

# National Parks and Wildlife Service

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## *Conservation Objectives Series*

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### Kilkeran Lake and Castlefreke Dunes SAC 001061



An Roinn Ealaíon, Oidhreachta,  
Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

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Department of Arts, Heritage,  
Regional, Rural and Gaeltacht Affairs



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## Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

### **Notes/Guidelines:**

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

## Qualifying Interests

*\* indicates a priority habitat under the Habitats Directive*

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001061	Kilkeran Lake and Castlefreke Dunes SAC
1150	Coastal lagoonsE
2110	Embryonic shifting dunes
2120	Shifting dunes along the shoreline with <del>Cladonia</del> <del>Cladonia</del> (white dunes)
2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)E

## Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: [www.npws.ie/Publications](http://www.npws.ie/Publications)

### NPWS Documents

<b>Year :</b>	2007
<b>Title :</b>	Inventory of Irish coastal lagoons (version 2)
<b>Author :</b>	Oliver, G.
<b>Series :</b>	Unpublished report to NPWS
<hr/>	
<b>Year :</b>	2009
<b>Title :</b>	Coastal Monitoring Project 2004-2006
<b>Author :</b>	Ryle, T.; Murray, A.; Connolly, K.; Swann, M.
<b>Series :</b>	Unpublished report to NPWS
<hr/>	
<b>Year :</b>	2013
<b>Title :</b>	Monitoring survey of Annex I sand dune habitats in Ireland
<b>Author :</b>	Delaney, A.; Devaney, F.M.; Martin, J.M.; Barron, S.J.
<b>Series :</b>	Irish Wildlife Manual No. 75
<hr/>	
<b>Year :</b>	2016
<b>Title :</b>	Kilkeran Lake and Castlerefke Dunes SAC (site code: 1061) Conservation objectives supporting document- coastal habitats V1
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation objectives supporting document
<hr/>	
<b>Year :</b>	2016
<b>Title :</b>	Kilkeran lake and Castlerefke Dunes SAC (site code: 1061) Conservation objectives supporting document- coastal lagoons V1
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation objectives supporting document

### Other References

<b>Year :</b>	2008
<b>Title :</b>	The phytosociology and conservation value of Irish sand dunes
<b>Author :</b>	Gaynor, K.
<b>Series :</b>	Unpublished PhD thesis, National University of Ireland, Dublin
<hr/>	
<b>Year :</b>	2013
<b>Title :</b>	Monitoring and assessment of Irish lagoons for the purposes of the EU Water Framework Directive, 2009-2011. Parts 1 and 2
<b>Author :</b>	Roden, C.M; Oliver, G.A.
<b>Series :</b>	Unpublished report to the Environmental Protection Agency

## Spatial data sources

<b>Year :</b>	Revision 2011
<b>Title :</b>	Inventory of Irish Coastal Lagoons. Version 3
<b>GIS Operations :</b>	Clipped to SAC boundary
<b>Used For :</b>	1150 (map 2)
<hr/>	
<b>Year :</b>	2013
<b>Title :</b>	Sand Dune Monitoring Project 2011. Version 1
<b>GIS Operations :</b>	QIs selected; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	2110, 2120, 2130 (map 3)
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**1150 Coastal lagoons**

**To restore the favourable conservation condition of Coastal lagoons\* in Kilkeran Lake and Castlereke Dunes SAC, which is defined by the following list of attributes and targets:**

