LOUTH COUNTY COUNCIL

APPROPRIATE ASSESSMENT SCREENING REPORT

FOR

PPOPOSED PLAYGROUND,

BALTRAY ROAD, TERMONFECKIN, CO. LOUTH

VOLUME II. APPENDICES

28th August 2023

DOCUMENT ISSUE STATUS

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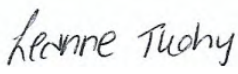
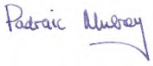
AUTHOR	Leanne Tuohy	Staff Ecologist		28/08/2023
MANAGING DIRECTOR	Padraic Mulroy	Project Director		28/08/2023

LIST OF APPENDICES

APP. NO.	DESCRIPTION
1	Desk Study Information on Topsoils, Subsoils, Geology, Hydrogeology, Hydrology, Borehole Drilling Data and Historical Data from EPA, OSI, www.catchment.ie.
2	*NPWS. (2013). Conservation Objectives: Boyne Estuary SPA [004080]. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.* *NPWS. (2013). Site Synopsis: Northwest Irish Sea cSPA [004236]. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.*

APPENDIX 1

DESK STUDY INFORMATION ON TOPSOILS, SUBSOILS, GEOLOGY, HYDROGEOLOGY, HYDROLOGY, BOREHOLE DRILLING DATA & HISTORICAL DATA GATHERED FROM OSI, EPA, GSI & WWW.CATCHMENT.IE

