54° 23' 49.766"N	11° 14' 57.952"W	54° 25' 59.464"N	11° 11' 29.171"W
V12	54° 23' 49.781" N	11° 14' 45.740" W	54° 25' 59.469" N	11° 11' 16.957" W	54° 23' 46.447"N	11° 14' 51.888"W	54° 25' 56.142"N	11° 11' 23.107"W
V13	54° 23' 46.461" N	11° 14' 39.676" W	54° 25' 56.146" N	11° 11' 10.892" W	54° 23' 43.127"N	11° 14' 45.824"W	54° 25' 52.819"N	11° 11' 17.042"W
V14	54° 23' 43.142" N	11° 14' 33.612" W	54° 25' 52.824" N	11° 11' 04.828" W	54° 23' 39.807"N	11° 14' 39.760"W	54° 25' 49.497"N	11° 11' 10.978"W
V15	54° 23' 33.182" N	11° 14' 15.424" W	54° 25' 42.855" N	11° 10' 46.637" W	54° 23' 29.848"N	11° 14' 21.571"W	54° 25' 39.528"N	11° 10' 52.786"W
V16	54° 23' 39.822" N	11° 14' 27.549" W	54° 25' 49.501" N	11° 10' 58.764" W	54° 23' 36.487"N	11° 14' 33.697"W	54° 25' 46.174"N	11° 11' 04.913"W
V17	54° 23' 36.502" N	11° 14' 21.486" W	54° 25' 46.178" N	11° 10' 52.700" W	54° 23' 33.168"N	11° 14' 27.634"W	54° 25' 42.851"N	11° 10' 58.849"W
V18	54° 23' 29.862" N	11° 14' 09.361" W	54° 25' 39.532" N	11° 10' 40.573" W	54° 23' 26.528"N	11° 14' 15.508"W	54° 25' 36.205"N	11° 10' 46.722"W
V19	54° 23' 26.542" N	11° 14' 03.299" W	54° 25' 36.209" N	11° 10' 34.511" W	54° 23' 23.207"N	11° 14' 09.445"W	54° 25' 32.882"N	11° 10' 40.659"W
V20	54° 23' 23.221" N	11° 13' 57.237" W	54° 25' 32.886" N	11° 10' 28.448" W	54° 23' 19.887"N	11° 14' 03.384"W	54° 25' 29.559"N	11° 10' 34.596"W
V21	54° 23' 19.901" N	11° 13' 51.176" W	54° 25' 29.563" N	11° 10' 22.386" W	54° 23' 16.567"N	11° 13' 57.322"W	54° 25' 26.236"N	11° 10' 28.533"W
V22	54° 23' 16.581" N	11° 13' 45.114" W	54° 25' 26.240" N	11° 10' 16.323" W	54° 23' 13.246"N	11° 13' 51.260"W	54° 25' 22.912"N	11° 10' 22.471"W
V23	54° 23' 13.260" N	11° 13' 39.053" W	54° 25' 22.916" N	11° 10' 10.262" W	54° 23' 09.926"N	11° 13' 45.199"W	54° 25' 19.589"N	11° 10' 16.409"W
V24	54° 23' 09.940" N	11° 13' 32.993" W	54° 25' 19.593" N	11° 10' 04.200" W	54° 23' 06.605"N	11° 13' 39.138"W	54° 25' 16.266"N	11° 10' 10.347"W
V25	54° 23' 06.619" N	11° 13' 26.932" W	54° 25' 16.269" N	11° 09' 58.139" W	54° 23' 03.285"N	11° 13' 33.077"W	54° 25' 12.942"N	11° 10' 04.286"W
V26	54° 23' 03.298" N	11° 13' 20.872" W	54° 25' 12.946" N	11° 09' 52.078" W	54° 22' 59.964"N	11° 13' 27.017"W	54° 25' 09.618"N	11° 09' 58.224"W
V27	54° 22' 59.977" N	11° 13' 14.812" W	54° 25' 09.622" N	11° 09' 46.017" W	54° 22' 56.643"N	11° 13' 20.957"W	54° 25' 06.295"N	11° 09' 52.164"W
V28	54° 22' 56.656" N	11° 13' 08.752" W	54° 25' 06.298" N	11° 09' 39.957" W	54° 22' 53.322"N	11° 13' 14.897"W	54° 25' 02.971"N	11° 09' 46.103"W
V29	54° 22' 53.335" N	11° 13' 02.693" W	54° 25' 02.974" N	11° 09' 33.896" W	54° 22' 50.001"N	11° 13' 08.837"W	54° 24' 59.647"N	11° 09' 40.042"W
V30	54° 22' 50.014" N	11° 12' 56.634" W	54° 24' 59.650" N	11° 09' 27.837" W	54° 22' 46.680"N	11° 13' 02.778"W	54° 24' 56.323"N	11° 09' 33.982"W
V31	54° 22' 46.693" N	11° 12' 50.575" W	54° 24' 56.326" N	11° 09' 21.777" W	54° 22' 43.359"N	11° 12' 56.718"W	54° 24' 52.998"N	11° 09' 27.922"W
V32	54° 22' 43.372" N	11° 12' 44.516" W	54° 24' 53.002" N	11° 09' 15.718" W	54° 22' 40.037"N	11° 12' 50.659"W	54° 24' 49.674"N	11° 09' 21.863"W
V33	54° 22' 40.050" N	11° 12' 38.458" W	54° 24' 49.678" N	11° 09' 09.658" W	54° 22' 36.716"N	11° 12' 44.601"W	54° 24' 46.350"N	11° 09' 15.803"W

Line	Start of Line		End of Line		Start of Line		End of Line	
ID	ED 50 Latitude	ED 50 Longitude	ED 50 Latitude	ED 50 Longitude	WGS 84 Latitude	WGS 84 Longitude	WGS 84 Latitude	WGS 84 Longitude
V34	54° 22' 36.729" N	11° 12' 32.400" W	54° 24' 46.353" N	11° 09' 03.600" W	54° 22' 33.395"N	11° 12' 38.543"W	54° 24' 43.026"N	11° 09' 09.744"W
V35	54° 22' 33.407" N	11° 12' 26.342" W	54° 24' 43.029" N	11° 08' 57.541" W	54° 22' 30.073"N	11° 12' 32.485"W	54° 24' 39.701"N	11° 09' 03.685"W
V36	54° 22' 30.086" N	11° 12' 20.285" W	54° 24' 39.704" N	11° 08' 51.483" W	54° 22' 26.751"N	11° 12' 26.427"W	54° 24' 36.377"N	11° 08' 57.627"W
V37	54° 22' 26.764" N	11° 12' 14.227" W	54° 24' 36.380" N	11° 08' 45.425" W	54° 22' 23.429"N	11° 12' 20.369"W	54° 24' 33.052"N	11° 08' 51.569"W
V38	54° 22' 23.442" N	11° 12' 08.170" W	54° 24' 33.055" N	11° 08' 39.367" W	54° 22' 20.108"N	11° 12' 14.312"W	54° 24' 29.727"N	11° 08' 45.511"W
V39	54° 22' 20.120" N	11° 12' 02.114" W	54° 24' 29.730" N	11° 08' 33.310" W	54° 22' 16.786"N	11° 12' 08.255"W	54° 24' 26.403"N	11° 08' 39.453"W
V40	54° 24' 14.111" N	11° 14' 29.419" W	54° 22' 34.478" N	11° 11' 27.605" W	54° 24' 10.778"N	11° 14' 35.568"W	54° 22' 31.144"N	11° 11' 33.747"W

Table 2-2: Coordinates of survey area node points.

Node Point	ED 50 Latitude	ED 50 Longitude	WGS 84 Latitude	WGS 84 Longitude
1	54° 26' 44.1219" N	11° 15' 40.9824" W	54° 26' 40.7924" N	11° 15' 47.1389" W
2	54° 26' 53.1829" N	11° 07' 21.7237" W	54° 26' 49.8607" N	11° 07' 27.8717" W
3	54° 22' 02.2051" N	11° 07' 06.7042" W	54° 21' 58.8742" N	11° 07' 12.8399" W
4	54° 21' 53.1710" N	11° 15' 24.9835" W	54° 21' 49.8327" N	11° 15' 31.1277" W



Inishkea Survey greater working area

Survey area nodal points

Drop down camera transect

500 m AUV transect

Optional AUV transects

Approximate location of well top-hole

Approximate location of relief well

Client

Europa Oil & Gas

Figure

2.2

Title

Provisional benthic transect lines relative to the proposed greater working area

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Table 2-3: Coordinates of provisional benthic transect line start- and end-points

Transect		Start of Line		End of Line		Start of Line		End of Line	
ID	Transect Type	ED 50 Latitude	ED 50 Longitude	ED 50 Latitude	ED 50 Longitude	WGS 84 Latitude	WGS 84 Longitude	WGS 84 Latitude	WGS 84 Longitude
V01	Drop down camera	54° 23' 49.064" N	11° 12' 18.634" W	54° 23' 46.707" N	11° 12' 20.532" W	54° 23' 45.732"N	11° 12' 24.780"W	54° 23' 43.374"N	11° 12' 28.575"W
V02	Drop down camera	54° 23' 39.634" N	11° 12' 33.814" W	54° 23' 41.991" N	11° 12' 31.916" W	54° 23' 36.301"N	11° 12' 39.959"W	54° 23' 38.659"N	11° 12' 36.165"W
V03	Drop down camera	54° 24' 10.281" N	11° 11' 44.474" W	54° 24' 12.638" N	11° 11' 42.575" W	54° 24' 06.950"N	11° 11' 50.619"W	54° 24' 09.308"N	11° 11' 46.823"W
V04	Drop down camera	54° 24' 43.277" N	11° 10' 51.321" W	54° 24' 40.920" N	11° 10' 53.220" W	54° 24' 39.947"N	11° 10' 57.467"W	54° 24' 37.590"N	11° 11' 01.265"W
V05	Drop down camera	54° 24' 36.206" N	11° 11' 02.714" W	54° 24' 33.849" N	11° 11' 04.613" W	54° 24' 32.876"N	11° 11' 08.860"W	54° 24' 30.519"N	11° 11' 12.658"W
V06	Drop down camera	54° 23' 40.848" N	11° 11' 27.216" W	54° 23' 43.062" N	11° 11' 29.235" W	54° 23' 37.516"N	11° 11' 33.360"W	54° 23' 39.731"N	11° 11' 37.400"W
V07	Drop down camera	54° 23' 47.492" N	11° 11' 39.334" W	54° 23' 49.707" N	11° 11' 41.354" W	54° 23' 44.161"N	11° 11' 45.479"W	54° 23' 46.375"N	11° 11' 49.519"W
V08	Drop down camera	54° 24' 04.414" N	11° 10' 49.258" W	54° 24' 06.629" N	11° 10' 51.278" W	54° 24' 01.084"N	11° 10' 55.403"W	54° 24' 03.299"N	11° 10' 59.443"W
V09	Drop down camera	54° 24' 11.059" N	11° 11' 01.377" W	54° 24' 13.275" N	11° 11' 03.397" W	54° 24' 07.729"N	11° 11' 07.522"W	54° 24' 09.944"N	11° 11' 11.562"W
V10	Drop down camera	54° 24' 18.496" N	11° 12' 35.903" W	54° 24' 16.281" N	11° 12' 33.883" W	54° 24' 15.164"N	11° 12' 42.050"W	54° 24' 12.950"N	11° 12' 38.009"W
V11	Drop down camera	54° 24' 11.853" N	11° 12' 23.779" W	54° 24' 09.638" N	11° 12' 21.759" W	54° 24' 08.521"N	11° 12' 29.926"W	54° 24' 06.307"N	11° 12' 25.885"W
V12	Drop down camera	54° 24' 42.068" N	11° 11' 57.947" W	54° 24' 39.853" N	11° 11' 55.927" W	54° 24' 38.738"N	11° 12' 04.095"W	54° 24' 36.523"N	11° 12' 00.053"W
V13	Drop down camera	54° 24' 35.424" N	11° 11' 45.823" W	54° 24' 33.209" N	11° 11' 43.803" W	54° 24' 32.094"N	11° 11' 51.970"W	54° 24' 29.879"N	11° 11' 47.929"W
V14	AUV 500 m transect	54° 24' 29.135" N	11° 11' 14.106" W	54° 24' 17.349" N	11° 11' 23.598" W	54° 24' 25.805"N	11° 11' 20.252"W	54° 24' 14.019"N	11° 11' 39.236"W
V15	AUV 500 m transect	54° 24' 17.705" N	11° 11' 13.497" W	54° 24' 28.780" N	11° 11' 23.599" W	54° 24' 14.374"N	11° 11' 19.643"W	54° 24' 25.449"N	11° 11' 39.847"W
V16	AUV 500 m transect	54° 24' 05.567" N	11° 11' 52.066" W	54° 23' 53.779" N	11° 12' 01.555" W	54° 24' 02.235"N	11° 11' 58.211"W	54° 23' 50.447"N	11° 12' 17.190"W
V17	AUV 500 m transect	54° 23' 54.136" N	11° 11' 51.454" W	54° 24' 05.209" N	11° 12' 01.555" W	54° 23' 50.805"N	11° 11' 57.600"W	54° 24' 01.878"N	11° 12' 17.803"W
V18	AUV extended transect - optional	54° 23' 06.619" N	11° 13' 26.932" W	54° 25' 16.269" N	11° 11' 42.535" W	54° 23' 03.285"N	11° 13' 33.077"W	54° 25' 12.942"N	11° 10' 04.286"W
V19	AUV extended transect - optional	54° 25' 13.069" N	11° 12' 54.541" W	54° 23' 33.396" N	11° 11' 23.629" W	54° 25' 09.739"N	11° 13' 00.691"W	54° 23' 30.066"N	11° 09' 58.859"W
V20	AUV extended transect - optional	54° 24' 49.488" N	11° 13' 32.502" W	54° 23' 09.831" N	11° 12' 01.591" W	54° 24' 46.157"N	11° 13' 38.651"W	54° 23' 06.499"N	11° 10' 36.824"W

2.2 EAU Query No. 2

EAU Query

Additional details as to the expected noise emissions from the equipment proposed, including peak source levels and references for these details is required;

Europa Response

To inform the assessment of survey noise impacts, an underwater noise modelling exercise was undertaken to predict the likely noise output levels generated by the proposed equipment. The modelled noise output levels, i.e. Source Level (SPL) (SEL dB re 1µPa^{2}s @ 1m) and Source Level (Peak) (dB re 1µPa@ 1m), were calculated based on the operating frequencies and peak output levels of the proposed equipment. Table 2.5 of the *Screening for AA and NIS* Report lists the operating frequencies of the equipment. The peak source outputs of the equipment used in the modelling exercise were obtained from a number of data sources including RPS' historical database of underwater survey equipment. The modelled noise output levels were used to determine the likely spatial area (or potential impact zones) around the survey within which noise emissions may exceed thresholds of potential injury and behavioural effects in fauna.

The noise modelling exercise presented in the *Screening for AA and NIS* Report has been revised based on current best available information on the peak source outputs for the proposed equipment (see **Table 2.4** below), while revised potential impact zones are presented in **Table 2 5**.

It should be noted that while the revised potential impact zones differ from those detailed in the *Screening for AA and NIS* Report, the differences are not significant, and all potential impacts will be confined to an area close to the source.

Table 2-4: Peak source level outputs of equipment

Vessel Mounted/ Towed Equipment	Model	Peak source outputs dB re 1 µPa	Data Source
SBES	Hull mounted Kongsberg EA400 or similar (35 kHz – 200 kHz or similar)	240*	Calculated from Kongsberg EA400 Operator Manual 857-160981
MBES	Hull-Mounted Swathe Multibeam Kongsberg EM710 or similar (70 kHz – 100 kHz or similar)	232*	EM Technical note on sound levels from Kongsberg Multibeams, 2005 https://kmdoc.kongsberg.com/ks/web/nokbg0397.nsf/AllWeb/DE3B0D5A997BE98EC1257B58004502AB/$file/EM_technical_note_web_SoundLevelsFromKongsbergMultibeams.pdf?OpenElement
SSS	Towed Fish – Edgetech EM400 or similar (Dual frequency – 100 kHz/500 kHz or similar)	211*	Calculated from Edgetech 4125 Series Dual Frequency Side Scan Sonar System User's Manual Document No. 990-4125MAN-1000 Rev. D
SBP	Hull-mounted pinger or chirp system – Edgetech 3300 or similar (1-16 kHz or similar)	212*	Edgetech User's Hardware Manual May 2007 Rev 2.1
SBP	10 cu in Airgun	180	Hermannsen L, Tougaard J, Beedholm K, Nabe-Nielsen J, Madsen PT (2015) characteristics and Propagation of Airgun Pulses in Shallow Water with Implications for Effects on Small Marine Mammals. PLoS ONE 10(7): e0133436. doi:10.1371/journal.pone.0133436
USBL (topside)	Hull mounted HiPAP 502 USBL or similar	203*	Kongsberg HiPAP Product Description 400578/D 2016
Magnetometer	Towed fish – Geometrics G882 caesium vapour or similar	n/a	n/a
AUV Mounted Equipment	Model		
MBES	AUV mounted Simrad EM2040 or similar (300 kHz or similar)	218*	Kongsberg EM2040 Instruction Manual 346210/C

SBP	AUV-Mounted Edgetech 2205 Chirp or similar (1-16 kHz or similar)	202*	Edgetech product manual
SSS	AUV-Mounted Tritech Seaking (Dual frequency - 200 kHz/550 kHz or similar)	208*	Tritech Seaking Operators Manual Issue 3
Stills/ video camera	TBC	n/a	n/a
Seabed Sampling Equipment	Model		
Core/ grab sampler	TBC	n/a	n/a
Seabed Imaging Equipment	Model		
Drop-down Camera	TBC	n/a	n/a
Positioning Equipment	Model		
USBL (seabed)	HiPAP 502 USBL or similar	190*	Kongsberg HiPAP Product Description 400578/D 2016

Notes: * Lurton (2016)[1] sets out how the duty cycle and limited spatial coverage limit the impact of directional echosounders and concludes that impacts in terms of injury are negligible for both SPL and SEL.

[1] Lurton, X., (2016) Modelling the sound field radiated by multibeam echosounders for acoustical impact assessment, Applied Acoustics, 101 p201-221

Table 2-5: Revised zone of potential impact

Species	Criteria		Impact Zone Surface	Impact Zone AUV	Impact Zone Seabed
	dB re 1 µPa(peak)(flat)	SEL_{cum} dB re 1 µPa²-s	m	m	m
Low Frequency Cetaceans (PTS)[1]	219	183	24	-	-
Mid Frequency Cetaceans (PTS)[1]	230	185	2	-	-
High Frequency Cetaceans (PTS)[1]	202	155	201	16	3
Phocid Pinnipeds (PTS)[1]	218	185	6	-	-
Otariid Pinnipeds (PTS)[1]	232	203	-	-	-
Marine Mammal Disturbance[1]	160 dB RMS	re 1 µPa	200	6	-
Mortality/PMI Fish Eggs and Larvae[2]	207	210	2	-	-
Mortality/PMI in adult Fish (swim bladder)[2]	207	207	2	-	-
Mortality/PMI Sea Turtles[2]	207	210	2	-	-

- indicates the threshold for the species was not exceeded

1 NOAA 2018 thresholds

2 Popper et al. (2014) Mortality and potential mortal injury thresholds for seismic sources, based on worst-case (lower threshold) the threshold for Mid-Frequency Sonar is significantly higher at >210 dB rms

2.3 EAU Query No. 3

EAU Query

Details on the anticipated survey vessel that the appointed Furgo survey teams will use to undertake survey are required

Europa Response

While not yet confirmed it is likely that the M.V. Fugro Venturer will be used for the survey activities. A specifications sheet for the M.V. Fugro Venturer is included in **Appendix B** of this report.

Once the survey vessel is appointed/ confirmed, details of the vessel will be made available to the PAD DCCAE.

2.4 EAU Query No. 4

EAU Query

Consistency between submitted documentation in regard to the equipment proposed and its output sound levels to ensure that all documentation is accurate and complete.

Europa Response

The response to EAU Query No. 2 in **Section 2.2** above presents updated information on equipment and output sound levels.

2.5 EAU Query No. 5

EAU Query

Clarification is needed as to what methods will be used when a start is anticipated during the hours of darkness and what would happen should there be a break in sound during the hours of darkness

Europa Response

There will be no start-up during hours of darkness including in circumstances where there is a break in sound. The project will be undertaken in accordance with the *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014), which stipulates that sound-producing survey activities will only be commenced '*when visual conditions are conducive to effective monitoring and outside of the hours of darkness'*. Details on these measures are contained in the following information, previously submitted to the DCCAE:

- Appendix A Mitigation Measures of the Survey Technical Specifications Report; and
- Section 3.3 Mitigation Measures to be undertaken from the *Screening for AA and NIS* Report.

For the purposes of clarity, the mitigation measures above have been reproduced below.

2.5.1 Mitigation Measures to be Undertaken

2.5.1.1 Introduction

Under Section 2.1 of the Rules and Procedures (PAD, 2007a [draft updated 2014]) applicants are required to submit an Application for Approval to PAD to conduct any Geophysical or other Exploration Survey, Site Survey or Route Survey prior to the planned commencement of the survey. This should include information on the specific impact mitigation and monitoring practices that will be applied during the survey in relation to marine mammals.

Operators are required to ensure that current best industry practices are applied with regard to impact mitigation and monitoring measures in relation to marine mammals. In line with this requirement, the proposed survey will adhere to DAHG *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014) and recommendations from PAD and NPWS, in relation to the separation distance between the concurrent acoustic surveys.

2.5.1.2 DAHG 2014 Guidance

DAHG (2014) protective measures will be implemented during the Inishkea Survey. DAHG (2014) measures include the use of Marine Mammal Observers (MMOs) and operational protocols; these measures are summarised below. Sound-producing survey activity shall not commence until all protective measures (including monitoring measures and ramp-up procedures) outlined in DAHG (2014) have been successfully completed.

MMO Requirements:

- Qualified MMOs to be appointed to monitor marine mammals and operator's

implementation of the DAHG guidance.

Pre-Start Monitoring:

- Pre-start monitoring will only be undertaken when visual conditions are conducive to effective monitoring and outside of the hours of darkness. Sound producing activity will only commence where the required pre-start monitoring periods have elapsed with no marine mammals detected within the monitored zones by the MMO.
- Airgun operations will not commence if marine mammals are detected within 1,000 m radius of the sound source, while in the case of MBES, SBES, SSS, SBP and USBL, operations will not commence if marine mammals are detected within 500 m of the sound source.
- Sound-producing survey activities will only be commenced in daylight hours where effective visual monitoring, as determined by the MMO, can be achieved.
- Airgun operations in waters < 200 m and > 200 m, the MMO will conduct pre-start-up constant effort monitoring for 30 and 60 minutes respectively before the sound-producing activity is due to commence. Sound-producing activity will not commence until monitoring period have elapsed with no marine mammals detected within the monitored zones by the MMO.
- In the case of site survey operations in < 200 m survey operations the MMO will conduct pre-start-up constant effort monitoring for 30 minutes before the sound-producing activity is due to commence.
- Pre-Start Monitoring shall subsequently be followed by a Ramp-Up Procedure.

Ramp-up Procedure:

- Commencement of sound-producing survey activities will be undertaken using a 'soft-start' (ramp-up and gradual increase in energy/noise source) procedure for any equipment where the output peak SPL. exceeds 170 dB re 1µPa @ 1 m. The build-up of acoustic energy output will occur in consistent stages to provide a steady and gradual increase in power over a period of 40 minutes in the case of airgun operations and 20 mins in the case of MBES, SBES, SSS, SBP and USBL. Where the power of acoustic noise sources cannot be increased gradually, due to operational parameters of the device, the device will be switched "on and 'off" in a consistent sequential manner for the duration of the defined ramp-up period prior to commencement of the full necessary output;
- Where a soft-start procedure is employed, the delay between the end of the soft-start and the start of the survey will be minimised to prevent unnecessary high-level sound introduction;

Breaks in Sound:

- Where there is a break in sound output (e.g. in the event of equipment failure, shut-down etc.) from the airgun acoustic sources for a period of 5 – 10 minutes, MMO monitoring must be undertaken to check that no marine mammals are observed within the monitored zone prior to recommencement of the sound source at full power.
- Where a marine mammal is observed within the monitored zone during such a break, then all Pre-Start Monitoring and a subsequent Ramp-up Procedure (where appropriate

following Pre-Start Monitoring) shall recommence as in a normal start-up operation.

- If there is a break in sound output for a period greater than 10 minutes (e.g., due to equipment failure, shut-down, survey line or station change) then all Pre-Start Monitoring and a subsequent Ramp-up Procedure (where appropriate following Pre-Start Monitoring) must be undertaken.
- Where there is a break in sound output during operations for a period greater than 30 minutes, all soft-start procedures must be undertaken before activity can recommence.

Passive acoustic monitoring

- In addition to the above measures, MMOs will use passive acoustic monitoring (PAM) to optimise marine mammal detection around the survey.

Reporting:

- Full reporting on MMO operations and mitigation undertaken will be provided to the Regulatory Authority.

2.5.1.3 PAD/ NPWS Guidance

In line with current recommendations from PAD and NPWS, Europa will maintain a 100 km separation distance between any concurrent acoustic surveys that may be operating. Implementing a 100 km separation zone between concurrent acoustic survey operations will ensure in-combination effects from noise generating equipment are avoided. Europa are in regular communication with operators proposing to undertake operations offshore Ireland in 2019. Survey operations will be coordinated to ensure a 100 km separation is maintained between surveys during concurrent geophysical operations.

2.5.1.4 Monitoring and Reporting to be Undertaken

To meet DAHG (2014) requirements MMOs are required to complete daily logs. These logs must detail the testing and operation of all relevant sound-producing equipment/ activities and record all marine mammal detections. Reporting must follow the standard data forms included in Appendix 6 of DAHG 2014 and be reported to the relevant Regulatory Authority within 30 days of completion of the relevant survey.

2.6 EAU Query No. 6

EAU Query

Confirmation is required as to why the Blacksod Bay/ Broadhaven SPA [004037] is no longer included within the screening

Europa Response

The Blacksod Bay/ Broadhaven SPA [004037] is included in the screening assessment contained in **Appendix A** of this report.

2.7 EAU Query No. 7

EAU Query

Clarification that reliance has been made on the implementation of mitigation and monitoring measures, such as application of separation distances with other projects to avoid in-combination effects among others to arrive at the conclusion that there would be no LSE on the Natura Sites.

Europa Response

Europa confirms that the conclusion of no LSE on the Natura 2000 Sites relies on the implementation of mitigation and monitoring measures as set out in the *Screening for AA and NIS* report and this response document. This includes the implementation of mitigation and monitoring measures related to the application of separation distances to other oil and gas exploration projects to conclude there will be no LSE on Natura Sites resulting from in-combination effects.

2.8 EAU Query No. 8

EAU Query

The assessment of Annex II and IV species should be included in the NIS for completeness.

Europa Response

An assessment of the Annex II and Annex IV species is included in **Section 2.21**. Consideration has been given to all annex species across SACs and details on the sites considered including their QIs and connectivity between sites has been included in **Appendix A** of this report.

2.9 EAU Query No. 9

EAU Query

Confirmation as to whether any management plans exist for any of the European sites identified must be provided.

Europa Response

No management plans exist for any of the European sites identified. A full review of European sites and their conservation objectives series reports has been carried out. Details on the sites along the western seaboard in Ireland and closest to the survey areas are included in **Appendix A**.

2.10 EAU Query No. 10

EAU Query

Confirmation that the Management Plans for each SAC / SPA have been checked.

Europa Response

All management plans published by the NPWS have been reviewed. No management plans exist for any of the European sites identified.

The conservation objectives series for each site have been checked. A full review of European sites and their conservation objectives series reports has been carried out. Details on the sites along the western seaboard in Ireland and closest to the survey areas are included in **Appendix A**.

2.11 EAU Query No. 11

EAU Query

How the zone of impact surrounding the AUV will be monitored during operation of the AUV has not been addressed. The report has stated that the maximum radius of impact is in close proximity to the vessel, although it is 6 m from the autonomous underwater vehicle (AUV), but no mitigation is currently proposed for potential effects within this area when the AUV is deployed and operational. Please clarify.

Europa Response

Given the water depths at which the AUV will be operating (approximately 400 m – 500 m) it is not technically feasible to propose specific measures to monitor the area immediately surrounding the AUV during operations.

The risk of potential impact to marine mammals from AUV operations will be managed through the implementation of current best industry practice during the proposed survey including DAHG *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014) and recommendations from PAD/ NPWS, regarding the separation distance between concurrent acoustic surveys. Refer to EAU Query No.5 in **Section 2.5** for further details.

In accordance with DAHG (2014) guidance all sound-producing survey activity proposed for the Inishkea Survey including AUV operations shall not commence until all protective measures including pre-start visual monitoring measures and ramp-up procedures have been successfully completed. Of particular relevance to the management of potential impacts to marine mammals from AUV operations is the use of ramp-up procedures of all equipment mounted on the AUV. The ramp-up procedures will be implemented to encourage mammals to leave the area of the sound sources before the sources reach full power, thereby effectively minimising the potential for individual marine mammals to be found in close proximity to the AUV during start-up operations and within the zones of impact. The visual monitoring described in DAHG (2014) guidance will be supplemented by passive acoustic monitoring (PAM). While PAM is not a primary mitigation measure, it will be used to detect actively vocalising marine mammals. Where marine mammals are detected using PAM during the pre-start monitoring period, equipment ramp-up procedures, and ensuing sound-producing survey activity shall not be undertaken.

2.12 EAU Query No. 12

EAU Query

Up to date information in regard to the survey operations proposed by schemes considered in combination with the Inishkea survey should be provided.

Europa Response

The list of projects proposed for 2019 considered in combination with the Inishkea Survey operations is presented in Section 2.4.4, Table 2.12 and Section 3.2.4, Table 3.4 of the *Screening for AA and NIS* Report. The list of projects considered was, in part, based on publicly available information of oil and gas surveys published on the DCCAE website at the time of submission of the Inishkea Survey application to the PAD (14 May 2019). Additional details of oil and gas surveys that informed the assessment of in-combination effects were provided to Europa either directly by operators as part of the communications regarding the coordination of vessel operations and survey activities or through the Irish Offshore Operators Association which provides a forum for the discussion and exchange of information with respect to operations planned by the oil and gas operators active in the Irish offshore. The assessment of potential in-combination impacts also considered the Western European Shelf Pelagic Acoustic Survey (WEPAS) proposed by the Marine Institute. Details of the Marine Institute survey were obtained during fisheries consultations.

Since the submission of the Inishkea Survey application, details of CNOOC's proposed survey activity at the Slyne/ Erris Basin have been published on the DCCAE website while an application previously submitted by ENI Ireland BV has been withdrawn and the Marine Institute acoustic fisheries survey has been completed. In addition, NEXEN/ CNOOC have completed exploratory drilling operations at the Iolar prospect in the Porcupine Basin while Exola DAC have been granted approval for seabed debris clearance, environmental baseline and habitat assessment site survey operations at the Barryroe field. More recently, PSE Kinsale Energy submitted an application for approval for the decommissioning of certain facilities of the Kinsale Head gas fields.

Table 2-6 below provides a summary of up to date information of schemes proposed for 2019/ 2020 known at the time of writing. It should be noted that the only source of impact from the proposed survey that has the potential to result in significant effects is underwater noise generated by geophysical survey and positioning equipment. The receptors of concern are Article 12 and Annex II marine mammal species. The assessment of in-combination effects considers activities proposed by other planned operations that may act in-combination with underwater noise generated by the Inishkea Survey to result in likely significant effects. The potential effects associated with the above oil and gas operations are the same as those effects described above for the Inishkea Survey. To minimise and/ or eliminate potential effects of the Inishkea Survey on marine mammals the Inishkea Survey will implement mitigation measures detailed in DAHG (2014) and summarised in **Section 2.5** above.

In summary, sound-producing survey activity shall not commence until protective measures (including monitoring measures and ramp-up procedures) have been successfully completed. In addition, Europa will maintain a 100 km separation distance from concurrent acoustic surveys thereby eliminating potential in-combination noise effects.

Table 2-6: Other offshore activities and potential for in-combination effect with the proposed Inishkea Survey

Operator	Location	Activity Description	Potential In-combination effects?	Approximate distance from proposed Inishkea Survey
Vermillion	Corrib Gasfield Slyne Basin	The Vermillion 2019 survey programme will involve: • Subsea inspection and maintenance and infrastructure renewal survey programme of the subsea facilities using ROV and vessel mounted equipment. • Repair programme to the Corrib Central Manifold P3 wellhead, which will require the opening of the wellhead protection cover. No use of acoustic survey equipment is planned during the repair programme at P3	**Yes** Noise generated by geophysical equipment proposed for the Vermillion survey may act in-combination with the Inishkea Survey to result in likely significant effect to marine mammal Qualifying Features. Geophysical equipment proposed include MBES, SBP, SSS, sound velocity probes. Europa are in communication with Vermillion to ensure operations are coordinated.	The proposed Inishkea Survey area is approximately 4 km north-west of the western-most end of the Corrib gas pipeline.
CNOOC	Slyne/ Erris Basin and surrounding continental shelf	CNOOC plan to conduct a 2D HR (2-Dimensional High Resolution) seismic data acquisition and, geophysical and environmental site survey. The name of the proposed CNOOC survey is the Edge Survey. The Edge site survey is located to the east of the proposed Inishkea Survey GWA in the Slyne/ Erris Basin area.	**Yes** The Edge Survey will comprise: • acquisition of 300 km of 2D HR seismic data; and, • geophysical site survey data over approximately 40 km^2 using: - single-beam echosounder (SBES), multi-beam echosounder (MBES) and sub-bottom profiler (SBP) equipment mounted on a survey vessel plus towed equipment such as second sub-	The proposed Inishkea Survey area is approximately 1.1 km from the proposed Edge Survey area.

Operator	Location	Activity Description	Potential In-combination effects?	Approximate distance from proposed Inishkea Survey
			bottom profiler (SBP), magnetometer and side scan sonar (SSS), or - remotely operated vehicle (ROV)/ autonomous underwater vehicle (AUV) with MBES, SBP, magnetometer and SSS plus towed equipment such as second SBP. • Europa are in communication with CNOOC to ensure operations are coordinated.	
Europa	Porcupine Basin	Planned site survey operations over the Kiely East and Edgeworth prospects over 350 km to the South of the Inishkea Survey GWA.	**Yes** The same survey vessel and geophysical equipment will be used for site surveys at Inishkea, Kiely East and Edgeworth. While Europa will not be undertaking concurrent survey operations at Inishkea, Kiely East and Edgeworth, and despite the considerable distance between the survey areas, there is potential for in-combination effects to marine mammal species.	The Kiely East and Edgeworth prospects are located over approximately 350 km south of the proposed Inishkea Survey area.
Exola	North Celtic Sea	Exola plan to conduct a seabed debris clearance, environmental baseline and habitat assessment site survey over the area of the Barryroe field in the North Celtic Sea Basin	**Yes** The site survey will comprise a seabed and shallow geophysical survey and an environmental baseline and habitat assessment survey. There is potential that noise	The Barryroe licence area is located over 400 km south-west of the proposed Inishkea Survey area.

Operator	Location	Activity Description	Potential In-combination effects?	Approximate distance from proposed Inishkea Survey
			generated by geophysical equipment may this equipment may act in-combination with the Inishkea Survey to result in likely significant effect to marine mammals.	
HAVFRUE	Slyne Basin and surrounding continental shelf	Construction of the HAVFRUE Telecommunications cable system by TE SubCom off the Mayo coast to the south of the proposed Inishkea Survey GWA. During 2019 TE SubCom plan to undertake cable laying operations.	**No** As there are no geophysical operations proposed, no likely significant effect to Natura 2000 sites arising from in combination effects are predicted. While no in combination effects are anticipated, Europa are in regular communication with TE SubCom to ensure operations are coordinated.	The proposed HAVFRUE cable will be located approximately 3.2 km south west of the Inishkea Survey area.
PSE Kinsale Energy and PSE Seven Heads Limited	North Celtic Sea	Decommissioning of Kinsale Head and Seven Head Facilities specifically the plugging and abandoning of development wells; the removal of two platform topsides structures; and the removal of a number of subsea facilities.	**Yes** The decommissioning activity will result in the generation of noise that may act in-combination with the to result in likely significant effect to marine mammals.	The Kinsale Head and Seven Head Facilities are located over 360 km south-east the proposed Inishkea Survey area.
PSE Kinsale Energy	North Celtic Sea	Decommissioning of certain facilities within the Kinsale Head Petroleum Lease area specifically removal of the Kinsale Alpha and Kinsale Bravo platform sub-structures (jackets) and all associated works.	**Yes** The decommissioning activity will result in the generation of noise that may act in-combination with the Inishkea Survey to result in likely significant effect to marine mammals.	The Kinsale Head Petroleum Lease area is located over 360 km south-east the proposed Inishkea Survey area.

2.13 EAU Query No. 13

EAU Query

Additional information on seabed sampling approach must be provided (including number of reference stations, anticipated number of seabed samples and amount of sediment to be removed that is being collected at each sample station (including reference stations) to acquire the analysis listed in the application

Europa Response

Seabed samples will be retrieved at approximately 16No. stations as follows:

- 7No. seabed sampling stations located adjacent to the provisionally proposed well top hole to be sampled using a Van Veen grab/ Day grab;
- 1No. seabed sampling station located near the provisionally proposed well top-hole to be sampled using a gravity core;
- 7No. seabed sampling stations located adjacent to the provisionally proposed relief well to be sampled using a Van Veen grab/ Day grab; and
- 1No. seabed sampling station located near the provisionally proposed relief well to be sampled using a gravity core.

The location of the provisional grab sampling stations are shown in **Figure 2.3** relative to the approximate location of the well top-hole and relief well. Coordinates of the provisional grab sampling stations are presented in **Table 2-7**. In **Figure 2.3** grab sampling station at the well top-hole are labelled TH1 – TH7 and RW1 – RW7 at the relief well. Provisional gravity core sampling stations at the proposed well top-hole and relief well have yet to be identified. Approximate locations of the well top-hole and relief well are shown in **Figure 2.3**. Approximate core sampling stations, labelled TH8 and RW8 respectively, are also shown in **Figure 2.3**.

Prior to undertaking seabed sampling operations, the sampling stations will be visually inspected using AUV mounted cameras and/ or drop-down camera systems to ensure the areas to be sampled do not support protected sensitive habitats including Habitats Directive Annex I Habitats (e.g. Reef [1170] – geogenic and biogenic reef). Where the proposed sampling stations support sensitive habitats, alternative sampling stations with no protected sensitive habitats will be identified and sampled. The pre-sampling inspection of sampling stations will ensure that protected sensitive habitats are not impacted by deployed seabed samplers.

At each grab sampling station, sediment samples will be recovered using 0.25m^2 Van Veen or 0.25m^2 Day grab. The typical footprint of the grab samplers to be used is approximately 1 m^2. Three replicate grab sediment samples, each measuring a maximum of approximately 10 litres, will be recovered and retained to characterise the biological baseline environment. An additional single sediment grab will be recovered for physico-chemical analysis. From this grab triplicate sediment subsamples (each measuring approximately 0.5 litre) will be retained.

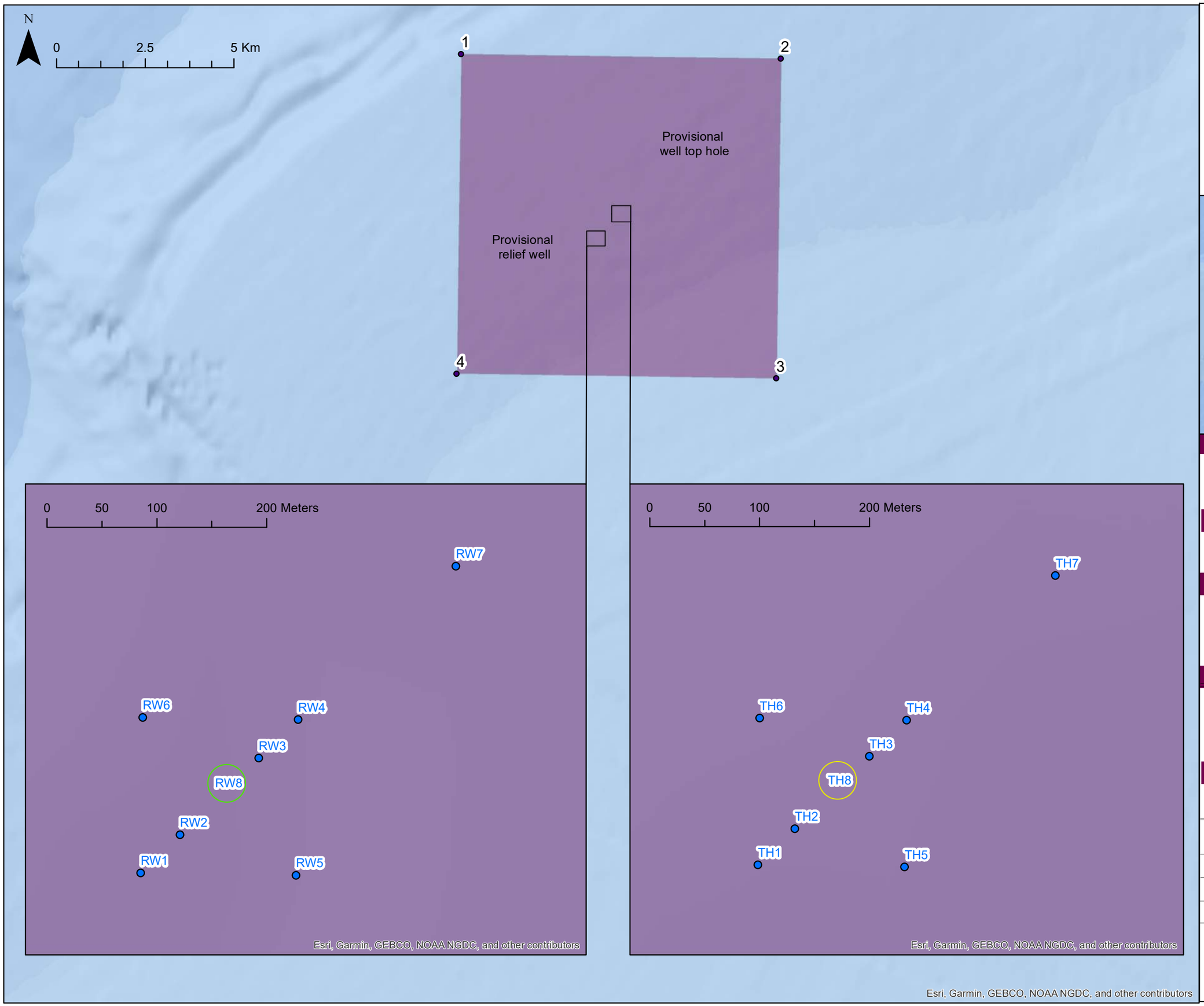
At the core sampling stations, cores will be obtained using 4 m long gravity corer. The footprint of the gravity corer is relatively small and limited to the part of the corer that will impact the seabed which is the

core barrel that has a diameter of 110 mm. Sediment penetration depth of the gravity corer is approximately 2 – 4 m. Entire core samples recovered will be retained for physico-chemical analysis.

