

REPORT

Natura Impact Statement

Kinsale Foreshore Licence Application

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Table of Contents

1	Introduction	1
2	Natura Impact Statement	1
2.1	Introduction	1
2.2	Potential Effects of the Project Alone	1
2.3	Potential Effects of the Project In Combination	14
3	Conclusion	26
4	References	27

Table of Tables

Table 1	Desk-based review of reported geophysical effect ranges for marine mammals	2
Table 2	Potential effect ranges and areas used in the Appropriate Assessment	2
Table 3	Estimated No. of Harbour Porpoise Potentially Effectuated during Geophysical Surveys at Roaringwater Bay and Islands SAC	4
Table 4	Assessment of Effects for Harbour Porpoise	5
Table 5	Estimated No. of Bottlenose Dolphin Potentially Effectuated during Geophysical Surveys in the Lower River Shannon SAC	6
Table 6	Estimated No. of Grey Seal Potentially Effectuated during Geophysical Surveys at the Roaringwater Bay and Islands SAC	7
Table 7	Assessment of Effects for Grey Seal	8
Table 8	Estimated No. of Harbour Seal Potentially Effectuated during Geophysical Surveys at the Kenmare River SAC	11
Table 9	Assessment of Effects for Harbour Seal	12
Table 10	In Combination Assessment for Harbour Porpoise Designated SACs	15
Table 11	In Combination Assessment for Bottlenose Dolphin Designated SACs	17
Table 12	In Combination Assessment for Grey Seal Designated SACs	18
Table 13	In Combination Assessment for Harbour Seal Designated SACs	22

1 Introduction

This Natura Impact Statement (NIS) considers the European sites that have been screened in and determines if the proposed works (outlined in the Schedule of Works (Royal HaskoningDHV, 2021a – document reference PC1509-RHD-ZZ-XX-RP-Z-0007), either alone or in combination with other plans or projects, will cause an adverse effect on the integrity of the European sites.

2 Natura Impact Statement

2.1 Introduction

In the case of the proposed survey work, a NIS is required if Likely Significant Effect (LSE) on any European Site cannot be excluded, on the basis of objective information (without the use of mitigation measures), for the proposed work, alone or in combination with other plans or projects.

2.2 Potential Effects of the Project Alone

There is the potential to cause effects for all screened in marine mammal species: harbour porpoise, bottlenose dolphin, grey seal and harbour seal. The following sections provide further information on the potential for effects for all relevant species and designated Special Areas of Conservation (SACs).

2.2.1 Potential for Underwater Noise Effects

As outlined in Section 8.4 of Supporting Information for Screening for Appropriate Assessment (SISAA) (Royal HaskoningDHV, 2021b - document reference PC1509-RHD-ZZ-XX-RP-Z-0005), underwater noise can cause both physiological (e.g. lethal, physical injury and auditory injury (Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS))) and behavioural (e.g. disturbance and masking of communication) impacts on marine mammals (e.g. Bailey *et al.*, 2010; Madsen *et al.*, 2006; Thomsen *et al.*, 2006, Thompson *et al.*, 2010). In order to determine the potential for underwater noise effects on marine mammal species, it is important to relate the potential noise of the activity to the known thresholds of effect for different marine mammal species, and to determine the range at which both injurious (e.g. PTS) and behavioural (e.g. disturbance) effects may occur over in relation to the source location.

Underwater noise modelling has not been undertaken in order to determine what those potential effect ranges may be, rather a desk-based review of reported effect ranges for these activities has been undertaken may be (**Table 1**), and the worst-case and most relevant effect range will be taken forward for the assessment. The most recent marine mammal underwater noise effect thresholds are those from National Marine Fisheries Service (NMFS) (2018) and Southall *et al.* (2019), and therefore the effect ranges taken forward for assessment should utilise these thresholds (wherever possible) to ensure the most recent scientific advice and knowledge is taken into account.

TTS is the mildest form of hearing impairment that can occur during exposure to a loud sound. For sound exposures at or somewhat above the TTS threshold, hearing sensitivity in marine mammals recovers rapidly after the noise ends. For intermittent sounds, less threshold shift will occur than from a continuous exposure with the same energy (Wieting, 2019). Marine mammals in the foreshore licence survey area are unlikely to incur TTS hearing impairment due to the characteristics of the sound sources, which include low source levels (215 to 226 dB re 1 μ Pa-m) and generally very short pulses and duration of the sound. Even for high-frequency cetacean species (e.g., harbour porpoises), which may have increased sensitivity to TTS, individuals would have to make a very close approach and also remain very close to vessels operating

these sources in order to receive multiple exposures at relatively high levels, as would be necessary to cause TTS (Wieting, 2019). Therefore, TTS has not been assessed further.

