

# National Parks and Wildlife Service

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## *Conservation Objectives Series*

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Galway Bay Complex SAC 000268



*An Roinn  
Ealaíon, Oidhreachta agus Gaeltachta*  

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*Department of  
Arts, Heritage and the Gaeltacht*



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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

000268	Galway Bay Complex SAC
1140	Mudflats and sandflats not covered by seawater at low tide
1150	Coastal lagoons*
1160	Large shallow inlets and bays
1170	Reefs
1220	Perennial vegetation of stony banks
1310	<i>Ulex</i> and other annuals colonising mud and sand
1330	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> )
1355	Otter <i>Lutra lutra</i>
1365	Harbour seal <i>Phoca vitulina</i>
1410	Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )
3180	Turloughs*
5130	<i>Ranunculus</i> formations on heaths or calcareous grasslands
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco Brometalia</i> )(*important orchid sites)
7210	Calcareous fens with <i>Cladonia</i> and species of the <i>Caricion davallianae</i> *
7230	Alkaline fens

**Please note that this SAC overlaps with Inner Galway Bay SPA (004031) and adjoins Moneen Mountain SAC (000054). See map 2. The conservation objectives for this site should be used in conjunction with those for the overlapping and adjacent sites as appropriate.**

## 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)

<b>Year :</b>	1980
<b>Title :</b>	An assessment of the status of the common seal <i>Phoca vitulina vitulina</i> in Ireland
<b>Author :</b>	Summers, C.F.; Warner, P.J.; Nairn, R.G.W.; Curry, M.G.; Flynn, J.
<b>Series :</b>	Biological Conservation 17: 115-123
<b>Year :</b>	1982
<b>Title :</b>	Otter survey of Ireland
<b>Author :</b>	Chapman, P.J.; Chapman, L.L.
<b>Series :</b>	Unpublished Report to Vincent Wildlife Trust
<b>Year :</b>	1983
<b>Title :</b>	An assessment of the breeding populations of common seals ( <i>Phoca vitulina vitulina</i> ) in the Republic of Ireland during 1979
<b>Author :</b>	Warner, P.J.
<b>Series :</b>	Irish Naturalist's Journal 21: 24-26
<b>Year :</b>	1991
<b>Title :</b>	The spatial organization of otters ( <i>Lutra lutra</i> ) in Shetland
<b>Author :</b>	Kruuk, H.; Moorhouse, A.
<b>Series :</b>	J. Zool, 224: 41-57
<b>Year :</b>	1999
<b>Title :</b>	National Shingle Beach Survey of Ireland
<b>Author :</b>	Moore, D.; Wilson, F.
<b>Series :</b>	Unpublished Report to NPWS
<b>Year :</b>	2002
<b>Title :</b>	Distribution of the Harbour Seal ( <i>Phoca vitulina</i> ) in greater Galway Bay
<b>Author :</b>	Doyle, T.
<b>Series :</b>	Unpublished BSc. (hons.) thesis, NUI Galway
<b>Year :</b>	2006
<b>Title :</b>	Otters - ecology, behaviour and conservation
<b>Author :</b>	Kruuk, H.
<b>Series :</b>	Oxford University Press
<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
<b>Year :</b>	2007
<b>Title :</b>	Saltmarsh Monitoring Project 2006
<b>Author :</b>	McCorry, M.
<b>Series :</b>	Unpublished Report to NPWS
<b>Year :</b>	2009
<b>Title :</b>	Coastal Monitoring Project 2004-2006
<b>Author :</b>	Ryle, T.; Murray, A.; Connolly, C.; Swann, M.
<b>Series :</b>	Unpublished Report to NPWS

<b>Year :</b>	2009
<b>Title :</b>	Saltmarsh Monitoring Project 2007-2008
<b>Author :</b>	McCorry, M.; Ryle, T.
<b>Series :</b>	Unpublished Report to NPWS
<b>Year :</b>	2010
<b>Title :</b>	Monitoring and Assessment of Irish Lagoons for the purpose of the EU Water Framework Directive
<b>Author :</b>	Roden, C.M.; Oliver, G.
<b>Series :</b>	EPA
<b>Year :</b>	2010
<b>Title :</b>	Otter tracking study of Roaringwater Bay
<b>Author :</b>	De Jongh, A.; O'Neill, L.
<b>Series :</b>	Unpublished Draft Report to NPWS
<b>Year :</b>	2010
<b>Title :</b>	Subtidal Benthic Investigations in Galway Bay Complex cSAC (0268) and Inner Galway Bay SPA (4031)
<b>Author :</b>	Aquafact
<b>Series :</b>	Unpublished report for Marine Institute and NPWS
<b>Year :</b>	2010
<b>Title :</b>	Reef Investigations in Galway Bay cSAC (0269)
<b>Author :</b>	Aquafact
<b>Series :</b>	Study for Marine Institute and NPWS
<b>Year :</b>	2012
<b>Title :</b>	Benthic Survey Services Framework. Galway Bay Intertidal Surveys 2009 & 2010
<b>Author :</b>	RPS
<b>Series :</b>	Unpublished report to NPWS & Marine Institute
<b>Year :</b>	1990
<b>Title :</b>	1989 survey of breeding herds of common seal <i>Phoca vitulina</i> with reference to previous surveys
<b>Author :</b>	Harrington, R.
<b>Series :</b>	Unpublished report to Wildlife Service
<b>Year :</b>	2004
<b>Title :</b>	Harbour seal population assessment in the Republic of Ireland: August 2003
<b>Author :</b>	Cronin, M.; Duck, C.; O'Cadhla, O.; Naim, R.; Strong, D.; O'Keeffe, C.
<b>Series :</b>	Irish Wildlife Manual No. 11
<b>Year :</b>	2004
<b>Title :</b>	Summary of National Parks & Wildlife Service surveys for common (harbour) seals ( <i>Phoca vitulina</i> ) and grey seals ( <i>Halichoerus grypus</i> ), 1978 to 2003
<b>Author :</b>	Lyons, D.O.
<b>Series :</b>	Irish Wildlife Manual No.13
<b>Year :</b>	2006
<b>Title :</b>	Otter Survey of Ireland 2004/2005
<b>Author :</b>	Bailey, M.; Rochford, J.
<b>Series :</b>	Irish Wildlife Manual No. 23
<b>Year :</b>	2006
<b>Title :</b>	Surveys of sensitive subtidal benthic communities
<b>Author :</b>	MERC
<b>Series :</b>	Unpublished Report to NPWS

<b>Year :</b>	2010
<b>Title :</b>	Harbour seal population monitoring 2009-2012: Report no. 1. Report on a pilot monitoring study carried out in southern and western Ireland, 2009
<b>Author :</b>	NPWS
<b>Series :</b>	Unpublished Report to NPWS
<b>Year :</b>	2011
<b>Title :</b>	Harbour seal pilot monitoring project, 2010
<b>Author :</b>	NPWS
<b>Series :</b>	Unpublished Report to NPWS
<b>Year :</b>	2012
<b>Title :</b>	The Conservation Status of Juniper Formations in Ireland
<b>Author :</b>	Cooper, F.; Stone, R.E.; McEvoy, P.; Wilkins, T.; Reid, N.
<b>Series :</b>	Irish Wildlife Manual No. 63
<b>Year :</b>	2012
<b>Title :</b>	Harbour seal pilot monitoring project, 2011
<b>Author :</b>	NPWS
<b>Series :</b>	Unpublished Report to NPWS
<b>Year :</b>	2013
<b>Title :</b>	Galway Bay Complex SAC (site code 268) Conservation objectives supporting document-coastal habitats V1
<b>Author :</b>	NPWS
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2013
<b>Title :</b>	Galway Bay Complex SAC (Site code 268) Conservation objectives supporting document-lagoons V1
<b>Author :</b>	NPWS
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2013
<b>Title :</b>	Galway Bay Complex SAC (site code 268) Conservation objectives supporting document-marine habitats and species V1
<b>Author :</b>	NPWS
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2013
<b>Title :</b>	Galway Bay Complex SAC (site code 268) Conservation objectives supporting document-turloughs V1
<b>Author :</b>	NPWS
<b>Series :</b>	Unpublished report to NPWS

## Spatial data sources

<b>Year :</b>	Interpolated 2013
<b>Title :</b>	Intertidal survey (2009) and subtidal surveys (2006, 2010)
<b>GIS Operations :</b>	Polygon feature classes from marine community types base data sub-divided based on interpolation of marine survey data. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	1140, 1170, Marine community types (maps 3, 6, 7)
<b>Year :</b>	2005
<b>Title :</b>	OSi Discovery series vector data
<b>GIS Operations :</b>	High water mark (HWM) and low water mark (LWM) polyline feature classes converted into polygon feature classes and combined; EU Annex I Saltmarsh and Coastal data erased out if present
<b>Used For :</b>	Marine community types base data (map 7)
<b>Year :</b>	2005
<b>Title :</b>	OSi Discovery series vector data
<b>GIS Operations :</b>	High Water Mark (HWM) polyline feature class converted into polygon feature class; clipped to SAC boundary. EPA WFD transitional waterbody data erased from extent. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	1160 (map 5)
<b>Year :</b>	Revision 2012
<b>Title :</b>	National Shingle Beach Survey
<b>GIS Operations :</b>	Clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	1220 (map 8)
<b>Year :</b>	Revision 2010
<b>Title :</b>	Saltmarsh Monitoring Project 2007-2008. Version 1
<b>GIS Operations :</b>	QIs selected; clipped to SAC boundary; overlapping regions with Coastal CO data investigated and resolved with expert opinion used
<b>Used For :</b>	1310, 1330, 1410 (map 9)
<b>Year :</b>	2010
<b>Title :</b>	EPA WFD Waterbodies data
<b>GIS Operations :</b>	Creation of a 20m buffer applied to river and stream centreline data; creation of 80m buffer on the aquatic side of lake data; creation of 10m buffer on the terrestrial side of lake data. These datasets are combined with the derived OSi data and Coastal Lagoon data for the 1355 CO. Overlapping regions investigated and resolved; resulting dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	1355 (no map)
<b>Year :</b>	2005
<b>Title :</b>	OSi Discovery series vector data
<b>GIS Operations :</b>	Creation of an 80m buffer on the marine side of the high water mark (HWM); creation of a 10m buffer on the terrestrial side of the HWM; combination of 80m and 10m HWM buffer datasets; creation of a 10m buffer on the terrestrial side of the river banks data; creation of 20m buffer applied to canal centreline data. These datasets are combined with the derived EPA WFD Waterbodies data and Coastal Lagoon data for the 1355 CO. Overlapping regions investigated and resolved; resulting dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising. Creation of 250m buffer on marine side of HWM to highlight potential commuting points
<b>Used For :</b>	1355 (map 11)
<b>Year :</b>	2005
<b>Title :</b>	OSi Discovery series vector data
<b>GIS Operations :</b>	High Water Mark (HWM) polyline feature class converted into polygon feature class; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	1365 (map 12)