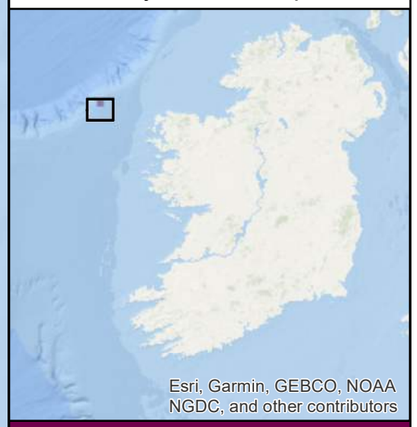
Given the small footprints of the core and grab samplers and the small volumes of sediment that will be removed and/ or retained, and the temporary nature of sampling activities, likely significant effects can be excluded.

The identified seabed sampling stations may be subject to change. Final grab and core sampling stations will be confirmed to the PAD DCCAE prior to survey.

It should be noted that the final location of seabed grab and core sampling stations will be affected by the accuracy (tolerance levels) of positioning equipment used during the survey, while survey operators may be required to change the final location of the seabed sampling station due to operational constraints (e.g. presence of seabed obstructions, inclement weather, local water currents etc.).



- Inishkea Survey greater working area
- Provisonal grab sampling stations
- Approximate location of well top-hole
- Approximate location of relief well
- Survey area nodal points



Client

Europa Oil & Gas

Figure

2.3

Title

Provisonal seabed sampling sites relative to the proposed greater working area

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Table 2-7: Coordinates of provisional sampling stations near the provisional well top-hole

ID	ED 50 Latitude	ED 50 Longitude	WGS 84 Latitude	WGS 84 Longitude
TH1	54°24′20.885″ N	11°11′27.395″ W	54°24′17.568″ N	11°11′33.648″ W
TH2	54°24′22.064″ N	11°11′25.497″ W	54°24′18.720″ N	11°11′31.776″ W
TH3	54°24′24.421″ N	11°11′21.700″ W	54°24′21.096″ N	11°11′27.960″ W
TH4	54°24′25.599″ N	11°11′19.802″ W	54°24′22.284″ N	11°11′26.052″ W
TH5	54°24′21.027″ N	11°11′19.558″ W	54°24′17.676″ N	11°11′25.836″ W
TH6	54°24′25.457″ N	11°11′27.639″ W	54°24′22.140″ N	11°11′33.900″ W
TH7	54°24′30.313″ N	11°11′12.207″ W	54°24′26.964″ N	11°11′18.456″ W
TH8	54°24′23.242″ N	11°11′23.598″ W	54°24'19.909" N	11°11'29.864" W
RW1	54°23′57.316″ N	11°12′5.351″ W	54°23′53.988″ N	11°12′11.628″ W
RW2	54°23′58.494″ N	11°12′3.453″ W	54°23′55.176″ N	11°12′9.720″ W
RW3	54°24′1.888″ N	11°12′5.596″ W	54°23′58.560″ N	11°12′11.844″ W
RW4	54°23′57.458″ N	11°11′57.515″ W	54°23′54.132″ N	11°12′3.780″ W
RW5	54°24′0.852″ N	11°11′59.657″ W	54°23′57.516″ N	11°12′5.940″ W
RW6	54°24′2.030″ N	11°11′57.759″ W	54°23′58.704″ N	11°12′4.032″ W
RW7	54°24′6.745″ N	11°11′50.168″ W	54°24′3.420″ N	11°11′56.436″ W
RW8	54°23′59.670″ N	11°12′1.561″ W	54°23'56.335" N	11°12'7.826" W

2.14 EAU Query No. 14

EAU Query

A commitment to deal with risks associated with climate change in subsequent stages of the project (if any) must be provided, i.e. as part of individual licensing procedures

Europa Response

The Inishkea application is for a site survey only. Atmospheric emissions will be limited to exhaust gases from the vessel's engines. As the operational duration is short (14 days) the volume of atmospheric emissions for the site survey will be low, with no significant climate change effects.

Europa commits to assessing the operational emissions risks associated with climate change in subsequent stages of the project, as part of the consent application for each stage.

2.15 EAU Query No. 15

EAU Query

The cumulative impact assessment assumes that other seismic surveys known to be proposed (for the HAVFRUE subsea cable system off the Mayo coast) will be separated by at least 100 km should the surveys occur simultaneously, preventing any cumulative effects. Please clarify how this will apply in practice?

Europa Response

As outlined in Section 2.4.2.2 and Table 3.8 of the *Screening for AA and NIS* Report, and as updated in **Table 2-6** of this report, no seismic geophysical operations are proposed for the HAVFRUE telecommunications cable system in 2019/ 2020. This has been confirmed to Europa in consultations with the operators of the HAVFRUE project, TE SubCom. It is further stated in the *Screening for AA and NIS* Report that while no in combination noise effects with the HAVFRUE are anticipated, Europa are in regular communication with TE SubCom to ensure operations are coordinated. Operations will be coordinated to ensure that the Inishkea Survey vessel and those appointed by TE SubCom are not operating in close proximity at the same time, thereby eliminating the potential for adverse interactions.

Europa are in regular communication with operators proposing to undertake operations offshore Ireland in 2019 and 2020. These communications between operators and Europa are undertaken *via* phone and email. The Irish Offshore Operators Association (of which Europa is an active member) provides a forum for the discussion and exchange of information with respect to operations planned by oil and gas operators active in the Irish offshore. Information regarding planned activities will be passed by Europa directly to the vessels appointed to undertake the survey operations. With the exception of operations proposed by Vermillion at the Corrib Gasfield and CNOOC at the Slyne/ Erris Basin all currently proposed oil and gas survey operations planned for 2019/ 2020 are located over 350 km from the Inishkea Survey (see **Table 2-6** for details). In the case of proposed operations located less than 100 km from the Inishkea Survey, Europa will discuss operation plans with the other operator and mutually agree operating periods to ensure noise producing operations are not undertaken concurrently thereby avoiding potential in-combination noise effects.

2.16 EAU Query No. 16

EAU Query

Clarification most be provided on whether all qualifying interests and/or Annex IV species have been considered for each of the European sites screened.

Europa Response

Europa can confirm that all qualifying interests and/or Annex IV species have been considered for each of the European sites screened for this project. Details of the assessment in included in **Appendix A**.

2.17 EAU Query No. 17

EAU Query

Additional information in the report on the Blackwater River SAC should be provided.

Europa Response

Europa can confirm that the Blackwater River (Kerry) SAC has been considered as part of the assessment of European sites. Details of the assessment are included in **Appendix A**.

2.18 EAU Query No. 18

EAU Query

Additional clarity on the conservation status of relevant habitats and species listed under Annex II of the Habitats Directive should be provided

Europa Response

Europa can confirm that the conservation objectives series for each European site as they relate to the habitats and species listed under Annex II for which they are designated have been fully considered. Details on the sites along the western seaboard in Ireland and closest to the survey areas are included in **Appendix A**. The linkages between various European sites, their Qis/ SCIs, connectivity and overlapping areas has also been fully taken into consideration.

2.19 EAU Query No. 19

EAU Query

Clarity on whether there are any relevant habitat types for which European site(s) are designated and spatial mapping of the distribution and temporal mapping as appropriate must be provided

Europa Response

The habitat types for which the European sites have been designated have been fully considered. Details on the sites along the western seaboard in Ireland and closest to the survey areas are included in **Appendix A**.

The Article 17 reporting by the NPWS (2019a, 2019b and 2019c)[2] has been fully reviewed and considered as part of the assessment, including the spatial and temporal distribution mapping available from these publicly available sources and the conservation objectives series for each site.

It should be noted that the main purpose of the Inishkea Survey is to determine the baseline environmental conditions at the site. Prior to undertaking seabed sampling operations, the sampling stations will be visually inspected using AUV mounted cameras and/ or drop-down camera systems to ensure the areas to be sampled do not support sensitive habitats including Habitats Directive Annex I Habitats (e.g. Reef [1170] – geogenic and biogenic reef). Where proposed sampling stations support sensitive habitats, no sampling will be undertaken. Alternative suitable sampling stations will be identified and sampled. Visual inspection of the stations before any samples are taken will ensure that sensitive habitats are not impacted by deployed seabed samplers. Refer to **Section 2.13** above for further details on sampling.

[2] Available: https://www.npws.ie/publications/article-17-reports/article-17-reports-2019. Accessed 2nd December 2019.

2.20 EAU Query No. 20

EAU Query

Further information on the ecosystem structure or function of each European sites must be provided

Europa Response

The publicly available information on the ecosystem structure and function of each European site has been considered as part of the assessment, with details on the sites along the western seaboard in Ireland and closest to the survey areas included in **Appendix A**. The information considered includes the Article 17 reporting by the NPWS (2019a, 2019b and 2019c)[3] and the conservation objectives series for each site.

[3] Available: https://www.npws.ie/publications/article-17-reports/article-17-reports-2019. Accessed 2nd December 2019.

2.21 EAU Query No. 21

EAU Query

Clarity on whether there are any additional aspects of each European site that require consideration that is likely to have an influence on its conservation status or objectives must be provided;

Europa Response

The previously submitted screening assessment included in the *Screening for AA and NIS* report is now extended to take into account any additional Natura 2000 sites (SACs and SPAs) potentially affected by the Inishkea Survey. A detailed assessment and summary of each site is included in **Appendix A**.

The screening assessment undertaken to inform the AA was undertaken in consideration of potential impact pathways connecting the survey area to European sites in view of the conservation objectives of Qualifying Interests (QI) of SACs and Special Conservation Interest (SCI) of SPAs.

The threshold for a likely significant effect is treated in the screening exercise as being above a *de minimis* threshold. A *de minimis* effect is a level of impact that is too small to measure and will have no appreciable effect on the ecological requirements of the QIs of SACs and SCIs of SPAs present within a European site necessary to ensure their favourable conservation condition. If low level effects on habitats or individuals of species are judged to be in this order of magnitude and that judgment has been made in the absence of reasonable scientific doubt, then those effects are not considered to be likely significant effects.

2.21.1 Source of Potential Impacts

The aspects (impact mechanisms) associated with proposed survey activities and unplanned events considered with respect to potential impacts to QIs and SCIs are discussed in detail in Table 2.3 of the *Screening for AA and NIS* report, and summarised in **Table 2.8** below.

Table 2.8: Survey aspects associated with proposed activities and unplanned events

Survey Aspect	Planned Activities and Impact Mechanisms
1	Physical Presence of Vessel and Equipment injury to fauna from collision with the vessels and/ or equipment disturbance to fauna
2	Physical Changes localised physical disturbance to the seabed sediment.
3	Underwater noise emissions noise will be generated by vessel engines noise generated by survey geophysical equipment
4	Atmospheric Emissions engine exhaust emissions
5	Discharges food waste, grey-, black-, bilge- and ballast-water

Survey Aspect	Planned Activities and Impact Mechanisms
6	Solid or Liquid Waste waste that cannot be discharged at sea
7	Accidental Spills of Hydrocarbons spills arising from accidental events or mechanical failure

2.21.2 Screening of European Sites

In determining the zone of influence of the project on European sites, an assessment of connectivity and potential likely significant effects of the survey activity on QIs and SCIs of European sites was conducted using the source-pathway-receptor model. This approach considers proximity of the survey area to habitats and non-mobile species, species' foraging distances and migration routes, the proximity of the survey to foraging and breeding areas, and changes in species behaviour, effects on prey species resulting in alteration in predator/ prey interactions and associated impacts to foraging success.

The initial assessment of European sites within a potential zone of influence of the Inishkea survey was carried out and included a review SACs and SPAs, covering the geographical area of Ireland, Northern Ireland and UK. However, the zone of influence of the project was refined further based on the connectivity and proximity to European sites and includes sites on the western seaboard of Ireland and inland sites supporting anadromous fish species, comprising a review of 113 SACs and 154 SPAs, see **Table A.1** and **Table A.6 in Appendix A**.

Based on the distance from the proposed survey, the terrestrial/freshwater/coastal nature of habitats and species and the activities proposed, it is concluded that no potential pathway for interaction exists between survey aspects and the QIs of SACs and SCIs of SPAs presented in **Table 2.9** (i.e. no connectivity exists), these sites are not considered further in the screening assessment.

Table 2.9: QIs of SACs and SCIs of SPAs for which no potential pathway for interaction exists with planned survey activities and unplanned events

SAC QIs
Habitats Directive Annex I terrestrial habitats Grassland formations, forests, heath and scrub, bogs, mires and fens, rivers, rocky habitats, caves.
Habitats Directive Annex II terrestrial (including freshwater aquatic) species Molluscs, crustacea, insects, higher and lower species of plant, fish species (excl. anadromous fish), vertebrates (i.e. bats).
Habitats Directive Annex I coastal and marine habitats: Reefs (geogenic and biogenic), cliffs, caves, offshore islands, sand dunes, salt marsh, intertidal bays, sandflats, beaches, river estuaries.
SPA SCIs
Birds Directive Annex I species Migratory species of ducks, geese and waders due to their coastal or inland habitat preferences. Wetlands

Potential interaction between survey aspects and the QIs and SCIs presented in **Table 2.10** below could not be excluded due to the wide-ranging behaviour of QI and SCI species and the offshore location of the QI habitats of designated sites.

Table 2.10: QIs of SACs and SCIs of SPAs for which potential interaction with survey aspects exists

SAC QIs
Habitats Directive Annex II Marine Mammal species: *Phocoena phocoena* (Harbour porpoise) *Halichoerus* grypus (Grey seal) *Phoca vitulina* (Harbour seal) *Tursiops truncatus* (Common Bottlenose Dolphin)
Habitats Directive Annex II Migratory Fish Species: *Salmo salar* (Atlantic salmon) *Lampetra fluviatilis* (River lamprey) *Petromyzon marinus* (Sea lamprey) *Alosa fallax* (Twaite shad)
Habitats Directive Annex II Offshore Biogenic and Geogenic Reef Habitats
SPA SCIs
Birds Directive Annex I Seabird Species

Due to the nature of the proposed survey, only the QI habitats and species and SCI species found within or interacting with the marine environment are considered further in the screening assessment. Therefore, the sites considered for further assessment in this report include the 57 SACs and 79 SPAs listed in **Table A.2 & A.7 Appendix A**.

The assessment of relevant QIs of SAC and SCI of SPAs and the potential impacts are presented in the following sections:

- Marine mammal species in **Section 2.21.3**,
- Migratory fish species in **Section 2.21.4**,
- Reef habitats in **Section 2.21.5**; and
- Seabirds in **Section 2.21.6**.

2.21.3 Habitats Directive Annex II Marine Mammal Species

Marine mammal species listed under Annex II of the Habitats Directive for which SACs are designated are:

- *Phocoena phocoena* (Harbour porpoise)
- *Tursiops truncatus* (Common Bottlenose Dolphin)
- *Halichoerus grypus* (Grey seal)

- *Phoca vitulina* (Harbour seal)

Irish SACs for which the above species are designated are listed in **Table 2.11**. Details of SAC sites designated for Annex II marine mammal species considered in the assessment of potential impacts are presented in **Appendix A**.

Table 2.11: SACs designated for Annex II marine mammal species

Qualifying Feature	SAC (code)
Phocoena phocoena (Harbour porpoise)	Blasket Islands SAC (002172)
	Roaring Bay and Islands SAC (000101)
Tursiops truncatus (Common Bottlenose Dolphin)	Lower Shannon River SAC (002165)
	West Connacht Coast SAC (002998)
Halichoerus grypus (Grey seal)	Blasket Islands SAC (002172)
	Duvillaun Islands SAC (000495)
	Horn Head and Rinclevan SAC (000147)
	Inishbofin and Inishark SAC (000278)
	Inishkea Islands SAC (000507)
	Roaring Bay and Islands SAC (000101)
	Slieve Tooey/Tormore Island/Loughros Beg Bay SAC (000190)
	Slyne Head Islands SAC (000328)
Phoca vitulina (Harbour seal)	Ballysadare Bay SAC (000622)
	Clew Bay Complex SAC (001482)
	Cumeen Strand/ Drumcliff Bay (Sligo Bay) SAC (000627)
	Donegal Bay (Murvagh) SAC (000133)
	Galway Bay Complex SAC (000268)
	Glengarriff Harbour and Woodland SAC (000090)
	Kenmare River SAC (0002158)
	Kilkieran Bay and Islands SAC (002111)
	Killala Bay/Moy Estuary SAC (000458)
	Rutland Island and Sound SAC (002283)
	West of Ardara/Maas Road SAC (000197)

2.21.3.1 Screening for AA

Table 2.12 presents a screening assessment to establish whether survey aspects 1 through 7 (as described in **Table 2.8**) are likely to have direct, indirect or cumulative effects on Annex II marine mammal species based on consideration of the connectivity between survey aspects and the species for which the SACs listed in **Table 2.11** are designated.

Table 2.12: Screening assessment of potential effects of the survey aspects to Annex II marine mammal species

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to Annex II marine mammal species?
1	Physical Presence of Vessel and Equipment	injury to fauna from collision with the vessels and/ or equipment	Yes - likely significant effects can be screened out. Between 2000 and 2010 there were a total of 192 reported marine mammal strikes by all marine vessels worldwide (IWC, 2014). Given this low rate, it is reasonable to conclude that the likelihood of events occurring between the project and marine mammals is low. It must also be noted, that should an event occur it is likely to be an isolated event with any potential impact at the population level likely to be minor when compared to natural mortality rates. Therefore is can be concluded that physical presence of the survey vessel and equipment do not pose a significant collision risk to Annex II marine mammal species; consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to marine mammal species, in combination effects are screened out.
		disturbance to fauna	Yes - likely significant effects can be screened out. While marine mammals may be foraging in the survey area during operations, given the short duration of the survey (approximately 14 days) the potential to result in significant effects is highly unlikely. Therefore it is concluded that the physical presence of the survey vessel and equipment do not pose a significant disturbance risk to Annex II marine mammal species; consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to marine mammal species, in combination effects are screened out.
2	Physical Changes	localised physical disturbance to the seabed sediment.	Yes - likely significant effects can be screened out. Seabed sampling equipment does not pose a significant risk to marine mammal species. The environmental impact of seabed sampling equipment is limited to seabed habitats; in summary, equipment will result in physical changes to seabed habitats through the compaction and removal of sediment, and through the resuspension of sediments. This localised and temporary physical disturbance of seabed habitats does not pose a risk to Annex II marine mammal species; consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to marine mammal species, in combination effects are screened out.
3	Underwater noise emissions	noise will be generated by vessel engines	Yes - likely significant effects can be screened out. EMODnet vessel density mapping[4] indicates that fishing and shipping activity in the areas immediately adjacent to the survey is low (less than 0.5 hours per square km per month).

[4] EMODnet vessel density mapping http://www.emodnet-humanactivities.eu/view-data.php

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to Annex II marine mammal species?
			Given the short duration of the proposed survey (14 days) the vessel engines will only marginally increase the level of overall vessel activity and vessel engine noise within and adjacent to the proposed survey area it can be concluded that this survey aspect will not result in likely significant effects to Annex II marine mammal species. As there are no likely significant effects, in combination effects are screened out.
		noise generated by survey geophysical equipment	No - likely significant effects cannot be screened out. Noise is readily transmitted underwater and there is potential for sound emissions from the proposed Inishkea Survey to extend tens of kilometres from the sound source. At long ranges, noise emissions could potentially cause short-term behavioural changes in marine mammals by affecting, for example, the ability of animals to communicate and determine the presence of predators, food, underwater features and obstructions while at close ranges, high energy noise sources may result in physical injury including permanent or temporary auditory damage. Given this potential wide zone of influence and the potential wide-ranging distribution of marine mammal species, there is potential that the species may be present in numbers within the zone of influence during geophysical operations; Consequently, likely significant effects to marine mammals cannot be screened out without considering mitigation measures, i.e. NPWS guidance (2014). Therefore, marine mammals are brought through to the Stage 2 AA for further assessment of potential impact of noise.
4	Atmospheric Emissions	engine exhausts emission	Yes - likely significant effects can be screened out. Emissions do not pose a significant risk to marine mammal species. The main source of atmospheric emissions during the survey will result from engine exhaust gases from the survey vessel. Given the offshore location of the survey, emissions will disperse rapidly under typical prevailing conditions to levels approaching background within a few tens of metres of their source; consequently, it can be concluded that this survey aspect will not result in likely significant effects to marine mammal species. As there are no likely significant effects, in combination effects are screened out.
5	Discharges	food waste, grey-, black-, bilge- and ballast-water and treated drainage water	Yes - likely significant effects can be screened out. Wastes and discharges will be in line with the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78. Given the short duration of the survey, discharges associated with the survey are likely to be small in volume and will rapidly disperse in the marine environment. Therefore, it can be concluded that this survey aspect will not result in likely significant effects to Annex II marine mammal species. As there are no likely significant effects to marine mammals associated with discharges, in combination effects are screened out.

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to Annex II marine mammal species?
6	Solid or Liquid Waste	waste that cannot be discharged at sea	Yes - likely significant effects can be screened out. All wastes generated on board will be handled in line with the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78 which prohibits the dumping of 'garbage' at sea. Wastes will be brought back to shore for disposal in accordance with local legislation and guidelines at a licensed facility; consequently, it can be concluded that this survey aspect will not result in likely significant effects to Annex II marine mammal species. As there are no likely significant effects to marine mammal species associated with solid or liquid waste, in combination effects are screened out.
Survey Aspect	**Unplanned Events**	**Impact Mechanism**	**Is it possible to screen out likely significant effects to Annex II migratory fish species?**
7	Accidental Spills of Hydrocarbons	spills arising from accidental events or mechanical failure	Yes - likely significant effects can be screened out. Given the low probability for unplanned events/ spills, likely significant effects to Annex II marine mammal associated with hydrocarbon spills can be ruled out. As there are no likely significant effects to marine mammal species associated with spills, in combination effects are screened out.

2.21.3.2 AA Screening Conclusion

From the assessment presented in **Table 2.12** only underwater noise has been screened in as an activity that has the potential for underwater noise effects without mitigation measures being implemented.

To assess expected underwater noise levels from the proposed Inishkea Survey and determine whether likely significant effects in marine mammals are possible, an underwater noise modelling exercise was undertaken to predict the likely spatial area (or zone) around the noise source within which noise emissions exceed thresholds of potential injury and behavioural effects.

The underwater noise modelling, identification of potential zones of impact and assessment of potential impacts are briefly summarised below and presented in full in Sections 2.4, 3.1, 3.2 and 3.3 of the Screening for AA and NIS report and updated in **Section 2.2** of this report.

As demonstrated in the underwater noise modelling results, presented in **Table 2-5** in **Section 2.2** of this report, the underwater noise impacts from the survey activities reduce significantly over a short distance from the sources of underwater noise, i.e. within approximately 200m. In addition, marine mammals are likely to move away from potential sources of disturbance.

Given the wide-ranging foraging behaviour of marine mammals, it is concluded that the QI species of the SACs presented in **Table 2.11** could be present within the zone of disturbance impact during survey operations**.**

It has therefore been concluded, on the basis of objective information, that in the absence of mitigation measures, likely significant effects on European sites from the proposed Inishkea

Survey cannot be excluded. Hence, the potential impact to marine mammal species, has been brought forward to further assessment in the NIS Report submitted as part of the application.

2.21.3.3 Stage 2 Appropriate Assessment

The information to support the Stage 2 AA with regard to marine mammals is presented in full in Sections 2.4, 3.1, 3.2 and 3.3 of the AA Screening and NIS report. The underwater noise emissions have been updated as discussed in **Section 2.2** of this report, i.e. response to **EAU Query No.2**.

As demonstrated in **Table 2-5** above, the zone of impact is relatively close to the source with disturbance of marine mammals only likely to occur within 200m of the source. It should also be noted that exposure will be for a relatively short duration. Taking into consideration the predicted noise levels and the distance from the source presented, and the natural avoidance behaviour of marine mammal species, it is extremely unlikely that the Inishkea survey will result in any significant disturbance as the species would need to be in very close proximity to the sound source and remain there while it is in operation. However, mitigation measures will be implemented during start-up procedures, as set out in the NPWS guidance (2014) (see Section 3.3 of the AA Screening and NIS report, and reproduced in **Section 2.5.1** above). Sound-producing survey activities will only be commenced in daylight hours where effective visual monitoring, as determined by the MMO, can be achieved.

2.21.3.4 Stage 2 Appropriate Assessment Conclusions

The information and assessment presented confirm the findings of the *NIS* (presented in the *Screening for AA and NIS* report), that is following implementation of mitigation measures for marine mammals (as detailed in the Section 3.3 of the *NIS*) the proposed survey will not have an adverse effect on the integrity of a European site in view of the conservation objectives of the qualifying interests.

2.21.4 Habitats Directive Annex II Migratory Fish Species

This section presents an assessment of potential impacts of the survey to Irish SACs designated for protected migratory fish species listed in Annex II of the Habitat Directive.

Habitats Directive Annex II migratory fish species designated for Irish SACs include the following:

- *Salmo salar* (Atlantic salmon)
- *Lampetra fluviatilis* (River lamprey)
- *Petromyzon marinus* (Sea lamprey)
- *Alosa fallax fallax* (Twaite shad)

Irish SACs for which the above species are designated are listed in **Table 2.13**. Details of SAC sites designated for Annex II migratory fish species considered in the assessment of potential impacts are presented in **Appendix A**.

It should be noted that migratory fish as QIs of SACs are primarily considered in terms of the survey location off the west coast of Ireland, i.e. the Mayo coast. Although migratory fish can migrate significant distances the sites closest to the survey are most likely to be affected. A full review of all SACs with migratory fish as QIs has been undertaken and details are provided in **Appendix A** of those along the western seaboard in Ireland.

Table 2.13: SACs designated for Annex II migratory fish species

SAC	Twaite shad (*Alosa fallax fallax*)	River lamprey (*Lampetra fluviatilis*)	Sea lamprey (*Petromyzon marinus*)	Atlantic salmon (*Salmo salar*)
Blackwater River (Cork/Waterford) SAC	✓	✓	✓	✓
Blackwater River (Kerry) SAC				✓
Castlemaine Harbour SAC		✓	✓	✓
Connemara Bog Complex SAC				✓
Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC		✓	✓	
Glenamoy Bog Complex SAC				✓
Killala Bay/Moy Estuary SAC			✓	
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC		✓	✓	✓
Lough Corrib SAC			✓	✓
Lower Shannon River SAC		✓	✓	✓
Maumturk Mountains SAC				✓
Mweelrea/Sheeffry/Erriff Complex SAC				✓
River Moy SAC			✓	✓
The Twelve Bens/Garraun Complex SAC				✓
Unshin River SAC				✓

2.21.4.1 Screening Assessment

The assessment of the potential impact of survey aspects to QI migratory fish species is based on an assessment of the connectivity and potential interaction between the receptors and the survey aspects 1 through 7 (as listed in **Table 2.8**).

Table 2.14 presents a screening assessment to establish whether survey aspects 1 through 7 are likely to have direct, indirect or cumulative effects on protected Annex II migratory fish species based on consideration of the connectivity between survey aspects and the species designated for the SACs listed in **Table 2.13**.

Table 2.14: Screening assessment of potential effects of the survey aspects to Annex II migratory fish species

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to Annex II migratory fish species?
1	Physical Presence of Vessel and Equipment	injury to fauna from collision with the vessels and/ or equipment	Yes - likely significant effects can be screened out. The vessel and equipment do not pose a significant collision risk to Annex II migratory fish species; consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to migratory fish species, in combination effects are screened out.

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to Annex II migratory fish species?
		disturbance to fauna	Yes - likely significant effects can be screened out. The presence of the vessel and equipment could act to disturb marine fauna including marine mammals and birds, displacing the species from the survey area. The survey vessel and equipment do not pose a significant disturbance risk to Annex II migratory fish species; consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to Annex II migratory fish species, in combination effects are screened out.
2	Physical Changes	localised physical disturbance to the seabed sediment.	Yes - likely significant effects can be screened out. Seabed sampling equipment does not pose a significant risk to migratory fish species. The environmental impact of seabed sampling equipment is limited to seabed habitats; in summary, equipment will result in physical changes to seabed habitats through the compaction and removal of sediment, and through the resuspension of sediments. This localised and temporary physical disturbance of seabed habitats does not pose a risk to Annex II migratory fish species; consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to migratory fish species, in combination effects are screened out.
3	Underwater noise emissions	noise will be generated by vessel engines	Yes - likely significant effects can be screened out. EMODnet vessel density mapping[5] indicates that fishing and shipping activity in the areas immediately adjacent to the survey is low (less than 0.5 hours per square km per month). Given the short duration of the proposed survey (14 days) the vessel engines will only marginally increase the level of overall vessel activity and vessel engine noise within and adjacent to the proposed survey area; consequently, it can be concluded that this survey aspect will not result in likely significant effects to Annex II migratory fish species. As there are no likely significant effects to migratory fish species, in combination effects are screened out.
		noise generated by survey geophysical equipment	Yes - likely significant effects can be screened out. Underwater noise does not pose a significant risk to migratory fish species; an assessment to support this is provided in **Section 2.21.4.2** below. As there are no likely significant effects to Annex II migratory fish species, in combination effects are screened out.
4	Atmospheric Emissions	engine exhausts emission	Yes - likely significant effects can be screened out. Emissions do not pose a significant risk to migratory fish species. The main source of atmospheric emissions during the survey will result from engine exhaust gases from the survey vessel. Given the offshore location of the survey, emissions will disperse rapidly under typical prevailing conditions to levels approaching background within a few tens of metres of their source.

[5] EMODnet vessel density mapping http://www.emodnet-humanactivities.eu/view-data.php

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to Annex II migratory fish species?
			Consequently, it can be concluded that this survey aspect will not result in likely significant effects to Annex II migratory fish species. As there are no likely significant effects to migratory fish species, in combination effects are screened out
5	Discharges	food waste, grey-, black-, bilge- and ballast-water and treated drainage water	Yes - likely significant effects can be screened out. Wastes and discharges will be in line with the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78. Given the short duration of the survey, discharges associated with the survey are likely to be small in volume and will rapidly disperse in the marine environment. Consequently, significant impact to migratory fish species will not occur. As there are no likely significant effects to Annex II migratory fish species, in combination effects are screened out
6	Solid or Liquid Waste	waste that cannot be discharged at sea	Yes - likely significant effects can be screened out. All wastes generated on board will be handled in line with the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78 which prohibits the dumping of 'garbage' at sea. Wastes will be brought back to shore for disposal in accordance with local legislation and guidelines at a licensed facility; consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to Annex II migratory fish species, in combination effects are screened out.
Survey Aspect	Unplanned Events	Impact Mechanism	Is it possible to screen out likely significant effects to protected Annex II migratory fish species?
7	Accidental Spills of Hydrocarbons	spills arising from accidental events or mechanical failure	Yes - likely significant effects can be screened out. Given the low probability for unplanned events/ spills, likely significant effects to Annex II migratory fish species associated with hydrocarbon spills can be ruled out. As there are no likely significant effects to migratory fish species, in combination effects are screened out

2.21.4.2 Determination of Significance

Direct effects of underwater noise to fish include physical auditory damage and behavioural change and are discussed in detail in Section 2.4 of the *Screening for AA and NIS* report. The significance of these effects are discussed below.

Physical Effects on Protected Annex II migratory fish species

To assess expected underwater noise levels from the proposed Inishkea Survey and determine whether likely significant physical effects in fish are possible, an underwater noise modelling exercise was undertaken to predict the likely spatial area (or zone) around the noise source within which noise emissions exceed thresholds of potential injury in fish.

A full description of the underwater noise modelling is presented in Section 3.4 of the *EIA Screening and ERA* report and Section 2.4 of the *Screening for AA and NIS* report and updated in **Section 2.2** of this report. The assessment of potential impacts to fish are briefly summarised below.

As outlined in **Table 2-5**, the modelling of noise emissions from the survey indicates that noise levels will only exceed the threshold for injury in fish[6] within 2m of the source. The source will be active and moving and as such fish are likely to avoid the area while the survey is underway. Consequently, significant physical effects to protected Annex II migratory fish species from underwater noise will not occur.

Behavioural Change Effects in Protected Annex II migratory fish species

As outlined in Section 3.7.1.2 of the *Screening for EIA and ERA* report there is conflicting evidence on the behavioural effects of geophysical surveys on *fish*. Studies have reported no significant effect on the behaviour of various fish species, even in very close proximity (1.5 m) to the seismic source (Pickett et al., 1994[7]; Wardle et al., 1998[8]) while others have reported that fish leave the immediate area around the survey vessel for the period when the acoustic source is active (Lokkeborg and Soldal 1993[9]; Turnpenny and Nedwell 1994[10]).

Avoidance behavioural effects have the potential to affect Annex II migratory fish species that may be transiting the survey area, in close proximity to the sound source during operations. However, given the short duration of the proposed survey any impacts will be temporary and therefore will not result in significant effects on migratory fish species. Therefore, it can also be concluded that there will be no likely significant effects to the spawning activities of migratory fish transiting the survey area.

2.21.4.3 AA Screening Conclusion

The information presented provides the further information and assessment of migratory fish species of SACs. The information and assessment presented confirm the findings of the *Screening for AA and NIS* report, that is the proposed survey activity will not have likely significant effects on the QI migratory fish species of SACs.

2.21.5 Habitats Directive Annex I Offshore Geogenic and Biogenic Reef

Given the offshore location of the survey and the possible zone of potential impact associated with survey aspects this section presents an assessment of potential impacts of the survey to Irish offshore SACs designated for Habitats Directive Annex I reef habitat.

Irish offshore SACs designated for reef are listed in **Table 2.15**. Details of offshore SAC sites designated for reef considered in the assessment are presented in Section 2.3.7.1 in the *EIA Screening and ERA* report.

[6] Popper et al., 2014. Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI,

[7] Pickett et al., 1994. Poole Bay Seismic Survey: Effects on Bass Movements and Catch-rates in the Local Fishery.

[8] Wardle et al., 1998. The Sound of a Triple 'G' Seismic Airgun and its Effects on the Behaviour of Marine Fish. Fisheries Research Services, Marine Laboratory, Aberdeen.

[9] Løkkeborg, S., and Soldal, A.V. 1993. The influence of seismic exploration with air guns on cod (*Gadus morhua*) behaviour and catch rates. ICES Mar. Sci. Symp. 196: 62–67.

[10] Turnpenny W.H. and Nedwell J.R. 1994. The Effects on Marine Fish, Diving Mammals and Birds of Underwater Sound Generated by Seismic Surveys. Consultancy Report proposed for UKOOA by Fawley Aquatic Research Laboratories Ltd.

Table 2.15: SACs designated for Annex I reef habitat

	QI
Belgica Mound Province SAC (Site code: 002327)	Reefs
Hovland Mound Province SAC (Site code: 002328)	
South-West Porcupine Bank SAC (Site code: 002329)	
North-West Porcupine Bank SAC (Site code: 002330)	
Porcupine Bank Canyon SAC (Site code: 003001)	
South East Rockall Bank SAC (Site code: 003002)	

2.21.5.1 AA Screening Assessment

The assessment of the potential impact of survey aspects to receptors (habitats/ species) is based on an assessment of the connectivity and potential interaction between the receptors and the survey aspects 1 through 7 (as listed in **Table 2.8**).

Table 2.16 presents a screening assessment to establish whether survey aspects 1 through 7 are likely to have direct, indirect or cumulative effects on protected Annex I offshore reef habitat based on consideration of the connectivity between survey aspects and the SACs listed in **Table 2.15**.

Table 2.16: Screening assessment of potential effects of the survey aspects to Annex I reef habitat

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to Annex I reef habitat?
1	Physical Presence of Vessel and Equipment	injury to fauna from collision with the vessels and/ or equipment	Yes - likely significant effects can be screened out. The physical presence of the vessel and equipment do not pose a collision risk to Annex I offshore reef habitats; consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to offshore reef habitats, in combination effects are screened out.
		disturbance to fauna	Yes - likely significant effects can be screened out. The survey vessel and equipment do not pose a significant disturbance risk to Annex I offshore reef habitats. As there are no likely significant effects to offshore reef habitat designated for offshore SACs, in combination effects are screened out.
2	Physical Changes	localised physical disturbance to the seabed sediment.	Yes - likely significant effects can be screened out. The environmental impact of seabed sampling equipment is limited to seabed habitats; in summary, equipment has the potential to result in physical changes to seabed habitats through compaction and removal of sediment, and through the resuspension of sediments. No seabed sampling is proposed within or adjacent to SAC.

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to Annex I reef habitat?
			Consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects impact, in combination effects are screened out.
3	Underwater noise emissions	noise will be generated by vessel engines	Yes - likely significant effects can be screened out. EMODnet vessel density mapping[11] indicates that fishing and shipping activity in the areas immediately adjacent to the survey is low (less than 0.5 hours per square km per month). Given the short duration of the proposed survey (14 days) the vessel engines will only marginally increase the level of overall vessel activity and vessel engine noise within and adjacent to the proposed survey area. Given the distance of the proposed survey from offshore SACs and the water depth of the SAC sites (400 m - 2,600 m), it can be concluded that this survey aspect will not result in likely significant effects As there are no likely significant effects, in combination effects are screened out.
		noise generated by survey geophysical equipment	Yes - likely significant effects can be screened out. Noise is readily transmitted underwater and there is potential for sound emissions from the proposed survey to extend tens of kilometres from the sound source. Given the distance of the proposed survey from offshore SACs, the water depth of the sites (400 m - 2,600 m) and the rate of sound attenuation in water, it can be concluded that this survey aspect will not result in likely significant effects to Annex I offshore reef habitats. As there are no likely significant effects, in combination effects are screened out.
4	Atmospheric Emissions	engine exhausts emission	Yes - likely significant effects can be screened out. Emissions do not pose a significant risk to Annex I habitat reef. The main source of atmospheric emissions during the survey will result from engine exhaust gases from the survey vessel. Given the offshore location of the survey, emissions will disperse rapidly under typical prevailing conditions to levels approaching background within a few tens of metres of their source, it can be concluded that this survey aspect will not result in likely significant effects to Annex I offshore reef habitats. As there are no likely significant effects to Annex I offshore reef habitats, in combination effects are screened out.
5	Discharges	food waste, grey-, black-, bilge- and ballast-water and treated drainage water	Yes - likely significant effects can be screened out. Wastes and discharges will be in line with the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78. Given the short duration of the survey, discharges associated with the survey are likely to be small in volume and will rapidly disperse in the marine environment. Consequently, it can be concluded that this survey aspect will not result in likely significant effects to Annex I offshore reef habitats.

[11] EMODnet vessel density mapping http://www.emodnet-humanactivities.eu/view-data.php

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to Annex I reef habitat?
			As there are no likely significant effects to offshore reef habitats, in combination effects are screened out.
6	Solid or Liquid Waste	waste that cannot be discharged at sea	Yes - likely significant effects can be screened out. All wastes generated on board will be handled in line with the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78 which prohibits the dumping of 'garbage' at sea. Wastes will be brought back to shore for disposal in accordance with local legislation and guidelines at a licensed facility; consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to Annex I offshore reef habitats, in combination effects are screened out.
Survey Aspect	Unplanned Events	Impact Mechanism	Is it possible to screen out likely significant effects to protected Annex II migratory fish species?
7	Accidental Spills of Hydrocarbons	spills arising from accidental events or mechanical failure	Yes - likely significant effects can be screened out. Given the low probability for unplanned events/ spills it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to Annex I offshore reef habitats, in combination effects are screened out.

In summary, the screening assessment concluded that no aspect of the proposed Inishkea Survey will result in potential effects to the Annex I reef designated for offshore SACs. Further assessment is not required.

2.21.5.2 Unmapped Annex 1 Offshore Reef Habitat

Seabed sampling within areas that support cold water coral reef has the potential to cause damage to reef through physical (mechanical) damage and removal of coral, and through smothering due to resuspension of sediments. A number of papers describe damage to biogenic reefs in the Irish offshore (e.g. Grehan et al., 2004, 2005; Söffker et al., 2011; Hall-Spencer et al., 2002), the primary sources being fishing (in particular bottom trawling), pollution and litter, and climate change (e.g. Grehan et al., 2004, 2005; Söffker et al., 2011; Hall-Spencer et al., 2002). While the potential damage to coral reef resulting from seabed sampling is insignificant in comparison to the damage associated with bottom fishing (both in terms of spatial extent and intensity) the impact mechanisms are similar; fishing has the potential to cause damage:

- directly through physical (mechanical) damage and removal (e.g. Carey, 2016; Grehan et al., 2005; Hall-Spencer et al., 2002; Ragnarsson et al., 2017); and,
- indirectly through smothering due to increased sedimentation (e.g. Wilson et al., 2015; Ragnarsson et al., 2017).

Direct impacts from bottom trawling within the trawl tracks include dislodgment or crushing of reef forming organisms (Hall-Spencer et al., 2002) and removal of coral being as by-catch in commercial fisheries (Rogers et al., 2008). As cold-water coral has low recovery due to slow growth and high longevity (Althaus et al., 2009), fishing can result in significant adverse environmental impact and in extreme cases

can destroy reef formations leaving tracts of seabed littered with crushed coral fragments and dead coral reef with no sign of regeneration (Buhl-Mortensen et al., 2013).