Table 1 summarises the results of the desk-based review, with the ranges to be taken forward and reflects the equipment that will be used, as described in Schedule of Works (Royal HaskoningDHV, 2021a - document reference: PC1509-RHD-ZZ-XX-RP-Z-0007). For harbour porpoise, the potential PTS onset range is 23m and the potential disturbance range is 3.77km. This is based on modelling that was undertaken by BEIS (2018) for the Southern North Sea SAC Review of Consents for a sub bottom profiler and uses the NMFS (2018) thresholds for harbour porpoise. Wieting (2019) included a review of known PTS onset ranges for a geophysical survey (specifically sub bottom profiler) for all marine mammal species, also under the NMFS (2018) thresholds. This found that the PTS threshold was not breached for dolphin species; PTS onset has therefore not been assessed for dolphin species, as the threshold is not breached in any of the modelled ranges included in the review.

For the potential for disturbance for dolphin and seal species, no reported effect ranges were found through the desk-based review under the NMFS (2018) thresholds, and therefore a conservative approach has been taken as the disturbance effect range of 1.5km is used, as this is largest reported disturbance range, other than for harbour porpoise, and has been used in other underwater noise assessments (e.g. Neart na Gaoithe Offshore Wind Farm (2019)).

Table 1 Desk-based review of reported geophysical effect ranges for marine mammals

Equipment	Species	Potential effect	Threshold (and source)	Reported range of effect	Reference
Sub bottom profiler	Harbour porpoise	PTS onset	155 SELcum dB re 1 µPa (NMFS, 2018)	23m	BEIS (2019)
		Behavioural	140 SPLRMS dB re 1 µPa unweighted; NMFS, 2018	3.77km	
Sub bottom profiler (220 dB re 1 µPa @ 1m peak)	Harbour porpoise	PTS	Not reported	32m	Shell (2017) cited in Neart na Gaoithe Offshore Wind (2019)
	Bottlenose dolphin	PTS	Not reported	0m	
	Cetaceans	Disturbance	Not reported	1.5km	
Sub bottom profiler (215 SPLpeak dB)	Bottlenose dolphin	PTS	230 dBpeak / 185 dB SELcum (NMFS, 2018)	0m	Wieting (2019)
	Harbour porpoise	PTS	202 dBpeak / 155 dB SELcum (NMFS, 2018)	<3m	
	Pinnipeds	PTS	218 dBpeak / 185 dB SELcum (NMFS, 2018)	<3m	

The maximum predicted effect ranges for the risk of PTS onset or potential disturbance during the geophysical surveys at the proposed offshore survey area are presented in **Table 2**.

Table 2 Potential effect ranges and areas used in the Appropriate Assessment

Potential effect	Species	Maximum reported range of potential effect	Maximum predicted area of potential effect (km ²)*
Risk of PTS onset	Harbour porpoise	23m	0.0017km ²
	Bottlenose dolphin	<1m	<0.000003km ²
	Grey seal		

Potential effect	Species	Maximum reported range of potential effect	Maximum predicted area of potential effect (km ²)*
	Harbour seal	<3m	0.00003km ²
Disturbance	Harbour porpoise	3.77km	44.65km ²
	Bottlenose dolphin	1.5km	7.07km ²
	Grey seal		
	Harbour seal		

* based on the area of a circle, using the impact range as the radius

2.2.1.1 Harbour Porpoise

Roaringwater Bay and Islands SAC

Roaringwater Bay and Islands SAC is located 61km from the foreshore licence survey area, and as such is the closest designated SAC for harbour porpoise. It is not appropriate to use a SAC population estimate for assessment, as the harbour porpoise is wide ranging and it is not possible to determine whether there is any site fidelity of harbour porpoise, or what the potential number of harbour porpoise within the site may be at any one time.

The following assessment therefore uses the wider CIS MU reference population of 62,517 harbour porpoise (Inter-Agency Marine Mammal Working Group (IAMMWG), 2015).

Using the worst-case density estimate of harbour porpoise of 0.227 / km² (**Table 3**; Rogan *et al.*, 2018), in order to determine the number of harbour porpoise potentially at risk of PTS onset or disturbance, based on the potential area of effect outlined in **Table 2**.

The assessment indicates that, without any mitigation, less than one individual may be at risk of PTS onset, (0.0000004% or less of the CIS MU reference population), and up to 11 individuals (0.01% of the reference population) could be temporarily disturbed during geophysical surveys, based on the worst-case scenario (**Table 3**). Therefore, under these circumstances, there is **no potential adverse effect on the integrity of the Roaringwater Bay and Islands SAC in relation to the conservation objectives for harbour porpoise**.

In addition, as stated in the Schedule of Works (Royal HaskoningDHV, 2021a – document reference PC1509-RHD-ZZ-XX-RP-Z-0007), good practice measures will be in place, as per the *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (Departments of Arts, Heritage and the Gaeltacht (DAHG), 2014) guidance. These will include the establishment of a monitoring zone (with a range of 500m) around the survey vessel, with the aim of ensuring that there are no marine mammals present within the monitoring zone prior to the commencement of the acoustic equipment. This would greatly reduce the potential for harbour porpoise to be at risk of PTS onset, effectively negating the potential for risk of injury to harbour porpoise.

