



# Ramsar Information Sheet

Published on 6 July 2022

Update version, previously published on : 1 January 1995

## Ireland

### The Broadmeadow Estuary



Designation date	7 June 1996
Site number	833
Coordinates	53°27'46"N 06°09'41"W
Area	546,00 ha

## Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

## 1 - Summary

### Summary

Broadmeadow Estuary is situated in north Co. Dublin, immediately north of Broadmeadow and east of Swords. It comprises the estuary of the River Broadmeadow along with saltmarsh habitats and shallow subtidal areas at the estuary mouth. A railway viaduct, built in the 1800s, crosses the site and has modified the tidal regime of the inner estuary preventing complete emptying at low tide, creating a lagoon. Much of the outer part of the estuary is well sheltered from the sea by a large sand spit, known as 'the island'. This spit is now mostly converted to golf-course. The Broadmeadow M1 motorway bridge has been constructed to cross the western side of the inner estuary, above the saltmarsh. The outer part empties almost completely at low tide and there are extensive intertidal flats. Saltmarshes occur in parts of the outer estuary and in the extreme inner part of the inner estuary. The site includes well-developed saltmarshes and extensive intertidal mud and sandflats exposed at low tide and which support beds of blue mussel (*Mytilus edulis*) and extensive mats of green algae (*Enteromorpha* spp., *Ulva lactuca*). The Ramsar site lies within Malahide estuary Special Area of Conservation which has been selected for the Annex I estuarine, saltmarsh and dune habitats.

Broadmeadow Estuary is of high importance for wintering waterbirds and supports a particularly good diversity of species. The site is a designated Special Protection Area for nationally and internationally important populations of regularly occurring migratory bird species some of which are listed on Annex I of the EU Birds Directive. Under this designation the wetland habitat is also protected as a resource for the regularly-occurring migratory waterbirds that utilise it. According to the I-WeBS data (2010-2015) the site has internationally important populations of Light-bellied Brent Goose, and nationally important populations of fourteen other species. The high numbers of diving ducks reflects the lagoon-type nature of the inner estuary. The site is an important and regular site for a range of autumn passage migrants and supports a regular flock of non-breeding Mute Swan. The area is recognised as an Important Bird Area (IBA).

Owing to the proximity of two large towns, the area is very popular for water sports and other amenities. Parts of the estuary have been infilled in the past for various developments and this remains a threat.

## 2 - Data & location

### 2.1 - Formal data

#### 2.1.1 - Name and address of the compiler of this RIS

##### Responsible compiler

Institution/agency	National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
Postal address	National Parks and Wildlife Service, 90 North King Street, Smithfield, Dublin, Ireland D07 N7CV

##### National Ramsar Administrative Authority

Institution/agency	National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
Postal address	National Parks and Wildlife Service, 90 North King Street, Smithfield, Dublin, Ireland D07 N7CV

#### 2.1.2 - Period of collection of data and information used to compile the RIS

From year

To year

#### 2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)

Unofficial name (optional)

#### 2.1.4 - Changes to the boundaries and area of the Site since its designation or earlier update

(Update) A. Changes to Site boundary Yes  No

(Update) B. Changes to Site area No change to area

(Update) For secretariat only: This update is an extension

#### 2.1.5 - Changes to the ecological character of the Site

(Update) 6b i. Has the ecological character of the Ramsar Site (including applicable Criteria) changed since the previous RIS?

## 2.2 - Site location

### 2.2.1 - Defining the Site boundaries

b) Digital map/image  
<2 file(s) uploaded>

Former maps

#### Boundaries description

The boundary of the Broadmeadow Estuary Ramsar site was delineated as the same boundary as the original Special Protection Area in 1994 (but the latter was subsequently enlarged). The Broadmeadow Estuary Ramsar site thus lies within, and is an integral part of, the Malahide Estuary Special Protection Area and Special Area of Conservation. Details of the SAC/SPA can be viewed here: <https://www.npws.ie/protected-sites>. Within this area a number of GIS data layers were used to define the Ramsar habitats within the site. These included:

- CORINE (Co-Ordinated Information on the Environment) land cover data sets (2012).
- Bing Maps Aerial - © Harris Corp, Earthstar Geographics LLC © 2017 Intermap Earthstar Geographics SIO © 2017 Microsoft Corporation.
- Environmental Protection Agency of Ireland Rivers and Lakes layers data layers.
- NPWS data layers: Marine communities.