<b>Attribute</b>	<b>Measure</b>	<b>Target</b>	<b>Notes</b>
Habitat area	Hectares	Area stable, subject to slight natural variation. Favourable reference area: 20.3ha. See map 2	Area calculated from spatial data derived from Oliver (2007) for Kilkeran Lake (site code IL019). See the Kilkeran Lake and Castlereke Dunes SAC conservation objectives supporting document for coastal lagoons for further details
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 2 for mapped lagoon	Site IL019 in Oliver (2007). See the lagoon supporting document for further details
Salinity regime	Practical salinity units (psu)	Median annual salinity and temporal variation within natural ranges	Kilkeran Lake is recorded as an oligohaline lagoon. See the lagoon supporting document for further details
Hydrological regime	Metres	Annual water level fluctuations and minima within natural ranges	The maximum depth of Kilkeran Lake is recorded as less than 3m. See the lagoon supporting document for further details
Barrier: connectivity between lagoon and sea	Permeability	Appropriate hydrological connections between lagoons and sea, including where necessary, appropriate management	Kilkeran Lake is described as a natural sedimentary lagoon with a coarse sand barrier. See the lagoon supporting document for further details
Water quality: Chlorophyll <i>a</i>	µg/L	Annual median chlorophyll <i>a</i> within natural ranges and less than 5µg/L	Target based on Roden and Oliver (2013). See the lagoon supporting document for further details
Water quality: Molybdate Reactive Phosphorus (MRP)	mg/L	Annual median MRP within natural ranges and less than 0.1mg/L	Target based on Roden and Oliver (2013). See the lagoon supporting document for further details
Water quality: Dissolved Inorganic Nitrogen (DIN)	mg/L	Annual median DIN within natural ranges and less than 0.15mg/L	Target based on Roden and Oliver (2013). See the lagoon supporting document for further details
Depth of macrophyte colonisation	Metres	Macrophyte colonisation to maximum depth of lagoon	Where the lagoon is less than 2m deep, it is expected that macrophyte colonisation would extend to the full depth. See the lagoon supporting document for further details
Typical plant species	Number and m <sup>2</sup>	Maintain number and extent of listed lagoonal specialists, subject to natural variation	Species listed in Oliver (2007). See the lagoon supporting document for further details
Typical animal species	Number	Maintain listed lagoon specialists, subject to natural variation	Species listed in Oliver (2007). See the lagoon supporting document for further details
Negative indicator species	Number and percentage cover	Negative indicator species absent or under control	Low salinity, shallow water and elevated nutrient levels increase the threat of unnatural encroachment by reedbeds. See the lagoon supporting document for further details

## Conservation Objectives for : Kilkeran Lake and Castlereke Dunes SAC [001061]

### 2110 Embryonic shifting dunes

**To maintain the favourable conservation condition of Embryonic shifting dunes in Kilkeran Lake and Castlereke Dunes SAC, which is defined by the following list of attributes and targets:**

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. For the sub-site mapped: Castlereke - 0.04ha. See map 3	Based on data from the Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013). Embryonic shifting dunes habitat was mapped at the sub-site Castlereke (SDM site ID: 060) to give a total estimated area of 0.04ha within Kilkeran Lake and Castlereke Dunes SAC. This habitat is very difficult to measure in view of its dynamic nature. See the Kilkeran Lake and Castlereke Dunes SAC conservation objectives supporting document for coastal habitats for further details
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes. See map 3 for known distribution	Based on data from Delaney et al. (2013). The embryonic dune area comprises patches of sand couch ( <i>Elytrigia juncea</i> ) at the north-western end of the sand dune system. See the coastal habitats supporting document for further details
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Dunes are naturally dynamic systems that require continuous supply and circulation of sand. Physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation resulting in increased rates of erosion. The shoreline and foredunes may change over the coming years due to alterations in the sediment supply to Castlereke from coastal erosion occurring further west in Rosscarbery Bay. See the coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Ryle et al. (2009) and Delaney et al. (2013). The strandline at Castlereke is located in front of the mobile dunes with fixed dunes on the landward side. See the coastal habitats supporting document for further details
Vegetation composition: plant health of foredune grasses	Percentage cover	More than 95% of sand couch grass ( <i>Elytrigia juncea</i> ) and/or lyme-grass ( <i>Leymus arenarius</i> ) should be healthy (i.e. green plant parts above ground and flowering heads present)	Based on data from Delaney et al. (2013). See the coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities with typical species: sand couch grass ( <i>Elytrigia juncea</i> ) and/or lyme-grass ( <i>Leymus arenarius</i> )	Based on data from Ryle et al. (2009) and Delaney et al. (2013). In the sparse embryonic dunes at Castlereke, marram ( <i>Ammophila arenaria</i> ) occurs thinly, along with sea couch ( <i>Elymus pycnanthus</i> ), frosted orache ( <i>Atriplex laciniata</i> ) and sea sandwort ( <i>Honckenya peploides</i> ). Sea bindweed ( <i>Calystegia soldanella</i> ) was also present. See the coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea buckthorn ( <i>Hippophae rhamnoides</i> ) should be absent or effectively controlled. See the coastal habitats supporting document for further details