Like fishing activity using bottom contacting gear, there is the potential that seabed sampling gear may crush reef forming organisms, however, as damage will be limited to the footprint of the samplers proposed, impacts will not be of similar scale of the damage associated with fishing which can be widespread. This disturbance from seabed sampling will be temporary and limited to the surface area (footprint) of the core and grab samplers. The footprint of the grab samplers to be used will be 1 m^2 while the footprint of the gravity corer is limited to the part of the corer that will impact the seabed which is the core barrel that has a diameter of 110 mm.

Trawling can impact the seafloor *via* the resuspension of sediments (Puig et al., 2012, Martín et al., 2014). These impacts can be imparted over larger areas than those actually trawled due to advection of plumes of resuspended sediment to other area (Puig et al., 2012; Martín et al., 2014). Cold water corals, particularly black corals which exhibit preference for low sediment cover (Wagner, 2012), might be severely impacted by excessive levels of suspended material. While there is potential that seabed sampling gear may result in resuspension of sediment any resulting sediment plumes will be highly localised and small; consequently, significant damage to coral reefs are unlikely to occur.

Prior to undertaking seabed sampling operations, the sampling stations will be visually inspected using AUV mounted cameras and/ or drop-down camera systems to ensure the areas to be sampled do not support sensitive habitats including Habitats Directive Annex I Habitats (e.g. Reef [1170] – geogenic and biogenic reef). Where proposed sampling stations support sensitive habitats, no sampling will be undertaken. Alternative suitable sampling stations will be identified and sampled. The pre-sampling inspection of sampling stations will ensure that sensitive habitats are not impacted by deployed seabed samplers. Refer to **Section 2.13** above for further details on sampling.

2.21.5.3 AA Screening Conclusion

The information presented provides the further information and assessment of SACs designated for Habitats Directive Annex I reef habitat. The information and assessment presented confirm the findings of the Screening for AA (presented in the *Screening for AA and NIS* report), that is the proposed survey activity will not have likely significant effects on the QI reefs of offshore SACs.

2.21.6 Birds Directive Annex I Seabird Species

The section considers potential impact to SCI species that may be active in the survey area. The analysis of SCI species has used the information on the foraging distance of bird species included in Thaxter *et al.* (2012) and Wakefield *et al.* (2017). Details of SPA sites considered in the assessment are presented in **Appendix A**. The assessed SPAs are presented in **Table 2.17**.

Table 2.17: SPAs assessed for potential impacts

SPA	
Ardboline Island and Horse Island SPA	Iveragh Peninsula SPA
Aughris Head SPA	Kerry Head SPA
Ballintemple and Ballygilgan SPA	Killala Bay/Moy Estuary SPA
Ballysadare Bay SPA	Killarney National Park SPA
Beara Peninsula SPA	Lambay Island SPA
Bills Rocks SPA	Loop Head SPA
Blacksod Bay/Broad Haven SPA	Lough Conn and Lough Cullin SPA
Blackwater Callows SPA	Lough Corrib SPA
Blackwater Estuary SPA	Lough Fern SPA
Blasket Islands SPA	Lough Mask SPA
Carrowmore Lake SPA	Lough Nillan Bog SPA
Castlemaine Harbour SPA	Lough Ree SPA
Clare Island SPA	Lough Swilly SPA
Cliffs of Moher SPA	Magharee Islands SPA
Connemara Bog Complex SPA	Malin Head SPA
Cruagh Island SPA	Mullet Peninsula SPA
Cummeen Strand SPA	North Bull Island SPA
Dalkey Islands SPA	Puffin Island SPA
Deenish Island and Scariff Island SPA	Rathlin O'Birne Island SPA
Derryveagh and Glendowan Mountains SPA	River Shannon and River Fergus Estuaries SPA
Dingle Peninsula SPA	Rockabill SPA
Donegal Bay SPA	Saltee Islands SPA
Drumcliff Bay SPA	Sheskinmore Lough SPA
Duvillaun Islands SPA	Skellligs SPA
Falcarragh to Meenlaragh SPA	Slievefelim to Silvermines Mountains SPA
Fanad Head SPA	Slyne Head to Ardmore Point SPA
Greers Isle SPA	South Dublin Bay and River Tolka Estuary SPA
High Island, Inishark and Davillaun SPA	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
Horn Head to Fanad Head SPA	Stags of Broad Haven SPA
Howth Head Coast SPA	Termoncarragh Lake and Annagh Machair SPA
Illancrone and Inishkeeragh SPA	The Bull and Cow Rocks SPA
Illanmaster SPA	The Sheep's Head to Toe Head SPA
Inishbofin, Omey Island and Turbot Island SPA	Tory Island SPA
Inishglora and Inishkeeragh SPA	Tralee Bay Complex SPA
Inishkea Islands SPA	Trawbreaga Bay SPA
Inishkeel SPA	West Donegal Coast SPA
Inishmore SPA	West Donegal Islands SPA
Inner Galway Bay SPA	Wicklow Mountains SPA
Ireland's Eye SPA	

2.21.6.1 Screening Assessment

The assessment of the potential impact of survey aspects to SCIs is based on an assessment of the connectivity and potential interaction between the receptors and the survey aspects 1 through 7 (as listed in **Table 2.8**).

Table 2.18 presents a screening assessment to establish whether survey aspects 1 through 7 are likely to have direct, indirect or cumulative effects on protected Annex I bird species based on consideration of the connectivity between survey aspects and the species designated for the SPAs listed in **Table 2.17**.

Table 2.18: Screening assessment of potential effects of the survey aspects to Birds Directive Annex I bird species

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to protected Annex I bird species?
1	Physical Presence of Vessel and Equipment	injury to fauna from collision with the vessels and/ or equipment	Yes - likely significant effects can be screened out. The likelihood of collision events occurring between the project and seabirds is low. It must also be noted, that should an event occur it is likely to be an isolated event with any potential impact at the population level likely to be minor when compared to natural mortality rates. The survey vessel and equipment do not pose a significant disturbance risk to seabird species. Consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to seabird species, in combination effects are screened out.
		disturbance to fauna	Yes - likely significant effects can be screened out. While seabirds may be foraging in the survey area during operations, given the short duration of the survey (14 days) and the relatively small survey area the potential to result in significant effects is highly unlikely. The survey vessel and equipment do not pose a significant disturbance risk to seabird species. Consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects, in combination effects are screened out.
2	Physical Changes	localised physical disturbance to the seabed sediment.	Yes - likely significant effects can be screened out. Seabed sampling equipment does not pose a significant risk to seabird species. The environmental impact of seabed sampling equipment is limited to seabed habitats. In summary, equipment may result in physical changes to seabed habitats through the compaction and removal of sediment, and through the resuspension of sediments. This localised and temporary physical disturbance of seabed habitats does not pose a risk to bird species. Consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to seabird species, in combination effects are screened out.
3	Underwater noise emissions	noise will be generated by vessel engines	Yes - likely significant effects can be screened out.

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to protected Annex I bird species?
			EMODnet vessel density mapping[12] indicates that fishing and shipping activity in the areas immediately adjacent to the survey is low (less than 0.5 hours per square km per month). Given the short duration of the proposed survey (14 days) the vessel engines will only marginally increase the level of overall vessel activity and vessel engine noise within and adjacent to the proposed survey area. Consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects, in combination effects are screened out.
		noise generated by survey geophysical equipment	Yes - likely significant effects can be screened out. Noise is readily transmitted underwater and there is potential for sound emissions from the proposed survey to extend tens of kilometres from the sound source. Given the potential wide-ranging distribution of seabird species, in particular diving species, information on these species and potential effects from noise emissions generated by survey geophysical equipment (including airguns, SBES, MBES, SSS and SBP, and USBL positioning equipment) has been provided to support the conclusion of no likely significant effects (see **Section 2.21.6.3**). As there are no likely significant effects, in combination effects are screened out.
4	Atmospheric Emissions	engine exhausts emission	Yes - likely significant effects can be screened out. Emissions do not pose a significant risk to seabird species. The main source of atmospheric emissions during the survey will result from engine exhaust gases from the survey vessel. Given the offshore location of the survey, emissions will disperse rapidly under typical prevailing conditions to levels approaching background within a few tens of metres of their source. Consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects, in combination effects are screened out.
5	Discharges	food waste, grey-, black-, bilge- and ballast-water and treated drainage water	Yes - likely significant effects can be screened out. Wastes and discharges will be in line with the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78. Given the short duration of the survey, discharges associated with the survey are likely to be small in volume and will rapidly disperse in the marine environment. Consequently, it can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects to seabird species associated with discharges, in combination effects are screened out.
6	Solid or Liquid Waste	waste that cannot be discharged at sea	Yes - likely significant effects can be screened out. All wastes generated on board will be handled in line with the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78 which prohibits the dumping of 'garbage' at sea. Wastes will be brought back to shore for disposal in accordance with local legislation and guidelines at a licensed facility. Consequently, it

[12] EMODnet vessel density mapping http://www.emodnet-humanactivities.eu/view-data.php

Survey Aspect	Planned Activities	Impact Mechanism	Is it possible to screen out likely significant effects to protected Annex I bird species?
			can be concluded that this survey aspect will not result in likely significant effects. As there are no likely significant effects, in combination effects are screened out.
Survey Aspect	**Unplanned Events**	**Impact Mechanism**	**Is it possible to screen out likely significant effects to protected Annex II migratory fish species?**
7	Accidental Spills of Hydrocarbons	spills arising from accidental events or mechanical failure	Yes - likely significant effects can be screened out. Given the low probability for unplanned events/ spills, likely significant effects to Annex I offshore reef habitats associated with hydrocarbon spills can be ruled out. As there are no likely significant effects to seabirds associated with spills, in combination effects are screened out.

With regards to diving birds and *Survey Aspect 3 Underwater Noise*, further information has been presented in the following sections to clearly demonstrate that the survey will have no significant effects on bird SCIs.

2.21.6.2 Identification of Relevant SCIs and SPAs

Given the nature of the proposed project, which relates only to offshore marine survey activities within the GWA, it is considered that SPAs which solely support terrestrial bird species or species which do not utilise the marine environment can be excluded from further consideration. Furthermore, where a SPA is designated for a range of species including those which utilise marine habitats and other species which do not, only those species which are known to utilise marine habitats are considered in respect of the potential for the proposals to give rise to likely significant effect on these sites.

Thaxter *et al.* (2012) list a range of species which utilise marine habitats for the purposes of foraging during the breeding season, in addition Wakefield *et al.* (2017) lists recorded foraging distances for four marine bird species. A summary table of these ranges is set out below at **Table 2.19**. In light of information set out within **Table 2.19**, data held by NPWS, Scottish Natural Heritage, Natural England and Natural Resources Wales was considered in respect of SPAs supporting species listed in the above table where the sites lay within the expected foraging ranges of these species. The location of the survey off the west coast of Ireland and the land between the west coast and Northern Ireland and the UK makes it unlikely that SCIs from those remote sites will be found in the survey area, particularly given the mean foraging ranges for the species. All sites along the western coast of Ireland and within the maximum foraging ranges have the potential to be affected and as such are included in this assessment.

In order to establish the sites that lay within the foraging ranges specified, measures of the shortest distance between the sites and the GWA were utilised. Where the pathway between the GWA and those sites was interrupted by land the shortest straight-line distance around such lands was used to calculate the shortest pathway which would be likely to be utilised by a SCI species to reach marine waters within the GWA.

Where maximum or mean/ median ranges were utilised, the larger of the two figures presented within the referenced publications was utilised on a precautionary basis.

The results of this analysis are presented in **Table 2.20** which includes all SPA sites which support qualifying species with maximum and mean/median foraging ranges from the SPA overlapping the GWA of the proposed survey.

Table 2.19: Seabird foraging ranges (summarised from Thaxter *et al*. 2012 and Wakefield *et al*. 2017)

Species	Thaxter *et al*. 2012		Wakefield *et al.* 2017	
	Maximum foraging range	Mean foraging range	Maximum foraging range	Mean foraging range
Red-throated diver	9	4.5	-	-
Northern fulmar	580	47.5	-	-
Manx shearwater	330	2.3	-	-
European storm-petrel	>65	-	-	-
Northern gannet	590	92.5	-	-
Great cormorant	35	5.2	-	-
European shag	17	5.9	35	3.4
Black-headed gull	40	11.4	-	-
Common gull	50	25	-	-
Herring gull	92	10.5	-	-
Lesser black-backed gull	181	71.9	-	-
Black-legged kittiwake	120	24.8	300	11.9
Sandwich tern	54	11.5	-	-
Common tern	30	4.5	-	-
Arctic tern	30	7.1	-	-
Little tern	11	2.1	-	-
Common guillemot	135	37.8	340	10.5
Razorbill	95	23.7	305	13.2
Atlantic puffin	200	4	-	-

Table 2.20 below indicates which of the species listed in **Table 2.19** have foraging ranges that potentially overlap the GWA.

Table 2.20: SPAs with qualifying SCI species with foraging ranges potentially overlapping the GWA Seabird foraging ranges (summarised from Thaxter *et al*. 2012 and Wakefield *et al*. 2017)

SPA	Approximate distance from GWA (km)	Qualifying interests with max foraging distances overlapping the GWA
Inishkea Islands SPA	57	Herring Gull
Inishglora and Inishkeeragh SPA	61	Storm-petrel
		Lesser Black-Backed Gull
		Herring Gull
Duvillaun Islands SPA	62	Northern Fulmar
		Storm-petrel
Bills Rocks SPA	81	Storm-petrel
		Puffin
Clare Island SPA	83	Northern Fulmar
		Black-legged Kittiwake
		Common Guillemot
		Northern Gannet
		Puffin
		Razorbill
Stags of Broad Haven SPA	85	Storm-petrel
High Island, Inishark and Davillaun SPA	87	Northern Fulmar
Illanmaster SPA	94	Storm-petrel
		Common Guillemot
		Puffin
		Northern Fulmar
Cruagh Island SPA	95	Manx Shearwater
Inishbofin, Omey Island and Turbot Island SPA	102	Lesser Black-Backed Gull
Lough Mask SPA	137	Lesser Black-Backed Gull
Aughris Head SPA	152	Black-legged Kittiwake
West Donegal Coast SPA	154	Northern Fulmar
		Black-legged Kittiwake
		Razorbill
Inishmore SPA	158	Black-legged Kittiwake
		Common Guillemot
Cliffs of Moher SPA	189	Northern Fulmar
		Black-legged Kittiwake
		Common Guillemot

SPA	Approximate distance from GWA (km)	Qualifying interests with max foraging distances overlapping the GWA
		Razorbill
		Puffin
Tory Island SPA	209	Razorbill
Loop Head SPA	214	Black-legged Kittiwake
Kerry Head SPA	215	Northern Fulmar
Horn Head to Fanad Head SPA	216	Northern Fulmar
		Black-legged Kittiwake
		Common Guillemot
		Razorbill
Deenish Island and Scariff Island SPA	225	Northern Fulmar
		Manx Shearwater
Dingle Peninsula SPA	229	Northern Fulmar
Magharee Islands SPA	236	Storm-petrel
Blasket Islands SPA	240	Northern Fulmar
		Manx Shearwater
		Black-legged Kittiwake
		Razorbill
		Storm-petrel
Iveragh Peninsula SPA	260	Northern Fulmar
Puffin Island SPA	269	Northern Fulmar
		Manx Shearwater
Skelligs SPA	274	Northern Fulmar
		Manx Shearwater
		Northern Gannet
Beara Peninsula SPA	297	Northern Fulmar
The Bull and Cow Rocks SPA	298	Storm-petrel
		Northern Gannet
Lambay Island SPA	347	Northern Fulmar
Saltee Islands SPA	389	Northern Gannet

2.21.6.3 Assessment of Potential Impact to Relevant SCIs

Each of the SCI species brought forward to assess potential impact is assigned a risk category based on the typical foraging and diving behaviour of the species (see **Table 2.21**). Risk category[13] criteria are described in **Table 2.22.**

The species assigned a risk category of 0 or 1 (see **Table 2.21**) are predominately terrestrial species and/ or coastal/ shore species. In general, these species forage in terrestrial habitats, soft sediment coastal habitats or water surface zones and display either limited diving range capabilities or no diving behaviour. Given that these species do not spend extended periods of time underwater, likely significant effect of underwater noise can be excluded. Species assigned to risk category 2 and 3 display varying shallow or deeper diving behaviour.

For the relevant SCI species categorised as being at risk category 2 and 3, **Section 2.21.6.4.1** through **Section 2.21.6.4.4** present a description of the species ecology and typical foraging behaviour, alongside assessments of risk posed to these species from underwater noise emissions.

Table 2.21: Risk categories of SCI species with foraging ranges overlapping the GWA

SCI Species	Risk Category
Northern Gannet (*Morus bassanus*)	3
Guillemot (*Uria aalge*)	3
Puffin (*Fratercula arctica*)	3
Razorbill (*Alca torda*)	3
Northern Fulmar (*Fulmarus glacialis*)	2
Black-legged Kittiwake (*Rissa tridactyla*)	2
Manx Shearwater (*Puffinus puffinus*)	2
Storm-petrel (*Hydrobates pelagicus*)	2
Herring Gull (*Larus argentatus*)	1
Lesser Black-backed Gull (*Larus fuscus*)	1

[13] Risk categories are relative measures of risk. The criteria was derived by consulting established available knowledge of the foraging ecology of each species (Table 2.20), which was then used to develop a bespoke ranking of their foraging diving depth capabilities. The diving depths were then used for comparison against the potential for interaction with seismic survey noise impacts to establish potential for impacts during the proposed surveys. Foraging depths and ranges sourced from Natural England Technical Notes for each species.

Table 2.22: Risk categories

Risk category	Relative Risk	Risk Category
3	High	Foraging distributions extending from inshore coastal waters to offshore areas. Diving birds.
2	Medium	Predominately foraging in coastal waters. Shallow diving behaviour.
1	Low	Main foraging habitats are terrestrial with limited foraging in coastal waters. Limited diving behaviour.
0	Negligible risk/ no risk	Species associated with terrestrial habitats. Rarely found foraging outside of terrestrial habitats. Non-diving birds.

2.21.6.4 High Risk Species

2.21.6.4.1 Northern Gannet (*Morus bassanus*)

Gannet have a significant diving capability and are frequently found feeding in inshore and offshore continental shelf waters often associated with deep-water. They eat mid-sized schooling fish and squid, generally 2 cm – 30 cm in length (Lloyd et al, 1986[14]) as well as fish discarded by fishing boats. They forage by plunge diving between 10 m – 40 m depth and with a mean foraging depth of 8.8 m and a mean foraging range of 140 km from their cliff-based colonies[15] (higher than that stated within Thaxter et al, 2012[16]). The species may be found in the Inishkea Survey area during operations, which lie within the maximum foraging distance (590km) of SPAs for which Northern Gannet is listed as an SCI species. This is limited to populations associated with four SPAs (see **Table 2.20**). The closest of these Clare Island SPA, is located approximately 83km from the survey area. The distance between Clare Island SPA and the GWA is within the mean/median foraging range.

Given the location of the GWA, the proximity of the SPAs to the site, the duration of the survey itself (14 days) and the proportion of the population likely to be present in the area at any given time, it can be concluded that there will be no significant effects on the species. This finding is supported by the conclusions of the Irish Offshore Strategic Environmental Assessment (IOSEA) 5 (PAD, 2015[17]), with respect to the potential impacts of noise and seabirds.

2.21.6.4.2 Guillemot (*Uria aalge*)

Guillemot is a wide ranging and regularly occurring migratory bird in Europe[18]. The species dive from the sea surface down to 200 m to catch schooling fish such as sandeels and sprats, although most dives are less than 50 m. Guillemots feed in inshore and offshore waters. Their foraging range varies with mean foraging range reported at 37.8km, and most foraging occurs within 50km of a colony. The species may

[14] Lloyd et al, 1986. The Status of Seabirds in Britain and Ireland
[15] Natural England Technical Information Note TIN122 Northern gannet: species information for marine Special Protection Area consultations.
[16] Thaxter et al, 2012 Seabird foraging ranges as a preliminary tool for identifying candidate Marine Protected Areas. Biological Conservation Issue 156, pp. 53-61.
[17] https://www.dccae.gov.ie/en-ie/natural-resources/topics/Oil-Gas-Exploration-Production/environment/strategic-environmental-assessment/Pages/Irish-Offshore-Environmental-Assessment-(IOSEA)-5.aspx
[18] Natural England Technical Information Note TIN123 Guillemot: species information for marine Special Protection Area consultations.

be found in the Inishkea Survey area during operations, which lies within the maximum foraging distance (340km) of SPAs for which it is listed as an SCI species, including populations associated with five SPAs (see **Table 2.20**). The closest of these SPAs, Clare Island SPA, is located approximately 83km from the survey area, this is within the maximum foraging range of the species but far beyond its mean/median foraging range (37.8km).

Given the location of the GWA, the proximity of the SPAs to the site, the duration of the survey itself (14 days) and the proportion of the population likely to be present in the area at any given time, it can be concluded that there will be no significant effects on the species. This finding is supported by the conclusions of the Irish Offshore Strategic Environmental Assessment (IOSEA) 5 (PAD, 2015), with respect to the potential impacts of noise and seabirds.

2.21.6.4.3 Puffin (*Fratercula arctica*)

Puffin is a wide-ranging species that can dive to 60 m to catch prey, but most dives are less than 30 m[19]. Foraging ranges of the species vary between colonies and with the season. The mean foraging range is 4km (Thaxter *et al.* 2012), with a maximum recorded foraging distance of 200km reported. The species may be found in the Inishkea Survey area during operations, which lies within the maximum foraging distance (200km) of SPAs for which it is listed as an SCI species, including populations associated with four SPAs (see **Table 2.20**). The closest of these SPAs, Bills Rock SPA, is located approximately 81km from the survey area. This is within the maximum foraging range of the species but beyond the mean/ median foraging range (4km).

Given the location of the GWA, the proximity of the SPAs to the site, the duration of the survey itself (14 days) and the proportion of the population likely to be present in the area at any given time, it can be concluded that there will be no significant effects on the species. This finding is supported by the conclusions of the Irish Offshore Strategic Environmental Assessment (IOSEA) 5 (PAD, 2015), with respect to the potential impacts of noise and seabirds.

2.21.6.4.4 Razorbill (*Alca torda*)

Razorbill is a wide-ranging species breeding in low density colonies on rocky islands[20]. The species is widespread in European seas during the winter months. While typically razorbill dive up to 30m in pursuit of prey, the species has been reported to dive up to 140 m. While it has been shown that species have a mean foraging range of 23.7km from their colonies, the species tend to feed within a few kilometres of their coastal colonies. The species may be found in the Inishkea Survey area during operations, which lies within the maximum foraging distance (305km) of a number of SPAs for which the species forms a qualifying interest feature, including populations associated with six SPAs (see **Table 2.20**). Clare Island SPA is located approximately 83km from the survey area, this is within the maximum foraging range of the species but well beyond the mean/median foraging range (23.7km).

Given the location of the GWA, the proximity of the SPAs to the site, the duration of the survey itself (14 days) and the proportion of the population likely to be present in the area at any given time, it can be concluded that there will be no significant effects on the species. This finding is supported by the

[19] Natural England Technical Information Note TIN125 Atlantic Puffin: species information for marine Special Protection Area consultations.
[20] Natural England Technical Information Note TIN124 Razorbill: species information for marine Special Protection Area consultations.

conclusions of the Irish Offshore Strategic Environmental Assessment (IOSEA) 5 (PAD, 2015), with respect to the potential impacts of noise and seabirds.

2.21.6.5 Medium Risk Species

2.21.6.5.1 Northern Fulmar (*Fulmarus glacialis*)

Fulmar principally feed through the seizure of food from the sea surface while swimming or in flight, but also forage using shallow dives of up to 3m. They often forage in large flocks which form around feeding opportunities as a result of their keen sense of smell. Food items typically comprise planktonic crustaceans and small fish. Fulmar have a large foraging range with trips taking up to 5 days, although typically of shorter length, between 0.5 and 1 day[21]. Individuals can live for up to 50 years with a typical lifespan of around 44 years. The species may be found in the Inishkea Survey area during operations, which lie within the maximum foraging distance (580km) of SPAs for which the Northern Fulmar is listed as an SCI species. This is in respect of populations associated with 16 SPAs (see **Table 2.20).** The closest of these SPAs, Duvillaun Island SPA, is located approximately 62km from the survey area, and within the maximum and mean/median foraging range of the species.

Given the location of the GWA, the proximity of the SPAs to the site, the duration of the survey itself (14 days) and the proportion of the population likely to be present in the area at any given time, it can be concluded that there will be no significant effects on the species. This finding is supported by the conclusions of the Irish Offshore Strategic Environmental Assessment (IOSEA) 5 (PAD, 2015), with respect to the potential impacts of noise and seabirds.

2.21.6.5.2 Black-legged Kittiwake (*Rissa tridactyla*)

Kittiwake are surface feeders, taking prey from the surface of the water through dipping however they also utilise shallow dives of up to a meter. The species also often follows ships to scavenge offal and bycatch. Food items typically comprise small shoaling fish including herring, sprats and sandeels, in addition to intertidal molluscs and crustaceans. The species may be found in the survey area during operations, which lie within the maximum foraging distance (300km) of a number of SPAs for which they form a qualifying interest feature, this includes populations associated with eight SPAs (see **Table 2.20).** Clare Island SPA is located approximately 83km from the survey area, this is within the maximum foraging range of the species but far beyond the mean foraging range (24.8km).

Given the location of the GWA, the proximity of the SPAs to the site, the duration of the survey itself (14 days) and the proportion of the population likely to be present in the area at any given time, it can be concluded that there will be no significant effects on the species. This finding is supported by the conclusions of the Irish Offshore Strategic Environmental Assessment (IOSEA) 5 (PAD, 2015), with respect to the potential impacts of noise and seabirds.

2.21.6.5.3 Manx Shearwater (*Puffinus puffinus*)

Manx Shearwater largely forage through catching food from the water's surface however pursuit diving is also utilised. Diving is typically done from a height of 1-2m with a maximum recorded dive depth of 55m

[21] Natural England Technical Information Note TIN126 Northern fulmar: species information for marine Special Protection Area consultations.

and a mean maximum depth[22] of 31m. Food items typically comprise small fish including herring, sprats and sandeels in addition to cephalopods and crustaceans. The species may be found in the Inishkea Survey area during operations, which lie within the maximum foraging distance (330km) of SPAs for which it is listed as an SCI species. This is limited to populations associated with five SPAs (see **Table 2.20**). The closest of these SPAs, Cruagh Island SPA, is located approximately 95km from the survey area. This is within the maximum foraging range of the species but far beyond the mean foraging range (2.3km).

Given the location of the GWA, the proximity of the SPAs to the site, the duration of the survey itself (14 days) and the proportion of the population likely to be present in the area at any given time, it can be concluded that there will be no significant effects on the species. This finding is supported by the conclusions of the Irish Offshore Strategic Environmental Assessment (IOSEA) 5 (PAD, 2015), with respect to the potential impacts of noise and seabirds.

2.21.6.5.4 Storm-petrel (*Hydrobates pelagicus*)

Storm-petrel is a pelagic species, spending the majority of its lifetime at sea, the species feeds on the surface of the water without landing with prey items including surface plankton and small fish. The species may be found in the survey area during operations, which lie within the maximum foraging distance (>65km) of a number of SPAs for which it forms a qualifying interest feature, this includes populations associated with eight SPAs (see **Table 2.20**). The closest of these SPAs, Inishglora and Inishkeeragh SPA, is located approximately 61km from the survey area, this is within the maximum foraging range of the species, but it is unknown whether it is within the mean foraging area of the species.

Given the location of the GWA, the proximity of the SPAs to the site, the duration of the survey itself (14 days) and the proportion of the population likely to be present in the area at any given time, it can be concluded that there will be no significant effects on the species. This finding is supported by the conclusions of the Irish Offshore Strategic Environmental Assessment (IOSEA) 5 (PAD, 2015), with respect to the potential impacts of noise and seabirds.

2.21.6.6 Low Risk Species

2.21.6.6.1 Herring Gull (Larus argentatus)

The diet of herring gull, as with most gull species, is relatively broad including a large component scavenged from landfill and other urban areas. Birds foraging at sea typically feed on scavenged material and do not generally feed on fish or other marine fauna directly. The species may be found in the survey area during operations, which lie within the maximum foraging distance (92km) of a number of SPAs for which they form a qualifying interest feature, this includes populations associated with two SPAs (see **Table 2.20**). The closest of these SPAs, Inishkea Islands SPA, is located approximately 57km from the survey area, this is within the maximum foraging range of the species but far beyond the mean foraging area of the species (10.5km).

Given the location of the GWA, the proximity of the SPAs to the site, the duration of the survey itself (14 days) and the proportion of the population likely to be present in the area at any given time, it can be

[22] Shoji, A., Dean, B., Kirk, H., Freeman, R., Perrins, C.M. & Guilford, T.C. 2016. The diving behaviour of the Manx Shearwater *Puffinus puffinus*. *Ibis* doi: 10.1111/ibi.12381.

concluded that there will be no significant effects on the species. This finding is supported by the conclusions of the Irish Offshore Strategic Environmental Assessment (IOSEA) 5 (PAD, 2015), with respect to the potential impacts of noise and seabirds.

2.21.6.6.2 Lesser Black-backed Gull (Larus fuscus)

The diet of lesser black-backed gull, as with most gull species, is relatively broad including a large component scavenged from landfill and other urban areas. Birds foraging at sea typically feed on shoals of fish close to the surface. As a highly adaptable omnivore the species will make use of all marine food sources which are available to them. The species may be found in the survey area during operations, which lie within the maximum foraging distance (181km) of a number of SPAs for which they form a qualifying interest feature, this includes populations associated with three SPAs (see **Table 2.20).** Inishglora and Inishkeeragh SPA, is located approximately 61km from the survey area, this is within the maximum and mean/median foraging range of the species.

Given the location of the GWA, the proximity of the SPAs to the site, the duration of the survey itself (14 days) and the proportion of the population likely to be present in the area at any given time, it can be concluded that there will be no significant effects on the species. This finding is supported by the conclusions of the Irish Offshore Strategic Environmental Assessment (IOSEA) 5 (PAD, 2015), with respect to the potential impacts of noise and seabirds.

2.21.6.7 IOSEA 5 Conclusions with regard to Birds and Acoustic Emissions

The conclusions arrived at of no likely significant impacts in the above species assessments are supported by an assessment of likely significant impact undertaken for the IOSEA 5 (PAD, 2015), which concluded that acoustic emissions from seismic airguns are unlikely to have a direct impact on seabirds as they spend most of their time above water and studies have identified no effect of seismic survey activity on the movements and diving behaviour of birds or result in variation in the abundance of birds seen at nesting sites (PAD, 2015a). As such, the IOSEA 5 assesses impact of seismic surveys on seabirds as 'Neutral'. As the noise emissions anticipated from the proposed Inishkea Survey are significantly less than that produced by large scale seismic surveys it is reasonable to conclude here that acoustic emissions arising from the proposed survey will have no likely significant effects on the Conservation Objectives of any SPA.

2.21.6.8 Conclusion

2.21.6.8.1 AA Screening Conclusion

The information presented provides the further information and assessment of potential effects on SCI species of SPAs. The information and assessment presented confirm the findings of the AA Screening (presented in the *Screening for AA and NIS* report), that is the proposed survey activity will not have likely significant effects on SCIs of SPAs.

2.22 EAU Query No. 22

EAU Query

NOAA have since issued a more recent publication: NOAA (National Oceanic and Atmospheric Administration) (2018). Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing, Technical Memorandum NMFS-OPR-55, 2018. This needs to be referenced and included in the documentation accordingly.

Europa Response

Europa confirms that the updated NOAA guidance from 2018, reference NMFS-OPR-59; April 2018, has been considered as outlined in **Table 2-5** and referenced in this report.

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Appendix A

Assessment of European Sites

Table A.1: List of SACs Reviewed

SACs Reviewed	
Aughrusbeg Machair and Lake SAC	Lough Carra/Mask Complex SAC
Ballinskelligs Bay and Inny Estuary SAC	Lough Corrib SAC
Ballyhooriskey Point to Fanad Head SAC	Lough Eske and Ardnamona Wood SAC
Ballyness Bay SAC	Lough Gill SAC
Ballyogan Lough SAC	Lough Hoe Bog SAC
Ballysadare Bay SAC	Lough Melvin SAC
Bandon River SAC	Lough Nillan Bog (Carrickatlieve) SAC
Belgica Mound Province SAC	Lough Oughter and Associated Loughs SAC
Bellacorick Bog Complex SAC	Lough Ree SAC
Ben Bulben, Gleniff and Glenade Complex SAC	Lough Swilly SAC
Blackwater River (Cork/Waterford) SAC	Lower River Suir SAC
Blackwater River (Kerry) SAC	Lower Shannon River SAC
Blasket Islands SAC	Magharee Islands SAC
Broadhaven Bay SAC	Maumturk Mountains SAC
Caha Mountains SAC	Meenaguse Scragh SAC
Carrowmore Lake Complex SAC	Moneen Mountain SAC
Castlemaine Harbour SAC	Monivea Bog SAC
Clare Glen SAC	Moyree River System SAC
Clare Island Cliffs SAC	Mullet/Blacksod Bay Complex SAC
Cleanderry Wood SAC	Mulroy Bay SAC
Clew Bay Complex SAC	Mweelrea/Seeffry/Erriff Complex SAC
	Nagreany Dunes SAC
Cloghernagore Bog and Glenveagh National Park SAC	Newport River SAC
Cloonee and Inchiquin Loughs, Uragh Wood SAC	North Dublin Bay SAC
Connemara Bog Complex SAC	North Inishowen Coast SAC
Coolvoy Bog SAC	Old Domestic Building, Dromore Wood SAC
Corraun Plateau SAC	Omey Island Machair SAC
Cross Lough (Killadoon) SAC	Owenduff/Nephin Complex SAC
Cumeen Strand/ Drumcliff Bay (Sligo Bay) SAC	Ox Mountains Bogs SAC
Donegal Bay (Murvagh) SAC	Rathlin O'Birne Island SAC
Dromore Woods and Loughs SAC	River Barrow and River Nore SAC
Drongawn Lough SAC	River Boyne and River Blackwater SAC
Duvillaun Islands SAC	River Finn SAC

SACs Reviewed	
East Burren Complex SAC	River Moy SAC
Erris Head SAC	Roaring Bay and Islands SAC
Fawnboy Bog/Lough Nacung SAC	Rockabill to Dalkey Island SAC
Galway Bay Complex SAC	Rusheenduff Lough SAC
Gannivegil Bog SAC	Rutland Island and Sound SAC
Glanmore Bog SAC	Saltee Islands SAC
Glenamoy Bog Complex SAC	Sheephaven SAC
Glengarriff Harbour and Woodland SAC	Slaney River Valley SAC
Gweedore Bay and Islands SAC	Slieve Fyagh Bog SAC
Horn Head and Rinclevan SAC	Slieve League SAC
Hovland Mound Province SAC	Slieve Tooey/Tormore Island/Loughros Beg Bay SAC
Howth Head SAC	Slyne Head Islands SAC
Inishbofin and Inishark SAC	Slyne Head Peninsula SAC
Inishkea Islands SAC	Termon Strand SAC
Ireland's Eye SAC	The Gearagh SAC
Kenmare River SAC	The Twelve Bens/Garraun Complex SAC
Kilkieran Bay and Islands SAC	Tralee Bay and Magharees Peninsula, West to Cloghane SAC
Killala Bay/Moy Estuary SAC	Tranarossan and Melmore Lough SAC
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC	Tully Mountain SAC
Kingstown Bay SAC	Unshin River SAC
Lackan Saltmarsh and Kilcummin Head SAC	West Connacht Coast SAC
Lambay Island SAC	West of Ardara/Maas Road SAC
Leannan River SAC	Wicklow Mountains SAC
Lough Cahasy, Lough Baun and Roonah Lough SAC	

Table A.2: List of SACs within the zone of influence included in the Screening for AA

SACs Screened	
Aughrusbeg Machair and Lake SAC	Killala Bay/Moy Estuary SAC
Ballinskelligs Bay and Inny Estuary SAC	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC
Ballysadare Bay SAC	Kingstown Bay SAC
Belgica Mound Province SAC	Lackan Saltmarsh and Kilcummin Head SAC
Bellacorick Bog Complex SAC	Lough Cahasy, Lough Baun and Roonah Lough SAC
Blackwater River (Cork/Waterford) SAC	Lough Corrib SAC
Blackwater River (Kerry) SAC	Lough Hoe Bog SAC
Blasket Islands SAC	Lower Shannon River SAC
Broadhaven Bay SAC	Maumturk Mountains SAC
Carrowmore Lake Complex SAC	Moneen Mountain SAC
Castlemaine Harbour SAC	Monivea Bog SAC
Clare Glen SAC	Mullet/Blacksod Bay Complex SAC
Clare Island Cliffs SAC	Mweelrea/Seeffry/Erriff Complex SAC
Clew Bay Complex SAC	Omey Island Machair SAC
Connemara Bog Complex SAC	Ox Mountains Bogs SAC
Cross Lough (Killadoon) SAC	River Moy SAC
Cumeen Strand/Drumcliff Bay (Sligo Bay) SAC	Roaring Bay and Islands SAC
Donegal Bay (Murvagh) SAC	Rusheenduff Lough SAC
Duvillaun Islands SAC	Rutland Island and Sound SAC
Erris Head SAC	Slieve Fyagh Bog SAC
Galway Bay Complex SAC	Slieve Tooey/Tormore Island/Loughros Beg Bay SAC
Glenamoy Bog Complex SAC	Slyne Head Islands SAC
Glengarriff Harbour and Woodland SAC	Slyne Head Peninsula SAC

SACs Screened	
Horn Head and Rinclevan SAC	The Twelve Bens/Garraun Complex SAC
Hovland Mound Province SAC	Tully Mountain SAC
Inishbofin and Inishark SAC	Unshin River SAC
Inishkea Islands SAC	West of Ardara/Maas Road SAC
Kenmare River SAC	West Connacht Coast SAC
Kilkieran Bay and Islands SAC	