The mapped layers were inspected by a site visit to confirm the presence of the habitats. Habitat areas were subsequently estimated by reference to the available imagery and layers and should be considered representative but approximate. The mapped area, as calculated from the GIS boundary, differs slightly from the official boundary of the Ramsar site. This is due to historic mapping issues generally as a result of differing mapping projections.

2.2.2 - General location

a) In which large administrative region does the site lie?

b) What is the nearest town or population centre?

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes  No

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes  No

2.2.4 - Area of the Site

Official area, in hectares (ha):

Area, in hectares (ha) as calculated from GIS boundaries

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Marine Ecoregions of the World (MEOW)	Atlantic
EU biogeographic regionalization	Atlantic

Other biogeographic regionalisation scheme

### 3 - Why is the Site important?

#### 3.1 - Ramsar Criteria and their justification

- Criterion 1: Representative, rare or unique natural or near-natural wetland types

Hydrological services provided

The estuary provides natural filtration services which are important for coastal water quality, however where input levels (e.g. chemicals, organic waste) are excessive the natural character of the estuary can be greatly affected. The estuarine and coastal complex is important within the context of coastal dynamics with implications for erosion processes, storm and flood protection. The estuary plays a role in the natural control of flooding and in mitigating the effects of storms.

Other ecosystem services provided

Broadmeadow estuary is important for the diversity of biological features which it supports. This site is a fine example of an estuarine system with all the main habitats represented as well as being of ornithological importance. The estuary is located close to several urban centres including Dublin city and is important for tourism and recreation with the inner part of the estuary being heavily used for water sports.

Other reasons

Broadmeadow Estuary contains representative and natural examples of marine habitats and natural wetland types within the Atlantic biogeographic region, i.e. mudflats and sandflats not covered by seawater at low tide, Salicornia and other annuals colonising mud and sand, Spartina swards (*Spartina maritima*), Atlantic salt meadows (*Glauco-Puccinellietalia maritima*), and Mediterranean salt meadows (*Juncetalia maritimi*). Combined these habitats provide an interconnected and interdependent mosaic of habitats. The estuarine and intertidal habitats and the communities (plant and invertebrate) which they support are important for nutrient cycling, carbon sequestration and sediment trapping. With the cycling of carbon and nutrients estuarine systems have a role in climate regulation.

- Criterion 2 : Rare species and threatened ecological communities

- Criterion 3 : Biological diversity

Justification

The site contains a mosaic of subtidal and intertidal marine habitats and the species they support including significant beds of eelgrass and blue mussels. The east coast of Ireland is lower in marine wetland habitat complexity than the west of Ireland and in this context Malahide Estuary Ramsar site is of importance in maintaining the local biodiversity of the small number of wetland sites on the east coast of Ireland. The assemblage of wintering birds including those of high (Red Listed in Ireland, Vulnerable in Europe and/or Globally) and medium (Amber Listed species in Ireland) conservation status contribute to biodiversity within the biogeographical region.

- Criterion 4 : Support during critical life cycle stage or in adverse conditions