## Conservation Objectives for : Kilkeran Lake and Castlereke Dunes SAC [001061]

### 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)

To maintain the favourable conservation condition of Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) in Kilkeran Lake and Castlereke Dunes SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. For the sub-site mapped: Castlereke - 1.65ha. See map 3	Based on data from the Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013). Habitat 2120 was mapped at the sub-site Castlereke (SDM site ID: 060) to give a total estimated area of 1.65ha within Kilkeran Lake and Castlereke Dunes SAC. This habitat is very difficult to measure in view of its dynamic nature. See the Kilkeran Lake and Castlereke Dunes SAC conservation objectives supporting document for coastal habitats for further details
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes. See map 3 for known distribution	Based on data from Delaney et al. (2013). The mobile dunes at Castlereke occur as a thin band on the steep slope fronting the fixed dunes. See the coastal habitats supporting document for further details
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Dunes are naturally dynamic systems that require continuous supply and circulation of sand. Marram grass ( <i>Ammophila arenaria</i> ) reproduces vegetatively and requires constant accretion of fresh sand to maintain active growth encouraging further accretion. The mobile dune habitat at Castlereke appears highly susceptible to disturbance and the growth of these dunes appears to be limited by the local recycling of sediment. See the coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). The mobile dunes occur as a thin band on the steep slope fronting the fixed dunes. See the coastal habitats supporting document for further details
Vegetation composition: plant health of dune grasses	Percentage cover	More than 95% of marram grass ( <i>Ammophila arenaria</i> ) and/or lyme-grass ( <i>Leymus arenarius</i> ) should be healthy (i.e. green plant parts above ground and flowering heads present)	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Over much of the system, the marram ( <i>Ammophila arenaria</i> ) cover is dense due to the absence of grazing in recent years. See the coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities dominated by marram grass ( <i>Ammophila arenaria</i> ) and/or lyme-grass ( <i>Leymus arenarius</i> )	Based on data from Ryle et al. (2009) and Delaney et al. (2013). The typical species of the mobile dunes at Castlereke are marram grass ( <i>Ammophila arenaria</i> ) and sea spurge ( <i>Euphorbia paralias</i> ). Other species present include sea-holly ( <i>Eryngium maritimum</i> ), sea bindweed ( <i>Calystegia soldanella</i> ), rock samphire ( <i>Crithmum maritimum</i> ) and sea mayweed ( <i>Tripleurosperum maritimum</i> ). See the coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea buckthorn ( <i>Hippophae rhamnoides</i> ) should be absent or effectively controlled. Bracken ( <i>Pteridium aquilinum</i> ) is invading the front slope of the mobile dunes. See the coastal habitats supporting document for further details

## Conservation Objectives for : Kilkeran Lake and Castlefleke Dunes SAC [001061]

### 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)


**To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation (grey dunes)\* in Kilkeran Lake and Castlefleke Dunes SAC, which is defined by the following list of attributes and targets:**


Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. For the sub-site mapped: Castlefleke - 28.65ha. See map 3	Based on data from the Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013). Habitat 2130 was mapped at the sub-site Castlefleke (Site ID: 060) to give a total estimated area of 28.65ha within Kilkeran Lake and Castlefleke Dunes SAC. See the Kilkeran Lake and Castlefleke Dunes SAC conservation objectives supporting document for coastal habitats for further details
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes. See map 3 for known distribution	Based on data from Delaney et al. (2013). The fixed dunes at Castlefleke occur behind the marram dunes (white dunes) and are expanding by succession from the marram dunes. See the coastal habitats supporting document for further details
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation resulting in increased rates of erosion. Castlefleke Dunes appear to be stable, with some erosion in the western part of the dunes and accretion of a shingle bar to the east at the mouth of Long Strand River. See the coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Mobile dunes occur as a thin band on the steep slope fronting the fixed dunes. A wet dune slack occurs in the north-western part of the fixed dunes. See the coastal habitats supporting document for further details
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes	Based on data from Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). See the coastal habitats supporting document for further details
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward	Based on data from Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). There are two distinct management approaches at Castlefleke, resulting in different vegetation communities and sward structure occurring, with the grazed area being more herb-rich and the ungrazed south-western end having a higher proportion of bracken ( <i>Pteridium aquilinum</i> ), trees and scrub. See the coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the range of sub-communities with typical species listed in Delaney et al. (2013)	Based on data from Ryle et al. (2009) and Delaney et al. (2013). The species found in the fixed dune ungrazed areas were mainly grasses. In the grazed areas there was greater diversity of typical species of fixed dunes such as red fescue ( <i>Festuca rubra</i> ), lady's bedstraw ( <i>Galium verum</i> ), common bird's-foot-trefoil ( <i>Lotus corniculatus</i> ), ribwort plantain ( <i>Plantago lanceolata</i> ), white clover ( <i>Trifolium repens</i> ), common cat's ear ( <i>Hypochaeris radicata</i> ) and dandelion ( <i>Taraxacum</i> agg.). See the coastal habitats supporting document for further details

Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea buckthorn ( <i>Hippophae rhamnoides</i> ) should be absent or effectively controlled. An area of 2.19ha of dense bracken ( <i>Pteridium aquilinum</i> ) occurs within the fixed dunes (grey dunes), with the total cover close to 10% of the fixed dunes at Castlefreke in 2011. In addition, the negative indicator species common ragwort ( <i>Senecio jacobaea</i> ) and creeping thistle ( <i>Cirsium arvense</i> ) occur occasionally throughout the fixed dunes. See the coastal habitats supporting document for further details
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See the coastal habitats supporting document for further details



**Legend**

 Kilkieran Lake and Castlefreke Dunes SAC 001061



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 Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

**MAP 1:**  
**KILKERAN LAKE AND CASTLEFREKE DUNES SAC**  
**CONSERVATION OBJECTIVES**  
**SAC DESIGNATION**

Map to be read in conjunction with the NPWS Conservation Objectives Document.