Table 3 Estimated No. of Harbour Porpoise Potentially Effected during Geophysical Surveys at Roaringwater Bay and Islands SAC

Potential effect	Maximum reported range (and area) of potential effect	Maximum number of individuals	Percent of reference population	Potential for Adverse Effect
Risk of PTS onset	23m (0.0017km ²)	0.0004 harbour porpoise	0.0000006% of CIS MU	No. Permanent effect. Less than one individual and 0.0000006% or less of the reference population could be at risk of PTS onset.
Disturbance	3.77km (44.65km ²)	10.1 harbour porpoise	0.016% of CIS MU	No. Temporary effect. 0.016% or less of the reference population could be temporarily disturbed.

Other Harbour Porpoise Designated SACs

There are a number of other designated SACs with harbour porpoise listed as a feature within the same CIS MU reference population as has been assessed for the Roaringwater Bay and Islands SAC. These are:

- West Wales Marine / Gorllewin Cymru Forol SAC;
- Blasket Islands SAC;
- Bristol Channel Approaches SAC;
- Rockabill to Dalkey Island SAC;
- North Anglesey Marine SAC; and
- North Channel SAC.

Harbour porpoise are considered part of a wider population within the CIS MU, and the highly mobile nature of this species means that the concept of a 'site population' is not considered an appropriate basis for expressing Conservation Objectives for this species. Therefore, the reference population for assessments is the CIS MU population in which all SACs screened in for harbour porpoise are situated.

The potential effects of the geophysical surveys at the foreshore licence survey area have been assessed for the CIS MU reference population for harbour porpoise (62,517 individuals), as part of the assessment for the Roaringwater Bay and Islands SAC (see above). As the foreshore licence survey area is not located within the other harbour porpoise SACs (as listed above), there is no potential for direct underwater noise effects in relation to the area of the other SACs.

The assessment of the potential effects of the project alone for the Roaringwater Bay and Islands SAC (**Table 3**) in relation to the CIS MU are the same for the potential effects on the other harbour porpoise SACs (**Table 4**), as they are all located in the same CIS MU for harbour porpoise. In addition, the good practice measures would effectively negate the potential for any injury (PTS onset) in harbour porpoise.

Therefore, there would be **no adverse effect on the integrity of the West Wales Marine / Gorllewin Cymru Forol SAC, Blasket Islands SAC, Bristol Channel Approaches SAC, Rockabill to Dalkey Island SAC, North Anglesey Marine SAC, or North Channel SAC, in relation to the Conservation Objectives for harbour porpoise.**

Table 4 Assessment of Effects for Harbour Porpoise

Harbour porpoise designated SAC	Potential effect	Potential for Adverse Effect
West Wales Marine / Gorllewin Cymru Forol SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.0000006% or less of the CIS MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. 0.016% or less of the CIS MU reference population could be temporarily disturbed.
Blasket Islands SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.0000006% or less of the CIS MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. 0.016% or less of the CIS MU reference population could be temporarily disturbed.
Bristol Channel Approaches SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.0000006% or less of the CIS MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. 0.016% or less of the CIS MU reference population could be temporarily disturbed.
Rockabill to Dalkey Island SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.0000006% or less of the CIS MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. 0.016% or less of the CIS MU reference population could be temporarily disturbed.
North Anglesey Marine SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.0000006% or less of the CIS MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. 0.016% or less of the CIS MU reference population could be temporarily disturbed.
North Channel SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.0000006% or less of the CIS MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. 0.016% or less of the CIS MU reference population could be temporarily disturbed.

2.2.1.2 Bottlenose Dolphin

Lower River Shannon SAC

The Lower River Shannon SAC is located 239km from the foreshore licence survey area, and as described in Section 5.4.2.2 of SISAA (Royal HaskoningDHV, 2021b - document reference PC1509-RHD-ZZ-XX-RP-Z-0005), genetic studies of bottlenose dolphins in northern Europe have shown that any coastal bottlenose dolphins present in the proposed offshore survey area would be from the Shannon group, and therefore the Lower River Shannon SAC. The following assessment uses the SAC population of 145 individuals (Blázquez *et al.*, 2020) as a worst- case scenario, but also puts the potential effects into context of the wider OCSW MU (of 10,947 individuals).

Using the worst-case density estimate of bottlenose dolphin of 0.929 individuals per km² (**Table 5**; Rogan *et al.*, 2018), in order to determine the number of bottlenose dolphin potentially at risk of disturbance, based on the effects areas as outlined in **Table 2**.