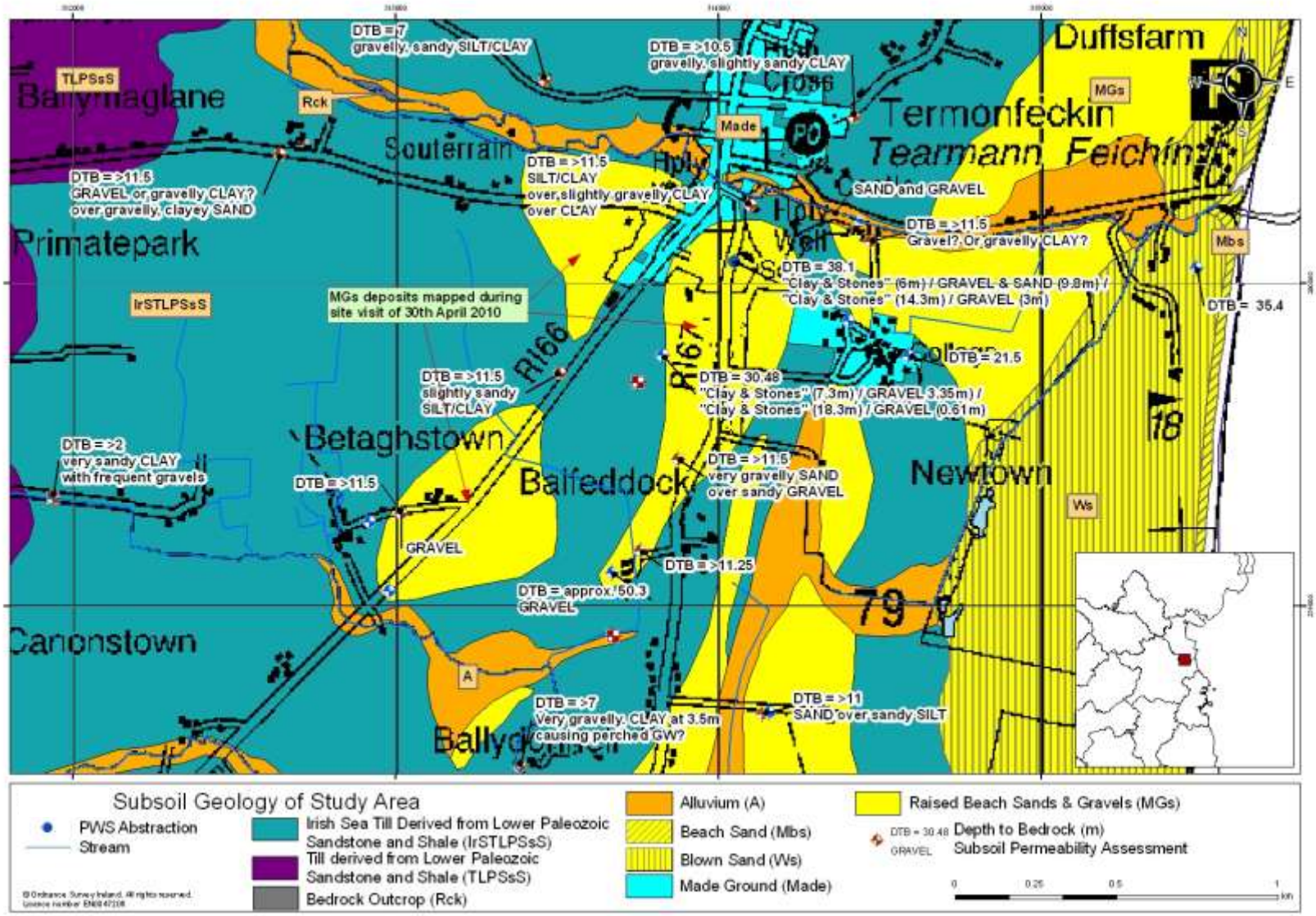


Figure 6 Subsoil geology of the study area

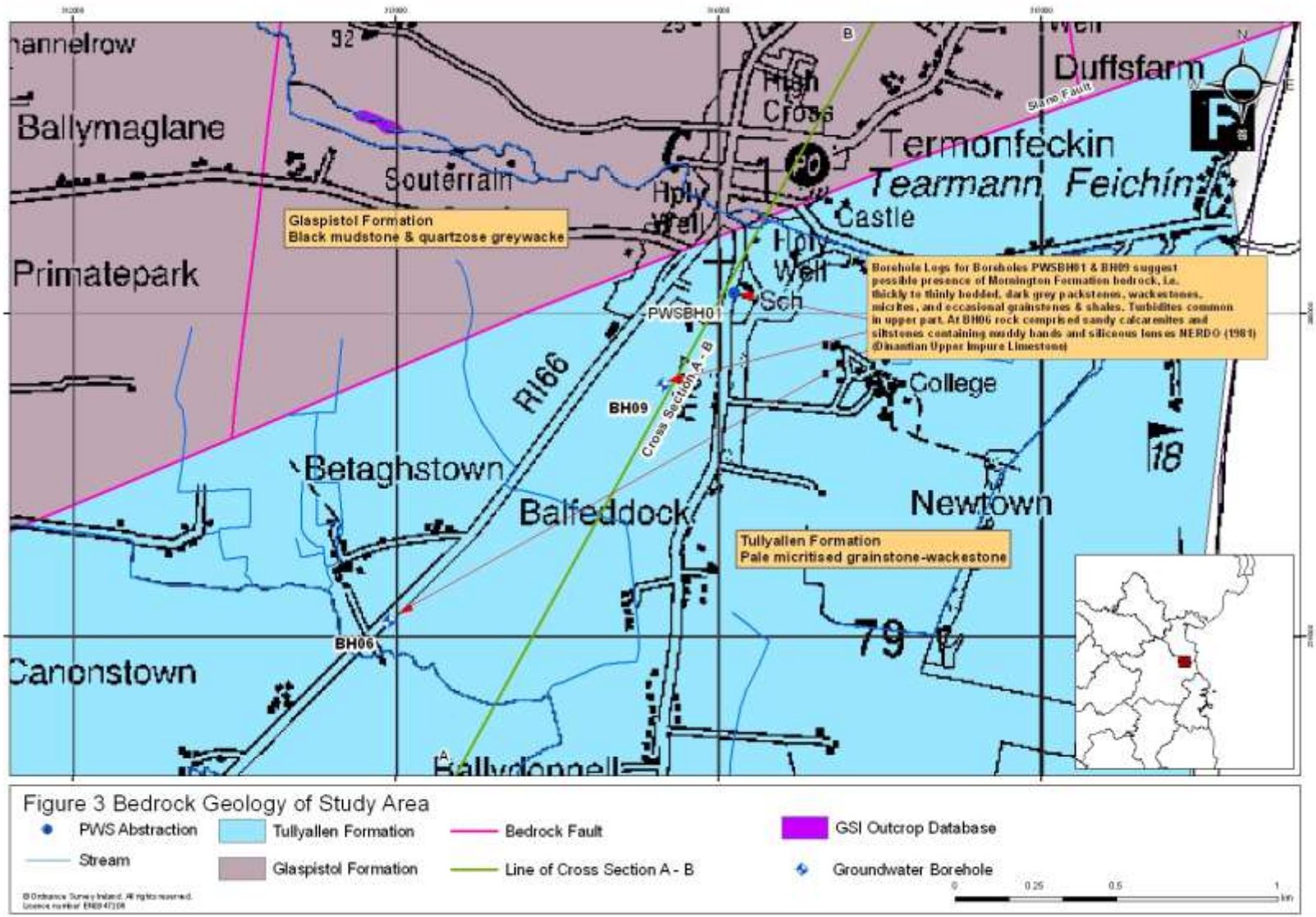