Table A.3: Screening of SACs for AA

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
001228	Aughrusbeg Machair and Lake SAC	(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	N/A	95
		(4010) Northern Atlantic wet heaths with Erica tetralix		
000335	Ballinskelligs Bay and Inny Estuary SAC	(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	N/A	272
		(1410) Mediterranean salt meadows (Juncetalia maritimi)		
000622	Ballysadare Bay SAC	(1130) Estuaries	(1365) Harbour seal (*Phoca vitulina*)	161
		(1140) Mudflats and sandflats not covered by seawater at low tide		
		(2110) Embryonic shifting dunes		
		(2120) Shifting dunes along the shoreline with Ammophilia arenaria (white dunes)		
		(2130) *Fixed coastal dunes with herbaceous vegetation ("grey dunes")		
		(2190) Humid dune slacks		
002327	Belgica Mound Province SAC	(1170) Reefs	N/A	318
001922	Bellacorick Bog Complex SAC	(3160) Natural dystrophic lakes and ponds	N/A	106
		(4010) Northern Atlantic wet heaths with Erica tetralix		
		(7130) Blanket bogs (* if active bog)		
		(7150) Depressions on peat substrates of the Rhynchosporion		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(7230) Alkaline fens		
002170	Blackwater River (Cork/Waterford) SAC	(1130) Estuaries	(1095) Sea Lamprey (*Petromyzon marinus*)	292
		(1140) Mudflats and sandflats not covered by seawater at low tide		
		(1220) Perennial vegetation of stony banks		
		(1310) Salicornia and other annuals colonizing mud and sand	(1096) Brook Lamprey (*Lampetra planeri*)	
		(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	(1099) River Lamprey (Lampetra fluviatilis)	
		(1410) Mediterranean salt meadows (Juncetalia maritimi)	(1103) Twaite Shad (*Alosa fallax*)	
		(3260) Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	(1106) Atlantic Salmon (*Salmo salar*) (Only in fresh water)	
		(91A0) Old sessile oak woods with Ilex and Blechnum in the British Isles	(1355) Otter (*Lutra lutra*)	
		(91E0) *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)		
		(91J0) *Taxus baccata woods of the British Isles		
002173	Blackwater River (Kerry) SAC	(4030) European dry heaths	(1106) Atlantic Salmon (*Salmo salar*)	273
			(1355) Otter (*Lutra lutra*)	
002172	Blasket Islands SAC	(1170) Reefs	(1351) Harbour porpoise (*Phocoena phocoena*)	240
		(1230) Vegetated sea cliffs of the Atlantic and Baltic coasts		
		(4030) European dry heaths	(1364) Grey seal (*Halichoerus grypus*)	
		(8330) Submerged or partially submerged sea caves		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
000472	Broadhaven Bay SAC	(1140) Mudflats and sandflats not covered by seawater at low tide	N/A	76
		(1160) Large shallow inlets and bays		
		(1170) Reefs		
		(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)		
		(8330) Submerged or partially submerged sea caves		
000476	Carrowmore Lake Complex SAC	(7130) Blanket bogs (* if active bog)	N/A	88
		(7150) Depressions on peat substrates of the Rhynchosporion		
000343	Castlemaine Harbour SAC	(1130) Estuaries	(1095) Sea Lamprey (*Petromyzon marinus*)	247
		(1140) Mudflats and sandflats not covered by seawater at low tide		
		(1210) Annual vegetation of drift lines		
		(1220) Perennial vegetation of stony banks		
		(1310) Salicornia and other annuals colonizing mud and sand		
		(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	(1099) River Lamprey (*Lampetra fluviatilis*)	
		(1410) Mediterranean salt meadows (Juncetalia maritimi)	(1106) Atlantic Salmon (*Salmo salar*) (Only in fresh water)	
		(2110) Embryonic shifting dunes	(1355) Otter (*Lutra lutra*)	
		(2120) Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")		
		(2130) *Fixed coastal dunes with herbaceous vegetation ("grey dunes")		
		(2170) Dunes with Salix repens ssp. argentea (Salix arenariae)		
		(2190) Humid dune slacks		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(91E0) *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)		
000930	Clare Glen SAC	(91A0) Old sessile oak woods with Ilex and Blechnum in the British Isles	N/A	246
002243	Clare Island Cliffs SAC	(1230) Vegetated sea cliffs of the Atlantic and Baltic coasts	N/A	83
		(8210) Calcareous rocky slopes with chasmophytic vegetation		
		(8220) Siliceous rocky slopes with chasmophytic vegetation		
001482	Clew Bay Complex SAC	(1140) Mudflats and sandflats not covered by seawater at low tide	(1355) Otter *(Lutra lutra*)	101
		(1150) Coastal lagoons*		
		(1160) Large shallow inlets and bays		
		(1210) Annual vegetation of drift lines		
		(1220) Perennial vegetation of stony banks		
		(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	(1365) Harbour seal (*Phoca vitulina*)	
		(2110) Embryonic shifting dunes		
		(2120) Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")		
002034	Connemara Bog Complex SAC	(1150) Coastal lagoons*	(1106) Atlantic Salmon (*Salmo salar*)	132
		(1170) Reefs		
		(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)		
		(3130) Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea		
		(3160) Natural dystrophic lakes and ponds		
		(3260) Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(4010) Northern Atlantic wet heaths with Erica tetralix	(1355) Otter (*Lutra lutra*)	
		(4030) European dry heaths		
		(6410) Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)		
		(7130) Blanket bogs (* if active bog)		
		(7140) Transition mires and quaking bogs		
		(7150) Depressions on peat substrates of the Rhynchosporion		
		(7230) Alkaline fens		
		(91A0) Old sessile oak woods with Ilex and Blechnum in the British Isles		
000484	Cross Lough (Killadoon) SAC	(1220) Perennial vegetation of stony banks	N/A	95
000627	Cumeen Strand/Drumcliff Bay (Sligo Bay) SAC	(1130) Estuaries	(1095) Sea Lamprey (*Petromyzon marinus*)	162
		(1140) Mudflats and sandflats not covered by seawater at low tide		
		(2110) Embryonic shifting dunes		
		(2120) Shifting dunes along the shoreline with Ammophila arenaria (white dunes)	(1099) River Lamprey (Lampetra fluviatilis)	
		(2130) *Fixed coastal dunes with herbaceous vegetation ("grey dunes")	(1365) Harbour seal (Phoca vitulina)	
		(5130) Juniperus communis formations on heaths or calcareous grasslands		
		(7220) Petrifying springs with tufa formation (Cratoneurion)*		
000495	Duvillaun Islands SAC	N/A	(1364) Grey seal (*Halichoerus grypus*)	62
000133	Donegal Bay (Murvagh) SAC	(1140) Mudflats and sandflats not covered by seawater at low tide	(1365) Harbour Seal (Phoca vitulina)	194
		(2130) Fixed coastal dunes with herbaceous vegetation		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(2170) Dunes with Salix repens ssp. argentea (Salicion arenariae)		
		(2190) Humid dune slacks		
001501	Erris Head SAC	(1230) Vegetated sea cliffs of the Atlantic and Baltic coasts (4060) Alpine and Boreal heaths	N/A	67
000268	Galway Bay Complex SAC	(1140) Mudflats and sandflats not covered by seawater at low tide	(1355) Otter (Lutra lutra)	175
		(1150) Coastal lagoons*		
		(1160) Large shallow inlets and bays		
		(1170) Reefs		
		(1220) Perennial vegetation of stony banks		
		(1310) Salicornia and other annuals colonising mud and sand		
		(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	(1365) Harbour seal (Phoca vitulina)	
		(1410) Mediterranean salt meadows (Juncetalia maritimi)		
		(3180) Turloughs*		
		(5130) Juniper commis formations on heaths or calcareous grasslands		
		(6210) Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)		
		(7210) Calcareous fens with Cladium mariscus and species of the Caricion davallianae*		
		(7230) Alkaline fens		
000500	Glenamoy Bog Complex SAC	(1230) Vegetated sea cliffs of the Atlantic and Baltic coasts	(1106) Atlantic Salmon (*Salmo salar*)	93
		(21A0) Machairs (* in Ireland)		
		(3160) Natural dystrophic lakes and ponds		
		(4010) Northern Atlantic wet heaths with Erica tetralix		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(5130) Juniper communis formations on heaths or calcareous grasslands		
		(7130) Blanket bogs (* if active bog)		
		(7140) Transition mires and quaking bogs		
		(7150) Depressions on peat substrates of the Rhynchosporion		
000090	Glengarriff Harbour and Woodland SAC	(91E0) Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	(1355) Otter (Lutra lutra)	292
		(91A0) Old sessile oak woods with Ilex and Blechnum in the British Isles	(1365) Harbour Seal (Phoca vitulina)	
000147	Horn Head and Rinclevan SAC	(2110) Embryonic shifting dunes	(1364) Grey Seal (Halichoerus grypus)	226
		(2120) Shifting dunes along the shoreline with Ammophila arenaria		
		(2130) "Fixed coastal dunes with herbaceous vegetation		
		(2170) Dunes with Salix repens ssp. argentea (Salicion arenariae)		
		(2190) Humid dune slacks		
		(3130) Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuncetea		
		(21A0) Machairs (* in Ireland)		
002328	Hovland Mound Province SAC	(1170) Reefs	N/A	253
000278	Inishbofin and Inishark SAC	(1150) Coastal lagoons*	(1364) Grey seal (*Halichoerus grypus*)	87
		(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)		
		(4010) Northern Atlantic wet heaths with Erica tetralix		
		(4030) European dry heaths		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
000507	Inishkea Islands SAC	(21A0) Machairs (* in Ireland)	(1364) Grey seal (*Halichoerus grypus*)	57
002158	Kenmare River SAC	(1160) Large shallow inlets and bays (1170) Reefs (1220) Perennial vegetation of stony banks (1230) Vegetated sea cliffs of the Atlantic and Baltic Coasts (1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae) (1410) Mediterranean salt meadows (Juncetalia maritimi) (2120) "Shifting dunes along the shoreline with Ammophila arenaria (2130) "Fixed coastal dunes with herbaceous vegetation (4030) European dry heaths (5130) Juniperus communis formations on heaths or calcareous grasslands (6130) Calaminarian grasslands of the Violetalia calaminariae (8330) Submerged or partially submerged sea caves	(1355) Otter (Lutra lutra) (1365) Harbour Seal (Phoca vitulina)	286
002111	Kilkieran Bay and Islands SAC	(1140) Mudflats and sandflats not covered by seawater at low tide (1150) Coastal lagoons* (1160) Large shallow inlets and bays (1170) Reefs (1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae) (1410) Mediterranean salt meadows (Juncetalia maritimi) (21A0) Machairs (* in Ireland) (6510) Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	(1355) Otter (Lutra lutra) (1365) Harbour seal (Phoca vitulina)	137

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
000458	Killala Bay/Moy Estuary SAC	(1130) Estuaries	(1095) Sea Lamprey (Petromyzon marinus)	124
		(1140) Mudflats and sandflats not covered by seawater at low tide		
		(1210) Annual vegetation of drift lines		
		(1310) Salicornia and other annuals colonizing mud and sand		
		(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	(1365) Harbour seal (Phoca vitulina)	
		(2110) Embryonic shifting dunes		
		(2120) Shifting dunes along the shoreline with Ammophila arenaria ('white dunes')		
		(2130) *Fixed coastal dunes with herbaceous vegetation ("grey dunes")		
		(2190) Humid dune slacks		
000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC	(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	(1095) Sea Lamprey (Petromyzon marinus)	266
		(3130) Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea		
		(3260) Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation		
		(4010) Northern Atlantic wet heaths with Erica tetralix		
		(4030) European dry heaths		
		(4060) Alpine and Boreal heaths	(1096) Brook Lamprey (*Lampetra planeri*)	
		(5130) Juniperus communis formations on heaths or calcareous grasslands	(1099) River Lamprey (Lampetra fluviatilis)	
		(6130) Calaminarian grasslands of the Violetalia calaminariae	(1106) Atlantic Salmon (*Salmo salar*)	

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(6410) Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	(1355) Otter (Lutra lutra)	
		(7130) Blanket bogs (* if active bog)		
		(7150) Depressions on peat substrates of the Rhynchosporion		
		(91A0) Old sessile oak woods with Ilex and Blechnum in the British Isles		
		(91E0) *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)		
		(91J0) *Taxus baccata woods of the British Isles		
002265	Kingstown Bay SAC	(1160) Large shallow inlets and bays	N/A	100
000516	Lackan Saltmarsh and Kilcummin Head SAC	(1310) Salicornia and other annuals colonising mud and sand	N/A	119
		(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)		
		(1410) Mediterranean salt meadows (Juncetalia maritimi)		
		(2120) Shifting dunes along the shoreline with Ammophila arenaria (white dunes)		
		(2130) *Fixed coastal dunes with herbaceous vegetation ("grey dunes")		
001529	Lough Cahasy, Lough Baun and Roonah Lough SAC	(1150) Coastal lagoons*	N/A	94
		(1220) Perennial vegetation of stony banks		
		(2120) Shifting dunes along the shoreline with Ammophila arenaria (white dunes)		
000297	Lough Corrib SAC	(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)		151

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(3130) Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea		
		(3140) Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.		
		(3260) Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	(1095) Sea Lamprey (Petromyzon marinus)	
		(6210) Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)		
		(6410) Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)		
		(7110) Active raised bogs*	(1096) Brook Lamprey (*Lampetra planeri*)	
		(7120) Degraded raised bogs still capable of natural regeneration	(1106) Atlantic Salmon (*Salmo salar*)	
		(7150) Depressions on peat substrates of the Rhynchosporion		
		(7210) Calcareous fens with Cladium mariscus and species of the Caricion davallianae*		
		(7220) Petrifying springs with tufa formation (Cratoneurion)*		
		(7230) Alkaline fens	(1355) Otter (Lutra lutra)	
		(8240) Limestone pavements*		
		(91A0) Old sessile oak woods with Illex and Blachnnum in the British Isles		
		(91D0) Bog woodland*		
000633	Lough Hoe Bog SAC	(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	N/A	137
		(7130) Blanket bogs (* if active bog)		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
002165	Lower Shannon River SAC	(1110) Sandbanks which are slightly covered by sea water all the time	(1095) Sea Lamprey (Petromyzon marinus)	212
		(1130) Estuaries		
		(1140) Mudflats and sandflats not covered by seawater at low tide		
		(1150) Coastal lagoons*		
		(1160) Large shallow inlets and bays		
		(1170) Reefs	(1096) Brook Lamprey (*Lampetra planeri*)	
		(1220) Perennial vegetation of stony banks	(1099) River Lamprey (Lampetra fluviatilis)	
		(1230) Vegetated sea cliffs of the Atlantic and Baltic coasts	(1106) Atlantic Salmon (Salmo salar) (Only in fresh water)	
		(1310) Salicornia and other annuals colonizing mud and sand	(1349) Bottlenose Dolphin (Tursiops truncatus)	
		(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	(1355) Otter (Lutra lutra)	
		(1410) Mediterranean salt meadows (Juncetalia maritimi)		
		(3260) Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation		
		(6410) Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)		
		(91E0) *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)		
002008	Maumturk Mountains SAC	(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	(1106) Atlantic Salmon (*Salmo salar*)	121

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(4010) Northern Atlantic wet heaths with Erica tetralix		
		(4060) Alpine and Boreal heaths		
		(7130) Blanket bogs (* if active bog)		
		(7150) Depressions on peat substrates of the Rhynchosporion		
		(8220) Siliceous rocky slopes with chasmophytic vegetation		
000054	Moneen Mountain SAC	(3180) Turloughs*	N/A	182
		(4060) Alpine and Boreal heaths		
		(5130) Juniperus communis formations on heaths or calcareous grasslands		
		(6210) Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)		
		(7220) Petrifying springs with tufa formation (Cratoneurion)*		
		(8240) Limestone pavements*		
002352	Monivea Bog SAC	(7110) Active raised bogs*	N/A	184
		(7120) Degraded raised bogs still capable of natural regeneration		
		(7150) Depressions on peat substrates of the Rhynchosporion		
000470	Mullet/Blacksod Bay Complex SAC	(1140) Mudflats and sandflats not covered by seawater at low tide	(1355) Otter (Lutra lutra)	67
		(1160) Large shallow inlets and bays		
		(1170) Reefs		
		(1310) Salicornia and other annuals colonising mud and sand		
		(2120) Shifting dunes along the shoreline with Ammophila arenaria (white dunes)		
		(2130) *Fixed coastal dunes with herbaceous vegetation ("grey dunes")		
		(2150) Atlantic decalcified fixed dunes (Calluno-Ulicetea)*		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(21A0) Machairs (* in Ireland)		
		(3150) Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation		
		(7230) Alkaline fens		
001932	Mweelrea/Seeffry/Erriff Complex SAC	(1150) Coastal lagoons*	(1106) Atlantic Salmon (*Salmo salar*)	108
		(1210) Annual vegetation of drift lines		
		(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)		
		(1410) Mediterranean salt meadows (Juncetalia maritimi)		
		(2110) Embryonic shifting dunes		
		(2120) Shifting dunes along the shoreline with Ammophila arenaria (white dunes)		
		(2150) Atlantic decalcified fixed dunes (Calluno-Ulicetea)*		
		(2170) Dunes with Salix repens ssp. argentea (Salicion arenariae)		
		(21A0) Machairs (* in Ireland)		
		(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)		
		(3130) Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea		
		(3160) Natural dystrophic lakes and ponds		
		(3260) Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation		
		(4010) Northern Atlantic wet heaths with Erica tetralix	(1355) Otter (Lutra lutra)	
		(4030) European dry heaths		
		(4060) Alpine and Boreal heaths		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(5130) Juniperus communis formations on heaths or calcareous grasslands		
		(6430) Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels		
		(7130) Blanket bogs (* if active bog)		
		(7140) Transition mires and quaking bogs		
		(7150) Depressions on peat substrates of the Rhynchosporion		
		(7220) Petrifying springs with tufa formation (Cratoneurion)*		
		(7230) Alkaline fens		
		(8110) Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)		
		(8210) Calcareous rocky slopes with chasmophytic vegetation		
		(8220) Siliceous rocky slopes with chasmophytic vegetation		
001309	Omey Island Machair SAC	(21A0) Machairs (* in Ireland)	N/A	97
		(3140) Hard oligo-mesotrophic waters with benthic vegetation of Chara spp		
002006	Ox Mountains Bogs SAC	(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	N/A	145
		(3160) Natural dystrophic lakes and ponds		
		(4010) Northern Atlantic wet heaths with Erica tetralix		
		(4030) European dry heaths		
		(7130) Blanket bogs (* if active bog)		
		(7140) Transition mires and quaking bogs		
		(7150) Depressions on peat substrates of the Rhynchosporion		
002298	River Moy	(7110) Active raised bogs*	(1095) Sea Lamprey (Petromyzon marinus)	130
		(7120) Degraded raised bogs still capable of natural regeneration		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(7150) Depressions on peat substrates of the Rhynchosporion	(1096) Brook Lamprey (*Lampetra planeri*)	
		(7230) Alkaline fens	(1106) Atlantic Salmon (*Salmo salar*)	
		(91A0) Old sessile oak woods with Ilex and Blechnum in the British Isles	(1355) Otter (Lutra lutra)	
		(91E0) *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)		
000101	Roaring Bay and Islands SAC	(1160) Large shallow inlets and bays	(1351) Harbour porpoise (Phocoena phocoena)	322
		(1170) Reefs		
		(1230) Vegetated sea cliffs of the Atlantic and Baltic coasts	(1355) Otter (Lutra lutra)	
		(4030) European dry heaths	(1364) Grey seal (*Halichoerus grypus*)	
		(8330) Submerged or partly submerged sea caves		
001311	Rusheenduff Lough SAC	(3130) Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea	N/A	97
002283	Rutland Island and Sound SAC	(1150) Coastal lagoons	(1365) Harbour Seal (Phoca vitulina)	188
		(1160) Large shallow inlets and bays		
		(1170) Reefs		
		(1210) Annual vegetation of drift lines		
		(2110) Embryonic shifting dunes		
		(2120) "Shifting dunes along the shoreline with Ammophila arenaria (""white dunes"")"		
		(2130) "Fixed coastal dunes with herbaceous vegetation (""grey dunes"")"		
		(2190) Humid dune slacks		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
000542	Slieve Fyagh Bog SAC	(7130) Blanket bogs (* if active bog)	N/A	91
000190	Slieve Tooey/Tormore Island/Loughros Beg Bay SAC	(1230) Vegetated sea cliffs of the Atlantic and Baltic Coasts (2110) Embryonic shifting dunes (2120) "Shifting dunes along the shoreline with Ammophila arenaria (2130) "Fixed coastal dunes with herbaceous vegetation (2140) Decalcified fixed dunes with Empetrum nigrum (2150) Atlantic decalcified fixed dunes (Calluno-Ulicetea) (4060) Alpine and Boreal heaths (7130) Blanket bogs (* if active bog)	(1355) Otter (Lutra lutra) (1364) Grey Seal (Halichoerus grypus)	170
000328	Slyne Head Islands SAC	N/A	(1364) Grey seal (Halichoerus grypus)	105
002074	Slyne Head Peninsula SAC	(1150) Coastal lagoons* (1160) Large shallow inlets and bays (1170) Reefs (1210) Annual vegetation of drift lines (1220) Perennial vegetation of stony banks (1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae) (1410) Mediterranean salt meadows (Juncetalia maritimi) (2110) Embryonic shifting dunes (2120) Shifting dunes along the shoreline with Ammophila arenaria (white dunes) (21A0) Machairs (* in Ireland) (3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	N/A	107

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(3140) Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.		
		(4030) European dry heaths		
		(5130) Juniperus communis formations on heaths or calcareous grasslands		
		(6210) Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)		
		(6410) Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)		
		(6510) Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)		
		(7230) Alkaline fens		
002031	The Twelve Bens/Garraun Complex SAC	(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	(1106) Atlantic Salmon (*Salmo salar*) (1355) Otter (Lutra lutra)	110
		(3130) Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea		
		(4060) Alpine and Boreal heaths		
		(7130) Blanket bogs (* if active bog)		
		(7150) Depressions on peat substrates of the Rhynchosporion		
		(8110) Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)		
		(8210) Calcareous rocky slopes with chasmophytic vegetation		
		(8220) Siliceous rocky slopes with chasmophytic vegetation		
		(91A0) Old sessile oak woods with Ilex and Blechnum in the British Isles		
000330	Tully Mountain SAC	(4030) European dry heaths	N/A	99

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(4060) Alpine and Boreal heaths		
001898	Unshin River SAC	(3260) Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	(1106) Atlantic Salmon (*Salmo salar*)	169
		(6210) Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)		
		(6410) Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	(1355) Otter (Lutra lutra)	
		(91E0) *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)		
002998	West Connacht Coast SAC	N/A	(1349) Bottlenose Dolphin (Tursiops truncatus)	82
000197	West of Ardara/Maas Road SAC	(1130) Estuaries	(1106) Atlantic Salmon (Salmo salar)	185
		(1140) Mudflats and sandflats not covered by seawater at low tide		
		(1160) Large shallow inlets and bays		
		(1210) Annual vegetation of drift lines		
		(1330) Atlantic salt meadows (Glauco-Puccinellietalia maritimae)		
		(1410) Mediterranean salt meadows (Juncetalia maritimi)		
		(2110) Embryonic shifting dunes		
		(2120) "Shifting dunes along the shoreline with Ammophila arenaria		
		(2130) "Fixed coastal dunes with herbaceous vegetation		
		(2140) Decalcified fixed dunes with Empetrum nigrum		
		(2150) Atlantic decalcified fixed dunes (Calluno-Ulicetea)		

Site Code	SAC	Habitat	QI Annex II Species in Conservation Plans	Shortest Distance from GWA - Inishkea (km)
		(2170) Dunes with Salix repens ssp. argentea (Salicion arenariae)		
		(2190) Humid dune slacks		
		(3110) Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	(1355) Otter (Lutra lutra)	
		(3130) Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuncetea		
		(4010) Northern Atlantic wet heaths with Erica tetralix		
		(4030) European dry heaths		
		(4060) Alpine and Boreal heaths		
		(5130) Juniperus communis formations on heaths or calcareous grasslands		
		(6210) Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)		
		(6410) Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	(1365) Harbour Seal (Phoca vitulina)	
		(6510) Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)		
		(7130) Blanket bogs (* if active bog)		
		(7150) Depressions on peat substrates of the Rhynchosporion		
		(7230) Alkaline fens		
		(21A0) Machairs (* in Ireland)		

Table A.4: Connectivity of SACs

Site Code	SAC	QI Connectivity
001228	Aughrusbeg Machair and Lake SAC	Aughrusbeg Machair and Lake is located about 2 km west of Cleggan, Co. Galway. It is a large coastal site with a diversity of habitats, including machair and a nutrient-poor lake. Omey granite is the main bedrock in the area. An area of machair separates the lake from the sea. Dry heath also occurs in some coastal parts of the site. Saltmarsh vegetation occurs in association with the large sea inlet at Aughrus Beg. Other habitats present within the site include rocky shore, sandy beach, shingle beach, intertidal sandflats and open marine areas.
000335	Ballinskelligs Bay and Inny Estuary SAC	This site is located at the western end of the Iveragh Peninsula, Co. Kerry, close to the town of Waterville. It comprises the marine waters of Ballinskelligs Bay, as far out as the five-fathom line, some adjoining terrestrial areas and the estuary of the River Inny upstream to Breahig townland. The site extends from Horse Island at the western end of the bay round to Rineen Point at its south-eastern side. Much of the site comprises shallow marine water (Ballinskelligs Bay). The site is used in the winter by nationally important numbers of Common Scoter and Ringed Plover. The site is also commonly used by waders such as Oystercatcher and Curlew. A colony of Grey Seal occurs within the bay.
000622	Ballysadare Bay SAC	Ballysadare Bay extends for about 10 km westwards from the town of Ballysadare, Co. Sligo, and is the most southerly of three inlets of the larger Sligo Bay. Ballysadare Bay contains extensive intertidal sand and mudflats which provide an abundance of food for both wildfowl and waders. A range of habitats fringe the bay, e.g. the old oyster farm at Tanrego is important for waterfowl. Ballysadare Bay is nationally important for numbers of a range of waterfowl species in autumn and winter and is part of the larger Sligo Bay complex. Brent Goose occur in internationally important numbers. Ballysadare Bay is of high ecological value for its range of good quality coastal habitats. The Bay also supports a colony of Common Seal.
002327	Belgica Mound Province SAC	The Belgica Mound Province is located on the eastern edge of the Porcupine Seabight, approximately 100 km south-west of the Co. Kerry coastline. In the Belgica Mound Province, extensive research has identified more than 60 carbonate mounds at depths of between 550 and 1,060 m, broadly distributed in two ranges running north-east/ south-west. The central part of the Province is where coral-forming reefs are widespread. The majority have an elongated shape, are aligned in a north-south direction and average 166 m high. The site is, at its maximum, approximately 29 km long and 13 km wide, and covers an area of 411km2. A number of mounds in the southern part of the Province are buried. Madrepora oculata and Lophelia pertusa are the main reef-forming coral species. OSPAR - O-IE-0002987.
001922	Bellacorick Bog Complex SAC	Bellacorick Bog Complex is a large peatland site in Co. Mayo, situated on a low-lying undulating plain and consisting of two large areas separated by an area of forestry. The larger of the two areas extends from south of Bellacorick eastwards, south-eastwards and then north to Doobehy. The smaller area is situated 6 km south-east of Glenamoy and extends south to 3 km north of Bellacorick and east towards Doobehy. This site contains some of the most extensive areas of lowland blanket bog remaining in Ireland.

Site Code	SAC	QI Connectivity
002170	Blackwater River (Cork/Waterford) SAC	The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. The site consists of the freshwater stretches of the River Blackwater as far upstream as Ballydesmond, the tidal stretches as far as Youghal Harbour and many tributaries, the larger of which include the Licky, Bride, Flesk, Chimneyfield, Finisk, Araglin, Awbeg (Buttevant), Clyda, Glen, Allow, Dalua, Brogeen, Rathcool, Finnow, Owentaraglin and Awnaskirtaun. The freshwater stretches of the Blackwater and Bride Rivers are designated salmonid rivers. The Blackwater is noted for its enormous run of salmon over the years. Two Special Protection Areas, designated under the E.U. Birds Directive, are also located within the site - Blackwater Callows and Blackwater Estuary. Several bird species listed on Annex I of the E.U. Birds Directive are found on the site: Internationally important numbers of Whooper Swan and nationally important numbers Bewick's Swan use the Blackwater Callows. Staging Terns visit the site annually, with >300 Sandwich Tern and >200 Arctic/Common Tern. The site also supports populations of Red Throated Diver, Great Northern Diver, Barnacle Goose, Greenland White-fronted Goose, and holds important numbers of wintering waterfowl. The river and river margins also support many non-breeding Cormorant. Ramsar site.
002173	Blackwater River (Kerry) SAC	This large site is situated on the south-western slopes of the Macgillycuddy Reeks in Co. Kerry and overlooks the Kenmare River inlet. The underlying geology of the area is Old Red Sandstone. The site comprises most of the catchment of the Blackwater River system. Two other main rivers, the Kealduff and Derreendarragh, link into the Blackwater and these rivers are characterised by having numerous tributary streams. The rivers have good populations of Brown Trout, and provide spawning grounds for Sea Trout and Salmon. Overall, the site is considered of high importance for the conservation of the Salmon. The site is visited at times by a number of bird species of conservation importance, including Chough.
002172	Blasket Islands SAC	The Blasket Islands are situated at the end of the Dingle peninsula in Co. Kerry. The site includes all of the islands in the group as well as a substantial area of the surrounding seas. The site has one of the Ireland's largest Grey Seal (Halichoerus grypus) [1364] populations. The site is also of importance for Harbour Porpoise (Phocoena phocoena) [1351], a species which has a regular presence in Blasket Sound. The minimum distance of the SAC to the GWA is 247 km. OSPAR - O-IE-0002984
000472	Broadhaven Bay SAC	Broadhaven Bay is a large, north facing bay situated on the north-west Mayo coast. The site extends from the innermost part of the bay at Belmullet to the outer marine area between Erris Head and Benwee Head. At its outermost part, the site is 10 km wide. Broadhaven Bay encompasses a range of marine and coastal habitats. The subtidal reef communities are found in the outer part of the bay. In deeper water the reef communities are characterised by species typical of vertical or steeply sloping bedrock. Inishderry, a small island in the inner bay, supports important numbers of breeding terns, with Sandwich Tern and Common and Arctic Terns. The rare Little Tern has bred in the past. The island also has breeding Black-headed Gulls. Broadhaven Bay itself has ornithological importance for breeding and wintering birds, and is an important area for wintering waterfowl, being part of a large complex that includes the Mullet and Blacksod Bay. This site is of high conservation importance owing to the presence of several habitats of large shallow bays and reefs. Ramsar site.

Site Code	SAC	QI Connectivity
000476	Carrowmore Lake Complex SAC	This site is located north and east of Bangor Erris, in Co. Mayo. There are two main parts to the site: Carrowmore Lake, a large, shallow oligotrophic/mesotrophic lake, and Largan More Bog, a tract of blanket bog. From an altitude of 6 m at the lake, the site grades upwards in a general south-easterly direction, reaching 199 m on Largan More Bog. The site supports a number of bird species which are of international conservation significance. In winter, Greenland White-fronted Goose arrive to feed around the lake and in nearby fields. These birds are a sub-flock of the nationally important Bog of Erris flock. An Irish Tern Survey (1984) revealed that Sandwich Tern and Arctic Tern formerly bred within the site, and although the terns have not bred in recent years, Derreen's Island still supports a large and important colony of Common Gulls. A variety of wildfowl also occur. The north-western part of the site supports a number of Greenland White-fronted Goose, while other important bird species include Sandwich Tern and Arctic Tern.
000343	Castlemaine Harbour SAC	This is a large site located on the south-east corner of the Dingle Peninsula, Co. Kerry. It consists of the whole inner section of Dingle Bay, i.e. Castlemaine Harbour, the spits of Inch and White Strand/Rosbehy and a little of the coastline to the west. The River Maine, almost to Castlemaine, and much of the River Laune catchment, including the Gaddagh, Gweestion, Glanooragh, Cottoner's River and the River Loe, are also included within the site. The rivers and their associated habitats make up a considerable portion of the site. The site also supports a small colony of Common Seal, while two Lamprey species have been recorded in the Laune river catchment. The Laune catchment is an important Salmon system with nurseries, riffles pools and glides. Castlemaine Harbour is a very important site for passage and wintering waterfowl, including populations of national importance of Cormorant and Scaup, respectively. Castlemaine Harbour is of major ecological importance. It contains a range of coastal habitats. It also includes long stretches of river and stream which are excellent habitats for Salmon, Lamprey and Otter. Part of the site is designated a Special Protection Area (SPA) and is listed as a site under the Ramsar Convention. Part of Castlemaine Harbour is a Statutory Nature Reserve, while Inch and Rosbehy are Wildfowl Sanctuaries.
000930	Clare Glen SAC	Clare Glen lies on the Limerick - Tipperary border, in the western foothills of the Slievefelim Mountains, about 10 km north-west of Cappamore.
002243	Clare Island Cliffs SAC	Clare Island lies at the entrance to Clew Bay, in Co. Mayo, some 5 km from the mainland. The site comprises the coastal fringe of the island, extending from Kinnacorra in the east, along the north coast and around the south-western corner of the island as far east as Tonabrickill. It extends inland on the southern flanks of Knockmore Mountain. The dominant feature of Clare Island is a ridge that runs east to west and attains a height of 462 m at Knockmore Mountain and forms precipitous sea cliffs (400 m high) along the north-western shore. The Clare Island cliffs support important colonies of breeding seabirds, including: Fulmar, Shag, Great Black-backed Gull, Razorbill, Guillemot, and Puffin. The sea cliff colony is one of the largest in the country for Fulmar and one of the largest in Galway and Mayo for Guillemot and Razorbill. An embryonic Gannet colony exists close to the island. Although it is still very small (1-2 pairs), it is important as it is the most northerly in the country. In addition to the seabirds, Clare Island is important for a number of other bird species, including Chough and Barnacle Goose.

Site Code	SAC	QI Connectivity
001482	Clew Bay Complex SAC	Clew Bay is a wide, west-facing bay on the west coast of Co. Mayo. It is open to the westerly swells and winds from the Atlantic, with Clare Island giving only a small amount of protection. This drumlin landscape and geomorphology of the bay has resulted in a complex series of interlocking bays creating a wide variety of marine and terrestrial habitats. The site is designated for Common (Harbour) Seal (*Phoca vitulina*) [1365]. Lough Furnace is located at the north-eastern corner of Clew Bay. Saint's Island contains nesting Black-headed Gull. The minimum distance of the SAC to the GWA is 100 km. The Clew Bay Complex supports a good diversity of wintering waterfowl. A population of Barnacle Goose frequents the islands during winter. Other species which occur in significant numbers include Great Northern Diver, Dunlin, and Turnstone. Species which breed in important numbers include Cormorant, Common Tern, Arctic Tern, and Little Tern.
002034	Connemara Bog Complex SAC	The Connemara Bog Complex SAC is a large site encompassing the majority of the south Connemara lowlands in Co. Galway. The main habitat within this site is lowland Atlantic blanket bog, as most of the area is covered by blanket peat greater than 1 m in depth.The site is bounded to the north by the Galway–Clifden road and stretches as far east as the Moycullen–Spiddal road. The site supports a wide range of habitats, including extensive tracts of western blanket bog, which form the core interest, as well as areas of heath, fen, woodlands, lakes, rivers and coastal habitats. The main river systems within the site are the Owenmore (Ballynahinch) river, the Glashanasmearany and Derrygauna rivers (to the south of Lough Bofin), the Cashla river (which flows out of Glenicmurrin Lough), the Glengawbeg river (which connects Lough Agraffard and Lettercraffoe Lough) and the Owenboliska river and its tributaries (north of Spiddal). Four main lagoons occur within this site: Lough Ahalia, Doire Bhanbh, Lough Aconeera and Salt Lake. Atlantic Salmon occurs in many of the rivers within the site. The Cashla and Ballynahinch systems are good examples of western acidic spate rivers which support the species. Good spawning and nursery grounds for the species occur in these systems. Arctic Char occurs in a number of lakes within the site. Arctic Char is listed as threatened in the Irish Red Data Book. The site is of national importance for wintering populations of Greenland White-fronted Goose. Small flocks are found on Roundstone Bog and also use the bogs between Recess and Maam Cross. There is an internationally important breeding area for Cormorants at Lough Scannive. Lough Naskanniva is an important inland breeding site for Common Terns and Choughs.
000484	Cross Lough (Killadoon) SAC	Cross Lough is located near Killadoon village, approximately 12 km south-west of Louisburgh, in Co. Mayo. This coastal site is of interest for its wide range of habitats, from sandy beach and shingle bank, to wet pasture, swamp and freshwater marsh. Cross Lough lies above the foreshore, behind a shingle and boulder bar. The bounder beach is approximately 10-15 m in width, and the shingle, approximately 8 m. This is a high energy shoreline, and extends for almost 1 km. The site is important for seabirds. Cross Lough is the site of a long-established Sandwich Tern colony, which is located on a small islet within the lake, however more recent counts (1998-99) suggest that the terns no longer breed at the site, possibly due to predation by feral mink. Black-headed Gulls also breed and there are small numbers of breeding Common Gull.
000627	Cumeen Strand/Drumcliff Bay (Sligo Bay) SAC	This large coastal site extends from Cullamore in the north-west to Killaspug in the south-west, and from Sligo town in the south-east to Drumcliff village in the north-east. It encompasses two large, shallow bays, Drumcliff Bay and Sligo Harbour, and both Ardboline and Horse Island. Habitats include woodland, saltmarsh, sandy beaches, boulder beaches, shingle, fen, freshwater marshes, rocky sea cliffs and lakes. The site is designated for Sea Lamprey (*Petromyzon marinus*) [1095],

Site Code	SAC	QI Connectivity
		River Lamprey (*Lampetra fluviatilis*) [1099] and Harbour seal (*Phoca vitulina*) [1365]. The minimum distance of the SAC to the GWA is 156 km. OSPAR - O-IE-0002973. Ramsar site.
000133	Donegal Bay (Murvagh) SAC	This site occupies the inner part of Donegal Bay, immediately to the south-west of Donegal Town. It contains the estuary of the River Eske and a number of other significant rivers. Most of the site consists of intertidal habitats, notably mud- and sandflats, sea inlets and bays, tidal rivers, estuarine channels and sandy beaches. The site supports a population of Common Seal.
000495	Duvillaun Islands SAC	The Duvillaun Islands comprise a group of marine islands, rocks and reefs 3 km off the southern tip of the Mullet Peninsula, Co. Mayo. The main islands included are Duvillaun More, Duvillaun Beg, Turduvillaun, Gaghta Island, Keely Island and Leamareha Island. The Duvillaun Islands form part of a larger group of islands, together with the Inishkeas, Inishkeeragh and Inishglora, which hold an important breeding population of Grey Seal. The Duvillaun Islands are also of ornithological interest for their colonies of breeding seabirds and wintering geese. They hold the second largest colony of Great Black-backed Gull in Ireland. Other nationally important colonies include Cormorant, Shag, Fulmar, Common Gull, and Black Guillemot. Large numbers of Herring Gull are also found. Storm Petrel occur on Duvillaun More. The islands are also used as a wintering ground for internationally important numbers of Barnacle Goose, which interchange with the largest Irish population on the nearby Inishkea Islands. The main threat to the Grey Seal population at this site is from illegal culling; nesting birds would be vulnerable to disturbance during breeding.
001501	Erris Head SAC	Erris Head SAC is situated on the northern part of the Mullet Peninsula in north Co. Mayo. It comprises approximately 15 km of cliff, plus adjoining habitats. An area of sea, which extends 200 m from the base of the cliffs, forms part of the site. This is included mainly to provide added protection for the cliff-nesting seabirds. The site is of ornithological importance for a number of species. Chough frequents the site, and have been recorded breeding. Barnacle Goose utilise the grasslands in winter. There is a scattering of breeding seabirds, though no major colonies. The main seabirds which breed are Fulmar and Great Black-backed Gull. Grey Seals may be seen feeding below the cliffs.
000268	Galway Bay Complex SAC	Situated on the west coast of Ireland, this site comprises the inner, shallow part of a large bay which is partially sheltered by the Aran Islands. There are numerous shallow and intertidal inlets on the eastern and southern sides, notably Muckinish, Aughinish and Kinvarra Bays. A number of small islands composed of glacial deposits are located along the eastern side. These include Eddy Island, Deer Island and Tawin Island. A diverse range of marine, coastal and terrestrial habitats occur within the site, making the area of high scientific importance. Inner Galway Bay provides extensive good quality habitat for Common Seal. The seals use a range of haul-out sites distributed through the bay - these include inner Oranmore Bay, Rabbit Island, St. Brendan's Island, Tawin Island, Kinvarra Bay, Aughinish Bay and Ballyvaughan. The site provides optimum habitat for Otter. Galway Bay is a very important ornithological site. The shallow waters provide excellent habitat for Great Northern Divers, Black-throated Divers, and Scaup. Breeding birds are also of importance, with significant populations of Sandwich Terns and Common Terns. A large Cormorant colony occurs on Deer Island. OSPAR - O-IE-0002969. Inner Galway bay Ramsar site.

Site Code	SAC	QI Connectivity
000500	Glenamoy Bog Complex SAC	This large site is situated in the extreme north-west of Co. Mayo, where the climate is wet oceanic, and gales from the Atlantic are frequent. The site is designated for [1106] Atlantic Salmon (Salmo salar). The coastal habitats at Glenamoy are extensive and varied. Sea cliffs extend for about 20 km along the north coast and achieve a height of 253 m, at Benwee Head. They vary in physical character from sheer cliff-face to slopes of varying gradients. The sea cliffs and islands provide excellent habitat for breeding seabirds. An internationally important population of Storm Petrel occurs on Illaunmaistir. A large Puffin colony occurs on Illaunmaistir. The mainland cliff was the first breeding site in Ireland for Fulmar, and now has a very substantial colony. There is are small colonies of Guillemots, Razorbills, and Chough, breeding on the cliffs. In winter, Barnacle Goose visit Illaunmaistir and Kid Island. The Glenamoy River is predominantly a western, acidic, spate river which has a valuable late run of salmon (Salmo salar) in July, with good spawning habitats and good water quality. Sea Trout are also found. The minimum distance of the SAC to the GWA is 80 km.
000090	Glengarriff Harbour and Woodland SAC	Located to the south and north-west of Glengarriff Village in west Cork, this site consists of a glacial valley opening out into a sheltered bay with rocky islets. The valley contains old oak woodland and alluvial forest. In addition to the woodlands, the harbour is of great interest. This sheltered inlet of Bantry Bay has a rocky shore vegetated with brown seaweeds (Pelvetia caniculata, Fucus spp. and Ascophyllum nodosum). The inlet also features rocky islets. Supports Harbour Seal community.
000147	Horn Head and Rinclevan SAC	Horn Head extends northwards into the Atlantic Ocean from Dunfanaghy, Co. Donegal. This site also extends westwards, reaching just beyond Dooros Point. A small population of Grey Seal occurs at Horn Head.
002328	Hovland Mound Province SAC	The Hovland Mound Province is located at the northern edge of the Porcupine Seabight, approximately 130 km west of the Blasket Islands off the Co. Kerry coastline, and hosts coral reef patches. In the Hovland Mound Province some 25-40 carbonate mounds are located at depths of between 400 and 1,000 m. They frequently have a depression at their base and range in height from 100 to 300 m (average 200 m). The bases of the mounds have a mean width of 1300 m, the upper flanks are steepest and the tops are flat. The highest mounds tend to occur in water depths of approximately 700 m. The designated site is, at its maximum, approximately 50 km long and 38 km wide, and covers an area of 1,086 km2. OSPAR - O-IE-0002988
000278	Inishbofin and Inishark SAC	This site is situated off the Co. Galway coast, about 5.5 km from the mainland. It comprises two main islands, Inishbofin and Inishshark, with several islets and stacks. Part of the surrounding marine waters are also included. The islands are composed almost entirely of Silurian slates and shales and rise to heights of 89 m (Inishbofin) and 69 m (Inishshark). The site supports a breeding colony of Grey Seal. The breeding population is estimated at 749-963 individuals (in 2005). A one-off moult count in 2007 gave a figure of 270 seals. The site is an important ornithological site. It supports breeding Manx Shearwater and wintering Barnacle Goose. Nationally important numbers of Fulmar and small numbers of Storm Petrel also breed. Small numbers of Chough breed and forage on the main islands. Corncrake was once abundant on the islands but declined in the 1960s until the early 1990s when none was recorded. More recently, however, the species has been recorded from the site. Other breeding birds recorded from the site include Shag and Black Guillemot.

Site Code	SAC	QI Connectivity
000507	Inishkea Islands SAC	The Inishkea Islands are the two largest islands off the west coast of the Mullet Peninsula in north-west Co. Mayo. As well as Inishkea North and Inishkea South, this site includes Carrickawilt, Carrigee, Carrickmoylenacurhoga, Pluddany Rocks, Carrickfad, Carrickgormal, Carricklaur, Carrickalaveen and several smaller rocks and reefs. The Inishkeas, together with a group of neighbouring islands, including Inishglora, Inishkeeragh and the Duvillauns, are important breeding site for Grey Seal (*Halichoerus grypus*) [1364]. The Inishkeas are of ornithological interest for breeding seabirds, including Arctic Tern, Common Tern, and Little Tern. Great Black-backed Gull, Herring Gull, Lesser Black-backed Gull, Common Gull, Black-headed Gull, Black Guillemot. Important concentrations of breeding Lapwing, Ringed Plover and Dunlin also occur. The islands are the main wintering site for Barnacle Goose in Ireland and hold internationally important numbers. Nationally important numbers of wintering Turnstone are also found.
002158	Kenmare River SAC	Kenmare River SAC in Co. Kerry, is a long, narrow, south-west facing bay. Numerous islands and inlets along the length of the bay provide further areas of additional shelter in which a variety of habitats and unusual communities occur. Kenmare River SAC has a wide range of marine communities from exposed coast to ultra-sheltered areas. SAC holds an important population of Common Seal. The seals frequent rocky islets near Sneem, Templenoe and Castle Cove, as well as Brennel Island, Illaunsillagh, Kilmackilloge Harbour and Ballycrovane Harbour.
002111	Kilkieran Bay and Islands SAC	Kilkieran Bay and Islands SAC is located just north of Galway Bay and extends from Keeraun Point, south of Carraroe, westwards to Mace Head, west of Carna, all in Co. Galway. The site contains a large area of open marine water, islands and rocky islets, and the coastline is indented with a series of bays (notably the inter-connected Kilkieran Bay and Greatman's Bay), channels and inlets. The marine habitats found within Kilkieran Bay and Greatman's Bay are of very high conservation value. Both bays have a wide variety of habitats and Kilkieran Bay has a very high diversity of marine species. A high number of species that are rare or considered to be worthy of conservation in Ireland occur in the area.The site is extremely important for the number of lagoons that it includes. The site is used by Common Seal. Grey Seal is a regular visitor and may breed. The islands and islets of Kilkieran Bay, mainly those on its western side, are important for their colonies of seabirds, particularly breeding terns. Inishmuskery, and probably other islands, are used by a population of Barnacle Goose in winter. Eagle Rock is of interest for its population of Black Guillemot. The site also supports colonies of gulls. OSPAR - O-IE-0002979.