<b>Year :</b>	Revision 2011
<b>Title :</b>	Inventory of Irish Coastal Lagoons. Version 3
<b>GIS Operations :</b>	Creation of 80m buffer on the aquatic side of lagoon data; creation of 10m buffer on the terrestrial side of lagoon data. These datasets are combined with the derived OSi data and EPA WFD Waterbodies data for the 1355 CO. Overlapping regions are investigated and resolved; resulting dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	1355 (no map)
<b>Year :</b>	2005
<b>Title :</b>	OSi Discovery series vector data
<b>GIS Operations :</b>	High water mark (HWM) and low water mark (LWM) polyline feature classes converted into polygon feature classes and combined; EU Annex I Saltmarsh and Coastal data erased out if present
<b>Used For :</b>	Marine community types base data (map 7)
<b>Year :</b>	2013
<b>Title :</b>	Internal NPWS files
<b>GIS Operations :</b>	Spatial location created from easting and northing Irish Grid coordinates
<b>Used For :</b>	5130 (map 10)
<b>Year :</b>	2013
<b>Title :</b>	Turloughs Database 2013
<b>GIS Operations :</b>	Relevant turloughs identified; clipped to SAC boundary
<b>Used For :</b>	3180 (map 10)
<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 4)
<b>Year :</b>	2013
<b>Title :</b>	NPWS rare and threatened species database
<b>GIS Operations :</b>	Dataset created from spatial references in database records. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	1365 (map 12)

## Conservation Objectives for : Galway Bay Complex SAC [000268]

### 1140 Mudflats and sandflats not covered by seawater at low tide

**To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:**

Attribute	Measure	Target	Notes
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 3	Habitat area was estimated using OSi data as 744ha
Community distribution	Hectares	Conserve the following community types in a natural condition: Intertidal sandy mud community complex; and Intertidal sand community complex. See map 7	Based on intertidal surveys undertaken in 2009 and 2010 (RPS, 2012). See marine supporting document for further information

**1150 Coastal lagoons**

**To restore the favourable conservation condition of Coastal lagoons in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:**

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable, subject to slight natural variation. Favourable reference area 76.7ha. See map 4	Areas calculated from spatial data derived from Oliver, 2007. Site codes IL037, IL038, IL039, IL046, IL047, IL048, IL049, IL050, IL051, IL052. NB there may be more, as yet unmapped, lagoons within this SAC. See lagoon supporting document for further details
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 4 for mapped lagoons	Sites IL037, IL038, IL039, IL046, IL047, IL048, IL049, IL050, IL051, IL052 in Oliver, 2007. NB there may be more, as yet unmapped, lagoons within this SAC. See lagoon supporting document for further details
Salinity regime	Practical salinity units (psu)	Median annual salinity and temporal variation within natural ranges	The lagoons in the site vary from oligohaline to euhaline. See lagoon supporting document for further details
Hydrological regime	Metres	Annual water level fluctuations and minima within natural ranges	Most of the lagoons listed for this site are considered to be shallow; however, Aughinish lagoon and Lough Atalia do have deeper (at least 3m) parts. See 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	The lagoons within this site exhibit a variety of barrier types including cobble/shingle, karst and artificial embankment/causeway. Several are recorded as having sluices. See 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 (2010). See lagoon supporting document for further details
Water quality: Molybdate Reactive Phosphorus (MRP)	mg/L	Annual median MRP within natural ranges 0.1mg/L	Target based on Roden and Oliver (2010). See 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 (2010). See lagoon supporting document for further details
Depth of macrophyte colonisation	Metres	Macrophyte colonisation to at least 2m depth	For shallow lagoons, it is expected that macrophytes should extend to their deepest points. See 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 lagoon supporting document for further details
Typical animal species	Number	Maintain listed lagoon specialists, subject to natural variation	Species listed in Oliver, 2007. See lagoon supporting document for further details
Negative indicator species	Number and % cover	Negative indicator species absent or under control	Low salinity, shallow water and elevated nutrient levels increase the threat of accelerated encroachment by reedbeds. See lagoon supporting document for further details

**1160 Large shallow inlets and bays**

**To maintain the favourable conservation condition of Large shallow inlets and bays in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:**

Attribute	Measure	Target	Notes
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 5	Habitat area was estimated as 10,825ha using OSI data and the Transitional Water Body area as defined under the Water Framework Directive
Community extent	Hectares	Maintain the extent of the <i>Zostera</i> -dominated community complex and the maërl-dominated community, subject to natural processes. See map 7	Based on 2006 diver observation and dropdown camera data (MERC, 2006). See marine supporting document for further details
Community structure: <i>Zostera</i> density	Shoots per m <sup>2</sup>	Conserve the high quality of <i>Zostera</i> -dominated communities, subject to natural processes	2006 diver observation and dropdown camera data (MERC, 2006). See marine supporting document for further details
Community structure	Biological composition	Conserve the high quality of the maërl-dominated community, subject to natural processes	2006 diver observation and dropdown camera data (MERC, 2006). See marine supporting document for further details
Community distribution	Hectares	Conserve the following community types in a natural condition: Intertidal sandy mud community complex; Intertidal sand community complex; Fine to medium sand with bivalves community complex; Sandy mud to mixed sediment community complex; Mixed sediment dominated by Mytilidae community complex; Shingle; Furoid-dominated community complex; <i>Laminaria</i> -dominated community complex; and Shallow sponge-dominated community complex. See map 7	Based on intertidal and subtidal surveys undertaken in 2009 and 2010 (Aquafact, 2010a, b; RPS, 2012). See marine supporting document for further information

**1170 Reefs**

**To maintain the favourable conservation condition of Reefs in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:**

Attribute	Measure	Target	Notes
Distribution	Occurrence	The distribution of reefs is stable or increasing, subject to natural processes. See map 6 for mapped distribution	Based on information from 2009 and 2010 intertidal survey data and 2009 subtidal survey data (Aquafact, 2010a, b; RPS, 2012). See marine supporting document for further details
Habitat area	Hectares	The permanent habitat area is stable, subject to natural processes. See map 6	Habitat area estimated as 2773ha using 2009 and 2010 intertidal survey data and 2009 subtidal survey data (Aquafact, 2010a, b; RPS, 2012)
Community extent	Hectares	Maintain the extent of the <i>Mytilus</i> -dominated reef community, subject to natural processes. See map 7	Area established from 2009 intertidal survey (RPS, 2012)
Community structure: <i>Mytilus</i> density	Individuals per m <sup>2</sup>	Conserve the high quality of the <i>Mytilus</i> -dominated reef community, subject to natural processes	Based on intertidal survey 2009 (RPS, 2012) and intertidal walkover 2012
Community structure	Biological composition	Conserve the following community types in a natural condition: Fucoid-dominated community complex; <i>Laminaria</i> -dominated community complex; and Shallow sponge-dominated community complex See map 7	Reef mapping based on information from 2009 subtidal reef survey (Aquafact, 2010b) and 2009 and 2010 intertidal surveys (RPS, 2012). See marine supporting document for further details

## Conservation Objectives for : Galway Bay Complex SAC [000268]

### 1220 Perennial vegetation of stony banks

**To maintain the favourable conservation condition of Perennial vegetation of stony banks in Galway Bay Complex 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	Current area unknown. It was recorded from Rinville Point, Tawin Point and coastline from Blackhead to Carrickada during the National Shingle Beach Survey (Moore and Wilson, 1999), but the extent was not mapped. Two areas of vegetated shingle were recorded during the Coastal Monitoring Project (Ryle et al., 2009): Bishopsquarter - 0.18ha and Barna (Whitestrand) - 0.45ha. NB further unsurveyed areas maybe present within the site. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes. See map 8 for mapped locations	Full distribution unmapped at present, although the habitat has been recorded at Rinville Point, Tawin Point and coastline from Blackhead to Carrickada (Moore and Wilson, 1999). It has also been recorded from Barna and Bishopquarter by Ryle et al. (2009). See 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	The Galway Bay shoreline supports good examples of shingle beaches along the more exposed shores to the south and west of Galway city and to the north-east of Finnavara, County Clare. Shingle features are relatively stable in the longterm (Moore and Wilson, 1999). See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Moore and Wilson (1999). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain the typical vegetated shingle flora including the range of sub-communities within the different zones. Typical species include sea sandwort ( <i>Honckenya peploides</i> ), sea beet ( <i>Beta vulgaris</i> ssp. <i>maritima</i> ), rock samphire ( <i>Crithmum maritimum</i> ), sea mayweed ( <i>Tripleurospermum maritimum</i> ), yellow-horned poppy ( <i>Glaucium flavum</i> ) and sea campion ( <i>Silene uniflora</i> )	Based on data from Moore and Wilson (1999). See coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Moore and Wilson (1999). Negative indicators include non-native species indicative of changes in nutrient status and species not considered characteristic of the habitat. See coastal habitats supporting document for further details