Figure 5 Bedrock geology of the study area

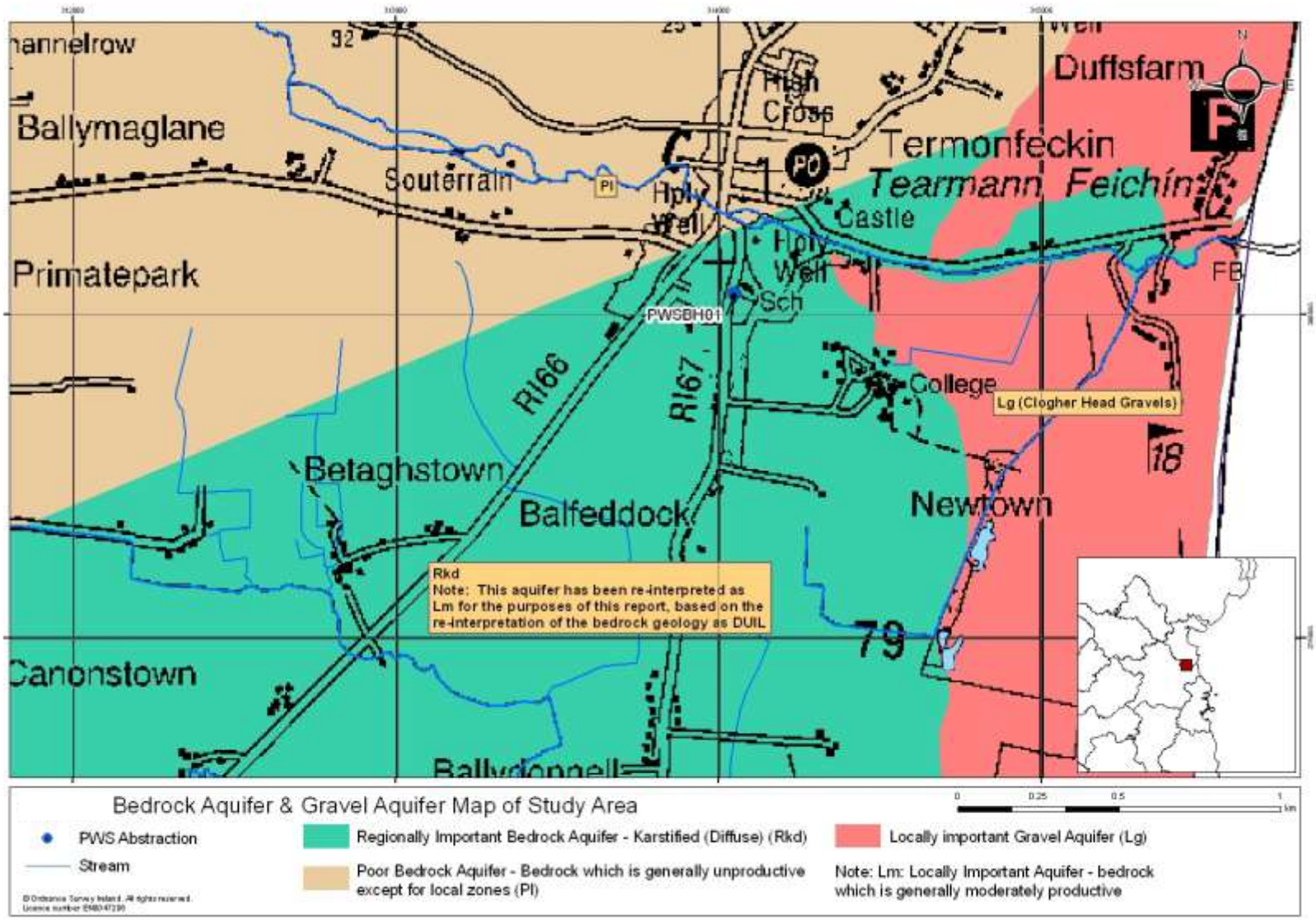


Figure 14 Bedrock