- Criterion 6 : >1% waterbird population

#### 3.2 - Plant species whose presence relates to the international importance of the site

<no data available>

#### 3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
		2	4	6	9	3	5	7	8								
<b>Birds</b>																	
CHORDATA/AVES	<i>Anas acuta</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	National (BoCCI) classification, part of wintering assemblage
CHORDATA/AVES	<i>Anas clypeata</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	2011-2015			<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	National (BoCCI) classification, part of wintering assemblage
CHORDATA/AVES	<i>Anas penelope</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	45	2011-2015			<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	National (BoCCI) classification, part of wintering assemblage
CHORDATA/AVES	<i>Branta bernicla hrota</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	984	2011-2015	2.5		<input type="checkbox"/>	<input type="checkbox"/>	Regularly supports 1% of the flyway population. Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	1% criteria for Branta Bernicla hrota population of Light - Bellied Brent Goose part of wintering assemblage.
CHORDATA/AVES	<i>Bucephala clangula</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	55	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	National (BoCCI) classification, part of wintering assemblage
CHORDATA/AVES	<i>Calidris alpina</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	204	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	National (BoCCI) classification, part of wintering assemblage
CHORDATA/AVES	<i>Cygnus olor</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	67	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Part of wintering assemblage, maintaining biodiversity
CHORDATA/AVES	<i>Egretta garzetta</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17	2011/2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Listed on Annex I (Birds Directive), Listed on Annex I of the EU Birds Directive.	Annex I listing
CHORDATA/AVES	<i>Gavia immer</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2011-2015		VU	<input type="checkbox"/>	<input type="checkbox"/>	Listed on Annex I (Birds Directive), Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013), and Vulnerable classification IUCN Europe region.	Annex I listing, IUCN classifications, part of wintering assemblage
CHORDATA/AVES	<i>Haematopus ostralegus</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1171	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013), and Vulnerable classification IUCN Europe region)	IUCN classifications, part of wintering assemblage
CHORDATA/AVES	<i>Limosa lapponica</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	96	2011-2015		NT	<input type="checkbox"/>	<input type="checkbox"/>	Listed on Annex I (Birds Directive), Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Annex I listing, part of wintering assemblage.
CHORDATA/AVES	<i>Limosa limosa</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	229	2011-2015			<input type="checkbox"/>	<input type="checkbox"/>	Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013), and Vulnerable classification IUCN Europe region)	IUCN classifications, part of wintering assemblage
CHORDATA/AVES	<i>Numenius arquata</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	215	2011-2015		NT	<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013), and Vulnerable classification IUCN Europe region)	National (BoCCI) and IUCN classifications, part of wintering assemblage
CHORDATA/AVES	<i>Pluvialis apricaria</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	293	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Listed on Annex I (Birds Directive), Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Annex I listing, and National (BoCCI) classification, part of wintering assemblage
CHORDATA/AVES	<i>Tadorna tadorna</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	183	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Part of wintering assemblage, maintaining biodiversity
CHORDATA/AVES	<i>Thalasseus sandvicensis</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Listed on Annex I (Birds Directive), Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Annex I listing
CHORDATA/AVES	<i>Tringa totanus</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	225	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	National (BoCCI) classification, part of wintering assemblage

Phylum	Scientific name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence <sup>1)</sup>	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
		2	4	6	9	3	5	7	8								
CHORDATA/ AVES	<i>Vanellus vanellus</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	683	2011-2015		NT	<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013), and Vulnerable classification IUCN Europe region)	National (BoCCI) and IUCN classifications, part of wintering assemblage

1) Percentage of the total biogeographic population at the site

Wintering bird species listed under 3.3 have been selected based on an assessment of Irish Wetland Bird Survey data from the period 2006/07 to 2015/16. Broadmeadow (Malahide) Estuary is a Special Protection Area (SPA) for birds, however not all species listed for the SPA may be listed under 3.3 (or vice versa) as the SPA designation is based on other data and criteria

Broadmeadow Estuary is an important site for wintering waterbirds, providing both feeding and roosting areas. I-WeBS data (from the period 2006/07-2015/16) lists an internationally important population of the Light-bellied Brent Goose for the site. This species is Amber-listed (BirdWatch Ireland.ie) as the majority winter at less than ten sites and the Irish population is internationally significant; the European population has been evaluated as Vulnerable as several important populations have declined. This species has not been assessed by IUCN. I-WeBS data (2010-2015) also lists nationally important populations of the Black-tailed Godwit, Great Crested Grebe, Shelduck, Pintail, Goldeneye, Red-breasted Merganser, Oystercatcher, Grey plover, Lapwing, Greenshank, Little Grebe and the Gadwall.

Broadmeadow Estuary is a designated Special Protection Area for the following nationally and internationally important populations of regularly occurring migratory bird species some of which are listed on Annex I of the EU Birds Directive: Great Crested Grebe (*Podiceps cristatus*), Brent Goose (*Branta bernicla hrota*), Shelduck (*Tadorna tadorna*), Pintail (*Anas acuta*), Goldeneye (*Bucephala clangula*), Red-breasted Merganser (*Mergus serrator*), Oystercatcher (*Haematopus ostralegus*), Golden Plover (*Pluvialis apricaria*), Grey Plover (*Pluvialis squatarola*), Knot (*Calidris canutus*), Dunlin (*Calidris alpina alpina*), Black-tailed Godwit (*Limosa limosa*), Bar-tailed Godwit (*Limosa lapponica*) and Redshank (*Tringa totanus*). Under this SPA designation the wetland habitat is also protected as a resource for the regularly-occurring migratory waterbirds that utilise it.