The assessment indicates that, without any mitigation, up to 7 individuals (4.7% or less of the SAC population; or 0.06% of the OCSW MU reference population) could be temporarily disturbed during geophysical surveys, based on the worst-case scenario (**Table 5**). While more than 4% of the SAC population may be disturbed, this will be a temporary impact while the surveys are being undertaken only and would affect a very small area (with the potential for bottlenose dolphin disturbance at up to 1,500m only from the survey location), and it is unlikely that up to 4.7% of the SAC population could be present within that area, while the surveys are being undertaken. Therefore, under these circumstances, there is **no potential adverse effect on the integrity of the Lower River Shannon SAC in relation to the conservation objectives for bottlenose dolphin**.

In addition, as stated in the Schedule of Works (Royal HaskoningDHV, 2021a – document reference PC1509-RHD-ZZ-XX-RP-Z-0007), good practice measures will be in place, as per the *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014) guidance. These will include the establishment of a monitoring zone (with a range of 500m) around the survey vessel, with the aim of ensuring that there are no marine mammals present within the monitoring zone prior to the commencement of the acoustic equipment. While the measures are designed in order to reduce the potential for injury (PTS onset), it would also reduce the potential for bottlenose dolphin to be at risk of disturbance.

Table 5 Estimated No. of Bottlenose Dolphin Potentially Effected during Geophysical Surveys in the Lower River Shannon SAC

Potential effect	Reported range (and area) of effect	Maximum number of individuals	Percent of reference population	Potential for Adverse Effect
Disturbance	1.5km (7.07km ²)	6.6 bottlenose dolphin	4.7% of SAC population (or 0.06% of the OCSW MU reference population)	No. Temporary effect. 4.7% or less of the reference population could be temporarily disturbed. However, it is unlikely that 4.7% of the SAC population could be present in the proposed offshore survey area during the surveys, therefore any potential for an adverse effect is unlikely.

2.2.1.3 Grey Seal

Roaringwater Bay and Islands SAC

The Roaringwater Bay and Islands SAC is located 61km from the proposed offshore survey area, and as such is the closest designated SAC for grey seal. As the grey seal is wide ranging, the following assessment uses the wider Republic of Ireland MU reference population of 7,284, but also puts the potential effects into context of the Roaringwater Bay and Islands grey seal estimate of 168 individuals.

Using the density estimate of grey seal within the proposed offshore survey area of 0.02 / km² (Table 6; Russell *et al.*, 2017), in order to determine the number of grey seal potentially at risk of PTS onset or disturbance, based on the effects areas as outlined in Table 2.

The assessment indicates that, without any mitigation, less than one individual may be at risk of PTS onset, (0.000000008% or less of the Republic of Ireland MU reference population; or 0.0000004% of the SAC population), and up to 0.2 individuals (0.002% of the Republic of Ireland MU reference population; or 0.08% of the SAC population) could be temporarily disturbed during geophysical surveys, based on the worst-case scenario (Table 6). Therefore, under these circumstances, there is **no potential adverse effect on the integrity of the Roaringwater Bay and Islands SAC in relation to the conservation objectives for grey seal.**

In addition, as stated in the Schedule of Works (Royal HaskoningDHV, 2021a – document reference PC1509-RHD-ZZ-XX-RP-Z-0007), good practice measures will be in place, as per the *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014) guidance. These will include the establishment of a monitoring zone (with a range of 500m) around the survey vessel, with the aim of ensuring that there are no marine mammals present within the monitoring zone prior to the commencement of the acoustic equipment. This would greatly reduce the potential for grey seal to be at risk of PTS onset, effectively negating the potential for risk of injury to grey seal.

Table 6 Estimated No. of Grey Seal Potentially Effected during Geophysical Surveys at the Roaringwater Bay and Islands SAC

Potential effect	Reported range (and area) of effect	Maximum number of individuals	Percent of reference population	Potential for Adverse Effect
Risk of PTS onset	<3m (0.00003km ²)	0.0000006 grey seal	0.000000008% of the MU (or 0.0000004% of the Roaringwater Bay and Islands SAC population)	No. Permanent effect. Less than one individual and 0.000000008% or less of the reference population could be at risk of PTS onset.
Disturbance	1.5km (7.07km ²)	0.14 grey seal	0.002% of the MU (or 0.08% of the Roaringwater Bay and Islands SAC population)	No. Temporary effect. 0.002% or less of the reference population could be temporarily disturbed.

Other Grey Seal Designated SACs

There are a number of other designated SACs with grey seal listed as a feature. These are:

- Saltee Islands SAC
- Pembrokehire Marine SAC
- Blasket Islands SAC
- Cardigan Bay SAC
- Pen Llyn a`r Sarnau SAC

- Lambay Island SAC
- Slyne Head Islands SAC
- Inishbofin and Inishshark SAC
- Duvillaun Islands SAC
- Inishkea Islands SAC
- The Maidens SAC
- Slieve Tooley/Tormore Island/Loughros Beg Bay SAC
- Horn Head and Rinclevan SAC

Grey seal are considered part of a wider population, therefore, the reference population for assessments is the Republic of Ireland MU reference population for all SACs screened in, or for the Northern Ireland MU or the Wales MU, for SACs that are situated within those MUs.