Site Code	SAC	QI Connectivity
000458	Killala Bay/Moy Estuary SAC	North of Ballina town, the River Moy flows to the sea via a long, narrow estuarine channel. After approximately 8 km, the estuary widens to form a north-facing triangular bay, with the towns of Inishcrone (Co. Sligo) and Killala (Co. Mayo) situated on the eastern and western shores, respectively. The estuary itself forms the County boundary along its northern part. A long sandy island (Bartragh Island) separates the south-western side of the bay from the open water. This composite site has an excellent range of good quality coastal habitats. Much of the inner part of the bay is intertidal. Elsewhere along the coastline are sandy beaches, shingle beaches and some bedrock shores which are occasionally backed by clay sea-cliffs, such as at Moyne. The site holds populations of Common Seal and Sea Lamprey. The site is very important for wintering waterfowl, including: Ringed Plover and Dunlin. Ramsar site
000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC	This very large site encompasses the mountains, rivers and lakes of the Iveragh Peninsula, and the Paps Mountains which stretch eastward from Killarney towards Millstreet. The majority of the site is in Co. Kerry, with a small portion in Co. Cork. The site is valuable for its rare fish species, including Brook Lamprey (Lampetra planeri), River Lamprey (Lampetra fluviatilis), Sea Lamprey (Petromyzon marinus), Atlantic Salmon (Salmo salar) and Killarney Shad (Alosa fallax killarnensis). The Killarney Shad is a unique land-locked subspecies confined to the Killarney lakes. Also of note is the glacial relict, Arctic Char (Salvelinus alpinus), a unique form of which is found in Lough Coomasaharn. A small flock of Greenland White-fronted Goose winters on the boglands within the National Park, but is now the only regular flock in the south-west. Chough is found both in the coastal and inland areas of the site. A few pairs of Common Tern breed within the site. A management plan was drawn up for the Killarney National Park in 1991. The park is managed primarily for conservation purposes although recreation is also provided for. In recognition of its importance the Killarney National Park has been designated a World Biosphere Reserve.
002265	Kingstown Bay SAC	Kingstown Bay is a small, narrow bay situated approximately 7 km north-west of Clifden and south of Streamstown Bay, Co. Galway. It is an unusually shallow bay that is about 3 km long and 500 m wide at the mouth. The north-westerly aspect of the bay and the offshore islands of Omey, Inishturk and Turbot at the mouth afford shelter from Atlantic swells. Kingstown Bay is of high conservation importance owing to the presence of an excellent example of a sheltered bay. It is particularly important as it hosts very unusual red coralline algae formations. OSPAR - O-IE-0002985
000516	Lackan Saltmarsh and Kilcummin Head SAC	Lackan Saltmarsh and Kilcummin Head are located at Lackan Bay, 8 km north-east of Killala, in Co. Mayo. There is a diversity of coastal habitats including mature dunes, saltmarsh, rocky sea cliffs, dune grassland and estuarine sandflats. Both Lackan Bay and the estuary are important sites for wintering waterfowl and support part of the large populations which winter in Killala Bay. Lapwing and Dunlin are known to frequent the site. Both Little Tern and Common Tern have nested here in the past.
001529	Lough Cahasy, Lough Baun and Roonah Lough SAC	This site comprises a chain of wetlands on the south Mayo coast, 1.5 km south of Roonah Quay and 7 km south-west of Louisburgh. A sandy beach forms the shoreline, with occasional outcrops of exposed bedrock. Shingle and boulder bars are also present. Behind these lie sand hills and machair, three lagoon-type lakes and their associated riverine channels. This site is of ecological significance primarily for its lagoon habitat. The whole coastline, from Killary Harbour to Roonah Point, consists of a complex and dynamic barrier system of dunes and shingle bars, with lagoons of various sizes and

Site Code	SAC	QI Connectivity
		salinities. The wetlands at this site provide habitat for wintering waterfowl, and for wildfowl and waders at other times of the year. Whooper Swans occur regularly on the lakes. Common Gull and Great Black-backed Gull have also been recorded.
000297	Lough Corrib SAC	Lough Corrib is situated to the north of Galway city and is the second largest lake in Ireland, with an area of approximately 18,240 ha (the entire site is 20,556 ha). A number of rivers are included within the SAC as they are important for Atlantic Salmon. Atlantic Salmon (Salmo salar) use the lake and rivers as spawning grounds.These rivers include the Clare, Grange, Abbert, Sinking, Dalgan and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen and Owenriff to the west. The lake has a population of Sea Lamprey (Petromyzon marinus). Brook Lamprey (Lampetra planeri) are also known from a number of areas within the site. The lake is also rated as an internationally important site for waterfowl. The lake supports internationally important numbers of Cormorant and Greenland White-fronted Goose, as well as breeding populations of Arctic Tern and Common Tern, and Whooper Swan. Ramsar Site.
000633	Lough Hoe Bog SAC	Lough Hoe Bog is an extensive area of undulating montane blanket bog and heath-covered rocky ridges on a lake-studded plateau in the Ox (Slieve Gamph) Mountains. Lough Talt also supports a population of Arctic Char. An island in the lake formerly held a mixed colony of Common Gulls and Black-headed Gulls however by 1992 this colony had all but disappeared.

002165	Lower Shannon River SAC	This very large site stretches along the Shannon valley from Killaloe in Co. Clare to Loop Head/ Kerry Head, a distance of some 120 km. The site thus encompasses the Shannon, Feale, Mulkear and Fergus estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. Rivers within the sub-catchment of the Feale include the Galey, Smearlagh, Oolagh, Allaughaun, Owveg, Clydagh, Caher, Breanagh and Glenacarney. Rivers within the sub-catchment of the Mulkear include the Killeenagarriff, Annagh, Newport, the Dead River, the Bilboa, Glashacloonaraveela, Gortnageragh and Cahernahallia. The Shannon and Fergus Estuaries form the largest estuarine complex in Ireland. They form a unit stretching from the upper tidal limits of the Shannon and Fergus Rivers to the mouth of the Shannon Estuary (considered to be a line across the narrow strait between Kilcredaun Point and Kilconly Point). Within this main unit there are several tributaries with their own 'sub-estuaries' e.g. the Deel River, Mulkear River, and Maigue River. To the west of Foynes, a number of small estuaries form indentations in the predominantly hard coastline, namely Poulnasherry Bay, Ballylongford Bay, Clonderalaw Bay and the Feale or Cashen River estuary. There is a resident population of Bottle-nosed Dolphin in the Shannon Estuary. This is the only known resident population of this species in Ireland. Sea Lamprey (Petromyzon marinus), Brook Lamprey (Lampetra planeri), River Lamprey (Lampetra fluviatilis), Twaite Shad (Allosa fallax fallax) and Salmon (Salmo salar) can all be found within the site. The three lampreys and Salmon have all been observed spawning in the lower Shannon or its tributaries. The Fergus is important in its lower reaches for spring salmon, while the Mulkear catchment excels as a grilse fishery, though spring fish are caught on the actual Mulkear River. The Feale is important for both types. Twaite Shad is not thought to spawn within the site. There are few other river systems in Ireland which contain all three species of lamprey. This is the most important coastal site in Ireland for a number of wader birds, with large numbers of migratory birds present in winter. Overall, the Shannon and Fergus Estuaries support the largest numbers of wintering waterfowl and waders in Ireland. Species include: Great Northern Diver, Whooper Swan, Greenland White-fronted Goose. Other wintering waders and wildfowl present include Ringed Plover, Lapwing, Dunlin, and Turnstone. A number of wintering gulls are also present, including Black-headed Gull, Common Gull, and Lesser Black-backed Gull. A number of species breed within the site. These include Sandwich Tern, Common Tern, Chough and Guillemot.

Site Code	SAC	QI Connectivity
002008	Maumturk Mountains SAC	The Maumturk Mountains are situated east of the Twelve Bens and west of the Maumtrasnas, between the Inagh Valley and the Leenaun/Maam road in Co. Galway. The site is bounded to the north by Killary Harbour and to the south by the Galway/ Clifden road. Most of the mountains exceed 600 m in height and about half of the land within the site lies above an altitude of 250 m. In addition many rivers criss-cross the site. The site is very important for salmon. The rivers and lakes, and especially the Bealnabrack system, provide high quality spawning and nursery rivers. Arctic Char has been recorded in Derryneen Lough and Lough Shindilla. However, only in Lough Shindilla are there recent records for this species.
000054	Moneen Mountain SAC	Moneen Mountain is a large, composite site situated in north County Clare. It encompasses a complete range of inland Burren habitats, from open limestone pavement and its associated calcareous grasslands and heaths, to dense Hazel scrub and patches of Ash woodland. The site extends inland from Muckinish Point and includes all of the higher ground between Ballyvaughan and Bell Harbour in a southerly direction for approximately 20 km.
002352	Monivea Bog SAC	Monivea Bog is situated approximately 5 km north-east of Athenry, Co. Galway. It is located in the townlands of Corrantarrmud, Newcastle, Glenaslat and Lenamor. To the east lies the Killaclogher River and to the north a large coniferous plantation. It is located in an area of karstic limestone.
000470	Mullet/Blacksod Bay Complex SAC	This large coastal site, located in north-west Co. Mayo, comprises much of the Mullet Peninsula, the sheltered waters of Blacksod Bay and the low-lying sandy coastline from Belmullet to Kinrovar. The site displays an excellent range of coastal and marine habitats. Blacksod Bay is 16 km in length and 8 km wide at the mouth. It is a shallow bay, reaching a maximum depth of 19 m and with weak tidal streams. The bay has a good range of representative littoral and sublittoral sediment communities, and also infralittoral reefs. Otter is well distributed throughout the site.This site has high ornithological importance. Blacksod Bay provides ideal habitat for divers, with Great Northern Diver occurring in numbers of international importance and Red-throated Divers in significant numbers. The site is an important wintering area for an internationally important population of Barnacle Goose and also populations of Greenland White-fronted Goose and Whooper Swans. Little Tern has bred in small numbers in the past, while the site is well-known for one of Ireland's rarest breeding birds, the Red-necked Phalarope. Unfortunately this species may now be extinct as a breeding species. A wide range of other wintering birds occur, including Ringed Plover, Sanderling, and Dunlin and Lapwing. OSPAR - O-IE-0002972. Ramsar site

Site Code	SAC	QI Connectivity
001932	Mweelrea/Seeffry/Erriff Complex SAC	The Mweelrea/Sheeffry/Erriff Complex SAC covers a large area of the scenic hills of south Co. Mayo. The western limit of the site is at Dooaghtry, south of Kinnadoohy. The southern margin is bounded by Killary Harbour and the Erriff River, including the corrie of Lough Glenawough. The Aille River forms the eastern limit, and to the north the boundary includes the main massifs of the Sheeffry Hills and the Mweelrea Mountains. Several river catchments are encompassed within the site, including the Bundorragha and Glenummera Rivers, as well as Fin Lough, Doo Lough and Glencullin Lough, the upper catchment of the Bunowen River and parts of the Derrycraff and Owenmore Rivers. The Erriff River system supports an important population of Salmon (Salmo salar). Arctic Char has been recorded from Doo Lough and there is a pre-1930 record of this fish species from Lough Glenawough. Otters are known to breed in the lakes at this site.Bird counts made over three seasons (1984/85 - 1986/87) for the coastal wetlands from Emlagh Point to Killary Harbour indicate nationally important numbers of Ringed Plover and regionally/locally important numbers (average peaks) of Whooper Swan, Barnacle Goose, and Dunlin. Dooaghty itself is also a nesting area for Chough. The shallow lakes at Dooaghtry are used by a great variety of wintering waterfowl, waders and passage migrants. The patchwork of lowland blanked bogs at this site provides an important traditional feeding and roosting area for the Erriff/ Derrycraff flock of Greenland White-fronted Goose.
001309	Omey Island Machair SAC	Omey Island lies 9 km north-west of Clifden on the Connemara coast in Co. Galway. An area of sandflats some 300 m wide separates it from the mainland. Between 15 and 20 Chough are regularly seen feeding on the machair and dry grassland. The intertidal sandflats between the island and the mainland provide good habitat for waterfowl in autumn and winter. Ringed Plover and Sanderling occur in nationally important numbers, while Dunlin and Turnstone are some of the species to be found in small numbers.
002006	Ox Mountains Bogs SAC	This site comprises several upland blanket bogs situated in the Slieve Gamph, or Ox Mountain range, on the border between counties Sligo and Mayo. During the winter months the bogs are used by a flock of Greenland White-fronted Goose (recorded at Easky Bog). Part of the site has been designated as a Statutory Nature Reserve.
002298	River Moy SAC	This site comprises almost the entire freshwater element of the River Moy and its tributaries including both Loughs Conn and Cullin. The system drains a catchment area of 805 sq. km. Most of the site is in Co. Mayo, though parts are in west Sligo and north Roscommon. Apart from the Moy itself, other rivers included within the site are the Deel, Bar Deela, Castlehill, Addergoole, Clydagh and Manulla on the west side, and the Glenree, Yellow, Strade, Gweestion, Trimogue, Sonnagh, Mullaghanoe, Owengarve, Eighnagh and Owenaher on the east side. The Moy system is one of Ireland's premier salmon waters. The site is designated for [1095] Sea Lamprey (*Petromyzon marinus*) and [1106] Atlantic Salmon (*Salmo salar*). The Moy is a most productive catchment in salmon terms and this can be attributed to its being a fingered system with a multiplicity of 1st to 5th order tributaries which are large enough to support salmonids < 2 years of age while at the same time being too small to support significant adult trout numbers and are therefore highly productive in salmonid nursery terms. Salmon run the Moy every month of the year. Both multi-sea-winter fish and grilse are present. In general spring fish are found more frequently in the rivers at the western extent of the Moy system. The Arctic Char (Salvelinus alpinus) has been recorded from Lough Conn and in only a few other lakes in Ireland. The latest reports suggest that it may now have disappeared from the site. The site is also important for the presence of Sea Lamprey, Brook Lamprey and Otter. The Sea Lamprey is regularly encountered in the lower stretches of the river around Ballina, while Otter are widespread throughout the system. Loughs Conn and Cullin support important concentrations of wintering waterfowl and both are designated Special Protection Areas (SPAs). A nationally important population of Greenland White-fronted

Site Code	SAC	QI Connectivity
		Goose is centred on Lough Conn. Whooper Swans also occur. A range of other species occur on the lakes in regionally important concentrations, notably Lapwing >1,000. Ramsar site (Moy estuary)
000101	Roaring Bay and Islands SAC	Roaringwater Bay, Co. Cork, is a wide, shallow bay located on the south-west coast of Ireland. The SAC includes the immediate coastline on the mainland from Long Island to Baltimore, together with the whole bay and most of the islands. Some of the larger islands included are Sherkin Island, Cape Clear Island, Heir Island, Horse Island, Castle Island and Long Island. High rocky sea cliffs are confined to the southern and south-eastern sides of Clear Island and Sherkin Island. The steep areas of rocky cliffs are generally between 30 and 60 m in height, but more sloping ground with a heath covering extends to 120 m on Clear Island and to 100 m on Sherkin Island.Otter, Grey Seal and Harbour Porpoise occur within the site. Grey Seal is present at the site throughout the year during all aspects of its annual life cycle which includes breeding, moulting, non-breeding, foraging and resting phases. Roaringwater Bay may be one of the most important sites in Ireland for Harbour Porpoise. Harbour Porpoise in Irish waters are largely resident and observations have shown that they are regular in the waters of Roaringwater Bay. Most observations are in the autumn, when more than 100 individuals have been recorded in a day. Seabirds breed on some of the islands in the bay. Surveys on Clear Island have reported the following species: Fulmar, Shag, Lesser Black-backed Gull, Herring Gull, Great Black-backed Gull, Guillemot, and Razorbill. Cormorants breed on Calf Island, Carrigmore and The Catalogues, and there is a scattering of gulls on several other islands. Roaringwater Bay has a nationally important population of Black Guillemot. Terns (Arctic/Common) are known to breed within the site, with historic records of a large colony on Carrigviglash Rock. However large numbers have not been seen since and there have been no records of breeding in recent years. The site holds a very important concentration of Chough. Clear Island has Ireland's only manned bird observatory and there is a marine research station on Sherkin Island. OSPAR - O-IE-0002965

Site Code	SAC	QI Connectivity
001311	Rusheenduff Lough SAC	Rusheenduff Lough is a small coastal lake located 3 km north-west of Tully Cross, Co. Galway. It is separated from the sea by a narrow shingle bar which forms part of the site. It is a shallow lake, not exceeding 3 m in depth, and its bed is stony around the edges.
002283	Rutland Island and Sound SAC	Rutland Island and Sound SAC lies between Aran Island and Burtonport in north-west Donegal, 5 km north-west of Dunglow. Besides Rutland itself a number of other small rocky islets are also included in the site. Rutland Channel and Sound is a complex of shallow reefs and sediment communities sheltered from wave action with varying degrees of current. The site supports a population of Common Seal.
000542	Slieve Fyagh Bog SAC	Slieve Fyagh Bog is located about 6 km north-east of Bangor in Co. Mayo. It is bounded on the north by the Glenamoy River, on the east and west by forestry plantations, and on the south by the Glencullin River.
000190	Slieve Tooey/Tormore Island/Loughros Beg Bay SAC	This large and scenic site covers the northern half of the Slieve League peninsula in Co. Donegal, stretching from Ardara in the east towards Glencolmbkille and Glen Bay in the west. Along its northern side, the site is fringed by a range of coastal habitats, including sea cliffs, stacks, islets, caves, sand dunes, the Loughros Beg Bay estuary and salt marshes. Grey Seal breed in sea caves in this site.
000328	Slyne Head Islands SAC	This site comprises a long archipelago of islands, islets, rocks and reefs located off the western shores and south-western tip of the Slyne Head Peninsula in Co. Galway. The surrounding shallow marine areas are also included as part of the site. Slyne Head Islands SAC contains excellent examples of reefs, ranging from those extremely exposed to wave action to more sheltered ones. The complexity of the islands helps provide a good range of habitat conditions, and many typical communities are present. The site contains an important breeding colony of Grey Seal. The islands also support important colonies of breeding seabirds, including Arctic Tern on Illaunamid - one of the largest colonies in Ireland and which at one time comprised 11.3% of the national total. Terns have also bred on Chapel Island in the past. Also of national importance is the colony of Black Guillemots. Other seabirds recorded as breeding in the site include Storm Petrel, Manx Shearwater, Shag, Herring Gull and Great Black-backed Gull.
002074	Slyne Head Peninsula SAC	This site comprises the peninsula west of Ballyconneely, Co. Galway. It extends northwards to Errislannan Point to include the shallow waters of Mannin Bay. The peninsula is low-lying and undulating, reaching a maximum height of only 64 m (Doon Hill). Chough, Sandwich Tern, and Common Tern are known to breed at the site.
002031	The Twelve Bens/Garraun Complex SAC	This is an extensive site situated in the north-west of Connemara in Co. Galway and dominated by mountainous terrain. The site is bounded to the south by the Connemara Bog Complex, to the east by the Maumturk Mountains and to the north by Killary Harbour. Included within the site are the Twelve Bens mountain range, the mountains to the north of Kylemore (Doughruagh, Garraun and Benchoona), rivers including the Ballynahinch and Owenglin systems and an area of coastal heath and machair near Glassilaun. The site also includes some extensive tracts of lowland blanket bog which are continuous with the mountains. Otter have been recorded across the site. The Owenglin River supports an important population of Salmon. Arctic Char has been recorded from Lough Inagh, Kylemore Lough, Lough Muck and Lough Fee. Bird species reported from the site include Chough.

Site Code	SAC	QI Connectivity
000330	Tully Mountain SAC	Tully Mountain is located on the northern side of Ballynakill Harbour, approximately 5 km north-west of Letterfrack, Co. Galway.
001898	Unshin River SAC	The Unshin River runs from Lough Arrow north to Ballysadare Bay, Co. Sligo. The river is largely undrained and unaltered along much of its course. The Unshin and its tributaries form a very important system for Atlantic Salmon. The Owenboy/ Owenbeg river is the principle spawning and nursery tributary for the system's salmon fishery. The Unshin and its tributaries is the most important salmon producing river in Co. Sligo. The system also supports a good population of Trout. Otter has been recorded in and near this site. Whooper Swan have been recorded feeding in the wet grasslands that flank the river.
002998	West Connacht Coast SAC	This site is located off the coasts of Counties Mayo and Galway in the west of Ireland. Comprising two parts, in its northern component the site extends from the coastal waters off Erris Head westwards beyond Eagle Island and the Mullet Peninsula in Co. Mayo. From there it extends southwards immediately off the coast as far as the entrance to Blacksod Bay. In its southern component, the site stretches from Clare Island and the outer reaches of Clew Bay at Old Head and continues southwards off the Mayo coast to the Connemara coast near Clifden and Ballyconneely, Co Galway. Predominantly coastal in nature, the site extends westwards into Atlantic continental shelf waters up to approximately 7-11 km from the mainland, although in its southern component it remains mostly inshore of the main islands: Clare Island, Inishturk, Inishbofin and Inishshark. Its area contains subtidal waters fringing these and other islands, as well as islets and rocky skerries off the Co. Mayo and Co. Galway coasts. The SAC is designated for Bottlenose Dolphin (Tursiops truncatus) [1349], which occur within the site in all seasons and the area comprises a key habitat for the species both regionally and within Irish waters as a whole. Survey data show that Bottle-nosed Dolphin occurrence within the site compares favourably with another designated site in Ireland, the Lower River Shannon. Significant structural linkages have been established between groups of dolphins utilising various coastal habitats within the site, while a high proportion of individuals within this Bottle-nosed Dolphin community have been shown to range freely within its coastal waters. Analyses of genetic structure also show a fine scale distinction between dolphins sampled within the site and animals sampled at the Shannon Estuary or nationally. Sighting records of Bottle-nosed Dolphins from the Mullet Peninsula and outlying islands, outer Clew Bay, Clare Island, Roonagh, outer Killary Harbour, Ballynakill Harbour and west Connemara are significant for the west coast of Ireland and indicate widespread use of the area by individual groups of dolphins. Individual dolphins are also known to recur within and between years at key locations within the site (e.g. outer Killary Harbour, off the Mullet Peninsula), indicating a degree of site fidelity to its coastal waters. The minimum distance of the SAC to the GWA is 61 km.
000197	West of Ardara/Maas Road SAC	This extensive site occupies the area of coast immediately north of Ardara in south-west Co. Donegal. From Ardara, it continues northwards around the coast, and then up the Gweebarra River to Doocharry. Lough Beg Bay and Slieve Tooey Mountain are adjacent, and to the south-west of the site. The Owenea system and some of its tributaries, including the Stracashel and Owengarve Rivers, are included. The site supports populations of Common Seal.

Table A.5: SAC exclusion and Rationale

Site Code	SAC	Exclude (Y/N)	Rationale
001228	Aughrusbeg Machair and Lake SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
000335	Ballinskelligs Bay and Inny Estuary SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
000622	Ballysadare Bay SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002327	Belgica Mound Province SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
001922	Bellacorick Bog Complex SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
002170	Blackwater River (Cork/Waterford) SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002173	Blackwater River (Kerry) SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002172	Blasket Islands SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000472	Broadhaven Bay SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
000476	Carrowmore Lake Complex SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
000343	Castlemaine Harbour SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000930	Clare Glen SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
002243	Clare Island Cliffs SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
001482	Clew Bay Complex SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002034	Connemara Bog Complex SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000484	Cross Lough (Killadoon) SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
000627	Cumeen Strand/Drumcliff Bay (Sligo Bay) SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000133	Donegal Bay (Murvagh) SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000495	Duvillaun Islands SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
001501	Erris Head SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000268	Galway Bay Complex SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000500	Glenamoy Bog Complex SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000090	Glengarriff Harbour and Woodland SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	SAC	Exclude (Y/N)	Rationale
000147	Horn Head and Rinclevan SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002328	Hovland Mound Province SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
000278	Inishbofin and Inishark SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000507	Inishkea Islands SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002158	Kenmare River SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002111	Kilkieran Bay and Islands SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000458	Killala Bay/Moy Estuary SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002265	Kingstown Bay SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
000516	Lackan Saltmarsh and Kilcummin Head SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
001529	Lough Cahasy, Lough Baun and Roonah Lough SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
000297	Lough Corrib SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000633	Lough Hoe Bog SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
002165	Lower Shannon River SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002008	Maumturk Mountains SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000054	Moneen Mountain SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
002352	Monivea Bog SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
000470	Mullet/Blacksod Bay Complex SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
001932	Mweelrea/Seeffry/Erriff Complex SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
001309	Omey Island Machair SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
002006	Ox Mountains Bogs SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
002298	River Moy SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000101	Roaring Bay and Islands SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	SAC	Exclude (Y/N)	Rationale
001311	Rusheenduff Lough SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
002283	Rutland Island and Sound SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000542	Slieve Fyagh Bog SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
000190	Slieve Tooey/Tormore Island/Loughros Beg Bay SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000328	Slyne Head Islands SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002074	Slyne Head Peninsula SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
002031	The Twelve Bens/Garraun Complex SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000330	Tully Mountain SAC	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
001898	Unshin River SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
002998	West Connacht Coast SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
000197	West of Ardara/Maas Road SAC	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Table A.6: List of SPAs Reviewed

SPAs Reviewed	
Ardboline Island And Horse Island SPA	Lough Arrow SPA
Baldoyle Bay SPA	Lough Carra SPA
Ballintemple And Ballygilgan SPA	Lough Conn And Lough Cullin SPA
Ballyallia Lough SPA	Lough Corrib SPA
Ballycotton Bay SPA	Lough Croan Turlough SPA
Ballymacoda Bay SPA	Lough Cutra SPA
Ballysadare Bay SPA	Lough Derg (Donegal) SPA
Ballyteigue Burrow SPA	Lough Derg (Shannon) SPA
Bannow Bay SPA	Lough Derravaragh SPA
Beara Peninsula SPA	Lough Ennell SPA
Bills Rocks SPA	Lough Fern SPA
Blacksod Bay/Broadhaven SPA	Lough Foyle SPA
Blackwater Callows SPA	Lough Gara SPA
Blackwater Estuary SPA	Lough Iron SPA
Blasket Islands SPA	Lough Kinale And Derragh Lough SPA
Boyne Estuary SPA	Lough Mask SPA
Cahore Marshes SPA	Lough Nillan Bog SPA
Carlingford Lough SPA	Lough Oughter SPA
Carrowmore Lake SPA	Lough Owel SPA
Castlemaine Harbour SPA	Lough Rea SPA
Clare Island SPA	Lough Ree SPA
Cliffs Of Moher SPA	Lough Sheelin SPA
Clonakilty Bay SPA	Lough Swilly SPA
Connemara Bog Complex SPA	Magharee Islands SPA
Coole-Garryland SPA	Malahide Estuary SPA
Cork Harbour SPA	Malin Head Spa SPA
Corofin Wetlands SPA	Mid Clare Coast SPA
Courtmacsherry Bay SPA	Middle Shannon Callows SPA
Cregganna Marsh SPA	Mid-Waterford Coast SPA
Cross Lough (Killadoon) SPA	Mullaghanish To Musheramore Mountains SPA
Cruagh Island SPA	Mullet Peninsula SPA

SPAs Reviewed	
Cummeen Strand SPA	North Bull Island SPA
Dalkey Islands SPA	Old Head Of Kinsale SPA
Deenish Island And Scariff Island SPA	Owenduff/Nephin Complex SPA
Derryveagh And Glendowan Mountains Spa SPA	Poulaphouca Reservoir SPA
Dingle Peninsula SPA	Puffin Island SPA
Donegal Bay SPA	Rahasane Turlough SPA
Doogort Machair SPA	Rathlin O'birne Island SPA
Dovegrove Callows SPA	River Boyne And River Blackwater SPA
Drumcliff Bay SPA	River Little Brosna Callows SPA
Dundalk Bay SPA	River Nanny Estuary And Shore - SPA
Dungarvan Harbour SPA	River Nore SPA
Durnesh Lough SPA	River Shannon And River Fergus Estuaries SPA
Duvillaun Islands SPA	River Suck Callows SPA
Falcarragh To Meenlaragh SPA	Roaninish SPA
Fanad Head SPA	Rockabill SPA
Four Roads Turlough SPA	Rogerstown SPA
Galley Head To Duneen Point SPA	Saltee Islands SPA
Glen Lough SPA	Seven Heads SPA
Greers Isle SPA	Sheep's Head To Toe Head SPA
Helvick Head To Ballyquin SPA	Sheskinmore Lough SPA
High Island, Inishshark And Davillaun SPA	Skelligs SPA
Horn Head To Fanad Head SPA	Skerries Islands SPA
Howth Head Coast SPA	Slieve Aughty Mountains SPA
Illancrone And Inishkeeragh SPA	Slieve Beagh SPA
Illanmaster SPA	Slieve Bloom Mountains SPA
Illaunnanoon SPA	Slievefelim To Silvermines Mountains SPA
Illaunonearaun SPA	Sligo/Leitrim Uplands SPA
Inishbofin, Inishdooey And Inishbeg SPA	Slyne Head To Ardmore Point Islands SPA
Inishbofin, Omey Island And Turbot Island SPA	South Dublin Bay And River Tolka Estuary SPA
Inishduff SPA	Sovereign Islands SPA
Inishglora And Inishkeeragh SPA	Stabannan-Braganstown SPA
Inishkea Islands SPA	Stack's To Mullaghareirk Mountains SPA
Inishkeel SPA	Stags Of Broad Haven SPA

SPAs Reviewed	
Inishmore SPA	Tacumshin Lake SPA
Inishmurray SPA	Termoncarragh Lake And Annagh Machair SPA
Inishtrahull SPA	The Bull And The Cow Rocks SPA
Inner Galway Bay SPA	The Murrough SPA
Ireland's Eye SPA	The Raven SPA
Iveragh Peninsula SPA	Tory Island SPA
Keeragh Islands SPA	Tralee Bay Complex SPA
Kerry Head SPA	Tramore Back Strand SPA
Kilcolman Bog SPA	Trawbreaga Bay SPA
Killala Bay/Moy Estuary SPA	West Donegal Coast SPA
Lady's Island Lake SPA	West Donegal Islands SPA
Lambay Island SPA	Wexford Harbour And Slobs SPA
Loop Head SPA	Wicklow Mountains SPA

Table A.7: List of SPAs within the zone of influence included in the Screening for AA

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
004135	Ardboline Island and Horse Island SPA	(A017) Cormorant (Phalacrocorax carbo)	3	155
		(A045) Barnacle Goose (Branta leucopsis)	n/a	
004133	Aughris Head SPA	(A199) Kittiwake (Rissa tridactyla)	2	152
004234	Ballintemple and Ballygilgan SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	159
004129	Ballysadare Bay SPA	(A046) Brent Goose (Branta bernicla hrota)	n/a	161
		(A141) Grey Plover (Pluvialis squatarola)	n/a	
		(A149) Dunlin (Calidris alpina alpina)	n/a	
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a	
		(A162) Redshank (Tringa totanus)	n/a	
		(A999) Wetlands & Waterbirds	n/a	
004155	Beara Peninsula SPA	(A009) Fulmar (Fulmarus glacialis)	2	297
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
004177	Bills Rocks SPA	(A014) Storm Petrel (Hydrobates pelagicus)	2	81
		(A204) Puffin (Fratercula arctica)	3	
004037	Blacksod Bay/Broad Haven SPA	(A003) Great Northern Diver (Gavia immer)	n/a	73
		(A046) Brent Goose (Branta bernicla hrota)	n/a	
		(A065) Common Scoter (Melanitta nigra)	n/a	
		(A069) Red-breasted Merganser (Mergus serrator)	n/a	
		(A137) Ringed Plover (Charadrius hiaticula)	n/a	
		(A144) Sanderling (Calidris alba)	n/a	
		(A149) Dunlin (Calidris alpina alpina)	n/a	
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a	
		(A160) Curlew (Numenius arquata)	n/a	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A191) Sandwich Tern (Sterna sandvicensis)	2	
		(A466) Dunlin (Calidris alpina schinzii)	n/a	
		(A999) Wetlands & Waterbirds	n/a	
004094	Blackwater Callows SPA	(A038) Whooper Swan (Cygnus cygnus)	n/a	304
		(A050) Wigeon (Anas penelope)	n/a	
		(A052) Teal (Anas crecca)	n/a	
		(A156) Black-tailed Godwit (Limosa limosa)	n/a	
004028	Blackwater Estuary SPA	(A050) Wigeon (Anas penelope) (wintering)	n/a	329
		(A140) Golden Plover (Pluvialis apricaria) (wintering)	n/a	
		(A142) Lapwing (Vanellus vanellus) (wintering)	n/a	
		(A149) Dunlin (Calidris alpina) (wintering)	n/a	
		(A156) Black-tailed Godwit (Limosa limosa) (wintering)	n/a	
		(A157) Bar-tailed Godwit (Limosa lapponica) (wintering)	n/a	
		(A160) Curlew (Numenius arquata) (wintering)	n/a	
		(A162) Redshank (Tringa totanus) (wintering)	n/a	
		(A999) Wetlands & Waterbirds	n/a	
004008	Blasket Islands SPA	(A009) Fulmar (Fulmarus glacialis)	2	240
		(A013) Manx Shearwater (Puffinus puffinus)	2	
		(A014) Storm Petrel (Hydrobates pelagicus)	2	
		(A018) Shag (Phalacrocorax aristotelis)	3	
		(A183) Lesser Black-backed Gull (Larus fuscus)	1	
		(A184) Herring Gull (Larus argentatus)	1	
		(A188) Kittiwake (Rissa tridactyla)	2	
		(A194) Arctic Tern (Sterna paradisaea)	n/a	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A200) Razorbill (Alca torda)	3	
		(A204) Puffin (Fratercula arctica)	3	
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
004052	Carrowmore Lake SPA	(A191) Sandwich Tern (Sterna sandvicensis)	2	84
004029	Castlemaine Harbour SPA	(A001) Red-throated Diver (Gavia stellata) (wintering)	n/a	246
		(A017) Cormorant (Phalacrocorax carbo) (wintering)	3	
		(A046) Brent Goose (Branta bernicla hrota) (wintering)	n/a	
		(A050) Wigeon (Anas penelope) (wintering)	n/a	
		(A053) Mallard (Anas platyrhynchos) (wintering)	n/a	
		(A054) Pintail (Anas acuta) (wintering)	n/a	
		(A062) Scaup (Aythya marila) (wintering)	n/a	
		(A065) Common Scoter (Melanitta nigra) (wintering)	n/a	
		(A130) Oystercatcher (Haematopus ostralegus) (wintering)	n/a	
		(A137) Ringed Plover (Charadrius hiaticula) (wintering)	n/a	
		(A144) Sanderling (Calidris alba) (wintering)	n/a	
		(A157) Bar-tailed Godwit (Limosa lapponica) (wintering)	n/a	
		(A162) Redshank (Tringa totanus) (wintering)	n/a	
		(A164) Greenshank (Tringa nebularia) (wintering)	n/a	
		(A169) Turnstone (Arenaria interpres) (wintering)	n/a	
		(A346) Chough (Pyrrhocorax pyrrhocorax) (non-breeding)	n/a	
		(A999) Wetlands & Waterbirds	n/a	
004136	Clare Island SPA	(A009) Fulmar (Fulmarus glacialis)	2	83
		(A018) Shag (Phalacrocorax aristotelis)	3	
		(A182) Common Gull (Larus canus)	1	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A188) Kittiwake (Rissa tridactyla)	2	
		(A199) Guillemot (Uria aalge)	3	
		(A200) Razorbill (Alca torda)	3	
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
004005	Cliffs of Moher SPA	(A009) Fulmar (Fulmarus glacialis)	2	191
		(A188) Kittiwake (Rissa tridactyla)	2	
		(A199) Guillemot (Uria aalge)	3	
		(A200) Razorbill (Alca torda)	3	
		(A204) Puffin (Fratercula arctica)	3	
		Chough (Pyrrhocorax pyrrhocorax) [A346]	n/a	
004181	Connemara Bog Complex SPA	(A017) Cormorant (Phalacrocorax carbo)	3	130
		(A098) Merlin (Falco columbarius)	n/a	
		(A140) Golden Plover (Pluvialis apricaria)	n/a	
		(A182) Common Gull (Larus canus)	1	
004170	Cruagh Island SPA	(A013) Manx Shearwater (Puffinus puffinus)	2	95
		(A045) Barnacle Goose (Branta leucopsis)	n/a	
004035	Cummeen Strand SPA	(A046) Brent Goose (Branta bernicla hrota)	n/a	164
		(A130) Oystercatcher (Haematopus ostralegus)	n/a	
		(A162) Redshank (Tringa totanus)	n/a	
		(A999) Wetlands & Waterbirds	n/a	
004172	Dalkey Islands SPA	(A192) Roseate Tern (Sterna dougallii)	n/a	352
		(A193) Common Tern (Sterna hirundo)	n/a	
		(A194) Arctic Tern (Aterna paradisaea)	n/a	
004175	Deenish Island and Scariff Island SPA	(A009) Fulmar (Fulmarus glacialis)	2	225

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A013) Manx Shearwater (Puffinus puffinus)	2	
		(A014) Storm Petrel (Hydrobates pelagicus)	2	
		(A183) Lesser Black-backed Gull (Larus fuscus)	1	
		(A194) Arctic Tern (Sterna paradisaea)	n/a	
004039	Derryveagh and Glendowan Mountains SPA	(A001) Red-throated Diver (Gavia stellata) (wintering)	n/a	207
		(A098) Merlin (Falco columbarius)	n/a	
		(A103) Peregrine (Falco peregrinus)	n/a	
		(A140) Golden Plover (Pluvialis apricaria)	n/a	
		(A466) Dunlin (Calidris alpina schinzii)	n/a	
004153	Dingle Peninsula SPA	(A009) Fulmar (Fulmarus glacialis)	2	229
		(A103) Peregrine (Falco peregrinus)	n/a	
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
004151	Donegal Bay SPA	(A003) Great Northern Diver (Gavia immer)	n/a	299
		(A046) Light-bellied Brent Goose (Branta bernicia hrota)	n/a	
		(A065) Common Scoter (Melanitta nigra)	n/a	
		(A144) Sandeling (Calidris alba)	n/a	
		(A999) Wetlands	n/a	
004013	Drumcliff Bay SPA	(A144) Sanderling (Calidris alba)	n/a	162
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a	
		(A999) Wetlands & Waterbirds	n/a	
004111	Duvillaun Islands SPA	(A009) Fulmar (Fulmarus glacialis)	2	62
		(A014) Storm Petrel (Hydrobates pelagicus)	2	
		(A045) Barnacle Goose (Branta leucopsis)	n/a	
001419	Falcarragh to Meenlaragh SPA	(A122) Corncrake (Crex crex)	n/a	211

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
004148	Fanad Head SPA	(A122) Corncrake (Crex crex)	n/a	244
004082	Greers Isle SPA	(A179) Black-headed Gull (Chroicocephalus ridibundus)	1	236
		(A182) Common Gull (Larus canus)	1	
		(A191) Sandwich Tern (Sterna sandvicensis)	2	
004144	High Island, Inishark and Davillaun SPA	(A009) Fulmar (Fulmarus glacialis)	2	87
		(A045) Barnacle Goose (Branta leucopsis)	n/a	
		(A194) Arctic Tern (Sterna paradisaea)	n/a	
004194	Horn Head to Fanad Head SPA	(A009) Fulmar (Fulmarus glacialis)	2	348
		(A017) Cormorant (Phalacrocorax carbo)	3	
		(A018) Shag (Phalacrocorax aristotelis)	3	
		(A045) Barnacle Goose (Branta leucopsis)	n/a	
		(A103) Peregrine (Falco peregrinus)	n/a	
		(A188) Kittiwake (Rissa tridactyla)	2	
		(A199) Guillemot (Uria aalge)	3	
		(A200) Razorbill (Alca torda)	3	
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a	
004113	Howth Head Coast SPA	(A188) Kittiwake (Rissa tridactyla)	2	348
004132	Illancrone and Inishkeeragh SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	350
		(A193) Common Tern (Sterna hirundo)	n/a	
		(A194) Arctic Tern (Sterna paradisaea)	n/a	
		(A195) Little Tern (Sterna albifrons)	n/a	
004074	Illanmaster SPA	(A014) Storm Petrel (Hydrobates pelagicus)	2	94
004231	Inishbofin, Omey Island and Turbot Island SPA	(A122) Corncrake (Crex crex)	n/a	97