## Conservation Objectives for : Galway Bay Complex SAC [000268]

### 1310 *Salicornia* and other annuals colonising mud and sand

To maintain the favourable conservation condition of *Salicornia* and other annuals colonizing mud and sand in Galway Bay Complex 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 sub-sites mapped: Barna House - 0.067ha, Seaweed Point - 0.003ha, Roscam West and South - 0.023ha, Kilcaimin - 0.015, Kileenaran - 0.007ha, Kinvara West - 0.017ha, Scanlan's Island - 0.117ha, Tawin Island - 1.098ha. See map 9	Based on data from Saltmarsh Monitoring Project (SMP) (McCorry and Ryle, 2009). Habitat recorded at eight of the ten sub-sites surveyed and mapped, giving a total estimated area of 1.347ha. N.B. Further unsurveyed areas may be present within this site. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes. See map 9 for known distribution	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). <i>Salicornia</i> is an annual species, so its distribution can vary significantly from year to year. See coastal habitats supporting document for further details
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain/restore, natural circulation of sediments and organic matter, without any physical obstructions	Sediment supply is particularly important for pioneer saltmarsh community, as the distribution of this habitat depends on accretion rates. See coastal habitats supporting document for further details
Physical structure: creeks and pans	Occurrence	Maintain, or where necessary restore creek and pan structure, subject to natural processes, including erosion and succession	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). Creeks deliver sediment throughout saltmarsh system. Creeks and pan structures well developed at Kileenaran and Tawin Island. See coastal habitats supporting document for further details
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	This pioneer saltmarsh community requires regular tidal inundation. See 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 SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for details
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for details
Vegetation composition: typical species and sub-communities	Percentage cover	Maintain the range of species-poor communities with typical species listed in SMP (McCorry and Ryle, 2009)	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Vegetation structure: negative indicator species - <i>Spartina anglica</i>	Hectares	There is currently no common cordgrass ( <i>Spartina anglica</i> ) in this SAC. Prevent establishment of cordgrass	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details

## Conservation Objectives for : Galway Bay Complex SAC [000268]

### 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

**To restore the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:**

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Barna House - 2.33ha, Seaweed Point - 1.41ha, Roscam West and South - 3.30ha, Oranmore North - 4.24ha, Kilcaimin - 6.82ha, Tawin Island - 53.85ha, Tyrone House-Dunbulcaun Bay - 9.83ha, Kileenaran - 15.37ha, Kinvara West - 13.33ha, Scanlan's Island - 4.13ha. See map 9	Based on data from Saltmarsh monitoring Project (SMP) (McCorry, 2007; McCorry and Ryle, 2009). Ten sub-sites that supported Atlantic salt meadow were mapped (114.612ha) and additional areas of potential saltmarsh (149.18ha) were identified by an examination of aerial photographs, giving a total estimated area of 263.80ha. NB further unsurveyed areas maybe present within the site. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes. See map 9 for known distribution	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions	See coastal habitats supporting document for further details
Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). The efficiency of sediment circulation throughout a saltmarsh depends on the creek pattern. Creeks and pans are well developed at both Tawin Island and Kileenaran. See coastal habitats supporting document for further details
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% area outside creeks vegetated	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009)	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Vegetation structure: negative indicator species - <i>Spartina anglica</i>	Hectares	There is currently no common cordgrass ( <i>Spartina anglica</i> ) in this SAC. Prevent establishment of cordgrass	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details



## Conservation Objectives for : Galway Bay Complex SAC [000268]

### 1410 Mediterranean salt meadows (*Juncetalia maritimi*)

**To restore the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Galway Bay Complex 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 sub-sites mapped: Barna House - 0.282ha, Seaweed Point - 0.931ha, Kilcaimin - 0.005ha, Tawin Island - 1.799ha. Tyrone House- Dunbulcan Bay - 8.184ha, Kileenaran - 0.271ha. See map 9	Based on data from the Saltmarsh Monitoring Project (SMP) (McCorry, 2007; McCorry and Ryle, 2009). Six sub-sites that support Mediterranean salt meadow were mapped (11.472ha) and additional areas of potential saltmarsh (8.415ha) were identified from an examination of aerial photographs, giving a total estimated area of 19.887ha. NB further unsurveyed areas maybe present within the site. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 9 for known distribution	See coastal habitats supporting document for further details
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions	See coastal habitats supporting document for further details
Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession	Based on data from the SMP (McCorry, 2007; McCorry and Ryle, 2009). [Site-specific info.]. See coastal habitats supporting document for further details
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	Mediterranean salt meadows is found high up in the saltmarsh but requires occasional tidal inundation. [Site-specific info.] See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimetres	Maintain structural variation in the sward	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009)	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details
Vegetation structure: negative indicator species - <i>Spartina anglica</i>	Hectares	There is currently no common cordgrass ( <i>Spartina anglica</i> ) in this SAC. Prevent establishment of cordgrass	Based on data from SMP (McCorry, 2007; McCorry and Ryle, 2009). See coastal habitats supporting document for further details

**3180 Turloughs**

**To maintain the favourable conservation condition of Turloughs in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:**

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable at c.59ha or increasing, subject to natural processes. See map 10	Based on measured area of four known turloughs. NB there may be more, as yet unmapped, turloughs within this SAC. See turloughs supporting document for further details
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 10	NB there may be more, as yet unmapped, turloughs within this SAC. See turloughs supporting document for further details
Hydrological regime: flood duration, frequency, area, depth; permanently flooded area	Various	Appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	Hydrological regime is sub-divided into more detailed attributes in the turloughs supporting document
Soil type: area	Hectares	Variety, area and extent of soil types necessary to support turlough vegetation and other biota	See turloughs supporting document for further details
Soil nutrient status: nitrogen and phosphorous	N and P concentration in soil	Nutrient status appropriate to soil types	See turloughs supporting document for further details
Physical structure: bare ground	Presence	Sufficient wet bare ground, as appropriate	See turloughs supporting document for further details
Chemical processes: calcium carbonate deposition and concentration	CaCO <sub>3</sub> deposition rate/soil concentration	Appropriate CaCO <sub>3</sub> deposition rates and concentration in soil	See turloughs supporting document for further details
Water quality: nutrients; colour; phytoplankton; epiphyton	Various	Appropriate water quality to support the natural structure and functioning of the habitat	Water quality is sub-divided into more detailed attributes in the turloughs supporting document
Active peat formation	Flood duration	Active peat formation, where appropriate	See turloughs supporting document for further details
Vegetation composition: area of vegetation communities	Hectares	Maintain area of sensitive and high conservation value vegetation communities/units at each turlough	See turloughs supporting document for further details
Vegetation composition: vegetation zonation	Distribution	Maintain vegetation zonation/mosaic characteristic of each turlough	See turloughs supporting document for further details
Vegetation structure: sward height	Centimetres	Sward heights appropriate to the vegetation unit, and a variety of sward heights across each turlough	See turloughs supporting document for further details
Typical species: terrestrial, wetland and aquatic plants, invertebrates and birds	Presence	Maintain typical species within and across all turloughs	Typical species is sub-divided into more detailed attributes in the turloughs supporting document
Fringing habitats: area	Hectares	Maintain marginal fringing habitats that support turlough vegetation, invertebrate, mammal and/or bird populations	See turloughs supporting document for further details

Vegetation  
structure:  
turlough  
woodland

Species diversity and  
woodland structure

Maintain appropriate  
turlough woodland  
diversity and structure

See turloughs supporting document for further  
details

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## Conservation Objectives for : Galway Bay Complex SAC [000268]

### 5130 Juniperus communis formations on heaths or calcareous grasslands

To restore the favourable conservation condition of *Juniperus communis* formations on heaths or calcareous grasslands in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Occurrence	Area stable or increasing, subject to natural processes. At least 1.4ha at mapped location. See map 10	Minimum area from one mapped location. Based on site visit in March 2013. Appropriate management might encourage expansion of the area. NB further unsurveyed areas maybe present within the SAC
Habitat distribution	Hectares	No decline. Known location shown on map 10	Distribution based on NPWS site visits in 2002, 2003 and 2013 (internal NPWS files). NB further unsurveyed locations maybe present within the SAC
Juniper population size	Number	At least 50 plants	To classify as a juniper formation, at least 50 plants should be present (Cooper et al., 2012). A site visit in March 2013 estimated c.130 plants
Formation structure: cover and height	Percentage and metres	Well-developed structure with an open to closed cover of juniper up to or exceeding 0.5 m in height with associated species	Structure currently open with most plants less than 0.5m in height (February 2013)
Formation structure: community diversity and extent	Hectares	Appropriate diversity and extent of formation	Suitable management could lead to expansion of the formation and increased diversity of associated species
Formation structure: cone-bearing plants	Percentage	At least 10% of plants bearing cones	Target based on Cooper et al., 2012. c.23% of plants were fruiting, some prolifically, during a site visit in March 2013
Formation structure: seedling recruitment	Percentage	At least 10% of juniper plants within the formation are seedlings	Target based on Cooper et al., 2012. No seedlings were recorded in February 2013
Formation structure: dead plants	Percentage	Not more than 10% of plants dead	Target based on Cooper et al., 2012. Only a few dead plants observed February 2013
Vegetation composition: typical species	Occurrence	A variety of typical native species with a minimum of 10 species present (excluding negative indicator species)	The area appears to fall into the <i>Carex flacca-Succisa pratensis</i> vegetation group as classified by Cooper et al. (2012), who also list positive indicator species. Few of these species have been recorded but a detailed survey has not been undertaken. Lack of suitable management at this site has resulted in a dominance of gorse ( <i>Ulex europaeus</i> ) and purple moorgrass ( <i>Molinia caerulea</i> )
Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control	Gorse ( <i>Ulex europaeus</i> ) and purple moorgrass ( <i>Molinia caerulea</i> ) are currently competing strongly with the juniper. Blackthorn ( <i>Prunus spinosa</i> ) and the non-native cotoneaster ( <i>Cotoneaster integrifolius</i> ) also pose a threat

## Conservation Objectives for : Galway Bay Complex SAC [000268]

### 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*)(\*important orchid sites)

To maintain the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*) in Galway Bay Complex, 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	Extent of this habitat in the SAC is currently unknown. Areas are likely to be small and often in mosaic with other habitats such as limestone pavement and scrub (Dwyer et al., 2007; internal NPWS files). Dwyer et al. (2007) surveyed a number of sub-sites in 2006. The Irish semi-natural grasslands survey undertook survey work in Counties Clare and Galway in 2012 and additional information is likely to be available for this SAC following data analysis
Habitat distribution	Occurrence	No decline, subject to natural processes	Full distribution of this habitat in this SAC is currently unknown- see note above
Vegetation composition: broadleaf herb: grass ratio	Percentage	Broadleaf herb component of vegetation between 40 and 90%	Attribute and target based on O'Neill et al. (2010)
Vegetation composition: typical species	Number	At least 7 positive indicator species present, including 2 "high quality" species	List of positive indicator species, including high quality species, identified by O'Neill et al. (2010)
Vegetation composition: negative indicator species	Percentage	Negative indicator species collectively not more than 20% cover, with cover by an individual species not more than 10%. Non-native invasive species, absent or under control	List of negative indicator species identified by O'Neill et al. (2010)
Vegetation structure: sward height	Percentage	30-70% of sward 5-40cm high	Attribute and target based on O'Neill et al. (2010)
Vegetation structure: woody species and bracken ( <i>Pteridium aquilinum</i> )	Percentage	Cover of bracken ( <i>Pteridium aquilinum</i> ) and woody species (except juniper ( <i>Juniperus communis</i> )) not more than 5% cover	Attribute and target based on O'Neill et al. (2010)
Physical structure: bare ground	Percentage	Not more than 10% bare ground	Attribute and target based on O'Neill et al. (2010)