aquifer and gravel aquifer map of the study area

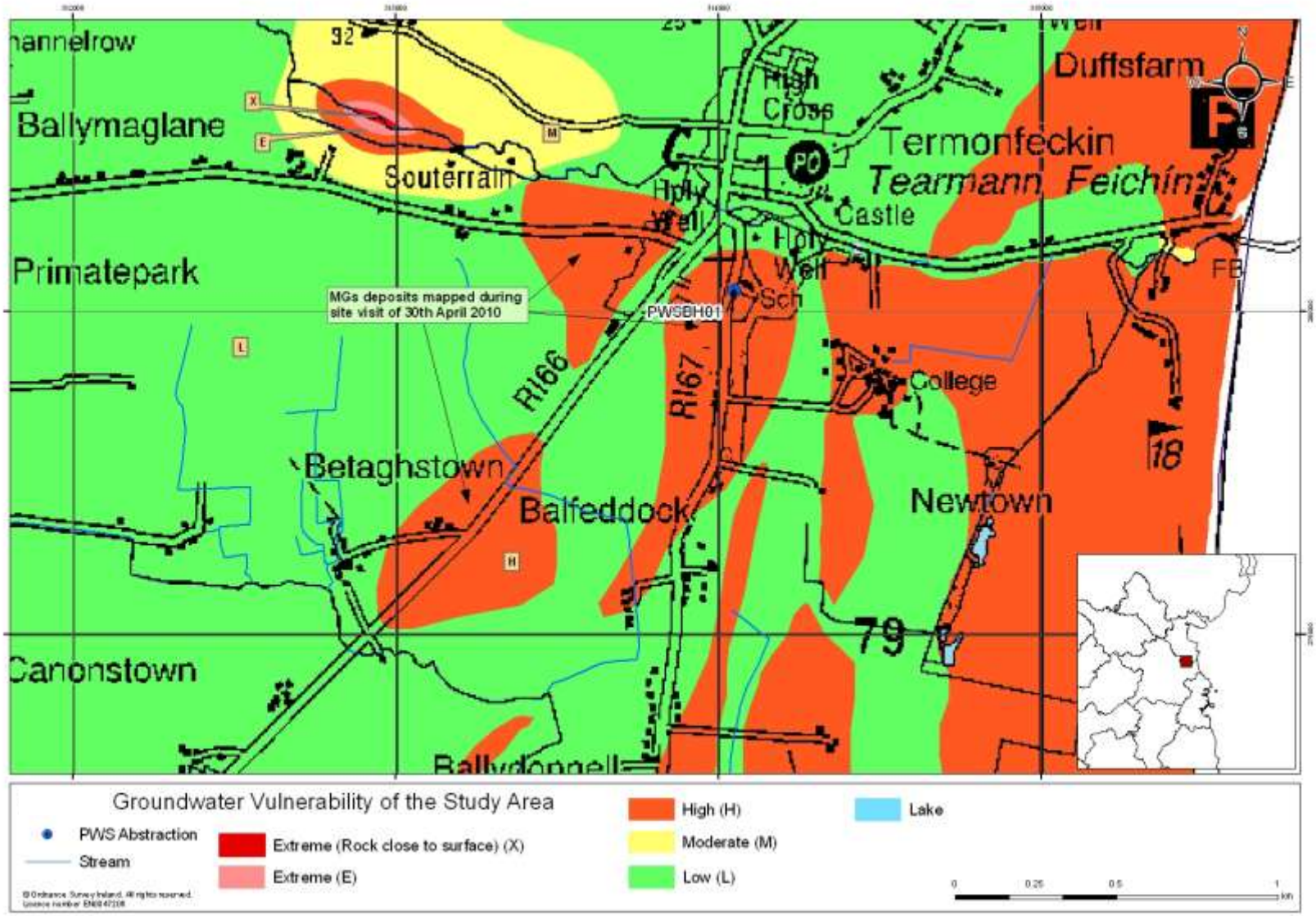


Figure 7 Groundwater