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
004084	Inishglora and Inishkeeragh SPA	(A014) Storm Petrel (Hydrobates pelagicus)	2	61
		(A017) Cormorant (Phalacrocorax carbo)	3	
		(A018) Shag (Phalacrocorax aristotelis)	4	
		(A045) Barnacle Goose (Branta leucopsis)	n/a	
		(A183) Lesser Black-backed Gull (Larus fuscus)	1	
		(A184) Herring Gull (Larus argentatus)	1	
		(A194) Arctic Tern (Sterna paradisaea)	n/a	
004004	Inishkea Islands SPA	(A018) Shag (Phalacrocorax aristotelis)	3	57
		(A045) Barnacle Goose (Branta leucopsis)	n/a	
		(A137) Ringed Plover (Charadrius hiaticula)	n/a	
		(A144) Sanderling (Calidris alba)	n/a	
		(A148) Purple Sandpiper (Calidris maritima)	n/a	
		(A169) Turnstone (Arenaria interpres)	n/a	
		(A182) Common Gull (Larus canus)	n/a	
		(A184) Herring Gull (Larus argentatus)	1	
		(A194) Arctic Tern (Sterna paradisaea)	1	
		(A195) Little Tern (Sterna albifrons)	n/a	
		(A466) Dunlin (Calidris alpina schinzii)	n/a	
004116	Inishkeel SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	180
004152	Inishmore SPA	(A188) Kittiwake (Rissa tridactyla)	2	165
		(A154) Arctic Tern (Sterna paradisaea)	1	
		(A195) Little Tern (Sterna albifrons)	n/a	
		(A199) Guillemot (Uria aalge)	3	
004031	Inner Galway Bay SPA	(A003) Great Northern Diver (Gavia immer)	n/a	175

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A017) Cormorant (Phalacrocorax carbo)	3	
		(A028) Grey Heron (Ardea cinerea)	1	
		(A046) Brent Goose (Branta bernicla hrota)	n/a	
		(A050) Wigeon (Anas penelope)	n/a	
		(A052) Teal (Anas crecca)	n/a	
		(A056) Shoveler (Anas clypeata)	n/a	
		(A069) Red-breasted Merganser (Mergus serrator)	n/a	
		(A137) Ringed Plover (Charadrius hiaticula)	n/a	
		(A140) Golden Plover (Pluvialis apricaria)	n/a	
		(A142) Lapwing (Vanellus vanellus)	n/a	
		(A149) Dunlin (Calidris alpina alpina)	n/a	
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a	
		(A160) Curlew (Numenius arquata)	n/a	
		(A162) Redshank (Tringa totanus)	n/a	
		(A169) Turnstone (Arenaria interpres)	n/a	
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	n/a	
		(A182) Common Gull (Larus canus)	1	
		(A191) Sandwich Tern (Sterna sandvicensis)	2	
		(A193) Common Tern (Sterna hirundo)	n/a	
		(A999) Wetlands & Waterbirds	n/a	
		(A182) Common Gull (Larus canus)	n/a	
		(A194) Arctic Tern (Sterna paradisaea)	n/a	
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a	
004117	Ireland's Eye SPA	(A017) Cormorant (Phalacrocorax carbo)	3	348

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A184) Herring Gull (Larus argentatus)	1	
		(A188) Kittiwake (Rissa tridactyla)	2	
		(A199) Guillemot (Uria aalge)	3	
		(A200) Razorbill (Alca torda)	3	
004154	Iveragh Peninsula SPA	(A009) Fulmar (Fulmarus glacialis)	2	260
		(A103) Peregrine (Falco peregrinus)	n/a	
		(A188) Kittiwake (Rissa tridactyla)	2	
		(A199) Guillemot (Uria aalge)	3	
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
004189	Kerry Head SPA	(A009) Fulmar (Fulmarus glacialis)	2	215
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
004036	Killala Bay/Moy Estuary SPA	(A137) Ringed Plover (Charadrius hiaticula)	n/a	123
		(A140) Golden Plover (Pluvialis apricaria)	n/a	
		(A141) Grey Plover (Pluvialis squatarola)	n/a	
		(A144) Sanderling (Calidris alba)	n/a	
		(A149) Dunlin (Calidris alpina alpina)	n/a	
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a	
		(A160) Curlew (Numenius arquata)	n/a	
		(A162) Redshank (Tringa totanus)	n/a	
		(A999) Wetlands & Waterbirds	n/a	
004038	Killarney National Park SPA	(A098) Merlin (Falco columbarius)	n/a	267
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a	
004069	Lambay Island SPA	(A009) Fulmar (Fulmarus glacialis)	2	342
		(A017) Cormorant (Phalacrocorax carbo)	3	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A018) Shag (Phalacrocorax aristotelis)	3	
		(A043) Greylag goose (Anser anser)	n/a	
		(A183) Lesser Black-backed Gull (Larus fuscus)	1	
		(A184) Herring Gull (Larus argentatus)	1	
		(A188) Kittiwake (Rissa tridactyla)	2	
		(A199) Guillemot (Uria aalge)	3	
		(A200) Razorbill (Alca torda)	3	
		(A204) Puffin (Fratercula arctica)	3	
004119	Loop Head SPA	(A188) Kittiwake (Rissa tridactyla)	2	199
		(A199) Guillemot (Uria aalge)	3	
004228	Lough Conn and Lough Cullin SPA	(A061) Tufted Duck (Aythya fuligula)	n/a	121
		(A065) Common Scoter (Melanitta nigra)	n/a	
		(A182) Common Gull (Larus canus)	n/a	
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a	
		(A999) Wetlands & Waterbirds	n/a	
004042	Lough Corrib SPA	(A051) Gadwall (Anas strepera)	n/a	148
		(A056) Shoveler (Anas clypeata)	n/a	
		(A059) Pochard (Aythya ferina)	n/a	
		(A061) Tufted Duck (Aythya fuligula)	n/a	
		(A065) Common Scoter (Melanitta nigra)	n/a	
		(A082) Hen Harrier (Circus cyaneus)	n/a	
		(A125) Coot (Fulica atra)	n/a	
		(A140) Golden Plover (Pluvialis apricaria)	n/a	
004060	Lough Fern SPA	(A059) Pochard (Aythya ferina)	n/a	231

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A999) Wetland and Waterbirds	n/a	
004062	Lough Mask	(A061) Tufted Duck (Aythya fuligula)	n/a	143
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	1	
		(A182) Common Gull (Larus canus)	n/a	
		(A183) Lesser Black-backed Gull (Larus fuscus)	1	
		(A193) Common Tern (Sterna hirundo)	n/a	
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a	
		A999) Wetland and Waterbirds	n/a	
004110	Lough Nillan Bog SPA	(A098) Merlin (Falco columbarius)	n/a	190
		(A140) Golden Plower (Pluvialis apricaria)	n/a	
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a	
		(A466) Dunlin (Calidris alpina schinzii)	n/a	
004064	Lough Ree SPA	(A004) Little Grebe (Tachybaptus ruficollis)	n/a	226
		(A038) Whooper Swan (Cygnus cygnus) (wintering)	n/a	
		(A043) Greylag goose (Anser anser)	n/a	
		(A050) Wigeon (Anas penelope)	n/a	
		(A052) Teal (Anas Crecca)	n/a	
		(A056) Shoveler (Shoveler)	n/a	
		(A061) Tufted Duck (Aythya fuligula)	n/a	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A065) Common Scoter (Melanitta nigra)	n/a	
		(A067) Goldeneye (Bucephala clangua)	n/a	
		(A125) Coot (Fulica atra)	n/a	
		(A140) Golden Plover (Pluvialis apricaria) (wintering)	n/a	
		(A142) Lapwing (Vanellus vanellus) (wintering)	n/a	
		(A193) Common Tern (Sterna hirundo)	n/a	
		(A999) Wetland and Waterbirds	n/a	
004075	Lough Swilly SPA	(A005) Great Crested Grebe (Podiceps cristatus)	n/a	241
		(A028) Grey Heron (Ardea cinerea)	n/a	
		(A038) Whooper Swan (Cygnus cygnus) (wintering)	n/a	
		(A043) Greylag goose (Anser anser)	n/a	
		(A048) Shelduck (Tadorna tadorna) (wintering)	n/a	
		(A050) Wigeon (Anas penelope)	n/a	
		(A052) Teal (Anas crecca)	n/a	
		(A053) Mallard (Anas platyrhynchos) (wintering)	n/a	
		(A056) Shoveler (Shoveler)	n/a	
		(A062) Scaup (Aythya marila) (wintering)	n/a	
		(A067) Goldeneye (Bucephala clangua)	n/a	
		(A069) Red-breasted Merganser (Mergus serrator)	n/a	
		(A125) Coot (Fulica atra)	n/a	
		(A130) Oystercatcher (Haematopus ostralegus)	n/a	
		(A143) Knot (Calidris canutus) (wintering)	n/a	
		(A149) Dunlin (Calidris alpina) (wintering)	n/a	
		(A160) Curlew (Numenius arquata)	n/a	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A162) Redshank (Tringa totanus)	n/a	
		(A164) Greenshank (Tringa nebularia) (wintering)	n/a	
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	1	
		(A182) Common Gull (Larus canus)	1	
		(A191) Sandwich Tern (Sterna sandvicensis)	2	
		(A193) Common Tern (Sterna hirundo)	n/a	
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a	
		(A999) Wetland and Waterbirds	n/a	
004125	Magharee Islands SPA	(A104) Storm petrel (Hydrobates pelagicus)	2	238
		(A018) Shag (Phalacrocorax aristotelis)	3	
		(A045) Barnacle Goose (Branta leucopsis)	n/a	
		(A182) Common Gull (Larus canus)	1	
		(A193) Common Tern (Sterna hirundo)	n/a	
		(A194) Arctic Tern (Sterna paradisaea)	n/a	
		(A195) Little Tern (Sterna albifrons)	n/a	
004146	Malin Head SPA	(A122) Corncrake (Crex crex)	n/a	266
004227	Mullet Peninsula SPA	(A122) Corncrake (Crex crex)	n/a	68
004006	North Bull Island SPA	(A046) Light-bellied Brent Goose (Branta bernicia hrota)	n/a	345
		(A048) Shelduck (Tadorna tadorna) (wintering)	n/a	
		(A052) Teal (Anas crecca) (wintering)	n/a	
		(A054) Pintail (Anas acuta) (wintering)	n/a	
		(A056) Shoveler (Anas clypeata)	n/a	
		(A130) Oystercatcher (Haematopus ostralegus)	n/a	
		(A140) Golden Plover (Pluvialis apricaria) (wintering)	n/a	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A141) Grey Plover (Pluvialis squatarola) (wintering)	n/a	
		(A143) Knot (Calidris canutus) (wintering)	n/a	
		(A144) Sanderling (Calidris alba) (wintering)	n/a	
		(A149) Dunlin (Calidris alpina) (wintering)	n/a	
		(A156) Black-tailed Godwit (Limosa limosa)	n/a	
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a	
		(A160) Curlew (Numenius arquata)	n/a	
		(A162) Redshank (Tringa totanus)	n/a	
		(A169) Turnstone (Arenaria interpres)	n/a	
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	n/a	
		(A999) Wetland and Waterbirds	n/a	
004003	Puffin Island SPA	(A009) Fulmar (Fulmarus glacialis)	2	269
		(A013) Manx Shearwater (Puffinus puffinus)	2	
		(A014) Storm Petrel (Hydrobates pelagicus)	2	
		(A183) Lesser Black-backed Gull (Larus fuscus)	1	
		(A200) Razorbill (Alca torda)	3	
		(A204) Puffin (Fratercula arctica)	3	
004120	Rathlin O'Birne Island SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	151
004077	River Shannon and River Fergus Estuaries SPA	(A017) Cormorant (Phalacrocorax carbo) (breeding + wintering)	3	217
		(A038) Whooper Swan (Cygnus cygnus) (wintering)	n/a	
		(A046) Brent Goose (Branta bernicla hrota) (wintering)	n/a	
		(A048) Shelduck (Tadorna tadorna) (wintering)	n/a	
		(A050) Wigeon (Anas penelope) (wintering)	n/a	
		(A052) Teal (Anas crecca) (wintering)	n/a	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A054) Pintail (Anas acuta) (wintering)	n/a	
		(A056) Shoveler (Anas clypeata) (wintering)	n/a	
		(A062) Scaup (Aythya marila) (wintering)	n/a	
		(A137) Ringed Plover (Charadrius hiaticula) (wintering)	n/a	
		(A140) Golden Plover (Pluvialis apricaria) (wintering)	n/a	
		(A141) Grey Plover (Pluvialis squatarola) (wintering)	n/a	
		(A142) Lapwing (Vanellus vanellus) (wintering)	n/a	
		(A143) Knot (Calidris canutus) (wintering)	n/a	
		(A149) Dunlin (Calidris alpina) (wintering)	n/a	
		(A156) Black-tailed Godwit (Limosa limosa) (wintering)	n/a	
		(A157) Bar-tailed Godwit (Limosa lapponica) (wintering)	n/a	
		(A160) Curlew (Numenius arquata) (wintering)	n/a	
		(A162) Redshank (Tringa totanus) (wintering)	n/a	
		(A164) Greenshank (Tringa nebularia) (wintering)	n/a	
		(A179) Black-headed Gull (Chroicocephalus ridibundus) (wintering)	1	
		(A999) Wetlands & Waterbirds	n/a	
004014	Rockabill SPA	(A148) Purple Sandpiper (Calidris maritima)	n/a	345
		(A192) Roseate Tern (Sterna dougallii)	n/a	
		(A193) Common Tern (Sterna hirundo)	n/a	
		(A194) Arctic Tern (Sterna paradisaea)	n/a	
004002	Saltee Islands	(A009) Fulmar (Fulmarus glacialis)	2	390
		(A016) Gannet (Morus bassanus)	3	
		(A017) Cormorant (Phalacrocorax carbo)	3	
		(A018) Shag (Phalacrocorax aristotelis)	3	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A183) Lesser Black-backed Gull (Larus fuscus)	1	
		(A184) Herring Gull (Larus argentatus)	1	
		(A188) Kittiwake (Rissa tridactyla)	2	
		(A199) Guillemot (Uria aalge)	3	
		(A200) Razorbill (Alca torda)	3	
004007	Skelligs SPA	(A009) Fulmar (Fulmarus glacialis)	2	274
		(A013) Manx Shearwater (Puffinus puffinus)	2	
		(A014) Storm Petrel (Hydrobates pelagicus)	2	
		(A016) Gannet (Morus bassanus)	3	
		(A188) Kittiwake (Rissa tridactyla)	2	
		(A199) Guillemot (Uria aalge)	3	
		(A204) Puffin (Fratercula arctica)	3	
004090	Sheskinmore Lough SPA	(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a	177
004165	Slievefelim to Silvermines Mountains SPA	(A082) Hen Harrier (Circus cyaneus)	n/a	251
004159	Slyne Head to Ardmore Point SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	121
		(A191) Sandwich Tern (Sterna sandvicensis)	2	
		(A194) Arctic Tern (Sterna paradisaea)	n/a	
		(A195) Little Tern (Sterna albifrons)	n/a	
004161	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	(A082) Hen Harrier (Circus cyaneus)	n/a	245
004072	Stags of Broad Haven	(A014) Storm Petrel (Hydrobates pelagicus)	2	86
		(A015) Leach's Storm-petrel (Oceanodroma leucorhoa)	n/a	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
004024	South Dublin Bay and River Tolka Estuary SPA	(A046) Light-bellied Brent Goose (Branta bernicia hrota)	n/a	344
		(A130) Oystercather (Haematopus ostralegus)	n/a	
		(A137) Ringed Plover (Charadrius hiaticula) (wintering)	n/a	
		(A141) Grey Plover (Pluvialis squatarola)	n/a	
		(A143) Knot (Calidris canutus) (wintering)	n/a	
		(A144) Sanderling (Calidris alba) (wintering)	n/a	
		(A149) Dunlin (Calidris alpina) (wintering)	n/a	
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a	
		(A162) Redshank (Tringa totanus)	n/a	
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	n/a	
		(A192) Roseate Tern (Sterna dougallii)	n/a	
		(A193) Common Tern (Sterna hirundo)	n/a	
		(A194) Arctic Tern (Sterna paradisaea)	n/a	
		(A999) Wetland and Waterbirds	n/a	
004093	Termoncarragh Lake and Annagh Machair SPA	(A038) Whooper Swan (Cygnus cygnus)	n/a	65
		(A045) Barnacle Goose (Branta leucopsis)	n/a	
		(A122) Corncrake (Crex crex)	n/a	
		(A142) Lapwing (Vanellus vanellus)	n/a	
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a	
		(A466) Dunlin (Calidris alpina schinzii)	n/a	
004066	The Bull and Cow Rocks SPA	(A014) Storm Petrel (Hydrobates pelagicus)	2	298
		(A016) Gannet (Morus bassanus)	3	
		(A204) Puffin (Fratercula arctica)	3	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
004156	The Sheep's Head to Toe Head SPA	(A103) Peregrine (Falco peregrinus)	n/a	314
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
004073	Tory Island SPA	(A009) Fulmar (Fulmarus glacialis)	2	211
		(A122) Corncrake (Crex crex)	n/a	
		(A200) Razorbill (Alca torda)	3	
		(A204) Puffin (Fratercula arctica)	3	
004188	Tralee Bay Complex SPA	(A038) Whooper Swan (Cygnus cygnus)	n/a	246
		(A046) Light-bellied Brent Goose	n/a	
		(A048) Shelduck (Tadorna tadorna) (wintering)	n/a	
		(A050) Wigeon (Anas penelope)	n/a	
		(A052) Teal (Anas crecca)	n/a	
		(A053) Mallard (Anas platyrhynchos) (wintering)	n/a	
		(A054) Pintail (Anas acuta) (wintering)	n/a	
		(A062) Scaup (Aythya marila) (wintering)	n/a	
		(A130) Oystercatcher (Haematopus)	n/a	
		(A137) Ringed Plover (Charadrius hiaticula)	n/a	
		(A140) Golden Plover (Pluvialis apricaria)	n/a	
		(A141) Grey Plover (Pluvialis squatarola)	n/a	
		(A142) Lapwing (Vanellus vanellus)	n/a	
		(A144) Sanderling (Calidris alba) (wintering)	n/a	
		(A149) Dunlin (Calidris alpina) (wintering)	n/a	
		(A156) Black-tailed Godwit (Limosa limosa)	n/a	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a	
		(A160) Curlew (Numenius Arquata)	n/a	
		(A162) Redshank (Tringa totanus)	n/a	
		(A169) Turnstone (Arenaria interpres)	n/a	
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	n/a	
		(A182) Common Gull (Larus canus)	1	
		(A999) Wetland and Waterbirds	n/a	
004034	Trawbreaga Bay SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	265
		(A046) Light-bellied Brent Goose (Branta bernicla hrota)	n/a	
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
		(A999) Wetland and Waterbirds	n/a	
004150	West Donegal Coast SPA	(A009) Fulmar (Fulmarus glacialis)	2	168
		(A017) Cormorant (Phalacrocorax carbo)	3	
		(A018) Shag (Phalacrocorax aristotelis)	3	
		(A103) Peregrine (Falco peregrinus)	n/a	
		(A184) Herring Gull (Larus argentatus)	1	
		(A188) Kittiwake (Rissa tridactyla)	2	
		(A200) Razorbill (Alca torda)	3	
		(A346) Chough (Pyrrhocorax pyrrhocorax)	n/a	
004230	West Donegal Islands SPA	(A018) Shag (Phalacrocorax aristotelis)	3	195
		(A045) Barnacle Goose (Branta leucopsis)	n/a	
		(A122) Corncrake (Crex crex)	n/a	
		(A182) Common Gull (Larus canus)	1	
		(A184) Herring Gull (Larus argentatus)	1	

Site Code	Name	QI	Risk Category from UWAc	Distance from GWA
004040	Wicklow Mountains SPA	(A098) Merlin (Falco columbarius)	n/a	343
		(A103) Peregrine (Falco peregrinus)	n/a	

Table A.8: SPA Foraging Distance Overlap with GWA

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
004135	Ardboline Island and Horse Island SPA	(A017) Cormorant (Phalacrocorax carbo)	35	155	-120
		(A045) Barnacle Goose (Branta leucopsis)	n/a		n/a
004133	Aughris Head SPA	(A199) Kittiwake (Rissa tridactyla)	300	152	148
004234	Ballintemple and Ballygilgan SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	159	n/a
004129	Ballysadare Bay SPA	(A046) Brent Goose (Branta bernicla hrota)	n/a	161	n/a
		(A141) Grey Plover (Pluvialis squatarola)	n/a		n/a
		(A149) Dunlin (Calidris alpina alpina)	n/a		n/a
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a		n/a
		(A162) Redshank (Tringa totanus)	n/a		n/a
		(A999) Wetlands & Waterbirds	n/a		n/a
004155	Beara Peninsula SPA	(A009) Fulmar (Fulmarus glacialis)	580	297	283
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		-297
004177	Bills Rocks SPA	(A014) Storm Petrel (Hydrobates pelagicus)	>65	81	16
		(A204) Puffin (Fratercula arctica)	200		-119
004037	Blacksod Bay/Broad Haven SPA	(A003) Great Northern Diver (Gavia immer)	n/a	73	n/a
		(A046) Brent Goose (Branta bernicla hrota)	n/a		n/a
		(A065) Common Scoter (Melanitta nigra)	n/a		n/a
		(A069) Red-breasted Merganser (Mergus serrator)	n/a		n/a
		(A137) Ringed Plover (Charadrius hiaticula)	n/a		n/a
		(A144) Sanderling (Calidris alba)	n/a		n/a
		(A149) Dunlin (Calidris alpina alpina)	n/a		n/a
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a		n/a

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A160) Curlew (Numenius arquata)	n/a		n/a
		(A191) Sandwich Tern (Sterna sandvicensis)	54		-19
		(A466) Dunlin (Calidris alpina schinzii)	n/a		n/a
		(A999) Wetlands & Waterbirds	n/a		n/a
004094	Blackwater Callows SPA	(A038) Whooper Swan (Cygnus cygnus)	n/a	304	n/a
		(A050) Wigeon (Anas penelope)	n/a		n/a
		(A052) Teal (Anas crecca)	n/a		n/a
		(A156) Black-tailed Godwit (Limosa limosa)	n/a		n/a
004028	Blackwater Estuary SPA	(A050) Wigeon (Anas penelope) (wintering)	n/a	329	n/a
		(A140) Golden Plover (Pluvialis apricaria) (wintering)	n/a		n/a
		(A142) Lapwing (Vanellus vanellus) (wintering)	n/a		n/a
		(A149) Dunlin (Calidris alpina) (wintering)	n/a		n/a
		(A156) Black-tailed Godwit (Limosa limosa) (wintering)	n/a		n/a
		(A157) Bar-tailed Godwit (Limosa lapponica) (wintering)	n/a		n/a
		(A160) Curlew (Numenius arquata) (wintering)	n/a		n/a
		(A162) Redshank (Tringa totanus) (wintering)	n/a		n/a
		(A999) Wetlands & Waterbirds	n/a		n/a
004008	Blasket Islands SPA	(A009) Fulmar (Fulmarus glacialis)	580	240	340
		(A013) Manx Shearwater (Puffinus puffinus)	32a>330b		90b
		(A014) Storm Petrel (Hydrobates pelagicus)	>65		-
		(A018) Shag (Phalacrocorax aristotelis)	17		-223
		(A183) Lesser Black-backed Gull (Larus fuscus)	181		-59
		(A184) Herring Gull (Larus argentatus)	92		-148
		(A188) Kittiwake (Rissa tridactyla)	300		-60
		(A194) Arctic Tern (Sterna paradisaea)	30		-210
		(A200) Razorbill (Alca torda)	305		65
		(A204) Puffin (Fratercula arctica)	200		-40
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		n/a
004052	Carrowmore Lake SPA	(A191) Sandwich Tern (Sterna sandvicensis)	54	84	-30
004029	Castlemaine Harbour SPA	(A001) Red-throated Diver (Gavia stellata) (wintering)	9	246	-237

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A017) Cormorant (Phalacrocorax carbo) (wintering)	35		-211
		(A046) Brent Goose (Branta bernicla hrota) (wintering)	n/a		n/a
		(A050) Wigeon (Anas penelope) (wintering)	n/a		n/a
		(A053) Mallard (Anas platyrhynchos) (wintering)	n/a		n/a
		(A054) Pintail (Anas acuta) (wintering)	n/a		n/a
		(A062) Scaup (Aythya marila) (wintering)	n/a		n/a
		(A065) Common Scoter (Melanitta nigra) (wintering)	n/a		n/a
		(A130) Oystercatcher (Haematopus ostralegus) (wintering)	n/a		n/a
		(A137) Ringed Plover (Charadrius hiaticula) (wintering)	n/a		n/a
		(A144) Sanderling (Calidris alba) (wintering)	n/a		n/a
		(A157) Bar-tailed Godwit (Limosa lapponica) (wintering)	n/a		n/a
		(A162) Redshank (Tringa totanus) (wintering)	n/a		n/a
		(A164) Greenshank (Tringa nebularia) (wintering)	n/a		n/a
		(A169) Turnstone (Arenaria interpres) (wintering)	n/a		n/a
		(A346) Chough (Pyrrhocorax pyrrhocorax) (non-breeding)	0.3		n/a
		(A999) Wetlands & Waterbirds	n/a		n/a
004136	Clare Island SPA	(A009) Fulmar (Fulmarus glacialis)	580	83	497
		(A018) Shag (Phalacrocorax aristotelis)	17		-66
		(A182) Common Gull (Larus canus)	50		-33
		(A188) Kittiwake (Rissa tridactyla)	300		217
		(A199) Guillemot (Uria aalge)	340		257
		(A200) Razorbill (Alca torda)	305		222
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		-83
004005	Cliffs of Moher SPA	(A009) Fulmar (Fulmarus glacialis)	580	191	389
		(A188) Kittiwake (Rissa tridactyla)	300		109
		(A199) Guillemot (Uria aalge)	340		149
		(A200) Razorbill (Alca torda)	305		114
		(A204) Puffin (Fratercula arctica)	200		9

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		-191
004181	Connemara Bog Complex SPA	(A017) Cormorant (Phalacrocorax carbo)	35	130	-95
		(A098) Merlin (Falco columbarius)	n/a		n/a
		(A140) Golden Plover (Pluvialis apricaria)	n/a		n/a
		(A182) Common Gull (Larus canus)	50		-80
004170	Cruagh Island SPA	(A013) Manx Shearwater (Puffinus puffinus)	32a>330b	95	235b
		(A045) Barnacle Goose (Branta leucopsis)	n/a		n/a
004035	Cummeen Strand SPA	(A046) Brent Goose (Branta bernicla hrota)	n/a	164	n/a
		(A130) Oystercatcher (Haematopus ostralegus)	n/a		n/a
		(A162) Redshank (Tringa totanus)	n/a		n/a
		(A999) Wetlands & Waterbirds	n/a		n/a
004172	Dalkey Islands SPA	(A192) Roseate Tern (Sterna dougallii)	30	352	-322
		(A193) Common Tern (Sterna hirundo)	n/a		n/a
		(A194) Arctic Tern (Aterna paradisaea)	30		-322
004175	Deenish Island and Scariff Island SPA	(A009) Fulmar (Fulmarus glacialis)	580	225	355
		(A013) Manx Shearwater (Puffinus puffinus)	32a/330b		105
		(A014) Storm Petrel (Hydrobates pelagicus)	>65		-160
		(A183) Lesser Black-backed Gull (Larus fuscus)	181		-44
		(A194) Arctic Tern (Sterna paradisaea)	30		-195
004039	Derryveagh and Glendowan Mountains SPA	(A001) Red-throated Diver (Gavia stellata) (wintering)	9	207	n/a
		(A098) Merlin (Falco columbarius)	n/a		n/a
		(A103) Peregrine (Falco peregrinus)	n/a		n/a
		(A140) Golden Plover (Pluvialis apricaria)	n/a		n/a
		(A466) Dunlin (Calidris alpina schinzii)	n/a		n/a
004153	Dingle Peninsula SPA	(A009) Fulmar (Fulmarus glacialis)	580	229	351
		(A103) Peregrine (Falco peregrinus)	n/a		n/a
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		-229
004151	Donegal Bay SPA	(A003) Great Northern Diver (Gavia immer)	n/a	299	n/a
		(A046) Light-bellied Brent Goose (Branta bernicia hrota)	n/a		n/a
		(A065) Common Scoter (Melanitta nigra)	n/a		n/a

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A144) Sandeling (Calidris alba)	n/a		n/a
		(A999) Wetlands	n/a		n/a
004013	Drumcliff Bay SPA	(A144) Sanderling (Calidris alba)	n/a	162	n/a
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a		n/a
		(A999) Wetlands & Waterbirds	n/a		n/a
004111	Duvillaun Islands SPA	(A009) Fulmar (Fulmarus glacialis)	580	62	518
		(A014) Storm Petrel (Hydrobates pelagicus)	>65		-
		(A045) Barnacle Goose (Branta leucopsis)	n/a		n/a
001419	Falcarragh to Meenlaragh SPA	(A122) Corncrake (Crex crex)	n/a	211	n/a
004148	Fanad Head SPA	(A122) Corncrake (Crex crex)	n/a	244	n/a
004082	Greers Isle SPA	(A179) Black-headed Gull (Chroicocephalus ridibundus)	n/a	236	n/a
		(A182) Common Gull (Larus canus)	n/a		n/a
		(A191) Sandwich Tern (Sterna sandvicensis)	54		-182
004144	High Island, Inishark and Davillaun SPA	(A009) Fulmar (Fulmarus glacialis)	580	87	493
		(A045) Barnacle Goose (Branta leucopsis)	n/a		n/a
		(A194) Arctic Tern (Sterna paradisaea)	30		-57
004194	Horn Head to Fanad Head SPA	(A009) Fulmar (Fulmarus glacialis)	580	348	232
		(A017) Cormorant (Phalacrocorax carbo)	35		-513
		(A018) Shag (Phalacrocorax aristotelis)	17		-531
		(A045) Barnacle Goose (Branta leucopsis)	n/a		n/a
		(A103) Peregrine (Falco peregrinus)	n/a		n/a
		(A188) Kittiwake (Rissa tridactyla)	300		-48
		(A199) Guillemot (Uria aalge)	340		-8
		(A200) Razorbill (Alca torda)	305		-43
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		-348
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a		n/a
004113	Howth Head Coast SPA	(A188) Kittiwake (Rissa tridactyla)	300	348	-48
004132	Illancrone and Inishkeeragh SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	350	n/a
		(A193) Common Tern (Sterna hirundo)	n/a		n/a
		(A194) Arctic Tern (Sterna paradisaea)	30		-320

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A195) Little Tern (Sterna albifrons)	11		-339
004074	Illanmaster SPA	(A014) Storm Petrel (Hydrobates pelagicus)	>65	94	-
004231	Inishbofin, Omey Island and Turbot Island SPA	(A122) Corncrake (Crex crex)	n/a	97	n/a
004084	Inishglora and Inishkeeragh SPA	(A014) Storm Petrel (Hydrobates pelagicus)	>65	61	-
		(A017) Cormorant (Phalacrocorax carbo)	35		-26
		(A018) Shag (Phalacrocorax aristotelis)	17		-44
		(A045) Barnacle Goose (Branta leucopsis)	n/a		n/a
		(A183) Lesser Black-backed Gull (Larus fuscus)	181		20
		(A184) Herring Gull (Larus argentatus)	92		31
		(A194) Arctic Tern (Sterna paradisaea)	30		-31
004004	Inishkea Islands SPA	(A018) Shag (Phalacrocorax aristotelis)	17	57	-40
		(A045) Barnacle Goose (Branta leucopsis)	n/a		n/a
		(A137) Ringed Plover (Charadrius hiaticula)	n/a		n/a
		(A144) Sanderling (Calidris alba)	n/a		n/a
		(A148) Purple Sandpiper (Calidris maritima)	n/a		n/a
		(A169) Turnstone (Arenaria interpres)	n/a		n/a
		(A182) Common Gull (Larus canus)	50		-7
		(A184) Herring Gull (Larus argentatus)	92		35
		(A194) Arctic Tern (Sterna paradisaea)	30		-27
		(A195) Little Tern (Sterna albifrons)	11		-46
		(A466) Dunlin (Calidris alpina schinzii)	n/a		n/a
004116	Inishkeel SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	180	n/a
004152	Inishmore SPA	(A188) Kittiwake (Rissa tridactyla)	300	165	135
		(A154) Arctic Tern (Sterna paradisaea)	30		-135
		(A195) Little Tern (Sterna albifrons)	11		-154
		(A199) Guillemot (Uria aalge)	340		175
004031	Inner Galway Bay SPA	(A003) Great Northern Diver (Gavia immer)	n/a	175	n/a
		(A017) Cormorant (Phalacrocorax carbo)	35		-140
		(A028) Grey Heron (Ardea cinerea)	n/a		n/a

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A046) Brent Goose (Branta bernicla hrota)	n/a		n/a
		(A050) Wigeon (Anas penelope)	n/a		n/a
		(A052) Teal (Anas crecca)	n/a		n/a
		(A056) Shoveler (Anas clypeata)	n/a		n/a
		(A069) Red-breasted Merganser (Mergus serrator)	n/a		n/a
		(A137) Ringed Plover (Charadrius hiaticula)	n/a		n/a
		(A140) Golden Plover (Pluvialis apricaria)	n/a		n/a
		(A142) Lapwing (Vanellus vanellus)	n/a		n/a
		(A149) Dunlin (Calidris alpina alpina)	n/a		n/a
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a		n/a
		(A160) Curlew (Numenius arquata)	n/a		n/a
		(A162) Redshank (Tringa totanus)	n/a		n/a
		(A169) Turnstone (Arenaria interpres)	n/a		n/a
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	40		-135
		(A182) Common Gull (Larus canus)	50		-125
		(A191) Sandwich Tern (Sterna sandvicensis)	54		-121
		(A193) Common Tern (Sterna hirundo)	30		-141
		(A999) Wetlands & Waterbirds	n/a		n/a
		(A182) Common Gull (Larus canus)	50		-125
		(A194) Arctic Tern (Sterna paradisaea)	30		-145
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a		n/a
004117	Ireland's Eye SPA	(A017) Cormorant (Phalacrocorax carbo)	35	348	-317
		(A184) Herring Gull (Larus argentatus)	92		-260
		(A188) Kittiwake (Rissa tridactyla)	300		-48
		(A199) Guillemot (Uria aalge)	340		-8
		(A200) Razorbill (Alca torda)	305		-257
004154	Iveragh Peninsula SPA	(A009) Fulmar (Fulmarus glacialis)	580	260	320
		(A103) Peregrine (Falco peregrinus)	n/a		n/a
		(A188) Kittiwake (Rissa tridactyla)	300		40
		(A199) Guillemot (Uria aalge)	340		-80

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		-260
004189	Kerry Head SPA	(A009) Fulmar (Fulmarus glacialis)	580	215	365
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		215
004036	Killala Bay/Moy Estuary SPA	(A137) Ringed Plover (Charadrius hiaticula)	n/a	123	n/a
		(A140) Golden Plover (Pluvialis apricaria)	n/a		n/a
		(A141) Grey Plover (Pluvialis squatarola)	n/a		n/a
		(A144) Sanderling (Calidris alba)	n/a		n/a
		(A149) Dunlin (Calidris alpina alpina)	n/a		n/a
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a		n/a
		(A160) Curlew (Numenius arquata)	n/a		n/a
		(A162) Redshank (Tringa totanus)	n/a		n/a
		(A999) Wetlands & Waterbirds	n/a		n/a
004038	Killarney National Park SPA	(A098) Merlin (Falco columbarius)	n/a	267	n/a
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a		n/a
004069	Lambay Island SPA	(A009) Fulmar (Fulmarus glacialis)	580	342	238
		(A017) Cormorant (Phalacrocorax carbo)	35		-307
		(A018) Shag (Phalacrocorax aristotelis)	17		-325
		(A043) Greylag goose (Anser anser)	n/a		n/a
		(A183) Lesser Black-backed Gull (Larus fuscus)	181		-161
		(A184) Herring Gull (Larus argentatus)	92		-250
		(A188) Kittiwake (Rissa tridactyla)	300		-42
		(A199) Guillemot (Uria aalge)	340		-207
		(A200) Razorbill (Alca torda)	305		-37
		(A204) Puffin (Fratercula arctica)	200		-142
004119	Loop Head SPA	(A188) Kittiwake (Rissa tridactyla)	300	199	101
		(A199) Guillemot (Uria aalge)	340		141
004228	Lough Conn and Lough Cullin SPA	(A061) Tufted Duck (Aythya fuligula)	n/a	121	n/a
		(A065) Common Scoter (Melanitta nigra)	n/a		n/a
		(A182) Common Gull (Larus canus)	50		-71

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a		n/a
		(A999) Wetlands & Waterbirds	n/a		n/a
004042	Lough Corrib SPA	(A051) Gadwall (Anas strepera)	n/a	148	n/a
		(A056) Shoveler (Anas clypeata)	n/a		n/a
		(A059) Pochard (Aythya ferina)	n/a		n/a
		(A061) Tufted Duck (Aythya fuligula)	n/a		n/a
		(A065) Common Scoter (Melanitta nigra)	n/a		n/a
		(A082) Hen Harrier (Circus cyaneus)	n/a		n/a
		(A125) Coot (Fulica atra)	n/a		n/a
		(A140) Golden Plover (Pluvialis apricaria)	n/a		n/a
004060	Lough Fern SPA	(A059) Pochard (Aythya ferina)	n/a	231	n/a
		(A999) Wetland and Waterbirds	n/a		n/a
004062	Lough Mask	(A061) Tufted Duck (Aythya fuligula)	n/a	143	n/a
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	n/a		n/a
		(A182) Common Gull (Larus canus)	50		-93
		(A183) Lesser Black-backed Gull (Larus fuscus)	181		38
		(A193) Common Tern (Sterna hirundo)	30		-110
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a		n/a
		A999) Wetland and Waterbirds	n/a		n/a
004110	Lough Nillan Bog SPA	(A098) Merlin (Falco columbarius)	n/a	190	n/a
		(A140) Golden Plover (Pluvialis apricaria)	n/a		n/a
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a		n/a
		(A466) Dunlin (Calidris alpina schinzii)	n/a		n/a
004064	Lough Ree SPA	(A004) Little Grebe (Tachybaptus ruficollis)	n/a	226	n/a
		(A038) Whooper Swan (Cygnus cygnus) (wintering)	n/a		n/a
		(A043) Greylag goose (Anser anser)	n/a		n/a
		(A050) Wigeon (Anas penelope)	n/a		n/a

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A052) Teal (Anas Crecca)	n/a		n/a
		(A056) Shoveler (Shoveler)	n/a		n/a
		(A061) Tufted Duck (Aythya fuligula)	n/a		n/a
		(A065) Common Scoter (Melanitta nigra)	n/a		n/a
		(A067) Goldeneye (Bucephala clangua)	n/a		n/a
		(A125) Coot (Fulica atra)	n/a		n/a
		(A140) Golden Plover (Pluvialis apricaria) (wintering)	n/a		n/a
		(A142) Lapwing (Vanellus vanellus) (wintering)	n/a		n/a
		(A193) Common Tern (Sterna hirundo)	n/a		n/a
		(A999) Wetland and Waterbirds	n/a		n/a
004075	Lough Swilly SPA	(A005) Great Crested Grebe (Podiceps cristatus)	n/a	241	n/a
		(A028) Grey Heron (Ardea cinerea)	n/a		n/a
		(A038) Whooper Swan (Cygnus cygnus) (wintering)	n/a		n/a
		(A043) Greylag goose (Anser anser)	n/a		n/a
		(A048) Shelduck (Tadorna tadorna) (wintering)	n/a		n/a
		(A050) Wigeon (Anas penelope)	n/a		n/a
		(A052) Teal (Anas crecca)	n/a		n/a
		(A053) Mallard (Anas platyrhynchos) (wintering)	n/a		n/a
		(A056) Shoveler (Shoveler)	n/a		n/a
		(A062) Scaup (Aythya marila) (wintering)	n/a		n/a
		(A067) Goldeneye (Bucephala clangua)	n/a		n/a
		(A069) Red-breasted Merganser (Mergus serrator)	n/a		n/a
		(A125) Coot (Fulica atra)	n/a		n/a
		(A130) Oystercatcher (Haematopus ostralegus)	n/a		n/a
		(A143) Knot (Calidris canutus) (wintering)	n/a		n/a
		(A149) Dunlin (Calidris alpina) (wintering)	n/a		n/a
		(A160) Curlew (Numenius arquata)	n/a		n/a
		(A162) Redshank (Tringa totanus)	n/a		n/a
		(A164) Greenshank (Tringa nebularia) (wintering)	n/a		n/a
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	n/a		n/a

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A182) Common Gull (Larus canus)	n/a		n/a
		(A191) Sandwich Tern (Sterna sandvicensis)	54		-187
		(A193) Common Tern (Sterna hirundo)	n/a		n/a
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a		n/a
		(A999) Wetland and Waterbirds	n/a		n/a
004125	Magharee Islands SPA	(A104) Storm petrel (Hydrobates pelagicus)	>65	238	-173
		(A018) Shag (Phalacrocorax aristotelis)	17		-221
		(A045) Barnacle Goose (Branta leucopsis)	n/a		n/a
		(A182) Common Gull (Larus canus)	n/a		n/a
		(A193) Common Tern (Sterna hirundo)	n/a		n/a
		(A194) Arctic Tern (Sterna paradisaea)	30		-208
		(A195) Little Tern (Sterna albifrons)	11		-227
004146	Malin Head SPA	(A122) Corncrake (Crex crex)	n/a	266	n/a
004227	Mullet Peninsula SPA	(A122) Corncrake (Crex crex)	n/a	68	n/a
004006	North Bull Island SPA	(A046) Light-bellied Brent Goose (Branta bernicia hrota)	n/a	345	n/a
		(A048) Shelduck (Tadorna tadorna) (wintering)	n/a		n/a
		(A052) Teal (Anas crecca) (wintering)	n/a		n/a
		(A054) Pintail (Anas acuta) (wintering)	n/a		n/a
		(A056) Shoveler (Anas clypeata)	n/a		n/a
		(A130) Oystercatcher (Haematopus ostralegus)	n/a		n/a
		(A140) Golden Plover (Pluvialis apricaria) (wintering)	n/a		n/a
		(A141) Grey Plover (Pluvialis squatarola) (wintering)	n/a		n/a
		(A143) Knot (Calidris canutus) (wintering)	n/a		n/a
		(A144) Sanderling (Calidris alba) (wintering)	n/a		n/a
		(A149) Dunlin (Calidris alpina) (wintering)	n/a		n/a
		(A156) Black-tailed Godwit (Limosa limosa)	n/a		n/a
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a		n/a
		(A160) Curlew (Numenius arquata)	n/a		n/a
		(A162) Redshank (Tringa totanus)	n/a		n/a
		(A169) Turnstone (Arenaria interpres)	n/a		n/a