## Conservation Objectives for : Galway Bay Complex SAC [000268]

### 7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*

To maintain the favourable conservation condition of Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* in Galway Bay Complex 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	The full extent of this habitat within the SAC is currently unknown. Fen vegetation occurs in wetland areas to the east of Oranmore (Internal NPWS files). It has also been recorded in Ballindereen Lough (see turloughs supporting document for further details). This habitat is found in mosaic with another habitats including the Annex I habitat: Alkaline fens (7230) (Internal NPWS Files). NB further areas of fen are likely to occur within the SAC
Habitat distribution	Occurrence	No decline, subject to natural processes	Full distribution of this habitat in this SAC is currently unknown- see note above
Hydrological regime	Flow rates, metres	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	Maintenance of groundwater, surface water flows and water table levels within natural ranges is essential for this wetland habitat
Peat formation	Flood duration	Active peat formation, where appropriate	In order for peat to form, water levels need to be slightly below or above the soil surface for c.90% of the time (Jim Ryan, pers. comm.)
Water quality: nutrients	Water chemistry measures	Appropriate water quality to support the natural structure and functioning of the habitat	Fens receive natural levels of nutrients (e.g. iron, magnesium and calcium) from water sources. However, they are generally poor in nitrogen and phosphorus with the latter tending to be the limiting nutrient
Vegetation composition: typical species	Presence	Maintain vegetation cover of typical species including brown mosses and vascular plants	Mosses listed for fen at this site include <i>Campylopus stellatus</i> , <i>Fissidens adianthoides</i> and <i>Ctenidium molluscum</i> . Other species recorded include saw sedge ( <i>Cladium mariscus</i> ), black bog rush ( <i>Schoenus nigricans</i> ), purple moor-grass ( <i>Molinia caerulea</i> ), water mint ( <i>Mentha aquatica</i> ), wild angelica ( <i>Angelica sylvestris</i> ) and bogbean ( <i>Menyanthes trifoliata</i> ) (Internal NPWS files)
Vegetation composition: trees and shrubs	Percentage	Cover of scattered native trees and shrubs not more than 10%	Scrub and trees will tend to invade if fen conditions become drier. Internal NPWS files report scattered multi-stemmed trees over much of the habitat. Attribute and target based on upland habitat conservation assessment criteria (Perrin et al., in prep.)
Physical structure: disturbed bare ground	Percentage	Cover of disturbed bare ground not more than 10%. Where tufa is present, disturbed bare ground not more than 1%	While grazing may be appropriate in this habitat, excessive areas of disturbed bare ground may develop due to unsuitable grazing regimes. Attribute and target based on upland habitat conservation assessment criteria (Perrin et al., in prep.)
Physical structure: drainage	Percentage	Areas showing signs of drainage as a result of drainage ditches or heavy trampling not more than 10%	Attribute and target based on upland habitat conservation assessment criteria (Perrin et al., in prep.)

## Conservation Objectives for : Galway Bay Complex SAC [000268]

7230

### Alkaline fens

**To maintain the favourable conservation condition of Alkaline fens in Galway Bay Complex 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	The full extent of this habitat within the SAC is currently unknown. Fen vegetation occurs in wetland areas to the east of Oranmore (Internal NPWS files). It has also been recorded in Ballindereen Lough (see turloughs supporting document for further details). This habitat is found in mosaic with another habitats including the Annex I habitat: Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion davallianae (7210). NB further areas of fen are likely to occur within the SAC
Habitat distribution	Occurrence	No decline, subject to natural processes	Full distribution of this habitat in this SAC is currently unknown- see note above
Hydrological regime	Flow rates, metres	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	Maintenance of groundwater, surface water flows and water table levels within natural ranges is essential for this wetland habitat
Peat formation	Flood duration	Active peat formation, where appropriate	In order for peat to form, water levels need to be slightly below or above the soil surface for c.90% of the time (Jim Ryan, pers. comm.)
Water quality: nutrients	Water chemistry measures	Appropriate water quality to support the natural structure and functioning of the habitat	Fens receive natural levels of nutrients (e.g. iron, magnesium and calcium) from water sources. However, they are generally poor in nitrogen and phosphorus with the latter tending to be the limiting nutrient
Vegetation composition: typical species	Presence	Maintain vegetation cover of typical species including brown mosses and vascular plants	Mosses listed for fen at this site include <i>Campylopus stellatus</i> , <i>Fissidens adianthoides</i> and <i>Ctenidium molluscum</i> . Other species recorded include black bog rush ( <i>Schoenus nigricans</i> ), purple moor-grass ( <i>Molinia caerulea</i> ), sedge species ( <i>Carex</i> spp.), water mint ( <i>Mentha aquatica</i> ), butterwort ( <i>Pinguicula</i> spp.) and ling heather ( <i>Calluna vulgaris</i> ) (Internal NPWS files)
Vegetation composition: trees and shrubs	Percentage	Cover of scattered native trees and shrubs less than 10%	Scrub and trees will tend to invade if fen conditions become drier. Internal NPWS files report scattered multi-stemmed trees over much of the habitat. Attribute and target based on upland habitat conservation assessment criteria (Perrin et al., in prep.)
Physical structure: disturbed bare ground	Percentage	Cover of disturbed bare ground less than 10%. Where tufa is present, disturbed bare ground less than 1%	While grazing may be appropriate in this habitat, excessive area of disturbed bare ground may develop due to unsuitable grazing regimes. Attribute and target based on upland habitat conservation assessment criteria (Perrin et al., in prep.)
Physical structure: drainage	Percentage	Areas showing signs of drainage as a result of drainage ditches or heavy trampling less than 10%	Attribute and target based on upland habitat conservation assessment criteria (Perrin et al., in prep.)

**Conservation Objectives for : Galway Bay Complex SAC [000268]****1355 Otter *Lutra lutra***

**To restore the favourable conservation condition of Otter in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:**

Attribute	Measure	Target	Notes
Distribution	Percentage positive survey sites	No significant decline	Measure based on standard otter survey technique. FCS target, based on 1980/81 survey findings, is 88% in SACs. Current range in the west is estimated at 70% (Bailey and Rochford, 2006).
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 262ha above high water mark (HWM); 14ha along river banks/around ponds	No field survey. Areas mapped to include 10m terrestrial buffer along shoreline (above HWM and along river banks) identified as critical for otters (NPWS, 2007)
Extent of marine habitat	Hectares	No significant decline. Area mapped and calculated as 2040ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (HWM) (NPWS, 2007; Kruuk, 2006)
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 4km	No field survey. River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters (Chapman and Chapman, 1982)
Extent of freshwater (lake/lagoon) habitat	Hectares	No significant decline. Area mapped and calculated as 21ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (NPWS, 2007)
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance (Kruuk, 2006; Kruuk and Moorhouse, 1991)
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater (Bailey and Rochford, 2006) and wrasse and rockling in coastal waters (Kingston et al., 1999)
Barriers to connectivity	Number	No significant increase. For guidance, see map 11	Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary (De Jongh and O'Neill, 2010). It is important that such commuting routes are not obstructed



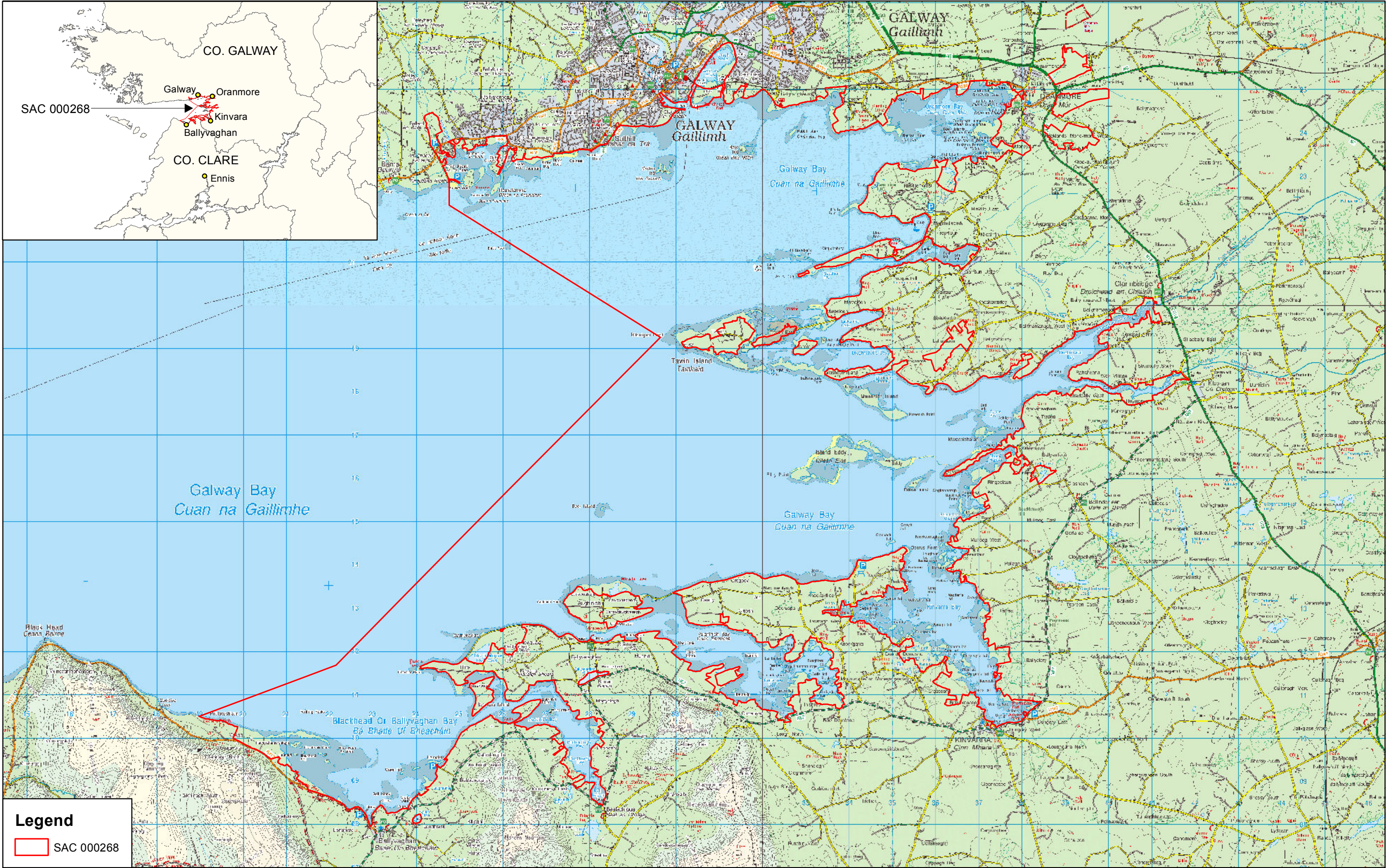
## Conservation Objectives for : Galway Bay Complex SAC [000268]