vulnerability around the study area

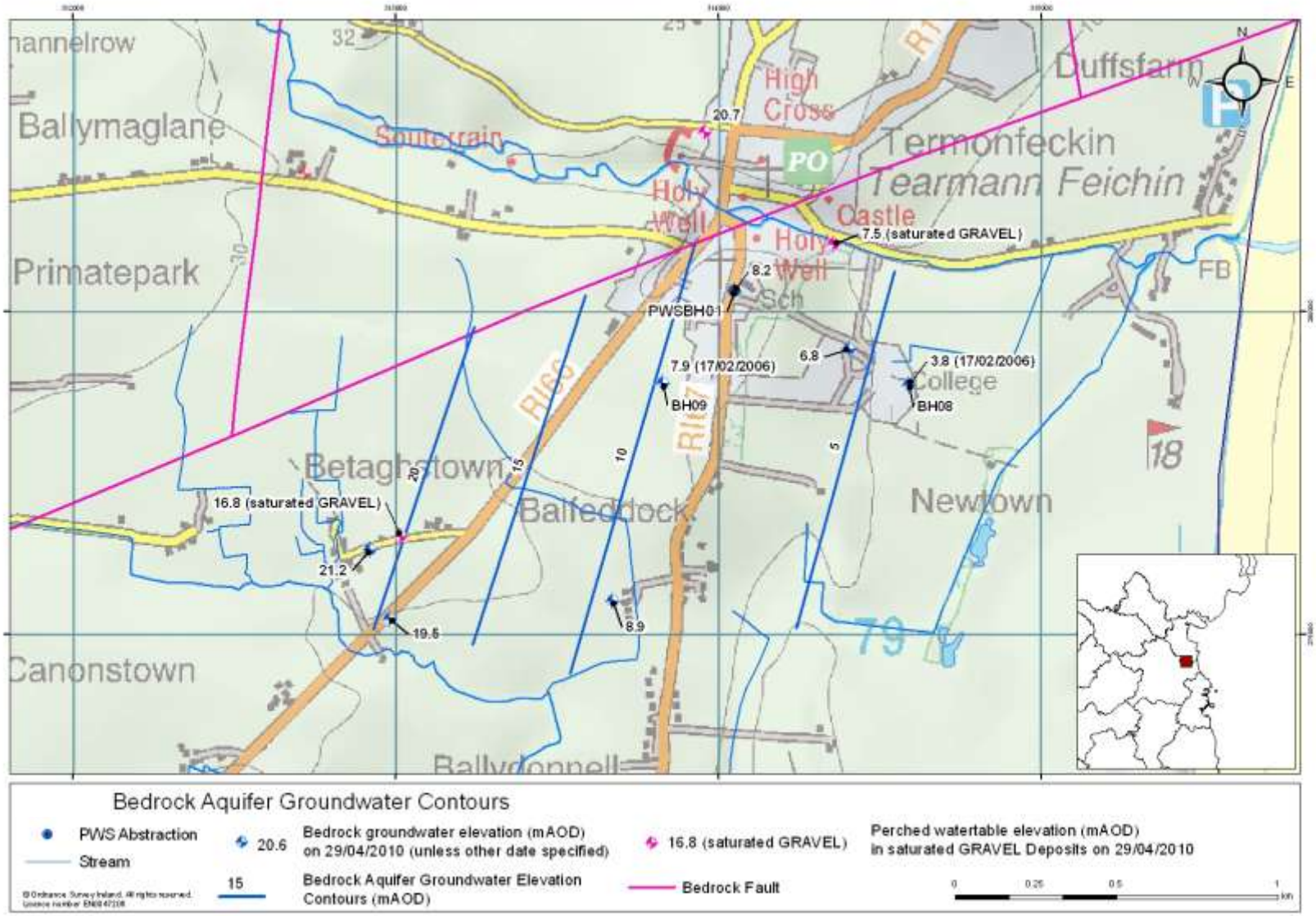
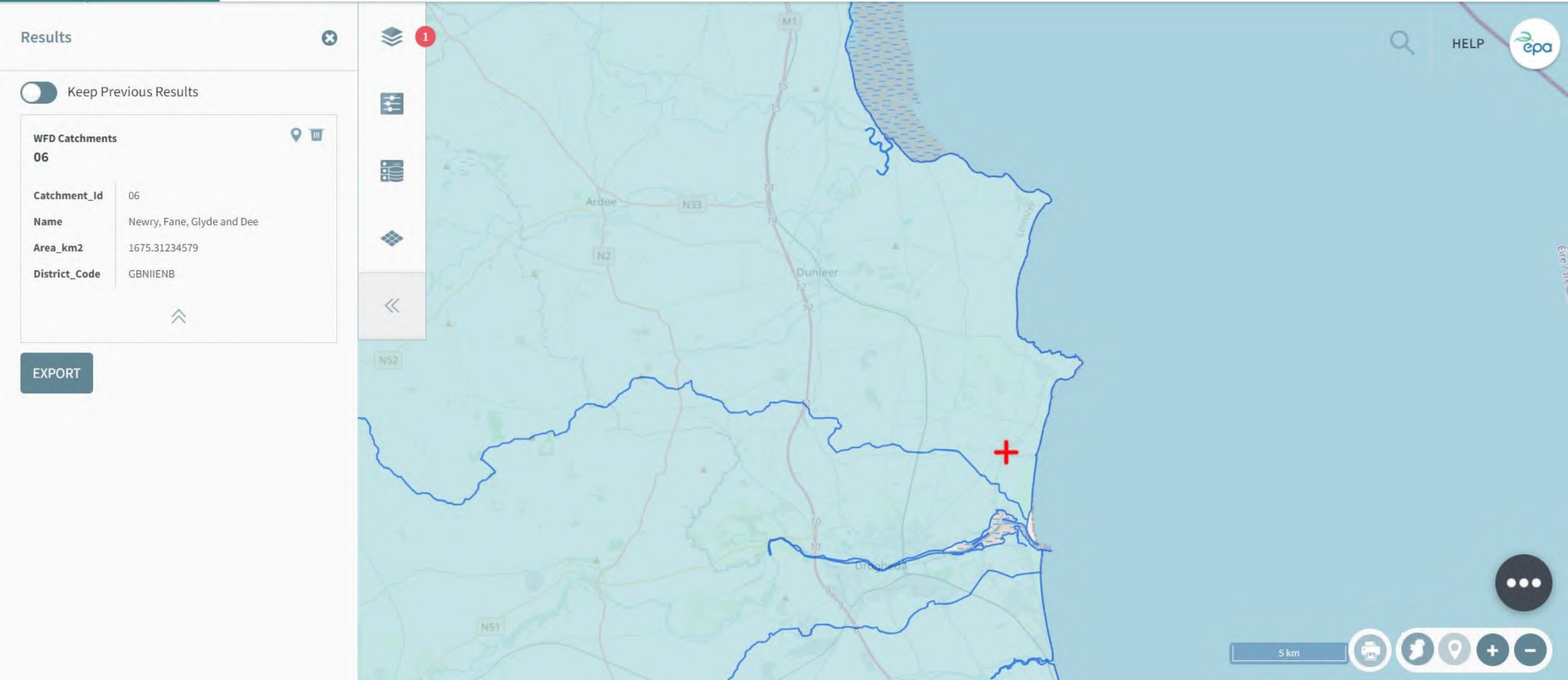