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	n/a		n/a
		(A999) Wetland and Waterbirds	n/a		n/a
004003	Puffin Island SPA	(A009) Fulmar (Fulmarus glacialis)	580	269	312
		(A013) Manx Shearwater (Puffinus puffinus)	32a>330b		61b
		(A014) Storm Petrel (Hydrobates pelagicus)	>65		-
		(A183) Lesser Black-backed Gull (Larus fuscus)	181		-188
		(A200) Razorbill (Alca torda)	305		36
		(A204) Puffin (Fratercula arctica)	200		-69
004120	Rathlin O'Birne Island SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	151	n/a
004077	River Shannon and River Fergus Estuaries SPA	(A017) Cormorant (Phalacrocorax carbo) (breeding + wintering)	35	217	-182
		(A038) Whooper Swan (Cygnus cygnus) (wintering)	n/a		n/a
		(A046) Brent Goose (Branta bernicla hrota) (wintering)	n/a		n/a
		(A048) Shelduck (Tadorna tadorna) (wintering)	n/a		n/a
		(A050) Wigeon (Anas penelope) (wintering)	n/a		n/a
		(A052) Teal (Anas crecca) (wintering)	n/a		n/a
		(A054) Pintail (Anas acuta) (wintering)	n/a		n/a
		(A056) Shoveler (Anas clypeata) (wintering)	n/a		n/a
		(A062) Scaup (Aythya marila) (wintering)	n/a		n/a
		(A137) Ringed Plover (Charadrius hiaticula) (wintering)	n/a		n/a
		(A140) Golden Plover (Pluvialis apricaria) (wintering)	n/a		n/a
		(A141) Grey Plover (Pluvialis squatarola) (wintering)	n/a		n/a
		(A142) Lapwing (Vanellus vanellus) (wintering)	n/a		n/a
		(A143) Knot (Calidris canutus) (wintering)	n/a		n/a
		(A149) Dunlin (Calidris alpina) (wintering)	n/a		n/a
		(A156) Black-tailed Godwit (Limosa limosa) (wintering)	n/a		n/a
		(A157) Bar-tailed Godwit (Limosa lapponica) (wintering)	n/a		n/a
		(A160) Curlew (Numenius arquata) (wintering)	n/a		n/a
		(A162) Redshank (Tringa totanus) (wintering)	n/a		n/a
		(A164) Greenshank (Tringa nebularia) (wintering)	n/a		n/a

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A179) Black-headed Gull (Chroicocephalus ridibundus) (wintering)	40		-177
		(A999) Wetlands & Waterbirds	n/a		n/a
004014	Rockabill SPA	(A148) Purple Sandpiper (Calidris maritima)	n/a	345	n/a
		(A192) Roseate Tern (Sterna dougallii)	30		-315
		(A193) Common Tern (Sterna hirundo)	30		-315
		(A194) Arctic Tern (Sterna paradisaea)	30		-315
004002	Saltee Islands SPA	(A009) Fulmar (Fulmarus glacialis)	580	390	190
		(A016) Gannet (Morus bassanus)	590		200
		(A017) Cormorant (Phalacrocorax carbo)	35		355
		(A018) Shag (Phalacrocorax aristotelis)	35		355
		(A183) Lesser Black-backed Gull (Larus fuscus)	181		-209
		(A184) Herring Gull (Larus argentatus)	92		-507
		(A188) Kittiwake (Rissa tridactyla)	300		-90
		(A199) Guillemot (Uria aalge)	340		-50
		(A200) Razorbill (Alca torda)	305		-85
004007	Skelligs SPA	(A009) Fulmar (Fulmarus glacialis)	580	274	307
		(A013) Manx Shearwater (Puffinus puffinus)	32a>330b		56
		(A014) Storm Petrel (Hydrobates pelagicus)	>65		n/a
		(A016) Gannet (Morus bassanus)	590		317
		(A188) Kittiwake (Rissa tridactyla)	300		26
		(A199) Guillemot (Uria aalge)	340		66
		(A204) Puffin (Fratercula arctica)	200		-74
004090	Sheskinmore Lough SPA	(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a	177	n/a
004165	Slievefelim to Silvermines Mountains SPA	(A082) Hen Harrier (Circus cyaneus)	n/a	251	n/a
004159	Slyne Head to Ardmore Point SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	121	n/a
		(A191) Sandwich Tern (Sterna sandvicensis)	54		-67
		(A194) Arctic Tern (Sterna paradisaea)	30		-91

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A195) Little Tern (Sterna albifrons)	11		-110
004161	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	(A082) Hen Harrier (Circus cyaneus)	n/a	245	n/a
004072	Stags of Broad Haven	(A014) Storm Petrel (Hydrobates pelagicus)	n/a	86	n/a
		(A015) Leach's Storm-petrel (Oceanodroma leucorhoa)	n/a		n/a
004024	South Dublin Bay and River Tolka Estuary SPA	(A046) Light-bellied Brent Goose (Branta bernicia hrota)	n/a	344	n/a
		(A130) Oystercather (Haematopus ostralegus)	n/a		n/a
		(A137) Ringed Plover (Charadrius hiaticula) (wintering)	n/a		n/a
		(A141) Grey Plover (Pluvialis squatarola)	n/a		n/a
		(A143) Knot (Calidris canutus) (wintering)	n/a		n/a
		(A144) Sanderling (Calidris alba) (wintering)	n/a		n/a
		(A149) Dunlin (Calidris alpina) (wintering)	n/a		n/a
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a		n/a
		(A162) Redshank (Tringa totanus)	n/a		n/a
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	n/a		n/a
		(A192) Roseate Tern (Sterna dougallii)	30		-314
		(A193) Common Tern (Sterna hirundo)	n/a		n/a
		(A194) Arctic Tern (Sterna paradisaea)	30		-314
		(A999) Wetland and Waterbirds	n/a		n/a
004093	Termoncarragh Lake and Annagh Machair SPA	(A038) Whooper Swan (Cygnus cygnus)	n/a	65	n/a
		(A045) Barnacle Goose (Branta leucopsis)	n/a		n/a
		(A122) Corncrake (Crex crex)	n/a		n/a
		(A142) Lapwing (Vanellus vanellus)	n/a		n/a
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		n/a
		(A395) Greenland White-fronted Goose (Anser albifrons flavirostris)	n/a		n/a
		(A466) Dunlin (Calidris alpina schinzii)	n/a		n/a
004066	The Bull and Cow Rocks SPA	(A014) Storm Petrel (Hydrobates pelagicus)	>65	298	-
		(A016) Gannet (Morus bassanus)	590		292
		(A204) Puffin (Fratercula arctica)	200		-98
004156	The Sheep's Head to Toe Head SPA	(A103) Peregrine (Falco peregrinus)	n/a	314	n/a

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		-314
004073	Tory Island SPA	(A009) Fulmar (Fulmarus glacialis) [A009]	580	211	369
		(A122) Corncrake (Crex crex) [A122]	n/a		n/a
		(A200) Razorbill (Alca torda) [A200]	305		94
		(A204) Puffin (Fratercula arctica) [A204]	200		-11
004188	Tralee Bay Complex SPA	(A038) Whooper Swan (Cygnus cygnus)	n/a	246	n/a
		(A046) Light-bellied Brent Goose	n/a		n/a
		(A048) Shelduck (Tadorna tadorna) (wintering)	n/a		n/a
		(A050) Wigeon (Anas penelope)	n/a		n/a
		(A052) Teal (Anas crecca)	n/a		n/a
		(A053) Mallard (Anas platyrhynchos) (wintering)	n/a		n/a
		(A054) Pintail (Anas acuta) (wintering)	n/a		n/a
		(A062) Scaup (Aythya marila) (wintering)	n/a		n/a
		(A130) Oystercatcher (Haematopus)	n/a		n/a
		(A137) Ringed Plover (Charadrius hiaticula)	n/a		n/a
		(A140) Golden Plover (Pluvialis apricaria)	n/a		n/a
		(A141) Grey Plover (Pluvialis squatarola)	n/a		n/a
		(A142) Lapwing (Vanellus vanellus)	n/a		n/a
		(A144) Sanderling (Calidris alba) (wintering)	n/a		n/a
		(A149) Dunlin (Calidris alpina) (wintering)	n/a		n/a
		(A156) Black-tailed Godwit (Limosa limosa)	n/a		n/a
		(A157) Bar-tailed Godwit (Limosa lapponica)	n/a		n/a
		(A160) Curlew (Numenius Arquata)	n/a		n/a
		(A162) Redshank (Tringa totanus)	n/a		n/a
		(A169) Turnstone (Arenaria interpres)	n/a		n/a
		(A179) Black-headed Gull (Chroicocephalus ridibundus)	n/a		n/a
		(A182) Common Gull (Larus canus)	n/a		n/a
		(A999) Wetland and Waterbirds	n/a		n/a

Site Code	Name	QI	QI Spp Mean Max Foraging Range (km)	Distance from GWA	Overlap (km)
004034	Trawbreaga Bay SPA	(A045) Barnacle Goose (Branta leucopsis)	n/a	265	n/a
		(A046) Light-bellied Brent Goose (Branta bernicla hrota)	n/a		n/a
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		-265
		(A999) Wetland and Waterbirds	n/a		n/a
004150	West Donegal Coast SPA	(A009) Fulmar (Fulmarus glacialis)	580	168	412
		(A017) Cormorant (Phalacrocorax carbo)	35		-133
		(A018) Shag (Phalacrocorax aristotelis)	17		-151
		(A103) Peregrine (Falco peregrinus)	n/a		n/a
		(A184) Herring Gull (Larus argentatus)	92		-76
		(A188) Kittiwake (Rissa tridactyla)	300		132
		(A200) Razorbill (Alca torda)	305		137
		(A346) Chough (Pyrrhocorax pyrrhocorax)	0.3		-168
004230	West Donegal Islands SPA	(A018) Shag (Phalacrocorax aristotelis)	17	195	-178
		(A045) Barnacle Goose (Branta leucopsis)	n/a		n/a
		(A122) Corncrake (Crex crex)	n/a		n/a
		(A182) Common Gull (Larus canus)	n/a		n/a
		(A184) Herring Gull (Larus argentatus)	92		-103
004040	Wicklow Mountains SPA	(A098) Merlin (Falco columbarius)	n/a	343	n/a
		(A103) Peregrine (Falco peregrinus)	n/a		n/a[23]

[23] Note: In case of Manx Shearwater the larger distance of 330km is used.