### 1365 Harbour seal *Phoca vitulina*

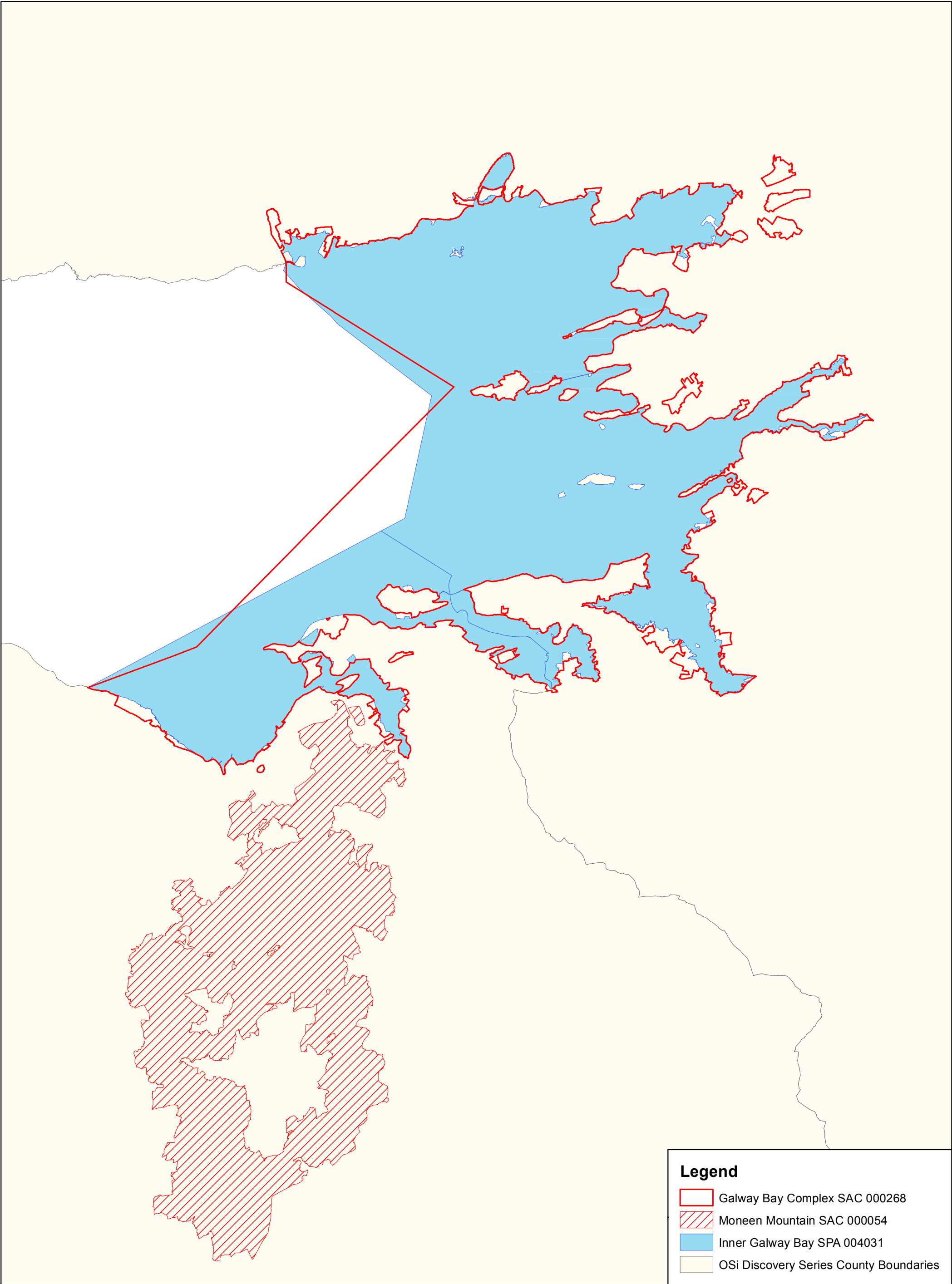
**To maintain the favourable conservation condition of Harbour Seal in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:**

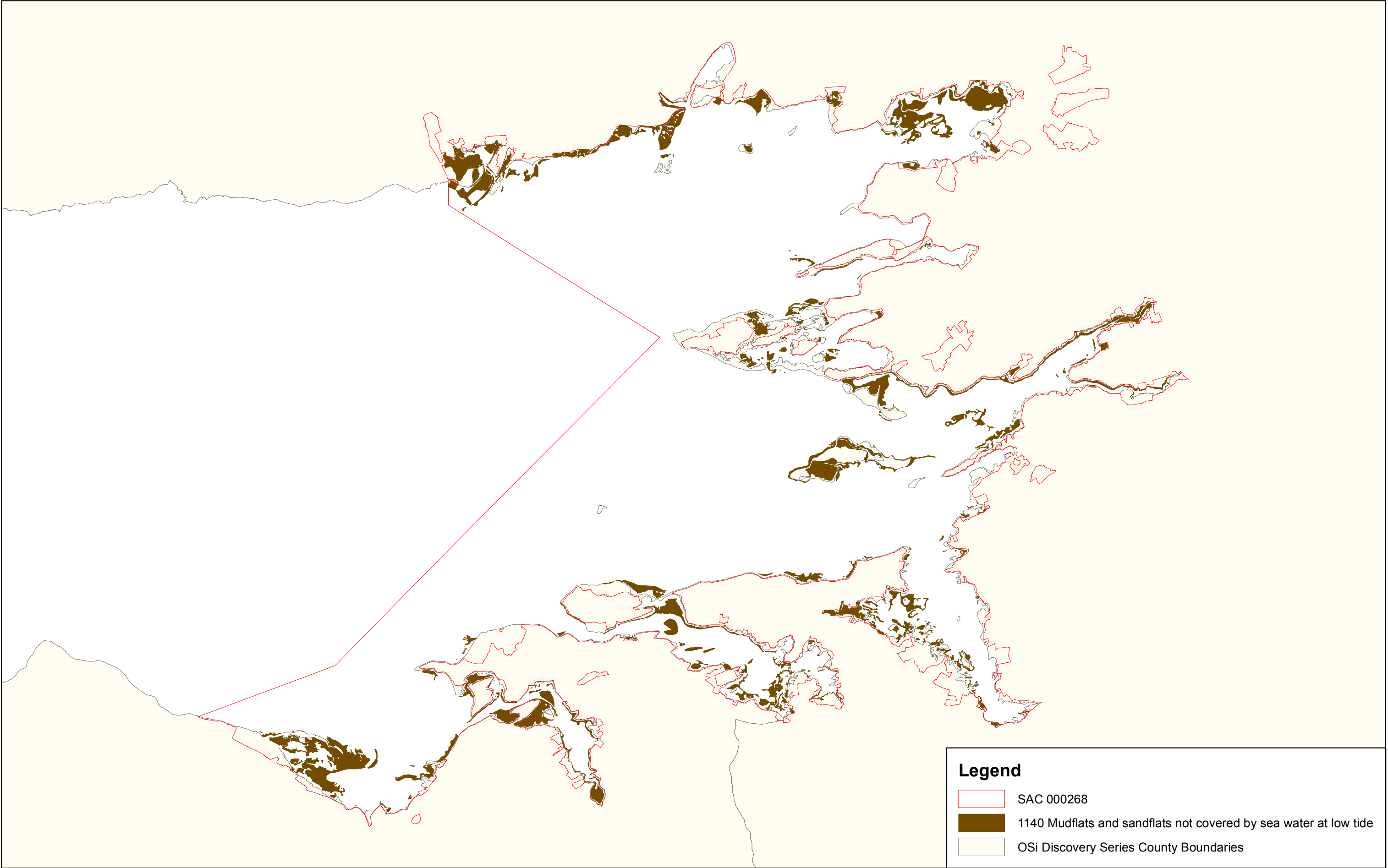
Attribute	Measure	Target	Notes
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use. See map 12	See marine supporting document for further details
Breeding behaviour	Breeding sites	Conserve breeding sites in a natural condition. See map 12	Attribute and target based on background knowledge of Irish breeding populations, review of data summarised by Summers et al. (1980), Warner (1983), Harrington (1990), Doyle (2002), Lyons (2004), and unpublished NPWS records. See marine supporting document for further details
Moulting behaviour	Moult haul-out sites	Conserve moult haul-out sites in a natural condition. See map 12	Attribute and target based on background knowledge of Irish populations, review of data from Doyle (2002), Lyons (2004), Cronin et al. (2004), NPWS (2010, 2011, 2012) and unpublished NPWS records. See marine supporting document for further details
Resting behaviour	Resting haul-out sites	Conserve resting haul-out sites in a natural condition. See map 12	Attribute and target based on background knowledge of Irish populations, review of data from Doyle (2002), Lyons (2004) and unpublished NPWS records. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour seal population at the site	See marine supporting document for further details