Figure 10 Bedrock aquifer groundwater contours (non-pumping)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Catchment_Id 06
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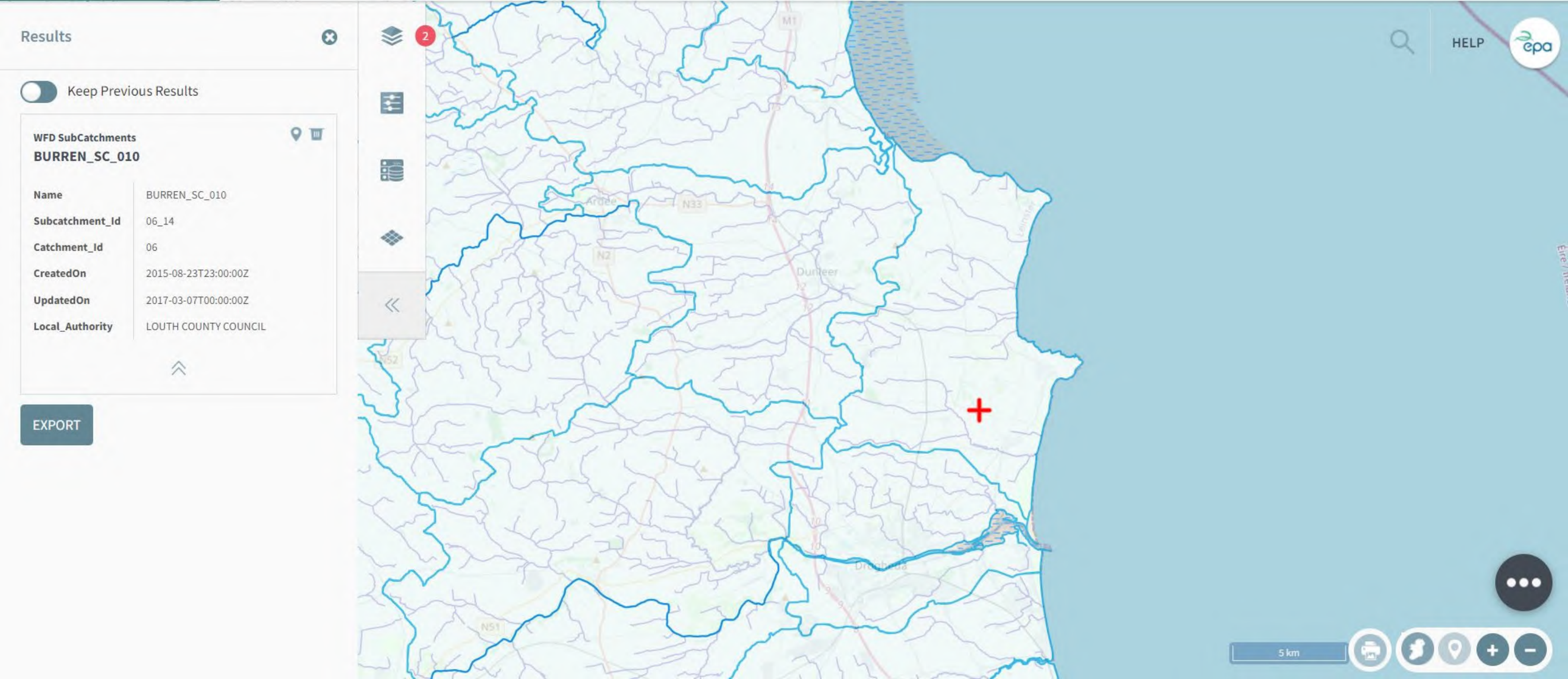
Area_km2 1675.31234579
District_Code GBNIIENB
EXPORT
HELP
epa
Ardee
Dunleer
N33
N2
N52
N51
M1
5 km


Results
Keep Previous Results
WFD SubCatchments
BURREN_SC_010
Name
BURREN_SC_010
Subcatchment_Id
06_14
Catchment_Id
06
CreatedOn
2015-08-23T23:00:00Z
UpdatedOn
2017-03-07T00:00:00Z
Local_Authority
LOUTH COUNTY COUNCIL
EXPORT
2
HELP
epa
Ardee
Dunleer
Drogheda
N33
N2
N51
5 km