Table A.9: SPA Screening, Exclusion and Rationale

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004135	Ardboline Island and Horse Island SPA	Ardboline Island and Horse Island are two small marine islands located approximately 500 m from the mainland at Dooneragh Point in Co. Sligo. The surrounding seas to a distance of 200m and an area of marine water between the two islands, where seabirds forage, bathe and socialise are included in the site. Ardboline Island and Horse Island SPA is an important site for breeding seabirds. A Cormorant colony of national importance occurs and Herring Gull, and Great Black-backed Gull also breed. Common Tern formerly bred on both islands. The islands are also a wintering site for the internationally important Barnacle Goose flock from the adjacent mainland; this flock can number up to 3,000 individuals (as in 2008) and the birds use the islands for feeding, roosting and refuge. Corncrake, also an Annex I species, has been recorded on the islands. The site is important as a haul-out for Grey Seal which also breeds here.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004133	Aughris Head SPA	Aughris Head is a rocky headland on the north-facing Co. Sligo coastline, located some 20 km west of Sligo Town. The marine area to a distance of 500 m from the base of the cliffs is included in the site. At the time this site was designated as a Special Protection Area (SPA) it was utilised by a nationally important population of Kittiwake and this species is regarded as a special conservation interest for this SPA. Nationally important population of breeding seabirds include: Kittiwake, Guillemot, Razorbill, and Fulmar.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004234	Ballintemple and Ballygilgan SPA	Ballintemple and Ballygilgan SPA comprises two separate areas of fields supporting agriculturally-improved grassland, situated on the north side of Drumcliff Bay, Co. Sligo. The fields at Ballintemple and Ballygilgan support an internationally important population of Barnacle Goose. and is now the most important site in the country for this species. The geese feed for much of the winter on fields at Ballintemple and Ballygilgan, which are their core feeding sites, and roost on the nearby island of Inishmurray. Parts of the Ballintemple and Ballygilgan SPA are designated as a Statutory Nature Reserve and parts are designated as a Wildfowl Sanctuary.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004129	Ballysadare Bay SPA	Ballysadare Bay extends for approximately 10 km westwards from the town of Ballysadare, County Sligo. It is the most southerly of three inlets that form the eastern part of the larger Sligo Bay complex. The estuarine channel of the Ballysadare River winds its way through the bay, finally reaching the open sea near the Strandhill Dunes sand spit. The bay contains extensive intertidal sand and mudflats. The flats support good populations of macro-invertebrates which are important food items for wintering waterfowl. As wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Ballysadare Bay is important for a range of waterfowl species in autumn and winter. Populations of other species of national importance are: i.e. Dunlin. A range of other species occurs, including Whooper Swan, Cormorant, Ringed Plover, Lapwing, Turnstone, Black-headed Gull, and Common Gull.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004155	Beara Peninsula SPA	The Beara Peninsula SPA is a coastal site situated on the west coast of Co. Cork, south-west of the town of Kenmare. It encompasses the high coast and sea cliff sections of the western end of the peninsula from Reenmore Point/Cod's Head in the north, around to the end of Dursey Island in the west, and as far east as Bear Island in the south. The site includes the sea cliffs, the land adjacent to the cliff edge and several upland areas further inland of the coast about Eagle Hill, Knockgour, Allihies and Firkeel. The high water mark forms the seaward boundary. The site supports an internationally important population of breeding Chough. The birds are found along the coast from Bear Island in the south to Reenmore Point/Cod's Head in the north, including Dursey Island. Inland breeding pairs occur in the Slieve Miskish and Caha Mountains, with additional pairs likely to be breeding on other inland cliffs. The area around the old copper mines at Allihies is regularly used by both breeding birds and a wintering flock. Large flocks of Chough occur on Dursey Island, especially in the summer months, as well as in the uplands, in both summer and winter. The largest flocks recorded are on Dursey Island, Knockgur, and Eagle Hill. Choughs roost in small numbers on the Beara Peninsula; two regularly used roosting sites are Dursey Sound and Allihies copper mines. The site also holds a nationally important population of Fulmar and populations of other breeding seabirds including: Shag, Herring Gull, Lesser Black-backed Gull, Razorbill, and Black Guillemot.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004177	Bills Rock SPA	The Bills Rocks are a group of three rocks lying close together, approximately 10 km south of Moyteoge Head on Achill Island, Co. Mayo. The islands are composed of metamorphic rock and are drift-covered. They rise precipitously to a height of approximately 35 m. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Storm Petrel and Puffin. The site supports a nationally important Puffin population. The rocks also support an important Storm Petrel colony. A range of other seabirds breed, though all in relatively low number. These are Fulmar, Kittiwake, Shag, Razorbill and Great Black-backed Gull. The site is an excellent example of an isolated and highly exposed seabird colony. The Puffin colony is of particular importance as it is of national importance. The presence of an important breeding colony of Storm Petrel is also of note as this species is listed on Annex I of the E.U. Birds Directive.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004037	Blacksod Bay/Broad Haven SPA	Situated in the extreme north-west of Co. Mayo, this site comprises a number of bays and inlets including Sruwaddacon Bay, Moyrahan Bay, Traw-Kirtaun, Blind Harbour, Tullaghan Bay, and the various sheltered bays and inlets in Blacksod Bay, including Trawmore Bay, Feorinyeeo Bay, Saleen Harbour, Elly Bay and Elly Harbour. The site supports an excellent diversity of wintering waterfowl species and is one of the most important wetland complexes in the west. At low tide extensive areas of intertidal sand and mudflats are exposed. These support a well-developed macro-invertebrate fauna. Also included within the site are two small lakes on the Mullet Peninsula, Cross Lough and Leam Lough, and some areas of machair at Fahy, Doolough, Dooyork and Srah. Blacksod Bay/Broad Haven SPA is of high ornithological importance for its excellent diversity of wintering waterbirds. As wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site supports an excellent diversity of wintering waterfowl species and is one of the most important wetland complexes in the west. It has internationally important populations of Ringed Plover (over 4% of the all-Ireland population), Sanderling, and Dunlin. Other species which occur include Turnstone, Black-headed Gull, and Common Gull. A number of wader species breed within the areas of machair in the SPA, including a nationally important population of Dunlin (subsp. schinzii). Inishderry Island has a nationally important breeding colony of Sandwich Tern. The terns at this site are considered to be the same population that nested at Carrowmore Lake in the past. It also has nesting Common Tern and Arctic Tern, and a colony of Black-headed Gull. Little Tern has also bred in small numbers in the past - Ramsar site.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004094	Blackwater Callows SPA	The Blackwater Callows SPA comprises the stretch of the River Blackwater that runs in a west to east direction between Fermoy and Lismore in Counties Cork and Waterford, a distance of almost 25 km. The site includes the river channel and strips of seasonally-flooded grassland within the flood plain. Wetlands form part of this site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site is of high ornithological interest on account of its wintering waterfowl populations. Whooper Swan occurs in numbers of international importance. The site supports nationally important populations of Lapwing and Black-headed Gull. Little Egret uses the site throughout the year as there is a nearby breeding colony downstream. The river system provides an important feeding area for these birds. Part of the Blackwater Callows SPA is a Wildfowl Sanctuary.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004028	Blackwater Estuary SPA	The Blackwater Estuary SPA is a moderately-sized, sheltered south-facing estuary, which extends from Youghal New Bridge to the Ferry Point peninsula, close to where the river enters the sea. It comprises a section of the main channel of the River Blackwater to Ballynaclash Quay. At low tide, intertidal flats are exposed on both sides of the channel. On the eastern side the intertidal channel as far as Kinsalebeg and Moord Cross Roads is included, while on the west side the site includes part of the estuary of the Tourig River as far as Kilmagner.The Blackwater Estuary is of high ornithological importance for wintering waterfowl, providing good quality feeding areas for an excellent diversity of waterfowl species. At high tide, the birds roost along the shoreline and salt marsh fringe, especially in the Kinsalebeg area. Wetlands form part of this site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site supports nationally important populations: Lapwing and Dunlin. Other species which occur include Cormorant, Ringed Plover, Turnstone, and Little Egret. The site is also notable for the large concentrations of gulls that occur in autumn and winter, including Lesser Black-backed Gull, Black-headed Gull, Common Gull, Great Black-backed Gull, and Herring Gull. Ramsar site	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004008	Blasket Islands SPA	The Blasket Islands are situated at the end of the Dingle peninsula in Co. Kerry. The site comprises all of the main islands in the group, as well as the various islets and rocks, and also the seas which surround the islands to a distance of 500 m. There are six main islands, plus some smaller islands, islets and sea stacks. The largest island, Great Blasket, is separated from the mainland by the Blasket Sound, a distance of some 2 km. The smallest island, Beginish, lies close to Great Blasket, while the other islands (Inishtooskert, Inishnabro, Inishvickillane, Tearaght Island) are between about 7 km and 12 km from the mainland. The bedrock is principally Old Red Sandstone, with some outcrops of volcanic and Silurian rocks on Inishvickillane and Beginish. Apart from the low-lying Beginish near the mainland, all of the main islands rise to substantial heights, as follows: Great Blasket 292 m, Inishtooskert 162 m, Inishnabro 175 m, Inishvickillane 138 m and Tearaght 184 m. Sea cliffs, mostly precipitous, are the dominant habitat. The Blasket Islands SPA is one of the most important seabird colonies in the country, with at least 11 species of seabird breeding regularly. It is the most important site in the country for Storm Petrel, with internationally important populations. The site also records nationally important populations of Fulmar, Shag, Lesser Black-backed Gull, Herring Gull, Arctic Tern, Razorbill, Puffin and Chough. The site is also of special conservation interest for holding an assemblage of over 20,000 breeding seabirds. A nationally important population of Arctic Tern also breeds within the site with at least 200 pairs in 1988 and 102 pairs in 2001. The islands are traditional sites for Chough. Guillemot also breeds though in relatively low numbers. Tearaght Island is a Statutory Nature Reserve.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004052	Carrowmore Lake SPA	Carrowmore Lake is a large, fairly shallow, oligotrophic/mesotrophic lake in Co. Mayo. There is a long-established breeding colony of gulls and terns on Derreens Island. Sandwich Tern formerly had a large nesting population. The colony is thought to have moved to an island in Broad Haven Bay, but birds still regularly visit the lake and nesting may occur again in the future. Arctic Tern has also nested in the past. Black-headed Gull and Common Gull both nest in the site. A population of Greenland White-fronted Goose winters on the surrounding bogs and at times uses the lake for roosting and/or feeding. The number of birds using the site is fairly small, with Cormorant occurring in winter.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004029	Castlemaine Harbour SPA	Castlemaine Harbour SPA is a large coastal site occupying the innermost part of Dingle Bay. It extends from the lower tidal reaches of the River Maine and River Laune to west of the Inch and Rosbehy peninsulas (c. 16 km from east to west). The average width of the estuary is 4-5 km though it is c. 11 km wide at the outer limit. The site comprises the estuaries of the River Maine and the River Laune, both substantial rivers, and has extensive areas of intertidal sand and mud flats. A number of other rivers, e.g. the Caragh and the Emlagh, flow into the site, as well as numerous small streams. A very large dune system occurs on the Inch peninsula. A substantial area of shallow marine water is included in the site. Castlemaine Harbour SPA is one of the most important sites for wintering waterfowl in the south-west. Wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. It provides habitats for an excellent diversity of waterbirds, including divers and seaduck. It is of nationally importance for its populations of waterbird species, including Cormorant, Ringed Plover, Sanderling and Turnstone. The population of Sanderling is of note, being over 5% of the all-Ireland total. Other species which occur include Dunlin and Black-headed Gull. The site provides good quality habitat for the feeding and roosting requirements of the various bird species which winter here. While not breeding within the site, Chough occur in nationally important numbers and are regularly found on the sand dunes at Inch where they feed and socialise. Parts of Castlemaine Harbour SPA are designated as a Statutory Nature Reserve and as Wildfowl Sanctuaries. Ramsar site	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004136	Clare Island SPA	Clare Island lies at the entrance to Clew Bay, in Co. Mayo, and some 5 km from the mainland. The site comprises all of the cliffs on the island, a length of approximately 10 km, as well as the land adjacent to the cliff edge (inland for 300 m) and the adjacent marine waters (to distances of 200 m or 500 m, depending on auk distribution). Clare Island is one of the most important seabird colonies in the country. It is of particular importance for supporting the largest population of Fulmar in the country (around 10% of the national population). It also has nationally important populations of Shag, Common Gull, Guillemot, and Razorbill. Black Guillemot, a resident species also occurs in nationally important numbers. While the Gannet colony has not grown to any extent since its establishment in the 1970s, it is still of significance in that it is one of only six in Ireland and the only colony on the west coast. Other breeding species include Puffin, Cormorant, Great Black-backed Gull, Lesser Black-backed Gull, and Herring Gull. Most of the seabird species appear to have increased since the last census in 1990, and the Cormorant colony has only become established since then. Herring Gull numbers, however, have decreased dramatically, reflecting a trend that has occurred throughout the country. It has been suspected in the past that Storm Petrel breeds on the island, but there have been no recent attempts to prove nesting. Clare Island is an important stronghold for Chough.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004005	Cliffs of Moher SPA	This site extends a distance of some 9.5 km along the north Clare coast from Faunmore in the north to just south of Cancregga Point in the south. The site is of special conservation interest for the following species: Fulmar, Kittiwake, Guillemot, Razorbill, Puffin and Chough. The site is also of special conservation interest for holding an assemblage of over 20,000 breeding seabirds. In addition, Shag, Herring Gull, Great Black-backed Gull, Chough and Black Guillemot have also been recorded at the site. The Cliffs of Moher SPA is one of the most important seabird colonies in the country, with nationally important populations of five species. A nationally important population of Chough. The site holds the largest Kittiwake and Razorbill colonies in the country, and the second largest Fulmar colony (after Clare Island)/	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004181	Connemara Bog Complex SPA	The Connemara Bog Complex SPA is a large site encompassing much of the south Connemara lowlands of Co. Galway. The site consists of three separate areas - north of Roundstone, south of Recess and north-west of Spiddal. Lough Scannive, located within Roundstone Bog, supports a nationally important breeding population of Cormorant. The numerous lakes scattered throughout the site provide suitable locations for Common Gull, breeding pairs of which have been recorded at the site. The site is also utilised by a wintering population of Greenland White-fronted Goose; small flocks have been recorded at various locations within the site.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004170	Cruagh Island SPA	Cruagh Island is located approximately 2 km west of Omey Island, off the Connemara coast in Co. Galway. It is a small- to medium sized, low-lying island (maximum height 62 m) and is uninhabited. The island is dominated by a maritime grassy sward with some exposed rock. The sea area to a distance of 500 m is included in the site to accommodate 'rafting' shearwaters. The colony of Manx Shearwater on Cruagh Island is one of the most important colonies in the country and of international importance. Cruagh Island is also a regular feeding site for Barnacle Goose during the winter. The geese that frequent this island are most probably part of the internationally important Inishshark flock. Cruagh Island also has a nationally important colony of nesting Great Black-backed Gull and small numbers of Fulmar. The shearwaters are heavily predated by the Great Black-backed Gulls though it is not known how significant an effect this is having on the colony.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004035	Cummeen Strand SPA	Cummeen Strand is a large shallow bay stretching from Sligo Town westwards to Coney Island. It is one of three estuarine bays within Sligo Bay and is situated between Drumcliff Bay to the north and Ballysadare Bay to the south. The Garavogue River flows into the bay and forms a permanent channel. Wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Among the birds occuring at Cummeen Strand, flocks of Lapwing, Sanderling, Dunlin, and Turnstone are frequent visitors. Whooper Swan also uses the site, though not regularly. Ramsar site.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004172	Dalkey Islands SPA	The site comprises Dalkey Island, Lamb Island and Maiden Rock, the intervening rocks and reefs, and the surrounding sea to a distance of 200 m. Dalkey Island, which is the largest in the group, lies c. 400 m off Sorrento Point on the Co. Dublin mainland from which it is separated by a deep channel. The island is low-lying, the highest point of which (c. 15 m) is marked by a Martello Tower. Lamb Island lies to the north of Dalkey Island, and at low tide is connected by a line of rocks. Further north lies Maiden Rock, a bare angular granite rock up to 5 m high that is devoid of higher plant vegetation. This site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Roseate Tern, Common Tern and Arctic Tern. The site, along with other parts of south Dublin Bay, is used by the three tern species as a major post-breeding/pre-migration autumn roost area. The site also has breeding Great Black-backed Gull, Shelduck and Oystercatcher. Herring Gull bred in large numbers in the past but is now very scarce. The site is known to be frequented in winter by Turnstone and Purple Sandpiper. Dalkey Islands SPA is of particular importance as a post-breeding/pre-migration autumn roost area for Roseate Tern, Common Tern and Arctic Tern. The recent nesting by Roseate Tern is highly significant. All three tern species using the site are listed on Annex I of the E.U. Birds Directive.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004175	Deenish Island and Scariff Island SPA	Deenish Island and Scariff Island are small- to medium-sized islands situated between 5 and 7 km west of Lamb's Head off the Co. Kerry coast; they are thus very exposed to the force of the Atlantic Ocean. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Fulmar, Manx Shearwater, Storm Petrel, Lesser Black-backed Gull and Arctic Tern. The islands support important populations of breeding seabirds. Deenish Island and Scariff Island SPA is a site of high ornithological importance on account of the internationally important population of Storm Petrel and nationally important populations of Manx Shearwater, Fulmar, Lesser Black-backed Gull and Arctic Tern. Also of note is that Storm Petrel and Arctic Tern, as well as Chough, are listed on Annex I of the E.U. Birds Directive.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004039	Derryveagh and Glendowan Mountains SPA	Derryveagh and Glendowan Mountains SPA is an extensive upland site in north-west Co. Donegal, comprising Glenveagh National Park, a substantial part of the Derryveagh and Glendowan Mountains and a number of the surrounding lakes. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Red-throated Diver, Merlin, Peregrine, Golden Plover and Dunlin. Glenveagh National Park is the central location for the Golden Eagle re-introduction programme, which commenced in 2000. The site is of high ornithological importance with nationally important breeding populations of five species. Of particular note is that five of the species that occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Red-throated Diver, Peregrine, Merlin, Golden Plover and Dunlin (subsp. schinzii). A large proportion of Lough Barra Bog, a Ramsar Convention site and a Statutory Nature Reserve, is within the Derryveagh and Glendowan Mountains SPA.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004153	Dingle Peninsula SPA	The Dingle Peninsula SPA is a large site situated on the west coast of Co. Kerry. It encompasses the high coast and sea cliff sections of the peninsula from just south of Brandon Point in the north, around to the end of the peninsula at Slea Head, and as far east as Inch in the south. The site includes the sea cliffs, the land adjacent to the cliff edge, areas of sand dune on the Magharees Peninsula and near Murreagh, and also several upland areas further inland of the coast about Ballybrack, Lough Doon, Anscaul Lough, Arraglen and Ballynane. The site supports some of the highest densities in Ireland of breeding Chough. Known roost sites within the SPA include a site on the Magharees Peninsula and a number of inland locations such as the cliffs at Anscaul Lough, Arraglen and Lough Doon. The site also supports nationally important populations of Fulmar as well as smaller populations of other breeding seabirds: Razorbill, Herring Gull, Lesser Black-backed Gull, Shag, Great Black-backed Gull. The site also holds a population of Black Guillemot.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004151	Donegal Bay SPA	Donegal Bay SPA is a very large, marine-dominated, site. It extends from Doorin Point, to the west of Donegal Town, to Tullaghan Point in County Leitrim, a distance of approximately 15 km along its north-east/south-west axis. It varies in width from about 3 km to over 8 km. The site includes the estuary of the River Eske, which flows through Donegal Town, and the estuary of the River Erne, which flows through Ballyshannon. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Northern Diver, Light-bellied Brent Goose, Common Scoter and Sanderling. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. This large coastal site is of high ornithological importance, with two species having populations of international importance (Great Northern Diver and Light-bellied Brent Goose) and a further two species having populations of national importance (Common Scoter and Sanderling). Also of note is that five of the regularly occurring species are listed on Annex I of the E.U. Birds Directive, i.e. Great Northern Diver,Black-throated Diver, Red-throated Diver, Golden Plover and Bar-tailed Godwit.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004013	Drumcliff Bay SPA	Drumcliff Bay, Co. Sligo is the most northerly of Sligo Bay's three estuarine inlets. The bay comprises an inner area of sheltered estuarine habitat and an outer area of shallow seawater. It extends 9 km east to west from Drumcliff village to Raghly Point. Drumcliff Bay is the estuary of the Drumcliff River, a substantial river flowing from Glencar Lough to the east. Drumcliff Bay is of importance as it supports nationally important populations of wintering Sanderling. Other species that occur regularly include Whooper Swan, Lapwing, and Dunlin. Part of Drumcliff Bay SPA is a Wildfowl Sanctuary	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004111	Duvillaun Islands SPA	Duvillaun Islands SPA comprises a group of marine islands, rocks and reefs, located between 1 and 5 km off the southern tip of the Mullet Peninsula in Co. Mayo. The surrounding seas to a distance of 200 m and the area of water between the islands are included in the site. Duvillaun More is the largest of the islands, rising to 63 m, with cliffs on the north-west, west and south-west sides. Duvillaun Beg, rises to 14 m, and has a grassy sward and an extensive intertidal shore. The other islands, while having some permanent land above the high tide mark, are largely rocky islets and knolls. From west to east, the lesser islands are Turduvillaun, Shiraghy Island, Drumacappul Island, Orrageon Island, Keely Island, Gaghta Island and Leamareha Island. In winter, the Duvillaun Islands support Barnacle Goose. The geese are part of the population which is centred on the Inishkea Islands and which also utilise Inishglora and Inishkeeragh, further to the north, and parts of the Mullet Peninsula. This internationally important population is the largest in Ireland.The Duvillaun Islands are also of ornithological importance for their colonies of breeding seabirds, including Fulmar, Cormorant, and Black Guillemot on Duvillaun More. Storm Petrel breeds on Duvillaun Beg - breeding has also been recorded on Duvillaun More in the past. The populations of Fulmar and Storm Petrel are of national importance. Other breeding seabirds recorded include Shag, Herring Gull, Great Black-backed Gull, and Common Gull. The breeding population of Great Black-backed Gull, a resident species, is also of national importance. Chough pairs have also been observed to breed in the site. Other species which have been recorded breeding on Duvillaun More include Ringed Plover and Manx Shearwater.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004149	Falcarragh to Meenlaragh SPA	Falcarragh to Meenlaragh SPA is located on the eastern and western sides of Ballyness Bay on the north-west coast of Co. Donegal. This large site follows the coastline from Falcarragh to Meenlaragh and encompasses three areas of mixed agricultural grassland. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Corncrake. Falcarragh to Meenlaragh SPA is of high ornithological importance as it supports a nationally important population of Corncrake, a globally threatened species. Corncrake is also listed in Annex I of the E.U. Birds Directive.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004148	Fanad Head SPA	Fanad Head SPA comprises two areas of extensively managed grassland on the Fanad Head peninsula on the north coast of Co. Donegal. Included within the site is an area of grassland between Kinny Lough and Shannagh Lough, and another area around the village of Doagh Beg on the western shore of Lough Swilly south of Fanad Head. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Corncrake. Fanad Head SPA is of high ornithological importance as it supports a nationally important population of Corncrake, a globally threatened species. Corncrake is also listed on Annex I of the E.U. Birds Directive.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004082	Greers Isle SPA	Greers Isle SPA is a very small island in the enclosed and highly sheltered marine waters of Mulroy Bay, Co. Donegal. The island is approximately 500 m from the mainland. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Sandwich Tern, Black-headed Gull and Common Gull. The site is of ornithological importance for breeding terns and gulls. Terns present are Sandwich Tern, Common Tern and Arctic Tern. The Sandwich Tern colony is of national importance. The site also supports nationally important colonies of Common Gull and Black-headed Gull. Several pairs each of Tufted Duck and Red-breasted Merganser breed at the site. Greers Isle SPA is of ornithological importance because of its nationally important breeding tern and gull populations. All three species of tern recorded on the island are listed on Annex I of the E.U. Birds Directive.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004144	High Island, Inishark and Davillaun SPA	High Island, Inishshark and Davillaun are small, uninhabited islands lying some 3-5 km north and west of Aughrus Point on the Co. Galway coast. High Island, Inishshark and Davillaun are utilised in winter by a nationally important population of Barnacle Goose. High Island, Inishshark and Davillaun also hold important breeding seabird sites. Nationally important numbers of Fulmar and smaller numbers of other breeding birds including Manx Shearwater, Shag, Herring Gull, and Common Gull. Storm Petrel breeds on High Island Nationally important numbers of Arctic Tern have also been recorded on High Island.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004194	Horn Head to Fanad Head SPA	The Horn Head to Fanad Head SPA comprises a number of separate sections of the north Co. Donegal coastline stretching some 70 km eastwards from Dooros Point, south-west of Horn Head to just south of Saldanha Head, south of Fanad Head. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Chough, Peregrine, Fulmar, Cormorant, Shag, Kittiwake, Guillemot, Razorbill, Greenland White-fronted Goose and Barnacle Goose. The site is also of special conservation interest for holding an assemblage of over 20,000 breeding seabirds. The site holds an internationally important population of breeding Chough, a Red Data Book species that is listed on Annex I of the E.U. Birds Directive. The site also holds a large Peregrine population. The site is also used by a large assemblage and wide variety of nesting seabirds, the cliffs around Horn Head being of particular importance. The site supports nationally important populations of Fulmar, Cormorants, Shag, Kittiwake, Guillemot and Razorbill. Other species that occur include Black Guillemot, Puffin, Herring Gull, Great Black-backed Gull and Common Gull. New Lake/Rinclevan and the dunes to the west (west-south-west of Dunfanaghy) support nationally important Greenland White-fronted Goose and Barnacle Goose populations. The Barnacle Goose flock is part of an internationally important population that also uses the islands of Inishbofin and Inishdooey. Whooper Swan also occurs regularly, along with a range of other waterfowl species, notably Pochard, which are well suited to the shallow lake waters. Other species present include Teal, Mallard, Tufted Duck, Goldeneye, Mute Swan and Coot. In summer, the site supports a good diversity of breeding waders such as Lapwing, Snipe, Redshank and Oystercatcher. A survey in 1996 also recorded Dunlin and Common Sandpiper at the site. The Horn Head to Fanad Head SPA is of high importance for Chough and Peregrine, both species that are listed on Annex I of the E.U. Birds Directive. It also supports an internationally important assemblage of breeding seabirds, that includes nationally important populations of six species, i.e. Fulmar, Cormorant, Shag, Kittiwake, Guillemot and Razorbill. The Greenland White-fronted Goose and Barnacle Goose populations are also of national importance. Both of these species, as well as Whooper Swan, are listed on Annex I of the E.U. Birds Directive. A good diversity of other wildfowl species occurs. Part of the Horn Head to Fanad Head SPA is a Wildfowl Sanctuary.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004113	Howth Head Coast SPA	The site comprises the sea cliffs extending from just east of the Nose of Howth to the tip of the Bailey Lighthouse peninsula. The marine area to a distance of 500 m from the cliff base is included within the site. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Kittiwake. A range of seabird species breed within the Howth Head SPA, including a nationally important population of Kittiwake. A census in 1999 recorded the following species: Fulmar, Shag, Herring Gulls, Great Black-backed Gull, Kittiwake, Guillemot and Razorbill. The cliffs also support a breeding pair of Peregrine Falcon. Howth Head Coast SPA is of high ornithological importance as it supports a nationally important population of Kittiwake. It is also a traditional nesting site for Peregrine Falcon, a species that is listed on Annex I of the E.U. Birds Directive.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004132	Illancrone and Inishkeeragh SPA	Illancrone and Inishkeeragh are two marine islands situated 8 to 9 km west of the town of Dunglow and south of Aranmore Island, Co. Donegal. The site is of special conservation interest for the following species: Barnacle Goose, Common Tern, Arctic Tern and Little Tern. Both islands are particularly important as breeding sites for seabirds. The following species have been recorded from the site: Common Tern, Arctic Tern, Little Tern, and Sandwich Tern. The Arctic Tern colony on Illancrone has been known since 1954 and, in 1984, was the largest known nesting colony for the species in Co. Donegal. Other seabird species recorded from Inishkeeragh include Common Gull, Herring Gull, Lesser Black-backed Gull, and Roseate Tern. The site also supports a nationally important Barnacle Goose flock which uses the islands for feeding over the winter.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004074	Illanmaster SPA	Illanmaster is a steep, rocky island situated just off the north Co. Mayo coast. It rises to 107 m and is topped with a maritime grassy sward. The surrounding seas to a distance of 500 m are included in the site. The southern boundary of the site adjoins the mainland shoreline. The site is a of special conservation interest for an internationally important population of Storm Petrel, which is one of the largest in the region. Other species which were recorded breeding include Fulmar, Puffin, Great Black-backed Gull, and Black Guillemot. Illanmaster is visited at times by a wintering Barnacle Goose flock, though numbers apparently are less than 50. Illanmaster has been owned by BirdWatch Ireland since 1970.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004231	Inishbofin, Omey Island and Turbot Island SPA	Inishbofin, Omey Island and Turbot Island SPA comprises parts of three islands lying off the coast of Connemara in Co. Galway. Inishbofin, the largest of the three islands, is situated c. 5 km from the mainland and some 20 km north-west of Clifden. The SPA includes approximately one fifth of the island and mostly comprises agricultural grassland used for cattle and/or sheep pasture and fodder. Omey Island is a small island situated 10 km west-north-west of Clifden. The area within the SPA is along the southern coast and takes in about one third of the island. Turbot Island is a flat, low-lying island situated less than 1 km off the coast and 8 km west of Clifden. Almost all of the island is included within the SPA. The habitats on the island are mainly enclosed agricultural grassland. The site is of special conservation interest for Corncrake. The SPA supports a breeding population of Corncrake. Inishbofin, Omey Island and Turbot Island SPA is one of a suite of sites along the western seaboard that is regularly utilised by nationally important numbers of breeding Corncrake.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004084	Inishglora and Inishkeeragh SPA	The site comprises the two islands, Inishglora and Inishkeeragh, as well as a number of smaller islets and rocks situated c. 1.5-3 km west of the Mullet Peninsula, Co. Mayo. They are part of a larger grouping of similar islands that includes the Inishkeas and the Duvillauns. Inishglora is the larger of the main islands. The marine waters surrounding the islands and islets to a distance of not less than 200 m are included in the site. The site is of special conservation interest for the following species: Storm Petrel, Cormorant, Shag, Barnacle Goose, Lesser Black-backed Gull, Herring Gull and Arctic Tern. Storm Petrel observations have recorded numbers which exceed the threshold for national importance. The islands are also of national importance for Arctic Tern, Cormorant, Shag, Lesser Black-backed Gull and Herring Gull. Other breeding birds recorded include Great Black-backed Gull, Common Gull, and Black Guillemot. Both islands are frequented by part of the large Barnacle Goose population centred on the Mullet and Inishkeas, which is the largest concentration in the country. The islands provide good feeding habitat and a safe refuge for the geese. Inishglora and Inishkeeragh form part of a larger group of islands, together with the Inishkeas and the Duvillauns, which hold an important breeding population of Grey Seal.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004116	Inishkeel SPA	Inishkeel is a small island situated approximately 500 m offshore of Portnoo in the inner part of Gweebarra Bay in west Co. Donegal. The island is of particular importance as it provides feeding and refuge for a nationally important Barnacle Goose population. he geese commute to other sites, notably Roaninish further to the west.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004004	Inishkea Islands SPA	The Inishkea Islands are the two largest islands off the west coast of the Mullet Peninsula in north-west County Mayo. As well as Inishkea North and Inishkea South, this site includes Carrickawilt, Carrigee, Carrickmoylenacurhoga, Pluddany Rocks, Carrickfad, Carrickgormal, Carricklaur, Carrickalaveen and several smaller rocks and reefs. The surrounding seas, to a distance of 200m, are included within the site. The site is of special conservation interest for the following species: Barnacle Goose, Shag, Ringed Plover, Sanderling, Purple Sandpiper, Dunlin, Turnstone, Common Gull, Herring Gull, Arctic Tern and Little Tern. The islands are one of the most important wintering sites for Barnacle Goose in Ireland and support an internationally important population. The geese also make much use of neighbouring islands, particularly the Duvillauns and Inishkeeragh. Several wader species also occur here during the winter in nationally important numbers: Ringed Plover, Sanderling, Purple Sandpiper, and Turnstone. The Inishkeas also support nationally important breeding populations of Shag, Common Gull, and Herring Gull. Other breeding seabirds recorded on the islands include Fulmar, Lesser Black-backed Gull, and Great Black-backed Gull. Storm Petrel also breeds. The islands are also a traditional breeding site for Common Tern, Arctic Tern, and Little Tern. The populations of Arctic Tern and Little Tern are of national importance. The islands also support a nationally important population of breeding Dunlin [subsp. schinzii]. Other waders also breed within the site including: Lapwing and Ringed Plover. Chough have bred in the past although recent available records are data deficient. Corncrake have been recorded more recently as breeding on the island, after a long absence. The Inishskea Islands are a Wildfowl Sanctuary.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004152	Inishmore SPA	Situated approximately 8 km off the south coast of County Galway, Inishmore (Árainn) is the largest of the three Aran Islands. The site is a of special conservation interest for the following species: Kittiwake, Arctic Tern, Little Tern and Guillemot. The Inishmore SPA is an important site for breeding seabirds, especially cliff-nesting species. The site supports nationally important populations of Kittiwake and Guillemot. Inishmore SPA is also of importance for breeding terns, with nationally important populations of Arctic Tern and Little Tern occurring. The terns do not breed in the site every year but alternate with sites on nearby Inishmaan. Other breeding seabirds present include Fulmar, Razorbill, Shag, Great Black-backed Gull, Herring Gull, and Black Guillemot. The Black Guillemot colony is one of the largest concentrations in the country, representing over 5% of the national total. Storm Petrel has been suspected of breeding but has never been proved. Chough also breeds on the cliffs. The Inishmore SPA is an important site for breeding seabirds, with four migratory species having populations of national importance.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004117	Ireland's Eye SPA	Ireland's Eye is an uninhabited island located about 1.5 km north of Howth in Co. Dublin. The site encompasses Ireland's Eye, Rowan Rocks, Thulla, Thulla Rocks, Carrageen Bay and a seaward extension of 200m in the west and 500m to the north and east. The site is of special conservation interest for the following species: Cormorant, Herring Gull, Kittiwake, Guillemot and Razorbill. Ireland's Eye has important populations of breeding seabirds. The following species have been recorded: Fulmar, Gannet, Cormorant, Shag, Lesser Black-backed Gull, Great Black-backed Gull, Herring Gull, Kittiwake, Guillemot, Black Guillemot, Razorbill, and Puffin. The Cormorant, Herring Gull, Kittiwake, Guillemot and Razorbill populations are of national importance. The majority of the Cormorant population nest on Thulla and when considered as part of a larger grouping with the colonies on nearby Lambay and St. Patrick's Island, this population is of international importance. The Gannet colony is of particular note as it is one of six in the country and one of only two sites on the east coast.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004031	Inner Galway Bay SPA	Inner Galway Bay SPA is a very large, marine-dominated site situated on the west coast of Ireland. The inner bay is protected from exposure to Atlantic swells by the Aran Islands and Black Head. Intertidal sand and mud flats occur around much of the shoreline, with the largest areas being found on the sheltered eastern coast between Oranmore Bay and Kinvarra Bay. A number of small islands and rocky islets in the Bay are included within the site.Wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Inner Galway Bay supports an excellent diversity of wintering wetland birds, with divers, grebes, cormorants, dabbling duck, sea duck and waders all well represented. There are nationally important wintering populations of Cormorant, Ringed Plover, Lapwing, Dunlin, Turnstone, Black-headed Gull, and Common Gull. Of note is that the population of Ringed Plover, which represent 2.3% of all-Ireland total. Flocks of Great Black-backed Gull have also been recorded. The site provides both feeding and roost sites for most of the species observed. Little Egret, a species which has recently colonised Ireland, also occurs at this site. The site has several important populations of breeding birds, most notably colonies of Sandwich Tern and Common Tern. A large Cormorant colony occurs on Deer Island. Part of the Inner Galway Bay SPA is a Wildfowl Sanctuary. Ramsar site.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004154	Iveragh Peninsula SPA	The Iveragh Peninsula SPA is a large site situated on the west coast of Co. Kerry. The site encompasses the high coast and sea cliff sections of the peninsula from just west of Rossbehy in the north, around to the end of the peninsula at Valencia Island and Bolus Head, and as far east as Lamb's Head in the south. The site supports an important internationally population of breeding Chough. The birds are found around the coast from Lamb's head in the south-west to Rossbehy in the north. A small number of pairs are found inland, mainly around the Macgillycuddy's Reeks. Particularly high densities of Chough occur at Valencia Island where livestock grazing presents the species with widespread feeding opportunities. Communal roosts exist on Lamb's Head near Derrynane and at the western tip of Valencia Island. Pairs and small flocks of Chough can be found around the coast and in the mountainous uplands of the Iveragh Peninsula throughout the year. The site holds nationally important populations of Guillemot and Fulmar. Other species recorded include Great Black-backed Gull and Black Guillemot, as well as smaller populations of other breeding seabirds: Razorbill, Herring Gull, Cormorant, and Shag.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004189	Kerry Head SPA	Kerry Head SPA is situated on the south side of the mouth of the River Shannon in north Co. Kerry. It encompasses the sea cliffs from just west of Ballyheigue, around the end of Kerry Head to the west and north-eastwards as far as Kilmore. The site includes the sea cliffs and land adjacent to the cliff edge. The site supports an internationally important population of breeding Chough. The site also supports a nationally important population of Fulmar, as well as a small population of Shag.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004036	Killala Bay/Moy Estuary SPA	This large site comprises the estuary of the River Moy and the inner part of Killala Bay, including Lackan Bay and Rathfran Bay, in Counties Mayo and Sligo. It is a funnel-shaped estuary, c. 7 km wide at its outer limit. The site is very important for wintering waterfowl and provides excellent feeding grounds for the birds, as well as high-tide roosts. Eight species have populations of national importance, including Ringed Plover, Sanderling, Dunlin. A range of other species occurs, including Lapwing. The site is also used by Turnstone and Cormorant. Substantial numbers of gulls are present at the site during winter, including Black-headed Gull, Common Gull, Herring Gull, and Great Black-backed Gull. Wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Ramsar site.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004038	Killarney National Park SPA	This large site encompasses the lakes and part of the Macgillycuddy's Reeks in the vicinity of the town of Killarney in Co. Kerry. The site is utilised by Greenland White-fronted Goose. This, along with the nearby Eirk Bog, is the most southerly site in Ireland utilised by this species and it is also one of the few flocks that continues to utilise peatland habitats. Lough Leane, and to a lesser extent the other lakes, support a variety of wintering waterfowl species including Cormorant and Black-headed Gull. Part of Killarney National Park SPA is a Wildfowl Sanctuary.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004069	Lambay Island SPA	Lambay Island lies approximately 4 km off the north Co. Dublin coastline and is separated from it by a channel of 10-13 m in depth. The site is of special conservation interest for the following species: Fulmar, Cormorant, Shag, Greylag Goose, Lesser Black-backed Gull, Herring Gull, Kittiwake, Guillemot, Razorbill and Puffin. The site is also of special conservation interest for holding and assemblage of over 20,000 breeding seabirds. Lambay Island is internationally important for its breeding populations of Cormorant, Shag, and Guillemot. Further species have breeding populations of national importance, i.e. Fulmar, Lesser Black-backed Gull, Herring Gull, Kittiwake, Razorbill, and Puffin. The island's populations of Cormorant, Shag, Herring Gull and Guillemot are the largest in Ireland. Lambay Island holds the only known colony of Manx Shearwater on the east coast of Ireland, in addition, Black Guillemot also breeds here. Other breeding seabirds include: Gannet and Common Gull, Cormorant, Shag, Guillemot, Fulmar, Lesser Black-backed Gull, Herring Gull, Great Black-backed Gull, Kittiwake, Razorbill, and Puffin. Lambay Island SPA is one of the top seabird sites in Ireland.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004119	Loop Head SPA	Loop Head is situated at the most westerly point in Co. Clare, approximately 20 km south-west of Kilkee. The site includes the cliffs, shoreline and the adjacent marine area to a distance of 500 m from the shore. A number of islets and stacks occur, notably Gull Island and Dermot & Grania's Rock. The cliffs support large numbers of breeding seabirds including Fulmar, Kittiwake, Guillemot, and Razorbill. A further, but incomplete, survey in 2000 recorded Fulmar, Guillemot, and Razorbill. The Guillemot populations are of national importance.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004228	Lough Conn and Lough Cullin SPA	Lough Conn and Lough Cullin are situated in north Co. Mayo and are connected by a narrow inlet near Pontoon. The main inflowing rivers to Lough Conn are the Deel, the Addergoole and the Castlehill while the main outflowing river from Lough Cullin is the River Moy. The lakes have a number of small islands. Wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Lough Conn and Lough Cullin is of importance for wintering waterfowl, including Whooper Swan, Lapwing, and Cormorant. Lough Conn is also one of the sites utilised by a population of Greenland White-fronted Goose. The geese feed mainly on Annagh Island and at a shoreline site near Cloonaghmore Point. Lough Conn is a traditional breeding site for gulls and terns, with Black-headed Gull and Common Gull recorded. The Common Gull colony is of national importance. Both Common Tern and Arctic Tern have been recorded breeding on Lough Conn and Lough Cullin, although not consistently year-on-year.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004042	Lough Corrib SPA	Lough Corrib is the largest lake in the country and is located, for the most part, in County Galway, with a small section in the north extending into County Mayo. Wetlands form part of this site, its associated waterbirds are of special conservation interest for Wetlands & Waterbirds. Lough Corrib is an internationally important site that regularly supports in excess of 20,000 wintering waterbirds including nationally important populations of wintering Greenland White-fronted Goose. Other species which occur include Lapwing. Lough Corrib is also a traditional breeding site for gulls and terns, with various islands being used for nesting each year. There are important colonies of Common Tern and Arctic Tern. The site supports substantial colonies of Black-headed Gull and Common Gull, these representing 3% and 11% of the respective all-Ireland totals. Small numbers of Lesser Black-backed Gull, Great Black-backed Gull and Herring Gull have also been recorded breeding within the site.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004060	Lough Fern SPA	Lough Fern is a relatively small lake with a maximum length of 2.5 km. The lake lies on the Leannan River in Co. Donegal. Wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetlands & Waterbirds. Lough Fern is of ornithological importance for wintering waterfowl, including Whooper Swan. Part of Lough Fern SPA is a Wildfowl Sanctuary.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004062	Lough Mask SPA	Lough Mask, at over 8,000 ha, is the sixth largest lake in the country. It is located in south Co. Mayo with a small area extending across the border into Co. Galway. The site is of special conservation interest for the following species: Greenland White-fronted Goose, Tufted Duck, Black-headed Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Lough Mask is one of the most important sites in the country for breeding gulls - Black-headed Gull, Common Gull, and Lesser Black-backed Gull. The lake is also a traditional breeding site for Common Tern. In winter the site has a range of waterfowl, especially diving duck, with the Tufted Duck population being of national importance. It also supports Whooper Swan, and the Erriff/Derrycraff population of Greenland White-fronted Goose. Other species using the site include Mute Swan, Wigeon, Teal, Mallard, Pochard, Goldeneye, Red-breasted Merganser, Little Grebe, Cormorant, Coot, Lapwing, and Curlew.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004110	Lough Nillan Bog SPA	Lough Nillan Bog SPA covers a large area of the hills immediately south of Glenties in Co. Donegal. The site extends from Owenea Lough in the west to the summit of Silver Hill in the east. The site is of special conservation interest for Greenland White-fronted Goose and Dunlin. The site provides one of only two known bogland feeding areas used by the Sheskinmore Lough Greenland White-fronted Goose flock. The site supports an excellent range of bird species typical of peatland habitats. Lough Nillan Bog SPA is of high ornithological importance, with nationally important populations of breeding Dunlin (subsp. schinzii). Whilst the size of the Greenland White-fronted Goose flock has declined, the site is still of significance as it is one of the few traditional bog sites in the region that is still used by the species.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004064	Lough Ree SPA	Situated on the River Shannon between Lanesborough and Athlone, Lough Ree is the third largest lake in the Republic of Ireland. The site is of special conservation interest for Whooper Swan, Lapwing, and Common Tern. Wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Lough Ree is one of the most important Midland sites for wintering waterfowl, with nationally important populations of Whooper Swan and Lapwing. Other species which occur in winter include Cormorant, Black-headed Gull, and Greenland White-fronted Goose. The site supports a nationally important population of Common Tern. It is a traditional breeding site for Black-headed Gull, Lesser Black-backed Gull and Common Gull. Parts of Lough Ree SPA are Wildfowl Sanctuaries.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004075	Lough Swilly SPA	Lough Swilly is a long sea inlet cut through a variety of metamorphic rocks, situated on the west side of the Inishowen Peninsula in north Co. Donegal. Inch Lough, whilst artificial in origin, is one of the largest and best examples of a shallow, low salinity lagoon in the country. A small sandy island, used by nesting terns, swans and gulls, occurs in the southern part of the lagoon. The site of special conservation interest for the following species: Whooper Swan, Greenland White-fronted Goose, Dunlin, Black-headed Gull, Common Gull, Sandwich Tern and Common Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. Wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site supports an excellent diversity of waterfowl species in autumn and winter as well as breeding terns, gulls and ducks. The combination within this site of extensive feeding areas and safe resting and roosting sites makes this one of the most important wetlands in the north-west of the country for wintering waterfowl. The flock sizes for Whooper Swan are the highest in the country. The small island in Inch Lough supports the largest tern colony in the north-west, with nationally important populations of Sandwich Tern and Common Tern. Part of Lough Swilly SPA is a Wildfowl Sanctuary.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004125	Magharee Islands SPA	The Magharee Islands lie about 2 km north of the Magharees Peninsula on the north side of the Dingle Peninsula, Co. Kerry. The site includes the main Magharee Islands (“Seven Hogs”), the islands of Mucklaghmore and Illaunnabarnagh to the east, Illaunnanoon and Doonagaun Island to the south and several smaller rocky islets. Illaunimmill and Illauntannig are the largest of the islands included in the site. This site is of special conservation interest for the following species: Barnacle Goose, Storm Petrel, Shag, Common Gull, Common Tern, Arctic Tern and Little Tern. The Magheree Islands are of national importance for breeding seabirds and also for wintering geese. In winter, the islands are utilised by a Barnacle Goose flock of national importance. The Magheree Islands are also an important site for breeding terns, which have been known from here since the 1850s. The following have been recorded: Common Tern, Arctic Tern, and Little Tern. Other breeding seabirds recorded include: Fulmar, Cormorant, Lesser Black-backed Gull, Herring Gull, and Great Black-backed Gull. Chough breeding on the mainland are known to forage on some of the islands. Magharee Islands SPA is of high ornithological importance for wintering Barnacle Geese, which are at the most southerly point of their range in Europe.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004146	Malin Head SPA	Malin Head SPA comprises areas of agricultural grassland around the village of Ballygorman near Malin Head at the northern end of the Inishowen Peninsula, Co. Donegal. Malin Head SPA is one of a suite of sites along the western seaboard that is regularly utilised by nationally important numbers of breeding Corncrake.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004227	Mullet Peninsula SPA	The Mullet Peninsula SPA comprises three separate areas situated on the Mullet peninsula in Co. Mayo. Mullet Peninsula SPA is one of a suite of sites along the western seaboard that is regularly utilised by nationally important numbers of breeding Corncrake.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004006	North Bull Island SPA	This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Shelduck, Teal, Pintail, Shoveler, Oystercatcher, Golden Plover, Grey Plover, Knot, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Turnstone and Black-headed Gull. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. A further 14 species have populations of national importance – Shelduck, Teal, Pintail, Shoveler, Oystercatcher, Grey Plover, Golden Plover, Knot, Sanderling, Dunlin, Curlew, Redshank, Turnstone and Black-headed Gull. Other species that occur regularly in winter include Little Egret, Cormorant, Wigeon and Goldeneye. Gulls are a feature of the site during winter and, along with the nationally important population of Black-headed Gull, other species that occur include Common Gull and Herring Gull. While some of the birds also frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes, the majority remain within the site for much of the winter. The North Bull Island SPA is a regular site for passage waders, especially Ruff, Curlew Sandpiper and Spotted Redshank. The North Bull Island SPA is an excellent example of an estuarine complex and is one of the top sites in Ireland for wintering waterfowl. It is of international importance on account of both the total number of waterfowl and the individual populations of Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit that use it. Also of significance is the regular presence of several species that are listed on Annex I of the E.U. Birds Directive, notably Golden Plover and Bar-tailed Godwit, but also Ruff and Short-eared Owl. North Bull Island is a Ramsar Convention site, and part of the North Bull Island SPA is a Statutory Nature Reserve and a Wildfowl Sanctuary.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004003	Puffin Island SPA	Puffin Island lies approximately 0.5 km off the northern side of St Finan's bay in south-west Co. Kerry. The site is also of special conservation interest for holding an assemblage of over 20,000 breeding seabirds. Puffin Island is one of the most important seabird sites in Ireland. It supported internationally important populations of Storm Petrel. The nationally important population of breeding Puffin was the largest recorded in Ireland. The island also supports nationally important populations of Fulmar, Razorbill and Lesser Black-backed Gull. Other seabirds recorded include Shag, Guillemot, and Great Black-backed Gull (72 pairs). Chough also breeds on Puffin Island. During winter the resident population may be joined by other birds that breed on the mainland.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004120	Rathlin O'Birne Island SPA	Rathlin O'Birne Island is situated in the north-west corner of Donegal Bay, approximately 2 km from the mainland at Malin Beg. It is largely composed of granite and is mostly low-lying, rising to 26 m above sea level at the southern end where some cliffs occur. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Barnacle Goose. Rathlin O'Birne is an important site for breeding seabirds. There is a well-established Storm Petrel colony. Other breeding seabirds using the site include Shag, Lesser Black-backed Gull, Herring Gull, Great Black-backed Gull and Black Guillemot. Common Tern/Arctic Tern have bred in the past. The island regularly supports a nationally important Barnacle Goose population. Rathlin O'Birne Island SPA is of high ornithological importance, as it supports a nationally important population of Barnacle Goose, a species that is listed on Annex I of the E.U. Bird Directive. Of note is the regular presence of Storm Petrel which is also listed on Annex I of this directive.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004077	River Shannon and River Fergus Estuaries SPA	The estuaries of the River Shannon and River Fergus form the largest estuarine complex in Ireland. The site comprises the entire estuarine habitat from Limerick City westwards as far as Doonaha in Co. Clare and Dooneen Point in Co. Kerry. Wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site is the most important coastal wetland site in the country and regularly supports in excess of 50,000 wintering waterfowl. The site has internationally important populations of Dunlin (13 % of national total). Populations of national importance of Whooper Swan, Ringed Plover, Lapwing (6% of national total), and Black-headed Gull. The site also supports a nationally important breeding population of Cormorant. Other species that occur include Turnstone and Common Gull. Apart from the wintering birds, large numbers of some species also pass through the site whilst on migration in spring and/or autumn. Parts of the River Shannon and River Fergus Estuaries SPA are Wildfowl Sanctuaries.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004014	Rockabill SPA	Rockabill consists of two small, low-lying, granitic islets situated c. 7 km off the Co. Dublin coast. The site includes the two islands and the surrounding seas to a distance of 3.5 km from the islands. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Purple Sandpiper, Roseate Tern, Common Tern and Arctic Tern. Rockabill has a long history of nesting by terns and it is now the most important Roseate tern colony in Europe. Other breeding seabirds while utilise the site include Black Guillemot and a small colony of Kittiwake. In winter the site supports a nationally important population of Purple Sandpiper. Other species recorded include Cormorant, Oystercatcher and Turnstone. Rockabill SPA is of ornithological importance as it supports the most important Roseate Tern colony in Europe. The site also supports nationally important breeding populations of Common Tern and Arctic Tern, and a nationally important wintering population of Purple Sandpiper. All three species of tern which occur are listed on Annex I of the E.U. Birds Directive. Owing to its international and national importance, Rockabill is a designated Refuge for Fauna.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004002	Saltee Islands SPA	The Saltee Islands SPA is situated some 4-5 km off the coast of south Co. Wexford and comprises the two islands, Great Saltee and Little Saltee, and the surrounding seas both between them and to a distance of 500 m from them. The site is of special conservation interest for the following species: Fulmar, Gannet, Cormorant, Shag, Lesser Black-backed Gull, Herring Gull, Kittiwake, Guillemot, Razorbill and Puffin. The site is also of special conservation interest for holding an assemblage of over 20,000 breeding seabirds. The nationally important Gannet colony on Great Saltee has been well documented since its establishment in the1920s. The following species have populations of national importance: Fulmar, Cormorant, Shag, Lesser Black-backed Gull, Herring Gull, Kittiwake, Guillemot, Razorbill, and Puffin. Manx Shearwater occur on these islands. Seabird populations are monitored annually and large numbers of chicks, especially of Gannets, auks and Shags, are ringed.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004090	Sheskinmore Lough SPA	Sheskinmore Lough is a shallow lake located approximately 5 km north-west of Ardara in Co. Donegal. The site comprises an intricate complex of coastal and freshwater habitats. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Greenland White-fronted Goose. Sheskinmore Lough SPA is a traditional Greenland White-fronted Goose site. Other waterfowl species which occur include Whooper Swan, Teal, Mallard and Lapwing. Chough frequent the area throughout the year and especially in winter. These birds, which nest elsewhere on the coast, feed and socialise within the site. Breeding waders recorded at the site include Lapwing and Snipe. This site is of ornithological importance for its Greenland White-fronted Goose population. Greenland White-fronted Goose and two other species which occur at the site, Chough and Whooper Swan, are listed on Annex I of the E.U. Birds Directive. Part of the Sheskinmore Lough SPA is a Wildfowl Sanctuary.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004007	Skelligs SPA	The site comprises Great Skellig and Little Skellig islands. These highly exposed and isolated islands, which are separated by a distance of 3 km, are located in the Atlantic some 14 km and 11 km (respectively) off the County Kerry mainland. The Skelligs comprise one of the most important seabird colonies in the country for populations and species diversity. Great Skellig has an internationally important population of Storm Petrel, with birds nesting both in the stonework associated with the monastic settlement and in natural crevices amongst the scree and rock. Little Skellig is best known for its long established and internationally important Gannet colony. This is by far the largest colony in Ireland and one of the largest in the world. Great Skellig also has one of the largest Puffin colonies in the country, with 6,000 pairs estimated in 2002. Other seabird species which occur on the islands in nationally important numbers include: Fulmar and Guillemot. Razorbill occur but below the threshold of national importance. Great Skellig is a traditional site for Chough, though the relatively small size of the island supports limited nesting pairs. Owing to the high importance of the islands for birds, each has been designated a Statutory Nature Reserve. This site is one of the top five seabird sites in the country and is of international importance on account of both the assemblage of over 10,000 pairs of breeding seabirds and the individual populations of Storm Petrel and Gannet.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004165	Slievefelim to Silvermines Mountains SPA	The Slievefelim to Silvermines Mountains SPA is an extensive upland site located in Counties Tipperary and Limerick. Much of the site is over 200 m in altitude and rises to 694 m at Keeper Hill. Other peaks included in the site are Slieve Felim, Knockstanna, Knockappul, Mother Mountain, Knockteige, Cooneen Hill and Silvermine Mountain.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004159	Slyne Head to Ardmore Point SPA	The site includes a number of islands along the Connemara coast, Co. Galway, from Slyne Head to Kilkieran Bay. It is characterised by a large number of small, uninhabited islands, rocks and skerries. Some of the islands are up to 4 km from the mainland, whilst others are in very shallow waters close to the shoreline. The larger islands in the site include Inishlackan, Croaghnakeela Island, St Macdara's Island, Masson Island, Birmore Island, Freaghillaun, Illaunamid and Illaunurra. The islands within the site support an internationally important wintering population of Barnacle Goose. The islands used by the geese include St Macdara's Island, Croaghnakeela Island, Illaunacroagh More, Illaunacroagh Beg, Inishmuskerry and Birmore Island. The site is also a traditional breeding area for a number of tern species, with nationally important populations of three species occurring, i.e. Sandwich Tern (4% of the All-Ireland population), Arctic Tern (approximately 19% of the All-Ireland total) and Little Tern (24% of the All-Ireland total). Common Tern (24 pairs) and Roseate Tern (5 pairs) have also been recorded breeding within the site. The terns can use different islands between years. Ringed Plover, Common Gull, Black-headed Gull, Lesser Black-backed Gull, Herring Gull and Great Black-backed Gull have bred on various islands in the past but there is no recent survey information for these species.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004024	South Dublin Bay and River Tolka Estuary SPA	The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Grey Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Black-headed Gull, Roseate Tern, Common Tern and Arctic Tern. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of the SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site is an important site for wintering waterfowl, being an integral part of the internationally important Dublin Bay complex. An internationally important population of Light-bellied Brent Goose occurs regularly and newly arrived birds in the autumn feed on the Eelgrass bed at Merrion. At the time of designation the site supported nationally important numbers of a further nine species: Oystercatcher, Ringed Plover, Grey Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank and Black-headed Gull. Other species occurring in smaller numbers include Great Crested Grebe, Curlew and Turnstone. Little Egret, a species which has recently colonised Ireland, also occurs at this site. South Dublin Bay is a significant site for wintering gulls, with a nationally important population of Black-headed Gull, but also Common Gull and Herring Gull. Both Common Tern and Arctic Tern breed in Dublin Docks, on a man-made mooring structure known as the E.S.B. dolphin – this is included within the site. The South Dublin Bay and River Tolka Estuary SPA is of ornithological importance as it supports an internationally important population of Light-bellied Brent Goose and nationally important populations of a further nine wintering species. Furthermore, the site supports a nationally important colony of breeding Common Tern and is an internationally important passage/staging site for three tern species. It is of note that four of the species that regularly occur at this site are listed on Annex I of the E.U. Birds Directive, i.e. Bar-tailed Godwit, Common Tern, Arctic Tern and Roseate Tern. Sandymount Strand/Tolka Estuary is also a Ramsar Convention site	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004161	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is a very large site centred on the borders between the counties of Cork, Kerry and Limerick. The mountain peaks included in the site are not notably high or indeed pronounced, the highest being at Knockfeha (451 m). Other mountains included are Mount Eagle, Knockanefune, Garraunbaun, Taur, Rock Hill, Knockacummer, Mullaghamuish, Knight's Mt, Ballincollig Hill, Beennageeha Mt, Sugar Hill, Knockanimpuba and Knockathea, amongst others. Many rivers rise within the site, notably the Blackwater, Owentaraglin, Owenkeal, Glenlara, Feale, Clydagh, Allaghaun, Allow, Oolagh, Galey and Smerlagh. The site consists of a variety of upland habitats.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004072	Stags of Broad Haven SPA	The Stags of Broad Haven are a group of four precipitous rocky islets, totalling 4 ha, rising to almost 100 m, located about 2 km north of Benwee Head, Co. Mayo. The surrounding seas to a distance of 500 m are included in the site. The site is of special conservation interest for the following species: Storm Petrel and Leach's Petrel. The Stags also support a nationally important colony of Storm Petrel. Other seabirds which breed include Fulmar, Kittiwake, Puffin, Herring Gull, and Great Black-backed Gull.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features
004093	Termoncarragh Lake and Annagh Machair SPA	Termoncarragh Lake is a shallow, coastal lake situated on the north-west side of the Mullet peninsula, Co. Mayo. The innermost part of Portnafrankagh Bay is included in the site. Wetlands form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Termoncarragh Lake and Annagh machair is utilised by both wintering and breeding birds. It is part of the wintering ground for one of the largest Barnacle Goose population in the country. The centre of the population is the Inishkea Islands and, as well as the Mullet, the birds use Duvillaun More and Inishkerragh/Inishglora. The site is utilised by passage Whooper Swan, with up to 300 individuals visiting the site in autumn and spring. The site supports a range of other wintering species, including Greenland White-fronted Goose and Ringed Plover. The marginal wetland habitats and the machair are prime habitats for breeding waders, including Lapwing and Dunlin. During the breeding season Corncrake have been recorded here, albeit in low numbers. Post-fledgling Chough flocks occur at the site between August and October. Part of site is owned by BirdWatch Ireland who have commenced a management programme to improve habitat conditions for breeding waders, including Corncrake.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004066	The Bull and Cow Rocks SPA	The site comprises two very small rocky islands, the Cow and the Bull, situated 2.5 km and 4 km respectively from Dursey Head off the coast of Co. Cork. The islands, which are composed of vertically stratified sandstone, rise to over 60 m and are generally precipitous. The surrounding water, between and to a distance of 500 m around each island, is included within the site for the benefit of the breeding seabirds. The site holds one of the most important seabird colonies in the country, with populations of Storm Petrel and Gannet of at least national importance. The petrels breed on both the Cow and the Bull but have not been censused in recent times. The Gannet colony on the Bull is long established and is the second largest colony in Ireland. The site also supports a good diversity of other seabird species though these have not been surveyed since at least the early 1990s. The populations of Puffin and Great Black-backed Gull may be of national importance. Other species which breed are Cormorant, Guillemot, Fulmar, Herring Gull and Razorbill. Both islands are extremely inaccessible and difficult to land on and hence are seldom visited. Owing to their importance, both islands have been designated as Refuges for Fauna. The Cow is State-owned.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004156	The Sheep's Head to Toe Head SPA	The Sheep's Head to Toe Head SPA is large site situated on the south-west coast of Co. Cork. It encompasses the high coast and sea cliffs from Sheep's Head to Mizen Head, Brow Head and Crookhaven in the west and from Baltimore to Tragumna Bay, Gokane Point and the Toe Head peninsula in the east. The site includes the sea cliffs, the land adjacent to the cliff edge, an area further inland to the east of Dunlough Bay, and also areas of sand dunes at Barley Cove and Crookhaven. The Sheep's Head peninsula is the narrowest of the large peninsulas in the south-west of the county. The cliffs at Three Castle Head to the north are almost 100 m high. Further south and east, a convoluted stretch of coast with sheltered bays, estuaries and exposed headlands extends from Baltimore to Toe Head. The habitats present range from sea cliff, Gorse-dominated heath and rough grassland to good agricultural grassland. The site supports an internationally important population of breeding Chough. The birds are found in pairs and flocks along the coast from Sheep's Head in the north to beyond Toe Head in the south. The Mizen Head cliffs hold some of the highest concentrations of breeding pairs in Ireland. At Sheep's Head, Chough are concentrated at the tip of the peninsula, from Dooneen in the south to Glanroon in the north. Flocking and roosting activity is limited. Flocks have also been recorded feeding on improved pastures around Caher. Roosting is confined to the southern side of the very extremity of the peninsula, with small numbers gathering occasionally. At Mizen Head, breeding pairs have been observed from Crookhaven in the south to Dunkelly in the north. Flocking activity centres on the dunes at Barley Cove and around Dunlough Bay. Flocks were recorded feeding inland from Dunlough Bay. The remainder of the breeding pairs in the site are scattered along the cliffs between Baltimore Head in the west and Toe Head in the east, with a roost at Baltimore Head. The site supports a range of other breeding seabirds including Fulmar, Herring Gull, Shag, Black Guillemot, and Great Black-backed Gull.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004073	Tory Island SPA	Tory Island is a remote, rocky island lying some 11 km to the north of Bloody Foreland in County Donegal. The site has a diverse bird fauna that is very characteristic of exposed offshore islands, and is of special conservation interest for the following species: Fulmar, Corncrake, Razorbill and Puffin. Tory Island SPA supports a breeding population of Corncrake. The site also supports nationally important breeding populations of Fulmar, Razorbill, and Puffin. Other species that occur include Kittiwake, Guillemot, and Black Guillemot, with smaller numbers of Shag, Herring Gull, Great Black-backed Gull, Black-headed Gull, and Common Gull. A small Storm Petrel colony is thought to still exist on Tory but has not been censused in recent years. Tory Island is a traditional breeding site for the scarce Little Tern.	No	Proximity to GWA. Connectivity. Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004188	Tralee Bay Complex SPA	The Tralee Bay Complex SPA is located along the coast of north Co. Kerry between Ballyheige in the north, Tralee in the east and Stradbally in the west. The site includes the inner part of Tralee Bay, including Derrymore Island, the inlets of Barrow Harbour and Carrahane Strand, Akeragh Lough, Lough Gill, and much of the intertidal habitat from Scraggane Point at the northern end of the Magharees Peninsula around the coast to c. 2 km south of Ballyheige. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Whooper Swan, Light-bellied Brent Goose, Shelduck, Wigeon, Teal, Mallard, Pintail, Scaup, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed Gull and Common Gull. It is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Tralee Bay Complex SPA is of high ornithological importance as it annually supports over 20,000 wintering waterbirds, including an international important population of Light-bellied Brent Goose and nationally important populations of 21 other species. It is of note that three of the species that regularly occur, Whooper Swan, Golden Plover and Bar-tailed Godwit, are listed on Annex I of the E.U. Birds Directive. Tralee Bay is a Ramsar Convention site and parts of the Tralee Bay Complex SPA are designated as Nature Reserves. Lough Gill is a Wildfowl Sanctuary.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004034	Trawbreaga Bay SPA	Trawbreaga Bay is a well-sheltered sea bay situated on the north-western coast of the Inishowen Peninsula, Co. Donegal. This site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Barnacle Goose, Light-bellied Brent Goose and Chough. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Trawbreaga Bay supports a good diversity of wintering waterfowl though numbers of most species are relatively low. The main importance of the site lies in the Barnacle Goose and Light-bellied Brent Goose populations. The Light-bellied Brent Goose population is internationally important. The site is also an important feeding and roosting area for Chough. Other species which occur include Whooper Swan, Wigeon, Mallard, Oystercatcher, Ringed Plover, Lapwing, Dunlin, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Common Gull and Herring Gull. Trawbreaga Bay SPA, is of international importance for its Light-bellied Brent Goose population and also supports a nationally important population of Barnacle Goose. The regular occurrence of Barnacle Goose, Chough, Whooper Swan and Bar-tailed Godwit, which are listed on Annex I of the E.U. Birds Directive, is of note. Trawbreaga Bay is a Ramsar Convention site and part of the Trawbreaga Bay SPA is a Wildfowl Sanctuary.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004150	West Donegal Coast SPA	The West Donegal Coast SPA comprises separate sections of the Co. Donegal coastline and extends from Muckros Head in the south, northwards to Slieve League, Malin Beg, Rocky Point, Glen Head, Slieve Tooey, Maghera, Loughros Point, Dunmore Head, Aran Island, Magheradrumman, Carrickfin, Carnboy, Bunbeg, Magheragallan, Lunniagh, as far as Carrick, to the south of Bloody Foreland. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Chough, Peregrine, Fulmar, Cormorant, Shag, Herring Gull, Kittiwake and Razorbill. The site supports an important population of breeding Chough, a Red Data Book species that is listed on Annex I of the E.U. Birds Directive. The site supports a nationally important Peregrine population. The site also holds nationally important populations of Fulmar, Cormorant, Shag, Herring Gull, Kittiwake and Razorbill. Other species that occur include Black Guillemot, Guillemot, Great Black-backed Gull and Lesser Black-backed Gull. Puffin has been recorded breeding on Tormore in the past. Small groups of Barnacle Goose, also an E.U. Birds Directive Annex I species, occasionally graze on the sward on top of the stack. Twite and Ring Ouzel, both Red-listed species are also know to occur within the West Donegal Coast SPA. The West Donegal Coast SPA contains nationally important breeding populations of Chough, Peregrine and six seabird species: Fulmar, Cormorant, Shag, Herring Gull, Kittiwake and Razorbill. The presence of Chough and Peregrine, species that are listed on Annex I of the E.U. Birds Directive, is of note. A communal roost site associated with dune feeding exists near Bunbeg, Gweedore within sight of the dunes at Magheragallan. The West Donegal Coast SPA contains nationally important breeding populations of Chough, Peregrine and six seabird species: Fulmar, Cormorant, Shag, Herring Gull, Kittiwake and Razorbill. The presence of Chough and Peregrine, species that are listed on Annex I of the E.U. Birds Directive, is of note.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Site Code	Name	QI Connectivity	Exclude Y/N	Rationale
004230	West Donegal Islands SPA	West Donegal Islands SPA consists of a series of small to moderate-sized islands lying between 700 m and 3.5 km off the north-west coast of Co. Donegal. It includes the islands of Gola, Inishmeane, Inishsirrer (the three largest), Umfin, Go, Allagh,Torglass, Tornacolpagh and Tororragaun, as well as a number of smaller rocky islets. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Shag, Barnacle Goose, Corncrake, Common Gull and Herring Gull. The West Donegal Islands SPA supports a nationally important wintering population of Barnacle Goose. The birds use the islands for both feeding and roosting, though at times may commute to other islands off the Donegal coast, such as Inishkeeragh and Inishdooey.The West Donegal Islands SPA is one of a suite of sites along the western seaboard that is regularly utilised by nationally important numbers of breeding Corncrake. The West Donegal Islands SPA also supports nationally important breeding populations of Shag, Common Gull and Herring Gull. Arctic Tern is known to nest on Inishsirrer and possibly at times on Inishmeane. The West Donegal Islands SPA is of high ornithological importance as it supports a nationally important population of Corncrake, a globally threatened species. The site also supports nationally important populations of wintering Barnacle Goose and breeding Shag, Common Gull and Herring Gull. Also of note is that three of the regularly occurring species are listed on Annex I of the E.U. Birds Directive, i.e. Barnacle Goose, Arctic Tern and Corncrake.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features
004040	Wicklow Mountains SPA	This is an extensive upland site, comprising a substantial part of the Wicklow Mountains. Most of the site is in Co. Wicklow, but a small area lies in Co. Dublin. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Merlin and Peregrine. The cliffs and crags within the site also provide ideal breeding locations for Peregrine. The Wicklow Mountains SPA is of high ornithological importance as it supports nationally important populations of Merlin and Peregrine, both species that are listed on Annex I of the E.U. Birds Directive. Part of Wicklow Mountains SPA is a Statutory Nature Reserve.	Yes	Proximity to GWA. No connectivity. No Qualifying Interests/Features

Appendix B

Vessel Specification

FUGRO
M.V. FUGRO VENTURER

New generation geophysical & hydrographic survey vessel designed for performance, safety and efficiency. Fugro Venturer, is the newest evolution of Fugro's Standard Survey Vessels (FSSV series) built specifically to meet multi-role geophysical survey standards.

The suite of survey equipment includes analogue sensors comprising of hull mounted single and multibeam echo sounders, state of the art sub bottom profilers, a hull mounted Edgetech CHIRP profiler and 2 x 12 cubic inch mini air gun array and an Edgetech dual frequency 4200 FS digital sidescan sonar.

In complement to this, the vessel is also mobilised with a Hydroscience SeaMUX digital system, comprised of a 1200m HTI solid digital streamer and seismic source of 152 cubic inches, although larger sources and streamers may be mobilized subject to client requirements. Precise subsea positioning of survey equipment is achieved via a hull-mounted HiPAP 502 USBL system. Dual Rx / Dual Swath EM2040 and a Deep Water EM302 MBES system is fitted to an acoustically efficient gondola. A 20t traction winch is fitted below decks that offers sampling in up to 3500m water depth.

The design of the vessel permits simultaneous analogue/digital survey operations and the capability to also conduct AUV, ROV, Environmental and Shallow Geotechnical surveys.

The vessel houses a permanent AUV deployment Hangar and is capable of hosting a multitude of ROV platforms.

Fugro Venturer on launch day.

M.V. Fugro Venturer interior.

M.V FUGRO VENTURER

Technical Specifications

General

Name	M.V. Fugro Venturer
Classification	GL+100 A5 E1 BWM(D2) Special Purpose Ship, Research Vessel, GL+MC E1 AUT DP 1 EP-D
Owner	Fugro
Built	Q2 2016
Port / Flag	Panama
MMSI No.	311 000 463
Call Sign	C6CG3
IMO No.	9769051

Dimensions

LOA	71.5m
Beam	15.4m
Draught	5.6m
Tonnage	GT 2455

Accommodation

Cabins	34 single en-suite, 4 double ensuite
Hospital	1 single berth
Offices	2 clients office
Recreation	2 x lounge / video, 1 x gym, 1 x cinema

Machnery

Bow Thruster	1 x 600 kW (electric)
Cruising Speed	10 knots
Maximum Speed	12 knots

Electrical Power

Auxiliary Generators	N/A
Generators	2 x 1175 KVA, 2 x 972 KVA CAT Leroy Somer

Capacities

Fuel Capacity	464 m^3 (35 operational days at sea)
Fuel Consumption	211 g/KWh at 100% load (pending sea trial measurements)
Water Capacity	185 m^3
Water Making	10 m^3/day
Provisions	90 days

Control and Navigation

Autopilot	Schottel Co-pilot Simrad AP80
DP System	Kongsberg KPOS and cJoy
2 x Radars	Sperry S-Band & Sperry X-Band
2 x Electronic Chart	TransasNS4000
2 x DGPS	Saab R5
1 x Gyro	Sperry Navigat X MK1

Deck Machinery

Deck Crane	2 x SWL 5.0 t /12 m crane
Hydraulic A Frame	1 x SWL 20t, 1 x SWL 7.5t, 1 x SWL 3t
Launch Boom	1 x SWL 2.5t and 1 x SWL 1t traversing
Deepwater Sampling lift/log winch (PCPT)	3,500m 20t lift and 1,400m

Communications

MF / HF (2x)	Sailor 6000 series
Inmarsat C (2x)	Sailor 6110 mini
VHF (4x)	Sailor 6222
UHF(4x)	Motorola DM2600
V-SAT	1 x KU band Seatel 6012
CCTV	Hernis

Safety

Rescue / MOB Boat	6.1m 6 pers rescue boat
Lift Rafts (200%)	4 x 25 person
Survival Suits (100%)	42 pcs
Lift Jackets (200%)	100 pcs
Work Vest	12 pcs
Fire Detection	Funa MD9800

Survey Equipment

Survey Equipment specified in MGE0719RP0013 and MGE0719RP0014