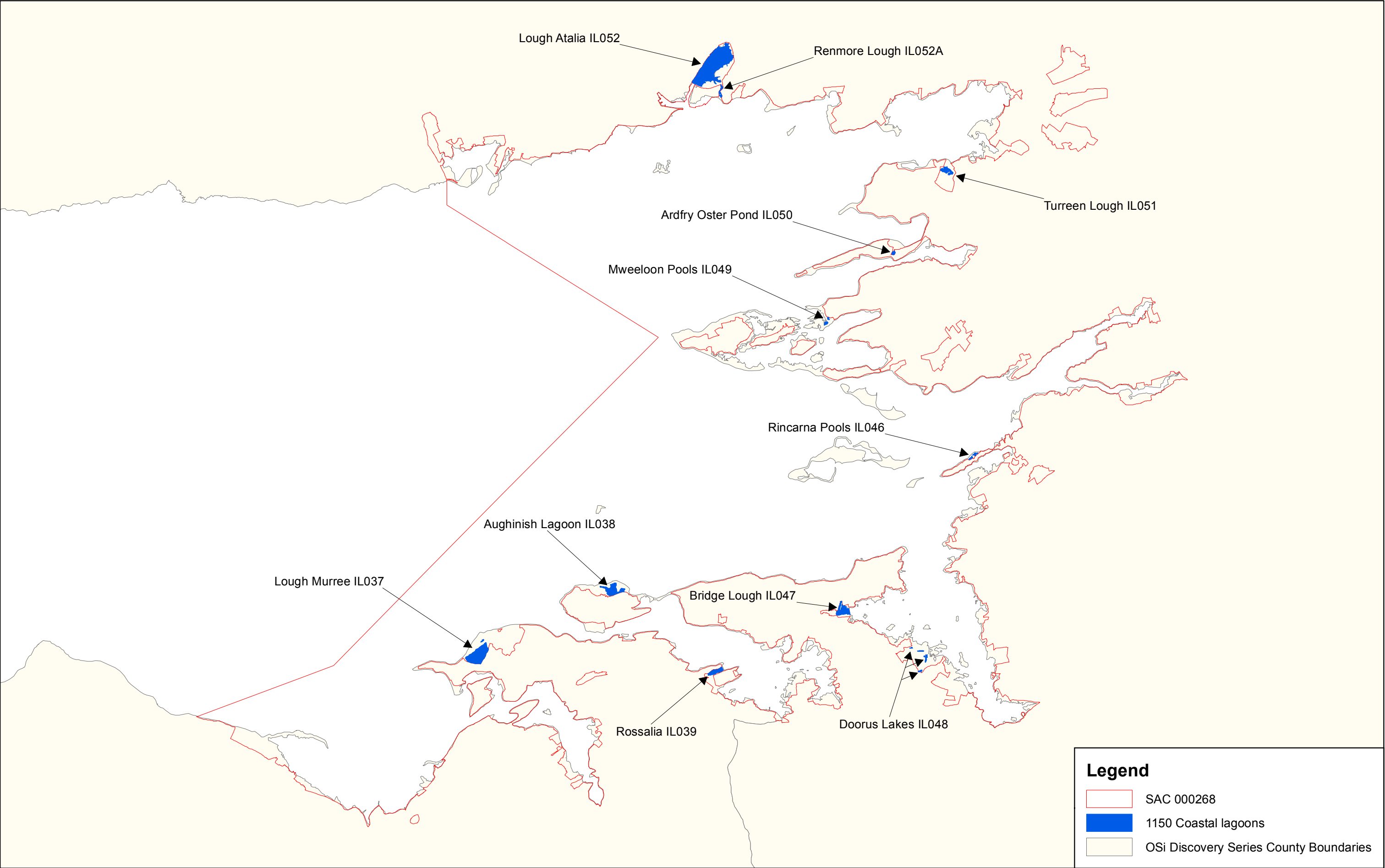


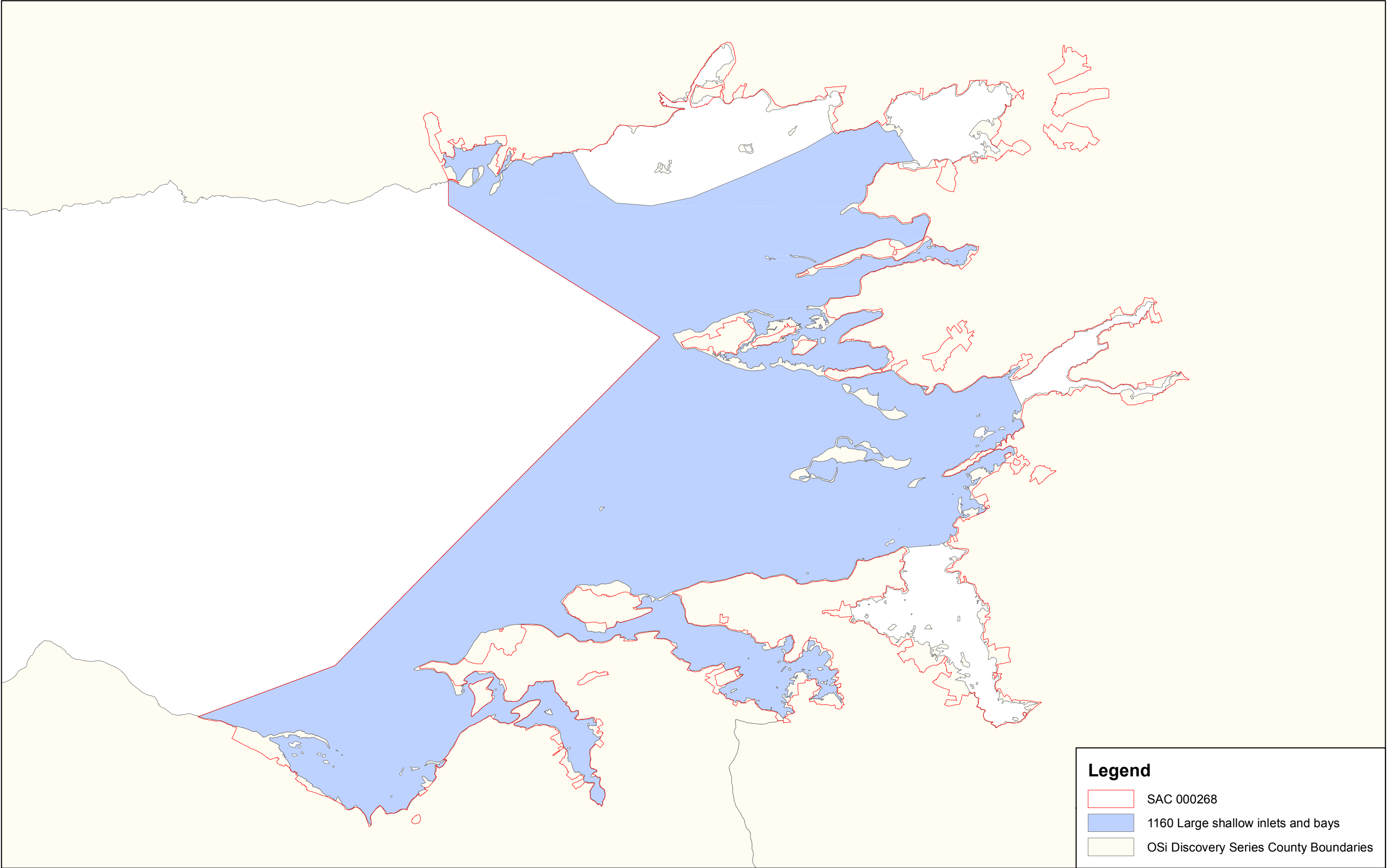


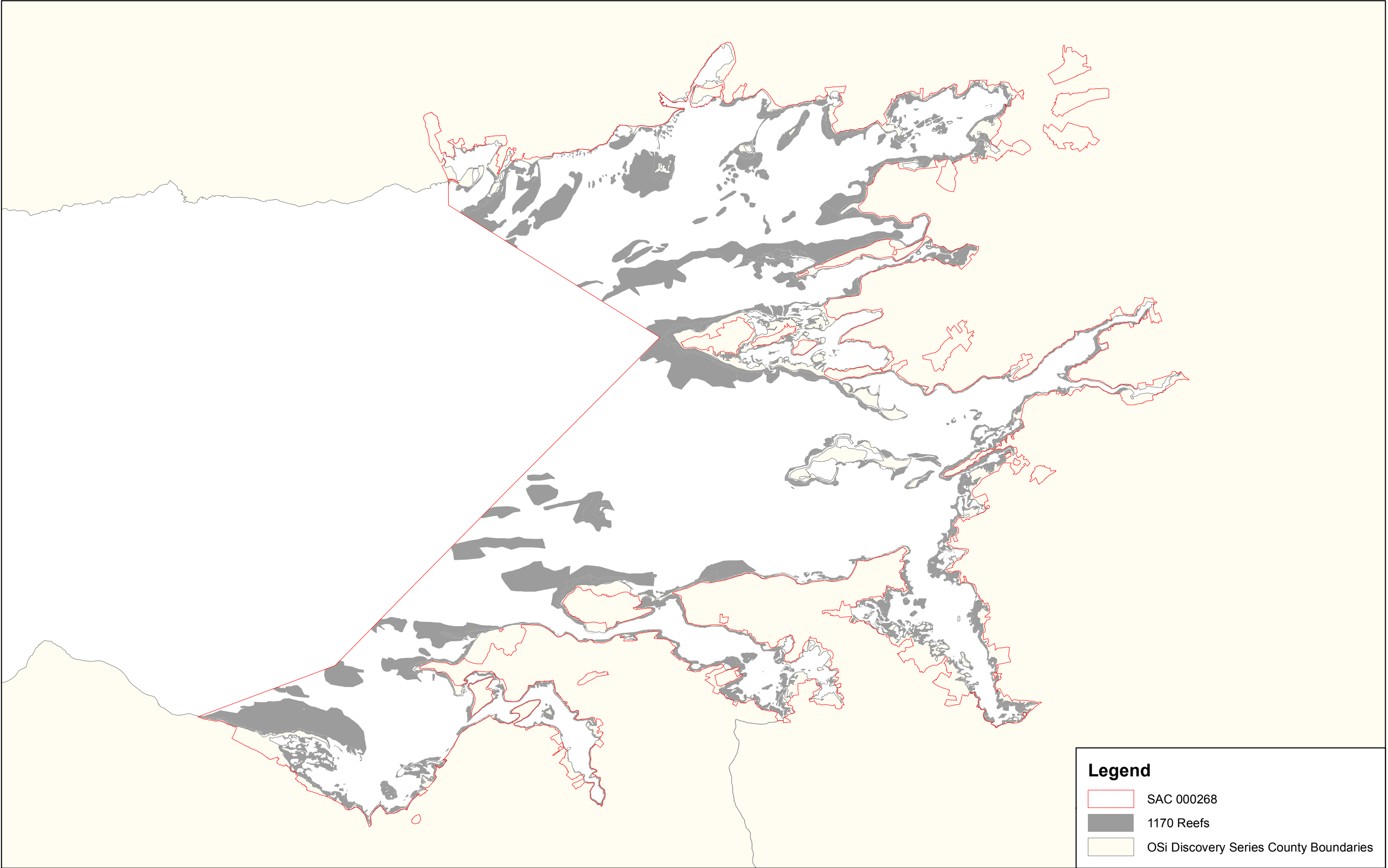




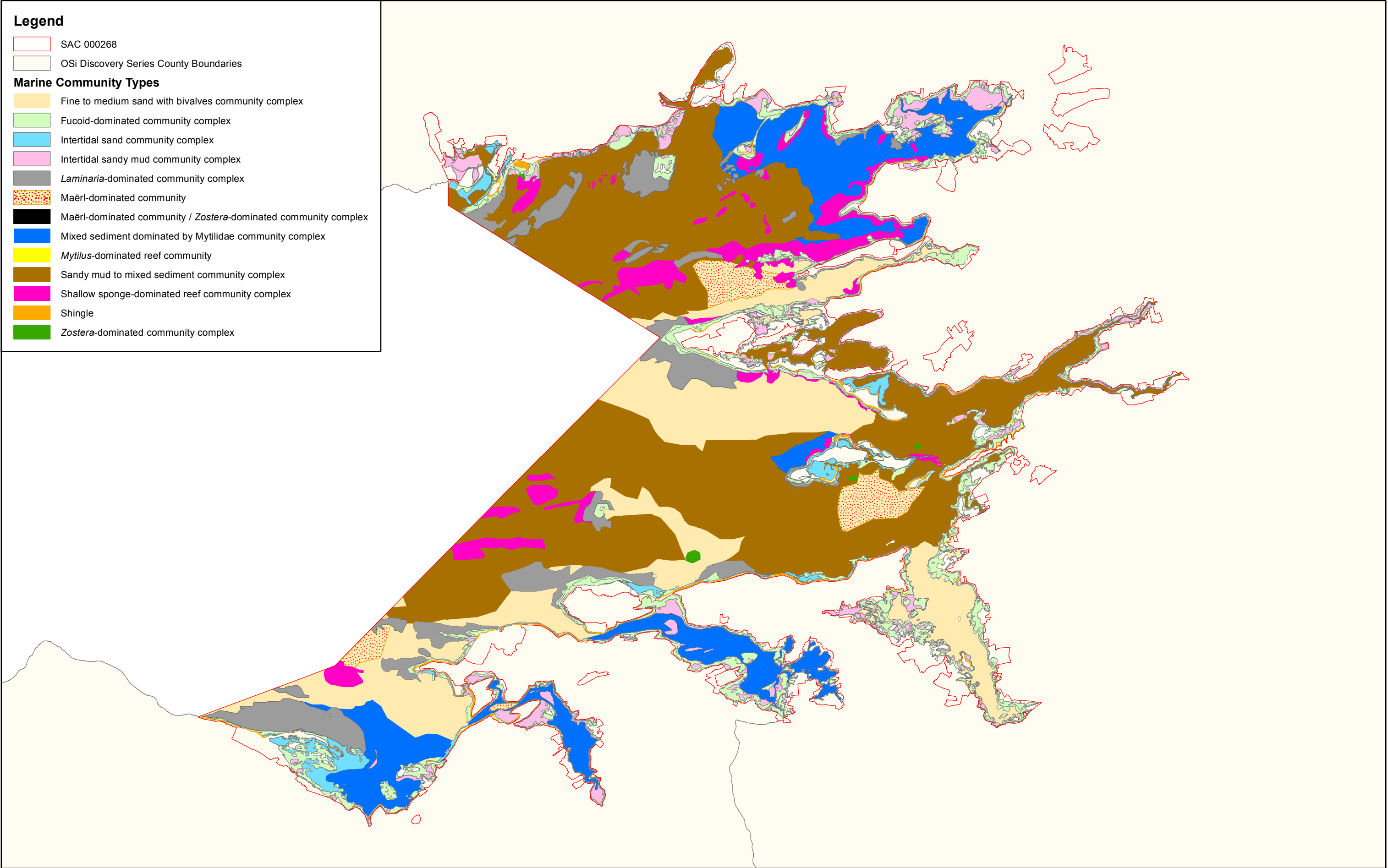