According to IUCN, the Black-tailed Godwit is deemed Vulnerable in Europe and Near threatened globally, the species has undergone rapid declines in Europe and globally owing to changes in agricultural practices. Oystercatcher, a widespread shorebird, is undergoing rapid population declines across the European part of its extremely large global range, globally its overall population trend is decreasing; the Lapwing is suspected to be decreasing at a moderately rapid rate; the Bar-tailed Godwit population is stable in Europe but declining and Near threatened Globally; the Curlew is under-going rapid decline throughout Europe (Vulnerable) and globally (Near Threatened); and the EU population of the Dunlin is depleted.

### 3.4 - Ecological communities whose presence relates to the international importance of the site

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
Mytilus edulis dominated community	<input checked="" type="checkbox"/>	The site supports beds of both intertidal and subtidal Blue Mussel.	M. edulis beds are included in the OSPAR (Annex V) list of threatened and declining species and habitats. ICES found sufficient evidence for the decline and threat of this habitat over the whole OSPAR area (ICES 2002).
Zostera noltii community	<input checked="" type="checkbox"/>	The site supports a small area of eelgrass.	This habitat has a restricted distribution in Ireland. It is considered threatened on the Ospar list of threatened or declining habitats.
Saltmarsh community	<input checked="" type="checkbox"/>	Atlantic salt meadows and Mediterranean salt meadows occur within the site.	This community has a restricted distribution within the biogeographical range.
Mediterranean salt meadows (Juncetalia maritimi) [1410]	<input checked="" type="checkbox"/>		Annex I (Habitats Directive)
Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	<input checked="" type="checkbox"/>		Annex I (Habitats Directive)
Mudflats and sandflats not covered by seawater at low tide [1140]	<input checked="" type="checkbox"/>		Annex I (Habitats Directive)
Salicornia and other annuals colonising mud and sand [1310]	<input checked="" type="checkbox"/>		Annex I (Habitats Directive)

[Optional text box to provide further information](#)

The Broadmeadow Estuary Ramsar site is an integral part of a larger wetland complex which includes the following additional Annex I habitats: Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]. The Broadmeadow estuary Ramsar site and the wider wetland complex which encompasses sand dune habitats are part of the Malahide Estuary SPA and SAC.



## 4 - What is the Site like? (Ecological character description)

### 4.1 - Ecological character

This site comprises the estuary of the River Broadmeadow. The site is divided by a railway viaduct which was built in the 1800s. The outer part of the estuary is mostly cut off from the sea by a large sand spit, known as 'the island'. The outer estuary drains almost completely at low tide, exposing sand and mud flats. The site includes well-developed saltmarshes, beds of blue mussels and of zostera. The inner part of the estuary is heavily used for water sports. A section of the outer estuary has been infilled for a marina and housing development and the invasive ascidian (*Didemnum vexillum*) is known to occur at the marina. Current research is investigating if this species could pose a threat to the habitats e.g. mussel beds within the rest of the estuary. The site is of particular importance for the range of wintering waterbirds it supports and forms part of a mosaic of wetland sites on the east coast of Ireland of importance for the bird life they support. This site is a fine example of an estuarine system with all the main habitats represented.

### 4.2 - What wetland type(s) are in the site?

Marine or coastal wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
A: Permanent shallow marine waters	Shallow marine waters	1	367	Representative
B: Marine subtidal aquatic beds (Underwater vegetation)	Eelgrass	4	5	Representative
G: Intertidal mud, sand or salt flats	Intertidal mudflats and sandflats	2	176	Representative
H: Intertidal marshes	Salt marsh	3	15	Representative

### 4.3 - Biological components

#### 4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Viola hirta</i>	
TRACHEOPHYTA/LILIOPSIDA	<i>Zostera noltii</i>	

Optional text box to provide further information

*Viola hirta* occurs at the site, it is legally protected under the Flora (Protection) Order and is listed as Vulnerable in the Irish Red Data Book (Curtis & McGough, 1988; Wyse-Jackson et al, 2016)  
This softly-hairy perennial occurs on dry banks, rocky ground and scrub on limestone soils in the southern half of Ireland. It has been recorded in the past from Limerick (5 sites), Clare (3 sites), Galway (3 sites), Wexford (1 site), Laois (1 site), Kildare (1 site) and Dublin (15 sites). Recently it has only been seen in the Askeaton/Foynes area of Limerick and on Inishmaan and Inishmore of the Aran Islands. Apparently decreasing, possibly due to quarrying and overgrazing of its limestone grassland sites. This is a plant of calcareous grassland and its occurrence within the Ramsar site boundary is unlikely; it is likely to occur within adjacent dune habitats which are part of the Malahide Estuary SPA and SAC.