Therefore, the potential effects of the geophysical surveys at the foreshore licence survey area have been assessed for the Republic of Ireland MU reference population grey seal (7,284 individuals) for the Saltee Islands SAC, Blasket Islands SAC, Lambay Island SAC, Slyne Head Islands SAC, Inishbofin and Inishshark SAC, Duvillaun Islands SAC, Inishkea Islands SAC, Slieve Tooley/Tormore Island/Loughros Beg Bay SAC, and Horn Head and Rinclevan SAC, on the reference population for the Northern Ireland MU for The Maidens SAC, and on the reference population for Wales for the Pen Llyn a`r Sarnau SAC, Cardigan Bay SAC, and Pembrokeshire Marine SAC, based on the assessment for the Roaringwater Bay and Islands SAC (see above). As the proposed offshore survey area is not located within the other grey seal SACs, there is no potential for direct underwater noise effects in relation to the area of the other SACs.

The assessment of the potential effects of the project alone for the Roaringwater Bay and Islands SAC (**Table 6**) are the same for the potential effects on the other grey seal SACs (**Table 7**) and have been put into the context of the relevant MU reference population.

Therefore, there would be **no adverse effect on the integrity of the Saltee Islands SAC, Pembrokeshire Marine SAC, Blasket Islands SAC, Cardigan Bay SAC, Pen Llyn a`r Sarnau SAC, Lambay Island SAC, Slyne Head Islands SAC, Inishbofin and Inishshark SAC, Duvillaun Islands SAC, Inishkea Islands SAC, The Maidens SAC, Slieve Tooley/Tormore Island/Loughros Beg Bay SAC, Horn Head and Rinclevan SAC in relation to the Conservation Objectives for grey seal.**

In addition, the good practice measures would effectively negate the potential for any injury (PTS onset) in grey seal from all SACs.

Table 7 Assessment of Effects for Grey Seal

Grey seal designated SAC	Potential effect	Potential for Adverse Effect
Saltee Islands SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000008% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Republic of Ireland MU reference population could be temporarily disturbed.

Grey seal designated SAC	Potential effect	Potential for Adverse Effect
Pembrokeshire Marine SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.00000001% or less of the Wales MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Wales MU reference population could be temporarily disturbed.
Blasket Islands SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000008% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Cardigan Bay SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.00000001% or less of the Wales MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Wales MU reference population could be temporarily disturbed.
Pen Llyn a'r Sarnau SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.00000001% or less of the Wales MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Wales MU reference population could be temporarily disturbed.
Lambay Island SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000008% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Slyne Head Islands SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000008% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Inishbofin and Inishshark SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000008% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Duvillaun Islands SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000008% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Republic of Ireland MU reference population could be temporarily disturbed.

Grey seal designated SAC	Potential effect	Potential for Adverse Effect
Inishkea Islands SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.00000008% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
The Maidens SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000001% or less of the Northern Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.03% or less of the Northern Ireland reference population could be temporarily disturbed.
Slieve Tooley/Tormore Island/Loughros Beg Bay SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.00000008% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Horn Head and Rinclevan SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.00000008% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.002% or less of the Republic of Ireland MU reference population could be temporarily disturbed.

2.2.1.4 Harbour Seal

Kenmare River SAC

The Kenmare River SAC is located 120km from the proposed offshore survey area, and as such is the closest designated SAC for harbour seal. As the harbour seal is wide ranging, the following assessment uses the wider Republic of Ireland MU reference population of 4,007 (IAMMWG, 2015), but also puts the potential effects into context of the Kenmare River SAC harbour seal population estimate of 419 individuals.

Using the density estimate of harbour seal within the proposed offshore survey area of 0.003 / km² (Russell *et al.*, 2017), in order to determine the number harbour seal potentially at risk of PTS onset or disturbance, based on the effects areas as outlined in **Table 2**.

The assessment indicates that, without any mitigation, less than one individual may be at risk of PTS onset, (0.000000002% or less of the Republic of Ireland MU reference population; or 0.00000002% of the SAC population), and up to one individual (0.0005% or less of the Republic of Ireland MU reference population; or 0.005% of the SAC population) could be temporarily disturbed during geophysical surveys, based on the worst-case scenario (**Table 8**). Therefore, under these circumstances, there is **no potential adverse effect on the integrity of the Kenmare River SAC in relation to the conservation objectives for harbour seal**.

In addition, as stated in the Schedule of Works (Royal HaskoningDHV, 2021a - PC1509-RHD-ZZ-XX-RP-Z-0007), good practice measures will be in place, as per the *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014) guidance. These will include the establishment of a monitoring zone (with a range of 500m) around the survey vessel, with the aim of ensuring that there are no marine mammals present within the monitoring zone prior to the commencement of the acoustic equipment. This would greatly reduce the potential for individuals to be at risk of PTS onset, effectively negating the potential for risk of injury to harbour seal.