Results

Keep Previous Results

WFD River Sub Basins

TERMONFECKIN_020

NAME	TERMONFECKIN_020
EU_CD	IE_NB_06T010400
AREAKM2	26.48242605

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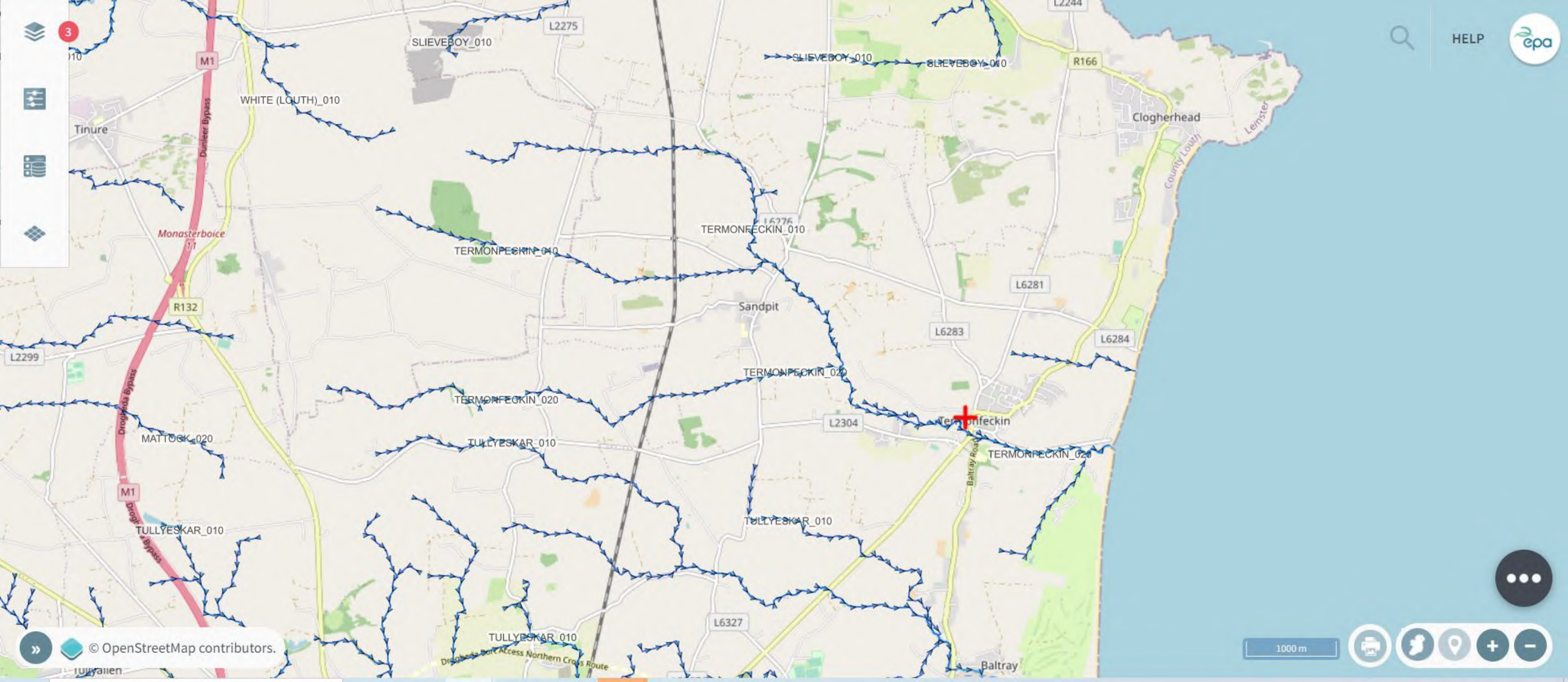
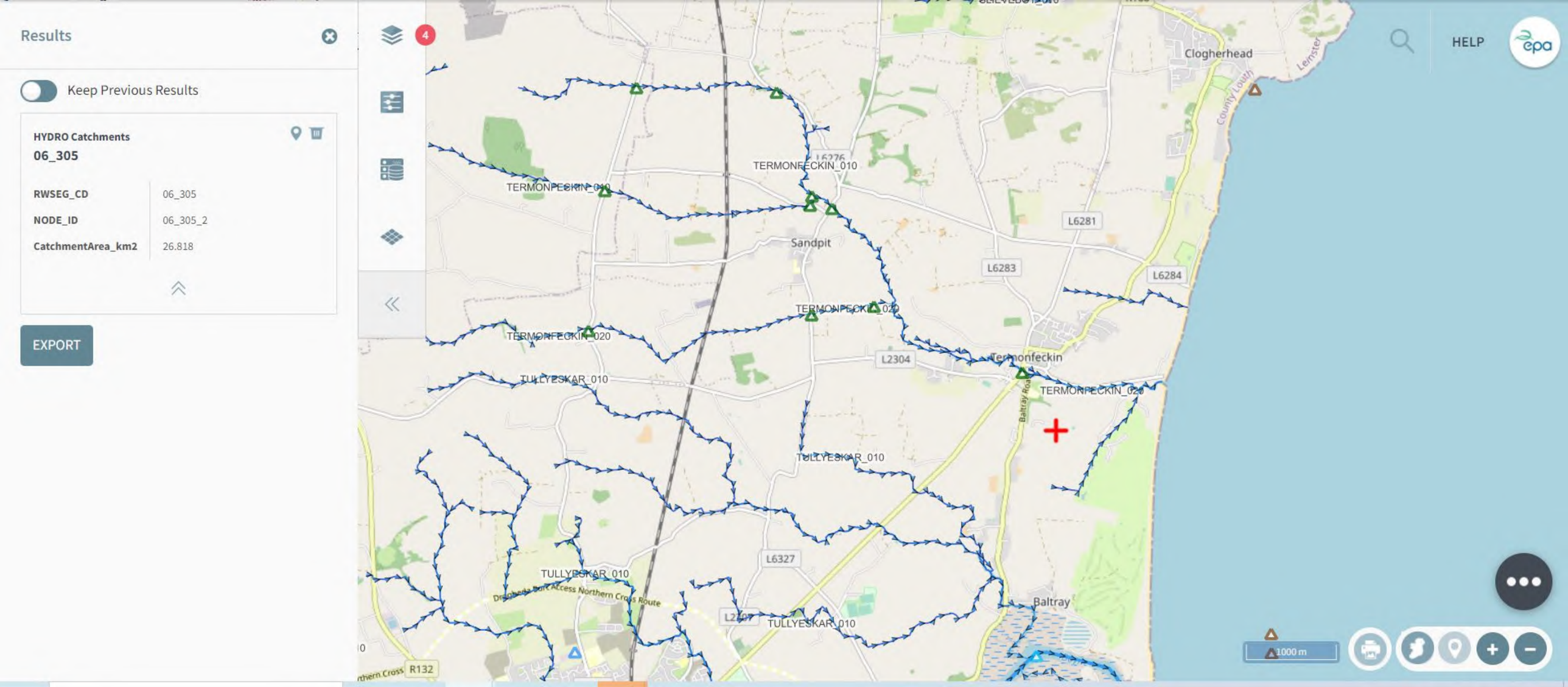

HELP
SLIEVEBOY_010
WHITE (LOUTH)_010
TERMONFECKIN_010
TERMONFECKIN_020
TULLYESKAR_010
MATTOCK_020
Tinure
Monasterboice
Sandpit
Clogherhead
Baltray
L2275
L6276
L6281
L6283
L6284
L2304
L2299
L6327
R166
R132
M1
1000 m
© OpenStreetMap contributors.