#### 4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range / endemism / other
CHORDATA/AVES	<i>Arenaria interpres</i>	100	2011-2015		Supports at least 1% of the national population
CHORDATA/AVES	<i>Mergus serrator</i>	57	2011-2015		Supports at least 1% of the national population
MOLLUSCA/BIVALVIA	<i>Mytilus edulis</i>				
CHORDATA/AVES	<i>Pluvialis squatarola</i>	52	2011-2015		Supports at least 1% of the national population
CHORDATA/AVES	<i>Tringa nebularia</i>	39	2011-2015		Supports at least 1% of the national population

### 4.4 - Physical components

#### 4.4.1 - Climate

Climatic region	Subregion
C: Moist Mid-Latitude climate with mild winters	Cfb: Marine west coast (Mild with no dry season, warm summer)

#### 4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- Entire river basin
- Upper part of river basin
- Middle part of river basin
- Lower part of river basin
- More than one river basin
- Not in river basin
- Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

Irish Sea

#### 4.4.3 - Soil

Organic

(Update) Changes at RIS update No change  Increase  Decrease  Unknown

No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes  No

Please provide further information on the soil (optional)

The site itself is largely marine and comprises of sands, muds, saltmarsh.

#### 4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from surface water	<input type="checkbox"/>	No change
Marine water	<input checked="" type="checkbox"/>	No change

Water destination

Presence?	Changes at RIS update
Marine	No change

Stability of water regime

Presence?	Changes at RIS update
Water levels fluctuating (including tidal)	No change

#### 4.4.5 - Sediment regime

Significant erosion of sediments occurs on the site

(Update) Changes at RIS update No change  Increase  Decrease  Unknown

Significant accretion or deposition of sediments occurs on the site

(Update) Changes at RIS update No change  Increase  Decrease  Unknown

Sediment regime unknown

Please provide further information on sediment (optional):

The site is subject to erosion and accretion, as all coastlines naturally undergo a constant cycle of each. At Broadmeadow the erosion is due to both natural causes and from human interference. According to McCorry (2007), there are no indications of any major erosion of the saltmarsh at the site; erosion within the Atlantic Salt Meadow habitat is countered by accretion along the north side of the causeway. The mobile dunes are experiencing some natural erosion along the north and eastern edge of the site and some accretion in the south. Erosion due to overuse of the dunes is also occurring and is affecting all areas of the mobile and embryonic dunes, including those areas that are accreting (NPWS 2013c). The fixed dune is experiencing erosion caused by increasing recreational pressures especially in the north of the site, which is compounding the impacts of natural erosion.

#### 4.4.6 - Water pH

Alkaline (pH>7.4)

(Update) Changes at RIS update No change  Increase  Decrease  Unknown

Unknown

#### 4.4.7 - Water salinity

Mixohaline (brackish)/Mixosaline (0.5-30 g/l)

(Update) Changes at RIS update No change  Increase  Decrease  Unknown

Euhaline/Eusaline (30-40 g/l)

(Update) Changes at RIS update No change  Increase  Decrease  Unknown

Unknown

#### 4.4.8 - Dissolved or suspended nutrients in water

Unknown

#### 4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar  ii) significantly different  site itself:

Surrounding area has greater urbanisation or development

Surrounding area has higher human population density

Surrounding area has more intensive agricultural use

Surrounding area has significantly different land cover or habitat types

Please describe other ways in which the surrounding area is different:

Large centres of human habitation lie adjacent to this site i.e. Malahide and Swords. The estuary is surrounded by low-lying land that is mainly agricultural along the northern side and mainly urban along the southern and western sides. A railway viaduct, built in the 1800s, crosses the site and has modified the tidal regime of the inner estuary preventing complete emptying at low tide, creating a lagoon. Owing to the proximity of two large towns, the area is very popular for water sports and other amenities; there is a large marina within the site. The large spit at the outer end of the estuary is converted to golf-course. The site is situated adjacent to Dublin City, the capital of Ireland; an area of intense development with a large seaport.

