# Ballinskelligs Bay and Inny Estuary SAC (site code 335)
# Conservation objectives supporting document -coastal habitats

**NPWS**

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*Please note that the opinions expressed in the site reports from the Saltmarsh Monitoring Project (SMP) are those of the authors and do not necessarily reflect the opinion or policy of NPWS.*

**Please note that this document should be read in conjunction with the following report: NPWS (2014). Conservation Objectives: Ballinskelligs Bay and Inny Estuary SAC 000335. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.**

## 1 Introduction

Achieving Favourable Conservation Status (FCS) is the overall objective to be reached for all Annex I habitat types and Annex II species of European Community interest listed in the Habitats Directive 92/43/EEC (Commission of the European Communities, 2007). It is defined in positive terms, such that a habitat type or species must be prospering and have good prospects of continuing to do so.

Ballinskelligs Bay and Inny Estuary Special Area of Conservation (SAC) is located at the western end of the Iveragh Penninsula, County Kerry, close to the town of Waterville. It comprises the marine waters of Ballinskelligs Bay, some adjoining terrestrial areas and the estuary of the River Inny upstream to Breahig townland. The site extends from Horse Island at the western end of the bay round to Rineen Point at its south-eastern side.

Ballinskelligs Bay and Inny Estuary SAC (site code: 335) is designated for the following two coastal habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (ASM) (1330)
- Mediterranean salt meadows (*Juncetaliea maritimi*) (MSM) (1410)

Other Annex I habitats which are present but are not qualifying interests for the site include, 'Annual vegetation of driftlines', 'Perennial vegetation of stony banks' , 'Embryonic shifting dunes', 'Shifting dunes along the shoreline with *Ammophila arenaria'*, 'Fixed dunes' and 'Humid dune slacks', which were recorded by the National Shingle Bank Survey (NSBS) (Moore & Wilson, 1999) and Coastal Monitoring Project (CMP) (Ryle *et al*., 2009). The dunes at the mouth of the estuary support a population of the rare petalwort (*Petallophyllum ralfsii*), which is listed on Annex II of the EU Habitats Directive and is a qualifying interest for the SAC.

This backing document sets out the conservation objectives for the two coastal habitats listed above in Ballinskelligs Bay and Inny Estuary SAC, which is defined by a list of parameters, attributes and targets. The main parameters are (a) Range (b) Area and (c) Structure and Functions, the last of which is broken down into a number of attributes, including physical structure, vegetation structure and vegetation composition.

The targets set for the **saltmarsh habitats** are based primarily on the results of the Saltmarsh Monitoring Project (SMP) (McCorry, 2007; McCorry & Ryle, 2009) and this document should be read in conjunction with those reports.

The distribution of saltmarsh habitats within Ballinskelligs Bay and Inny Estuary SAC is presented in Appendix I. However, as the SMP did not survey any sub-site within the SAC, the targets set for the saltmarsh habitats are quite generic and may be adjusted in the future in light of new information.

## 2 Conservation Objectives

A conservation objective aims to define the favourable conservation condition of a habitat or species at a particular site. Implementation of the objective will help to ensure that the habitat or species achieves favourable conservation status at a national level.

## 3 Saltmarsh habitats

Saltmarshes are stands of vegetation that occur along sheltered coasts, mainly on mud or sand, and are flooded periodically by the sea. They are restricted to the area between mid neap tide level and high water spring tide level. In Ireland, there are four saltmarsh habitats listed under Annex I of the EU Habitats Directive (92/43/EEC):

- *Salicornia* and other annuals colonising mud and sand (1310)
- **Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (ASM) (1330)**
- **Mediterranean salt meadows (*Juncetalia maritimi*) (MSM) (1410)**
- Mediterranean and thermo-Atlantic Halophilous scrubs (Sarcocornetea fruticosi)

The second and third habitats (in bold) are listed as Qualifying Interests for Ballinskelligs Bay and Inny Estuary SAC. The last habitat is restricted in its distribution to sites in the southeast of the country.

The distribution of saltmarsh habitats within Ballinskelligs Bay & Inny Estuary SAC is presented in Appendix I. The SMP did not survey any saltmarsh sub-sites within the SAC (McCorry & Ryle, 2009)

### 4.1 Overall Objectives

The overall objective for 'Atlantic salt meadows' in Ballinskelligs Bay and Inny Estuary SAC is to '*maintain the favourable conservation condition*'.

The overall objective for 'Mediterranean salt meadows' in Ballinskelligs Bay and Inny Estuary SAC is to '*maintain the favourable conservation condition*'.