Table 8 Estimated No. of Harbour Seal Potentially Effected during Geophysical Surveys at the Kenmare River SAC

Potential effect	Reported range (and area) of effect	Maximum number of individuals	Percent of reference population	Potential for Adverse Effect
Risk of PTS onset	<3m (0.00003km ²)	0.00000009 harbour seal	0.000000002% of Republic of Ireland MU (or 0.00000002% of the Kenmare River SAC population)	No. Permanent effect. Less than one individual and 0.000000002% or less of the reference population could be at risk of PTS onset.
Disturbance	1.5km (7.07km ²)	0.02 harbour seal	0.0005% of Republic of Ireland MU (or 0.005% of the Kenmare River SAC population)	No. Temporary effect. 0.0005% or less of the reference population could be temporarily disturbed.

Other Harbour Seal Designated SACs

There are a number of other designated SACs with harbour seal listed as a feature. These are:

- Glengarriff Harbour and Woodland SAC;
- Slaney River Valley SAC;
- Lambay Island SAC;
- Kilkieran Bay and Islands SAC;
- Galway Bay Complex SAC;

- Clew Bay Complex SAC;
- Killala Bay/Moy Estuary SAC;
- Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC;
- Ballysadare Bay SAC;
- West of Ardara/Maas Road SAC;
- Rutland Island and Sound SAC; and
- Donegal Bay (Murvagh) SAC.

Harbour seal are considered part of a wider population, and therefore, the reference population for the assessments are the Republic of Ireland MU reference population for the above listed SACs screened in for further assessment.

The potential effects of the geophysical surveys at the proposed offshore survey area are based on the assessment for the Kenmare River SAC (see above). As the proposed offshore survey area is not located within the other harbour seal SACs (as listed above), there is no potential for direct underwater noise effects in relation to the area of the other SACs.

The assessment of the potential effects of the project alone for the Kenmare River SAC (**Table 8**) are the same for the potential effects on the other harbour seal SACs (**Table 9**) and have been put into context of the relevant MU reference population.

The assessments (**Table 9**) indicate that there would be no adverse effect on the integrity of the Glengarriff Harbour and Woodland SAC, Slaney River Valley SAC, Lambay Island SAC, Kilkieran Bay and Islands SAC, Galway Bay Complex SAC, Clew Bay Complex SAC, Killala Bay/Moy Estuary SAC, Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, Ballysadare Bay SAC, West of Ardara/Maas Road SAC, Rutland Island and Sound SAC, and Donegal Bay (Murvagh) SAC, in relation to the Conservation Objectives for harbour seal.

In addition, the good practice measures would effectively negate the potential for any injury (PTS onset) in harbour seal from all SACs.

Table 9 Assessment of Effects for Harbour Seal

Harbour seal designated SAC	Potential effect	Potential for Adverse Effect
Glengarriff Harbour and Woodland SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Slaney River Valley SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.

Harbour seal designated SAC	Potential effect	Potential for Adverse Effect
Lambay Island SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Kilkieran Bay and Islands SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Galway Bay Complex SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Clew Bay Complex SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Killala Bay/Moy Estuary SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Ballysadare Bay SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
West of Ardara/Maas Road SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.

Harbour seal designated SAC	Potential effect	Potential for Adverse Effect
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Rutland Island and Sound SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.
Donegal Bay (Murvagh) SAC	Risk of PTS onset	No. Permanent effect. Less than one individual and 0.000000002% or less of the Republic of Ireland MU reference population could be at risk of PTS onset.
	Disturbance	No. Temporary effect. Less than one individual and 0.0005% or less of the Republic of Ireland MU reference population could be temporarily disturbed.

2.3 Potential Effects of the Project In Combination

Plans and projects included in the in combination assessment are described in Section 7 of the SISAA (Royal HaskoningDHV, 2021b - document reference PC1509-RHD-ZZ-XX-RP-Z-0005). The following sections include an in combination assessment for all screened in marine mammal species (and SACs).

2.3.1 In Combination Assessment for Harbour Porpoise

Table 10 below includes assessments of the potential for in combination effects for the projects, plans and activities listed in Section 7 of the SISAA (Royal HaskoningDHV, 2021b - document reference PC1509-RHD-ZZ-XX-RP-Z-0005) with regard to all screened in harbour porpoise SACs. As concluded for each of the harbour porpoise SACs, the number of harbour porpoise potentially at risk of PTS and disturbance remains low, and there is therefore no potential for adverse effect on integrity on any harbour porpoise SAC as a result of in combination effects.

All in combination projects are within the Celtic and Irish Seas MU for harbour porpoise and are therefore put into context for the Celtic and Irish Seas MU reference population.