### 4.5 - Ecosystem services

#### 4.5.1 - Ecosystem services/benefits

##### Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Erosion protection	Soil, sediment and nutrient retention	Low
Pollution control and detoxification	Water purification/waste treatment or dilution	Low
Climate regulation	Regulation of greenhouse gases, temperature, precipitation and other climatic processes	Low
Climate regulation	Local climate regulation/buffering of change	Low
Hazard reduction	Flood control, flood storage	Medium
Hazard reduction	Coastal shoreline and river bank stabilization and storm protection	Medium

##### Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Picnics, outings, touring	Medium
Recreation and tourism	Recreational hunting and fishing	Medium
Recreation and tourism	Nature observation and nature-based tourism	Medium
Recreation and tourism	Water sports and activities	Medium
Scientific and educational	Long-term monitoring site	Medium
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	Medium

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	Medium
Soil formation	Sediment retention	Low
Soil formation	Accumulation of organic matter	Low
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	Medium
Nutrient cycling	Carbon storage/sequestration	Medium

Within the site:

Outside the site:

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes  No  Unknown

4.5.2 - Social and cultural values

- i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland
- ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland
- iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples
- iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland

<no data available>

4.6 - Ecological processes

<no data available>

## 5 - How is the Site managed? (Conservation and management)

### 5.1 - Land tenure and responsibilities (Managers)

#### 5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
National/Federal government	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

All of the foreshore of Ireland is deemed owned by the State, unless a valid alternative title is provided. The foreshore of Ireland is classed as the land and seabed between the high water of ordinary or medium tides (shown HWM on Ordnance Survey maps) and the twelve-mile limit (12 nautical miles equals approximately 22.24 kilometers). Foreshore also covers tidal areas of rivers particularly estuaries (Housing.gov.ie). The ownership of the Golf Club is unclear.

#### 5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

National Parks & Wildlife Service (NPWS), Department of Culture, Heritage and the Gaeltacht.  
 Fingal County Council.  
 Environmental Protection Agency (EPA).  
 Department of Communications, Climate Action and Environment.  
 Marine Institute.

Provide the name and/or title of the person or people with responsibility for the wetland:

Maurice Eakin

Postal address:

National Parks and Wildlife Service,  
 90 North King Street,  
 Smithfield, Dublin,  
 Ireland  
 D07 N7CV

E-mail address:

maurice.eakin@housing.gov.ie

### 5.2 - Ecological character threats and responses (Management)

#### 5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Housing and urban areas	High impact	unknown impact	<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change
Commercial and industrial areas	Medium impact	High impact	<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Roads and railroads	Medium impact	High impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Recreational and tourism activities	Medium impact	High impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Vegetation clearance/ land conversion	High impact	unknown impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Invasive non-native/ alien species	Medium impact	unknown impact	<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Agricultural and forestry effluents	High impact		<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Please describe any other threats (optional):

Threats as listed are taken from NPWS (2015a, 2015b).

### 5.2.2 - Legal conservation status

#### Global legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
UNESCO Biosphere Reserve	Dublin Bay	<a href="http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/ireland/dublin-bay/">http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/ireland/dublin-bay/</a>	whole

#### Regional (international) legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
EU Natura 2000	Malahide Estuary Special Area of Conservation Site Code: 000205	<a href="https://www.npws.ie/protected-sites/sac/000205">https://www.npws.ie/protected-sites/sac/000205</a>	whole
EU Natura 2000	Malahide Estuary Special Protection Area. Site Code: 004025	<a href="https://www.npws.ie/protected-sites/spa/004025">https://www.npws.ie/protected-sites/spa/004025</a>	whole

#### Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Malahide/Broadmeadow Estuary	<a href="http://datazone.birdlife.org/site/factsheet/malahide-broadmeadow-estuary-iba-ireland">http://datazone.birdlife.org/site/factsheet/malahide-broadmeadow-estuary-iba-ireland</a>	whole

### 5.2.3 - IUCN protected areas categories (2008)

- Ia Strict Nature Reserve
- Ib Wilderness Area: protected area managed mainly for wilderness protection
- II National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
- VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

### 5.2.4 - Key conservation measures

#### Legal protection

Measures	Status
Legal protection	Implemented

#### Habitat

Measures	Status
Catchment management initiatives/controls	Implemented
Land conversion controls	Implemented

#### Species

Measures	Status
Threatened/rare species management programmes	Implemented
Control of invasive alien plants	Implemented

#### Human Activities

Measures	Status
Regulation/management of wastes	Implemented
Regulation/management of recreational activities	Implemented
Harvest controls/poaching enforcement	Implemented
Fisheries management/regulation	Implemented
Research	Implemented

Other:

The Broadmeadow Ramsar site lies within the Malahide Estuary SAC (000205) and Malahide Estuary SPA (004022). Under European and national legislation, Ireland must maintain at favourable conservation status areas designated as Special Areas of Conservation and Special Protection Areas. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites. Conservation objectives of this site have been set for the SAC and SPA and are listed below; these can be accessed on NPWS.ie.