These objectives are based on an assessment of the condition of each habitat under a range of attributes and targets. The assessment is divided into three main headings (a) Area (b) Range and (c) Structure and Functions.

## 4.2 Area

### 4.2.1 Habitat extent

Habitat extent is a basic attribute to be assessed when determining the condition of a particular habitat. The target is no decrease in extent from the baseline which was established by McCorry and Ryle (2009). Bearing in mind that coastal systems are naturally dynamic and subject to change, this target is assessed subject to natural processes, including erosion and succession.

A baseline habitat map of all saltmarsh in the Ballinskelligs Bay and Inny Estuary was produced as part of the Saltmarsh Monitoring Project (McCorry & Ryle, 2009) and is presented in Appendix I. A total of 20.45ha of potential saltmarsh habitat was identified using aerial photographs for the SAC. Of this potential saltmarsh, 1.37ha is mapped as Atlantic salt meadows with the remaining 19.09ha as a mosaic of Atlantic salt meadows and Mediterranean salt meadows. Future groundtruthing may lead to an adjustment of these figures.

The target for both Atlantic salt meadows and Mediterranean salt meadows is that the area should be stable or increasing, subject to natural processes, including erosion and succession.

## 4.3 Range

### 4.3.1 Habitat distribution

The saltmarsh habitat in Ballinskelligs Bay and Inny Estuary occurs in the inner sheltered area of the Inny Estuary and along both sides of the channel (see map in Appendix I).

The target is that there should be no decline or change in the distribution of these saltmarsh habitats, unless it is the result of natural processes, including erosion, accretion and succession.

## 4.4 Structure and Functions

The location, character and dynamic behaviour of saltmarshes are governed by sediment supply, tidal regime, wind-wave climate and sea level change. The slope of the saltmarsh allows the development of several ecological gradients such as tidal submergence and salinity, and this influences the development of distinctive zones of halophytic and salt tolerant plant communities. Maintaining the favourable conservation condition of the saltmarsh habitat in Ballinskelligs Bay and Inny Estuary SAC in terms of its structure and functions depends on a range of attributes for which targets have been set as outlined below.

### 4.4.1 Physical structure: sediment supply

Accretion and erosion are natural elements of saltmarsh systems. Maintaining the sediment supply is vital for the continued development and natural functioning of a saltmarsh system. Interruption to the sediment circulation through physical structures can starve the system and lead to accelerated erosion rates.

The target is to maintain, or where necessary restore, the natural circulation of sediment and organic matter, without any physical obstructions.

### 4.4.2 Physical structure: creeks and pans

Saltmarshes can contain a distinctive topography with an intricate network of creeks and pans occurring on medium to large-sized sites. Creek density is influenced by vegetation cover, sediment supply and tidal influence. Creeks absorb tidal energy and assist with delivery of sediment into the saltmarsh. The efficiency of this process depends on creek pattern. Creeks allow pioneer vegetation to become established along their banks higher up into the saltmarsh system. Major erosion of saltmarsh is indicated by internal dissection and enlargement of the drainage network, ultimately leading to the creation of mud basins.

The target is to maintain creek and pan networks where they exist and to restore areas that have been altered.

### 4.4.3 Physical structure: flooding regime

The regular ebb and flow of the tide brings salinity, but also nutrients, organic matter and sediment, which are central to the development, growth and indeed survival of saltmarshes. Saltmarsh vegetation consists of a limited number of halophytic (salt-tolerant) species that are adapted to regular immersion by the tides. Species in the lowest part of the saltmarsh require regular inundation, while those higher up on the marsh can only tolerate occasional inundation.

It is assumed that the saltmarshes at this site are functioning well with no restrictions on tidal movements.

The target is to maintain a flooding regime whereby the lowest levels of the saltmarsh are flooded daily, while the upper levels are flooded occasionally (e.g. highest spring tides).

### 4.4.4 Vegetation structure: zonation

Saltmarshes are naturally dynamic coastal systems. Mediterranean salt meadows is the dominant saltmarsh habitat at Ballinskelligs and Inny Estuary SAC where it occurs in a mosaic with ‘Atlantic salt

meadows'. In order to ensure the ecological functioning of all of the saltmarsh habitats it is vital to maintain the zonations and transitions to other habitats, including intertidal, freshwater marsh, wet grassland, shingle and sand dune habitats.

The target is to maintain the range of coastal habitats, including transitional zones, subject to natural processes including erosion and succession.

### 4.4.5 Vegetation structure: vegetation height

A varied vegetation structure is important for maintaining species diversity and is particularly important for invertebrates and birds. Grazing is often used as a tool for maintaining structural diversity in the sward but stocking levels need to be appropriate. Overgrazing can lead to loss of species and destruction of the vegetation cover, while undergrazing can lead to a loss of plant diversity due to competitive exclusion.