**SITE CODE:**  
**SAC 001061; version 3. CO. CORK**

0 0.15 0.3 0.45 0.6 km

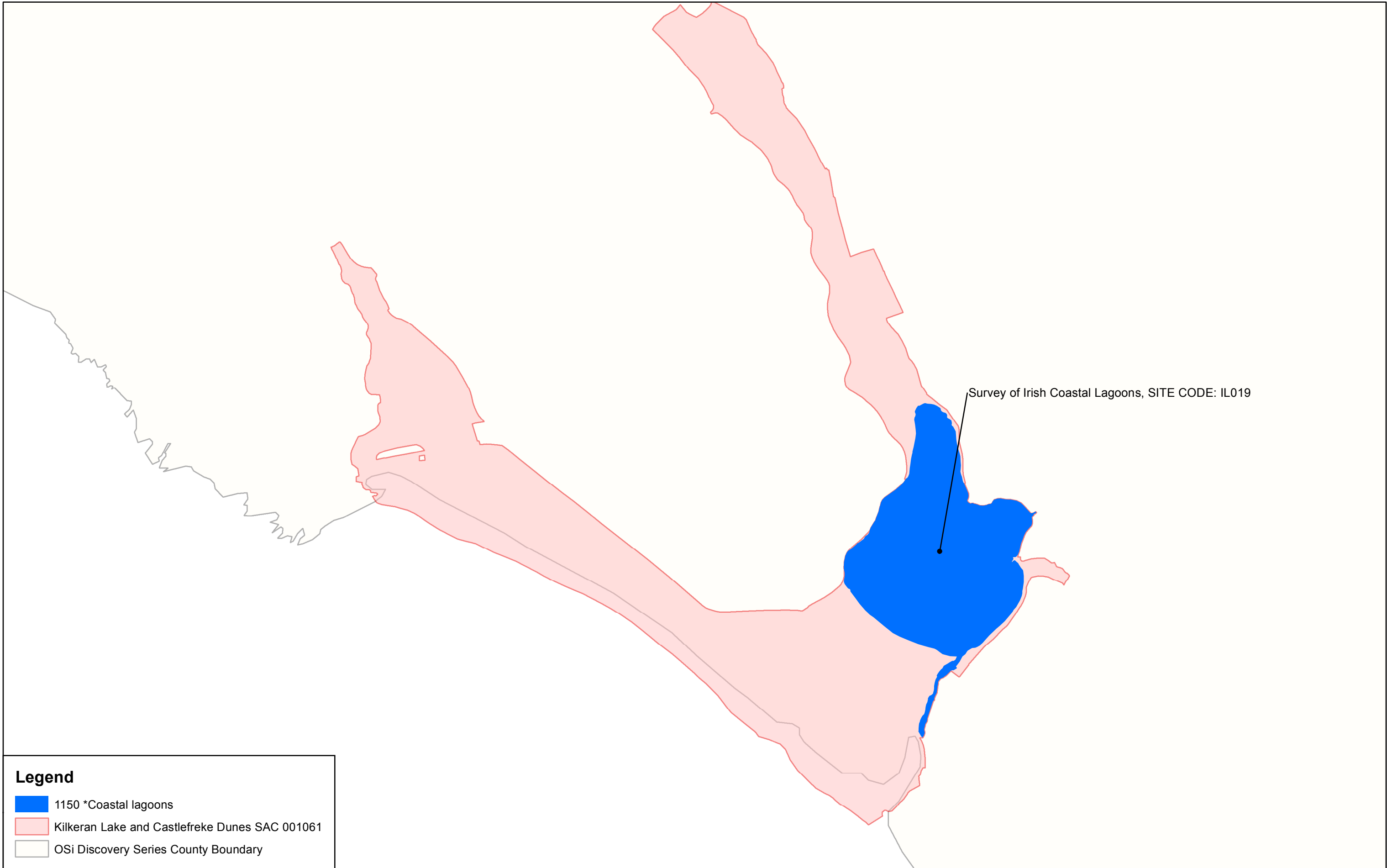
The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.  
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Níl sna teorainneacha ar na léarscáileanna ach nod garshuíomhach ginearálta. Féadfar athbheithnithe a déanamh ar theorainneacha na gceantar comharthaithe. Suirbhéarachta Ordonáis na hÉireann Ceadúnas Uimh EN 0059216. © Suirbhéarachta Ordonáis na hÉireann Rialtas na hÉireann.