- To maintain or restore the favourable conservation condition of the Annex I habitat(s) for which the SAC has been selected: Mudflats and sandflats not covered by seawater at low tide, Salicornia and other annuals colonising mud and sand, Spartina swards (*Spartinion maritima*), Atlantic salt meadows (*Glauco-Puccinellietalia maritima*), Mediterranean salt meadows (*Juncetalia maritimi*), Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) and Fixed coastal dunes with herbaceous vegetation (grey dunes).
- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA; and Wetlands [A999].

Legislation in the Republic of Ireland affords protection to bird species outside of designated sites e.g. all wild bird species are afforded protection by The Wildlife Act 1976. Waterfowl shooting is under license only, managed by the National Parks & Wildlife Service. Broadmeadow/Malahide Estuary is routinely surveyed as part of I-WeBS which provides comprehensive counts of the bird species using the site. The Broadmeadow Ramsar site lies within the UNESCO Dublin Bay Biosphere.

5.2.5 - Management planning

Is there a site-specific management plan for the site? No

Has a management effectiveness assessment been undertaken for the site? Yes  No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes  No

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No need identified

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water regime monitoring	Implemented
Water quality	Implemented
Plant community	Implemented
Plant species	Implemented
Animal community	Implemented
Birds	Implemented

A requirement of the Water Framework Directive is that benthic macro-invertebrates must be sampled from coastal and transitional waters at least twice within a river basin cycle (6 years) in order to classify these water bodies. The site is sampled and monitored under this programme. As a EU Natura 2000 site, it is required under Article 12 and 17 of the EU Birds and Habitats Directives respectively, that the status and trends of the conservation objectives within the site are monitored and reported on every 6 years.

The site is monitored under the I-WEBS scheme.

The site is regularly inspected by the National Parks and Wildlife Service Conservation Rangers for the area.

## 6 - Additional material

### 6.1 - Additional reports and documents

#### 6.1.1 - Bibliographical references

Colhoun, K. and Cummins, S. 2013. Birds of conservation concern in Ireland 2014-2019. Irish Birds 9: 523-544.

Lewis, L. J., Burke, B., Fitzgerald, N., Tierney, T. D. & Kelly, S. (2019) Irish Wetland Bird Survey: Waterbird Status and Distribution 2009/10-2015/16. Irish Wildlife Manuals, No. 106. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland

McCorry, M. & Ryle, T. (2009). Saltmarsh Monitoring Project 2007-2008. Volume 2. Unpublished report to the National Parks and Wildlife Service, Dublin.

NPWS (2013a) Conservation Objectives: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2015a) Malahide Estuary SAC 000205. Natura 2000 Form. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013b) Site Synopsis for Malahide Estuary SAC 000205. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013c) Conservation objectives supporting document -coastal habitats: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013d) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2015b) Malahide Estuary SPA 004025. Natura 2000 Form. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2015c) Site Synopsis for Malahide Estuary SPA 004025. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

IUCN 2017. The IUCN Red List of Threatened Species. Version 2017-2. <http://www.iucnredlist.org>>. Downloaded on 14 October 2017.

Wyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) Ireland Red List No. 10: Vascular Plants. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.

<http://www.ramsar.org>

<http://eunis.eea.europa.eu>

The Irish Wetland Bird Survey (IWeBS).

#### 6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<no file available>

<no data available>

#### 6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Broad water Estuary ( NPWS, October 2017 )



Broad water Estuary ( NPWS, October 2017 )



Broad water Estuary ( NPWS, October 2017 )



Broad water Estuary ( NPWS, October 2017 )



Broad water Estuary ( NPWS, October 2017 )



Broad water Estuary ( NPWS, October 2017 )



Broad water Estuary ( NPWS, October 2017 )

#### 6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation 1996-06-07