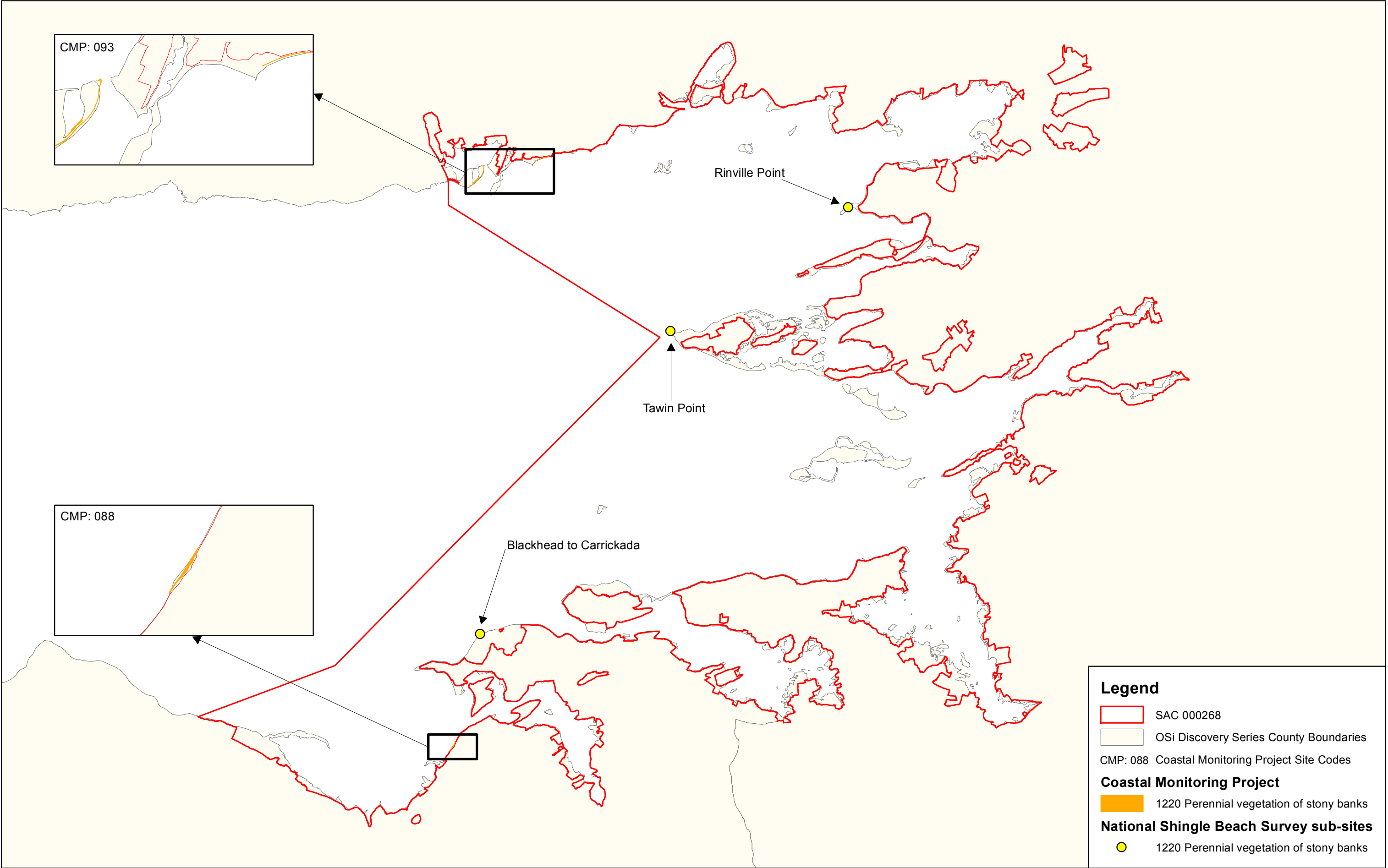


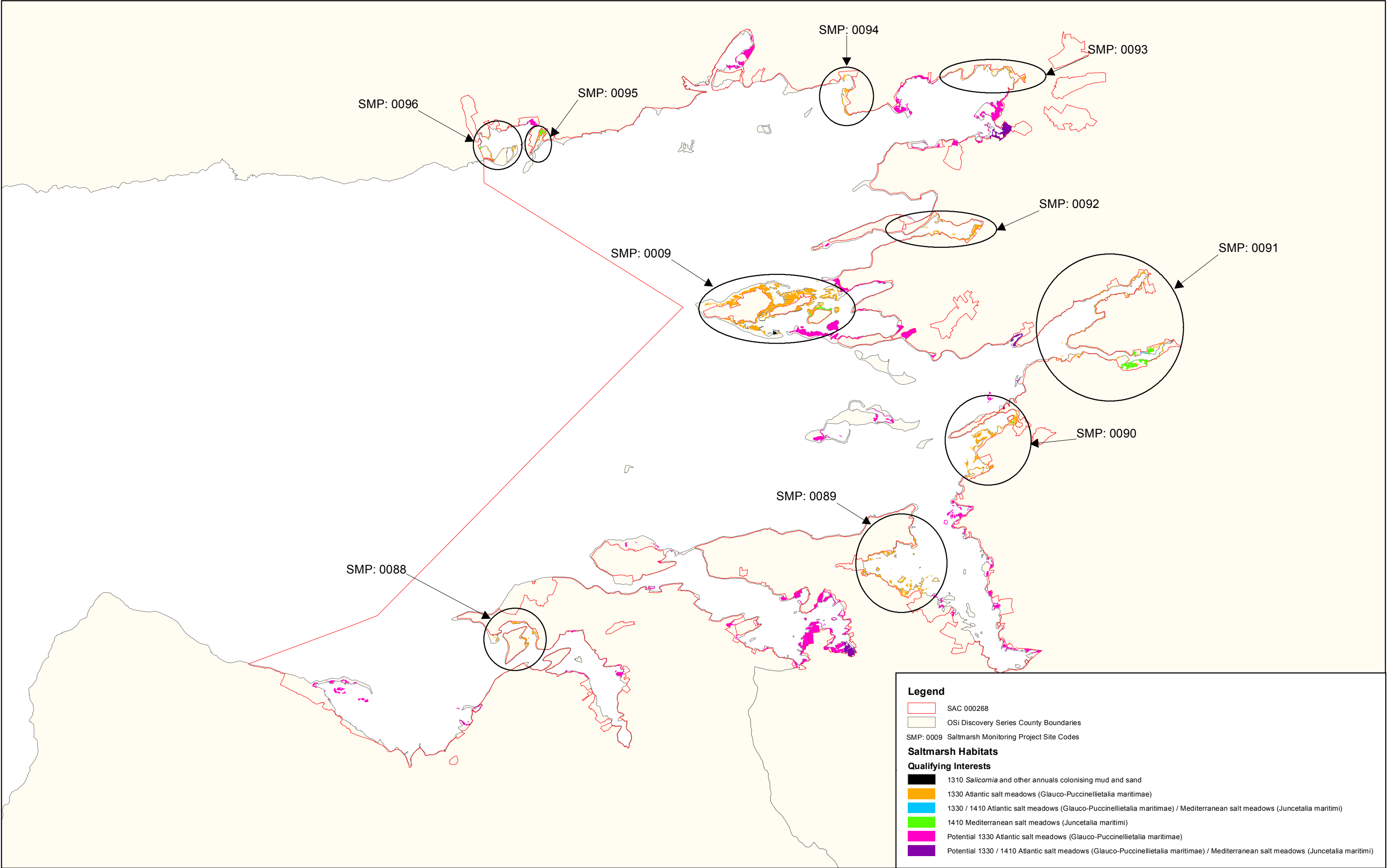


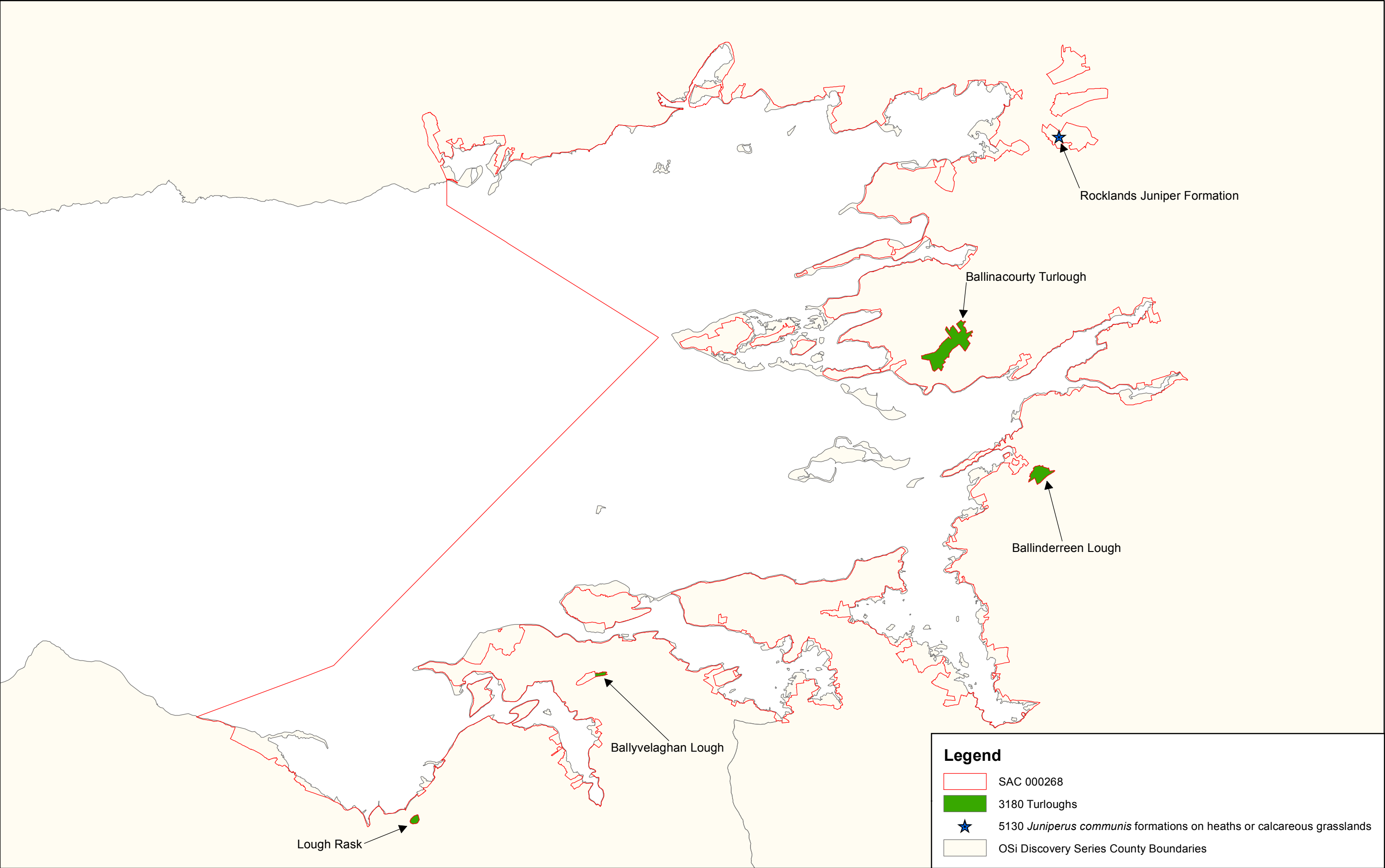