The target is to maintain structural variation within the sward. A general guideline is that there should be a sward ratio of 30% tall:70% short across the entire saltmarsh.

### 4.4.6 Vegetation structure: vegetation cover

Vegetation cover can have a major effect on saltmarsh development by reducing the velocity of the tide and thereby enhancing the deposition of sediment. Excessive bare mud, however, is often a sign of overuse by livestock or humans and can lead to destabilisation and accelerated erosion of the system.

The target is to maintain 90% of the area outside of the creeks vegetated.

### 4.4.7 Vegetation composition: typical species & sub-communities

Saltmarshes contain several distinct zones that are related to elevation and frequency of flooding. The lowest part along the tidal zone is generally dominated by the most halophytic (salt-tolerant) species including common saltmarsh-grass (*Puccinellia maritima*) and species more usually associated with *Salicornia* muds. The mid-marsh zone is generally characterised by sea thrift (*Armeria maritima*), sea plantain (*Plantago maritima*) and sea aster (*Aster tripolium*). This mid-zone vegetation generally grades into an herbaceous community in the upper marsh, dominated by red fescue (*Festuca rubra*), sea milkwort (*Glaux maritima*) and saltmarsh rush (*Juncus gerardii*).

The target for this attribute is to ensure that a typical flora of saltmarshes is maintained, as are the range of sub-communities within the different zones. Below are lists of typical species for the different saltmarsh zones, although some of these species have a restricted distribution nationally and may not occur in the Ballinskelligs and Inny Estuary area.

| Typical species | | |
|---|---|---|
| **Lower marsh** | **Low-mid marsh** | **Mid-upper marsh** |
| *Salicornia* spp.<br>*Suaeda maritima*<br>*Puccinellia maritima*<br>*Aster tripolium* | *Puccinellia maritima*<br>*Triglochin maritima*<br>*Plantago maritima*<br>*Atriplex portulacoides*<br>*Aster tripolium*<br>*Spergularia* sp.<br>*Suaeda maritima*<br>*Salicornia* spp.<br>*Glaux maritima*<br>Turf fucoids | *Festuca rubra*<br>*Juncus gerardii*<br>*Armeria maritima*<br>*Agrostis stolonifera*<br>*Limonium humile*<br>*Glaux maritima*<br>*Seriphidium maritimum*<br>*Plantago maritima*<br>*Aster tripolium*<br>*Juncus maritimus*<br>*Triglochin maritima*<br>*Blysmus rufus*<br>*Eleocharis uniglumis*<br>*Leontodon autumnalis*<br>*Carex flacca*<br>*Carex extensa*<br>Turf fucoids |

At the Ballinskelligs Bay sub-site there is a marked zone of sea rush (*Juncus maritimus*) along the upper part of the marshes. Other typical species of saltmarshes are present, such as glassworts (*Salicornia* spp.), common saltmarsh grass (*Puccinellia maritima*), sea pink (*Armeria maritima*), sea plantain (*Plantago maritima*) and creeping red fescue (*Festuca rubra*).

### 4.4.8 Vegetation structure: negative indicator species

There are no negative indicator species recorded on the saltmarshes within Ballinskelligs Bay and Inny Estuary SAC (McCorry & Ryle, 2009) and common cordgrass (*Spartina anglica*) has not been recorded in this part of the country (Preston *et al*., 2002).

The aim is that negative indicators should be absent or under control. As this would represent a new site for *Spartina*, the current target is that this species should remain absent.

## 5 References

Commission of the European Communities (2007). *Interpretation Manual of European Union Habitats – EUR 27*. DG Environment-Nature and Biodiversity, Brussels.

McCorry, M. & Ryle, T. (2009). *Saltmarsh Monitoring Project 2007-2008*. Unpublished report to the National Parks and Wildlife Service, Dublin.

Moore D. & Wilson, F. (1999). *National Shingle Beach Survey of Ireland 1999.* Unpublished report to NPWS, Dublin.

Preston, C.D., Pearman, D.A. and Dines, T.D. (2002). *New Atlas of the British and Irish Flora.* Oxford University Press, Oxford.

Ryle, T., Murray, A., Connolly, K. and Swann, M. (2009). *Coastal Monitoring Project 2004-2006*. Unpublished report to the National Parks and Wildlife Service, Dublin.

## Appendix I – Distribution map of saltmarsh habitat within Ballinskelligs Bay and Inny Estuary SAC