Table 10 In Combination Assessment for Harbour Porpoise Designated SACs

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
Roaringwater Bay and Islands SAC	The proposed survey at Kinsale	As shown in Table 3 up to 0.0004 harbour porpoise may be at risk of PTS onset (0.0000006% of the CIS MU reference population) and up to 11 harbour porpoise may be disturbed (0.016% of the CIS MU reference population).	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
	Site investigation work from another project	The same assessment has been undertaken as for the proposed survey at Kinsale, with the same species densities, reference populations and effect ranges. Therefore, 0.0004 harbour porpoise may be at risk of PTS onset (0.0000006% of the CIS MU reference population) and up to up to 11 harbour porpoise may be disturbed (0.016% of the CIS MU reference population).	Any disturbance from the geophysical survey and positioning equipment is likely to be localised, short term and reversible and the percentage of the reference population which has the potential to be disturbed is considered to be negligible (less than 1%).
	Site investigation work from another project	The same assessment has been undertaken as for the proposed survey at Kinsale, with the same species densities, reference populations and effect ranges. Therefore, 0.0004 harbour porpoise may be at risk of PTS onset (0.0000006% of the CIS MU reference population) and up to up to 11 harbour porpoise may be disturbed (0.016% of the CIS MU reference population).	Any disturbance from the geophysical survey and positioning equipment is likely to be localised, short term and reversible and the percentage of the reference population which has the potential to be disturbed is considered to be negligible (less than 1%).
	In combination effects	Underwater noise effects may occur as a result of the two geophysical surveys for the proposed offshore survey area, and for Kinsale. Overall, 0.001 harbour porpoise may be at risk of PTS onset (or 0.000002% of the CIS MU reference population), and up to 33 individuals may be disturbed (or 0.05% of the CIS MU reference population).	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
West Wales Marine / Gorllewin Cymru Forol SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from	As for Roaringwater Bay and Islands	As for Roaringwater Bay and Islands SAC.

Project related

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
	another project	SAC.	
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Basket Islands SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Bristol Channel Approaches SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Rockabill to Dalkey Island SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
North Anglesey Marine SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
North Channel SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

2.3.2 In Combination Assessment for Bottlenose Dolphin

Table 11 below assesses the potential for in combination effects for the projects, plans and activities listed in Section 7 of the SISAA (Royal HaskoningDHV, 2021b - document reference PC1509-RHD-ZZ-XX-RP-Z-0005) with regard to all screened in bottlenose dolphin SACs. As concluded for each of the bottlenose dolphin SACs, the number of bottlenose dolphin potentially at risk of PTS and disturbance remains low, and there is therefore no potential for adverse effect on integrity on any bottlenose dolphin SAC as a result of in combination effects. All in combination projects are within the OCSW MU for bottlenose dolphin and are therefore put into context for the OCSW MU reference population.

Table 11 In Combination Assessment for Bottlenose Dolphin Designated SACs

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
Lower River Shannon SAC	The proposed survey at Kinsale	Up to 6.6 bottlenose dolphin may be disturbed (0.06% of the OCSW MU reference population).	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
	Site investigation work from another project	The same assessment has been undertaken for other SI projects as for the proposed survey at Kinsale, with the same species densities, reference populations and effect ranges. Therefore, up to 6.6 bottlenose dolphin may be disturbed (0.06% of the OCSW MU reference population).	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
	Site investigation work from another project	<p>The same assessment has been undertaken for other SI projects as for the proposed survey at Kinsale, with the same species densities, reference populations and effect ranges.</p> <p>Therefore, up to 6.6 bottlenose dolphin may be disturbed (0.06% of the OCSW MU reference population).</p>	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
	In combination effects	<p>Underwater noise effects may occur as a result of the two geophysical surveys for the area, and for Kinsale.</p> <p>Overall, up to 19.8 bottlenose dolphin may be disturbed (0.18% of the OCSW MU reference population).</p>	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

2.3.3 In Combination Assessment for Grey Seal

Table 12 below assessments the potential for in combination effects for the projects, plans and activities listed in Section 7 of the SISAA (Royal HaskoningDHV, 2021b - document reference PC1509-RHD-ZZ-XX-RP-Z-0005) with regard to all screened in grey seal SACs. As concluded for each of the grey seal SACs, the number of grey seal potentially at risk of PTS and disturbance remains low, and there is therefore no potential for adverse effect on integrity on any grey seal SAC as a result of in combination effects. All in combination projects are within the Republic of Ireland MU for grey seal and therefore only the SACs in the Republic of Ireland MU have been assessed and put into context for the Republic of Ireland MU reference population.