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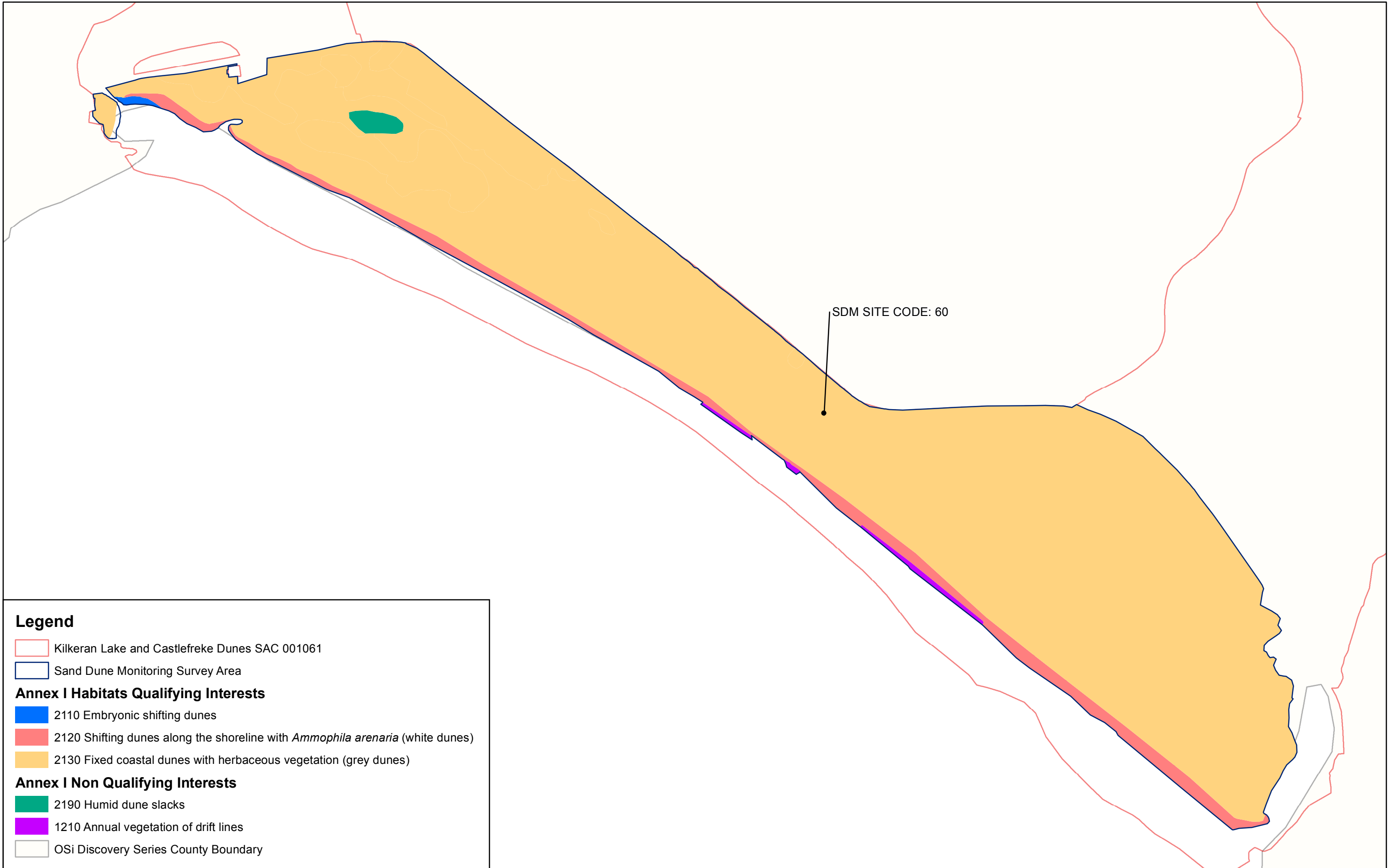


**Map Version 1**  
**Date: Nov 2016**



**Legend**

- 1150 \*Coastal lagoons
- Kilkieran Lake and Castlereke Dunes SAC 001061
- OSi Discovery Series County Boundary



**Legend**

Kilkieran Lake and Castlefreke Dunes SAC 001061

Sand Dune Monitoring Survey Area

**Annex I Habitats Qualifying Interests**

2110 Embryonic shifting dunes

2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)

2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)

**Annex I Non Qualifying Interests**

2190 Humid dune slacks

1210 Annual vegetation of drift lines

OSi Discovery Series County Boundary