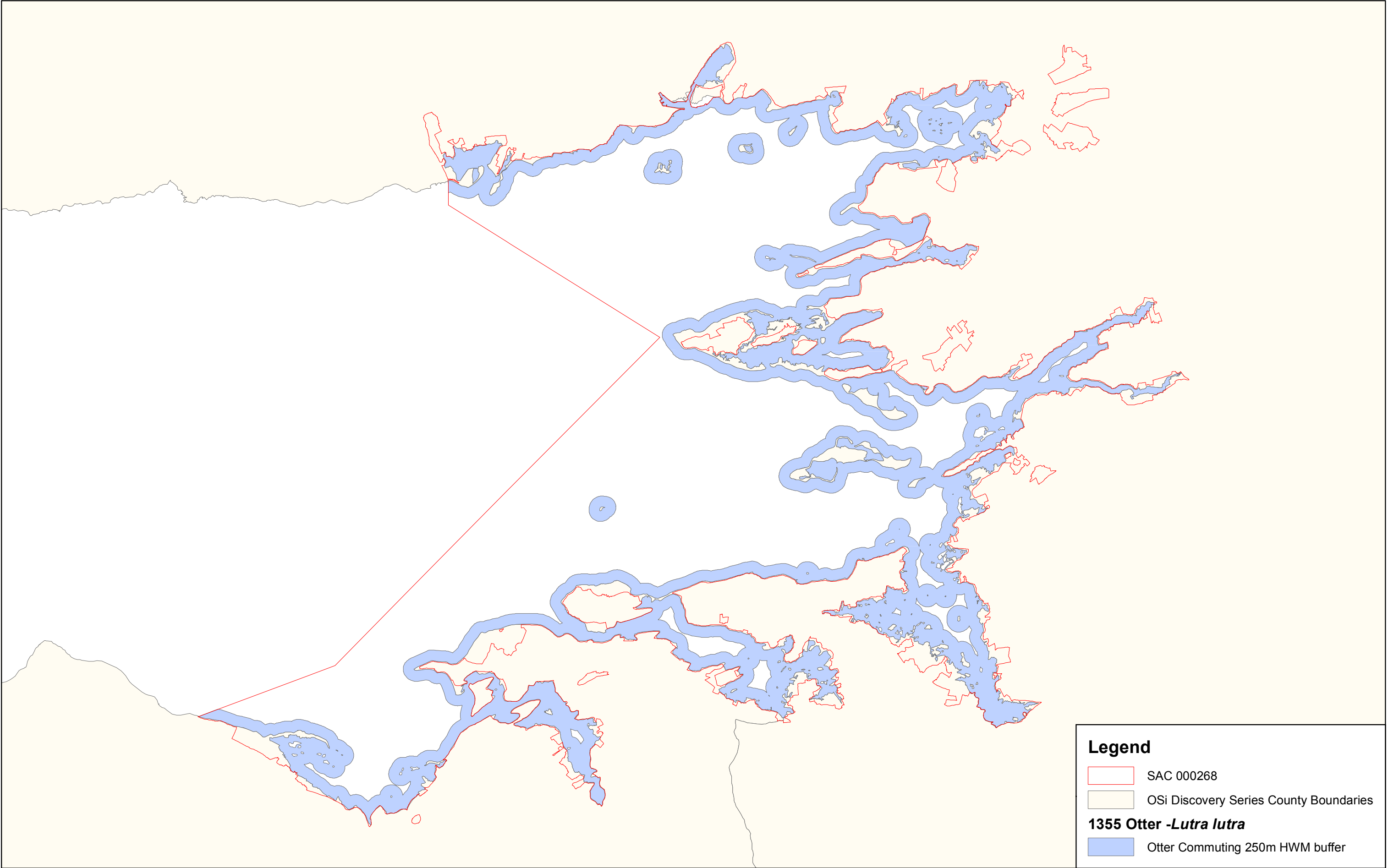












**Legend**

SAC 000268

OSi Discovery Series County Boundaries

**1355 Otter -*Lutra lutra***

Otter Commuting 250m HWM buffer