Table 12 In Combination Assessment for Grey Seal Designated SACs

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
Roaringwater Bay and Islands SAC	The proposed survey at Kinsale	Up to 0.0000006 grey seal may be at risk of PTS onset (0.00000008% of the Republic of Ireland MU reference population) and up to 0.14 grey seal may be disturbed (0.002% of the Republic of Ireland MU reference population).	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
	Site investigation work from another project	<p>The same assessment has been undertaken for the other SI project as for the proposed survey at Kinsale, with the same species densities, reference populations and effect ranges.</p> <p>Therefore, up to 0.0000006 grey seal may be at risk of PTS onset (0.00000008% of the Republic of Ireland MU reference population) and up to 0.14 grey seal may be disturbed (0.002% of the Republic of Ireland MU reference population).</p>	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
	Site investigation work from another project	<p>The same assessment has been undertaken for the other SI project as for the proposed survey at Kinsale, with the same species densities, reference populations and effect ranges.</p> <p>Therefore, up to 0.0000006 grey seal may be at risk of PTS onset (0.00000008% of the Republic of Ireland MU reference population) and up to 0.14 grey seal may be disturbed (0.002% of the Republic of Ireland MU reference population).</p>	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
	In combination effects	<p>Underwater noise effects may occur as a result of the two geophysical surveys for the proposed offshore survey area, and for Kinsale.</p> <p>Overall, 0.000002 grey seal may be at risk of PTS onset (0.00000003% of the Republic of Ireland MU reference population) and up to 0.4 grey seal may be disturbed (0.006% of the Republic of Ireland MU reference population).</p>	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Saltee Islands SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC	As for Roaringwater Bay and Islands SAC
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Basket Islands SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

Project related

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
Lambay Island SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Slyne Head Islands SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Inishbofin and Inishshark SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Duvillaun Islands SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
Inishkea Islands SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Slieve Tooney/Tormore Island/Loughros Beg Bay SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Horn Head and Rinclevan SAC	The proposed survey at Kinsale	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	Site investigation work from another project	As for Roaringwater Bay and Islands SAC.	As for Roaringwater Bay and Islands SAC.
	In combination effects	As for Roaringwater Bay and Islands SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

2.3.4 In Combination Assessment for Harbour Seal

Table 13 below assessments of the potential for in combination effects for the projects, plans and activities listed in Section 7 of the SISAA (Royal HaskoningDHV, 2021b - document reference PC1509-RHD-ZZ-XX-RP-Z-0005) with regard to all screened in harbour seal SACs. As concluded for each of the harbour seal SACs, the number of harbour seal potentially at risk of PTS and disturbance remains low, and there is therefore no potential for adverse effect on integrity on any harbour seal SAC as a result of in combination effects. All in combination projects are within the Republic of Ireland MU for harbour seal and are therefore only SACs in the Republic of Ireland MU have been assessed and put into context for the Republic of Ireland MU reference population.

Table 13 In Combination Assessment for Harbour Seal Designated SACs

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
Kenmare River SAC	The proposed survey at Kinsale	Up to 0.00000009 harbour seal may be at risk of PTS onset (0.000000002% of the reference population) and up to 0.02 harbour seal may be disturbed (0.0005% of the reference population).	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
	Site investigation work from another project	The same assessment has been undertaken for the other SI project as for the proposed survey at Kinsale, with the same species densities, reference populations and effect ranges. Therefore, up to 0.00000009 harbour seal may be at risk of PTS onset (0.000000002% of the reference population) and up to 0.02 harbour seal may be disturbed (0.0005% of the reference population).	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
	Site investigation work from another project	The same assessment has been undertaken for the other SI project as for the proposed survey at Kinsale, with the same species densities, reference populations and effect ranges. Therefore, up to 0.00000009 harbour seal may be at risk of PTS onset (0.000000002% of the reference population) and up to 0.02 harbour seal may be disturbed (0.0005% of the reference population).	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
	In combination effects	Underwater noise effects may occur as a result of the two geophysical surveys for the proposed offshore survey area, and for Kinsale. Overall, 0.0000003 harbour seal may be at risk of PTS onset (0.000000006% of the reference population) and up to 0.06 harbour seal may be disturbed (0.0015% of the reference population).	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
Glengarriff Harbour and Woodland SAC	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Slaney River Valley	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Lambay Island	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Kilkieran Bay and Islands SAC	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

Project related

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
Galway Bay Complex SAC	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Clew Bay Complex SAC	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Killala Bay/Moy Estuary SAC	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

Project related

Designated SAC	In combination project	Assessment for Project	Potential for Adverse Effect
Ballysadare Bay SAC	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
West of Ardara/Maas Road SAC	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Rutland Island and Sound SAC	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.
Donegal Bay (Murvagh) SAC	The proposed survey at Kinsale	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	Site investigation work from another project	As for Kenmare River SAC.	As for Kenmare River SAC.
	In combination effects	As for Kenmare River SAC.	Due to the low number of individuals potentially effected, and the low percentage of the reference population, there is no potential for adverse effect.

3 Conclusion

This NIS has considered the potential for adverse effects of the proposed site investigation surveys on the features of interest and conservation objectives of the European sites with a pathway of effect to the proposed Kinsale project.

The NIS objectively concludes that no adverse effects are expected on the features of interest or conservation objectives of any European site and the integrity of the sites will not be adversely affected.

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