Results
Keep Previous Results
HYDRO Catchments
06_305
RWSEG_CD 06_305
NODE_ID 06_305_2
CatchmentArea_km2 26.818
EXPORT
HELP
Clogherhead
TERMONFECKIN_010
TERMONFECKIN_010
Sandpit
L6281
L6283
L6284
TERMONFECKIN_020
TERMONFECKIN_020
L2304
Termonfeckin
TULLYESKAR_010
TERMONFECKIN_020
TULLYESKAR_010
L6327
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Baltray
L2307
TULLYESKAR_010
R132
1000 m

Results

Keep Previous Results

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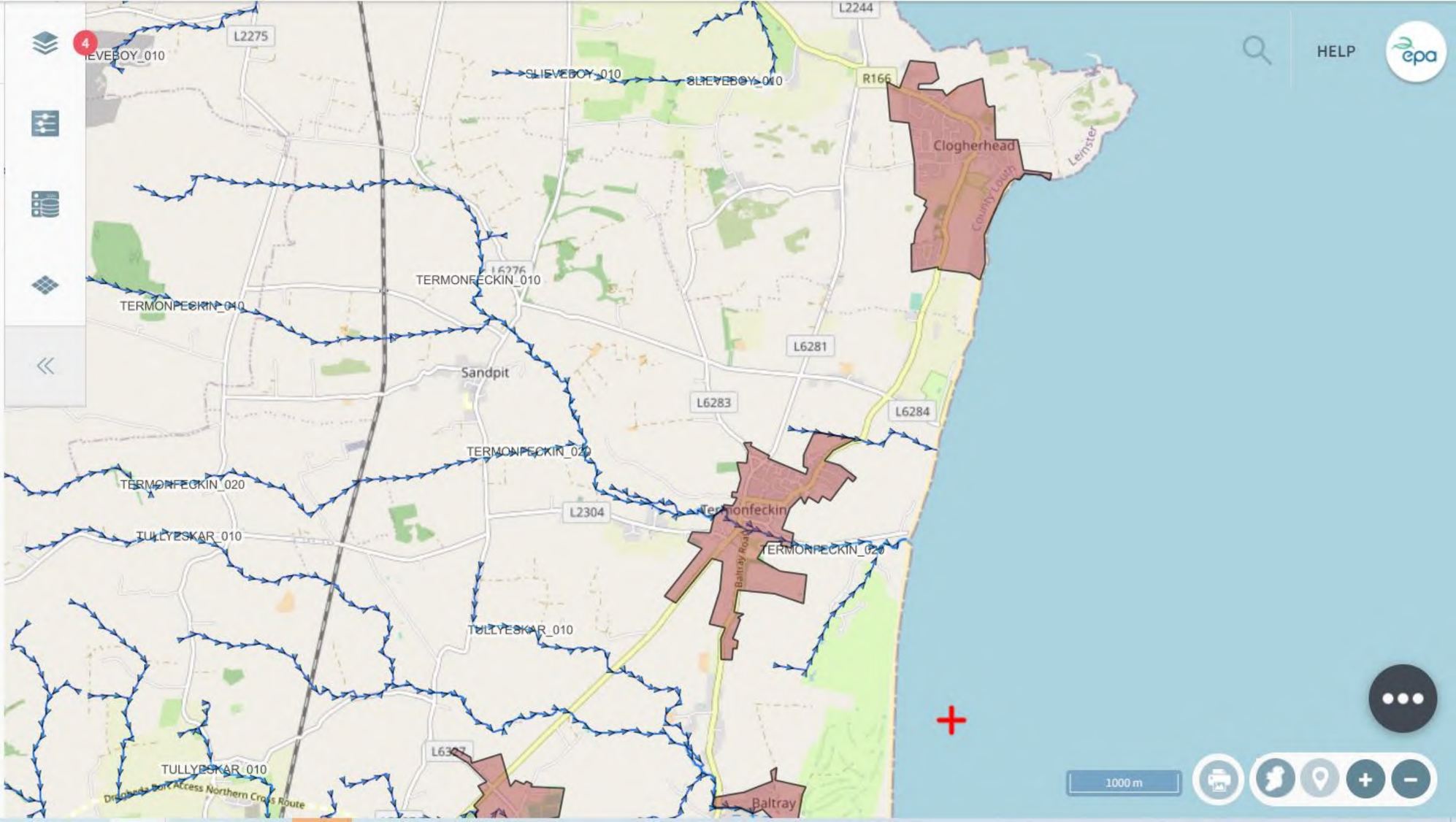

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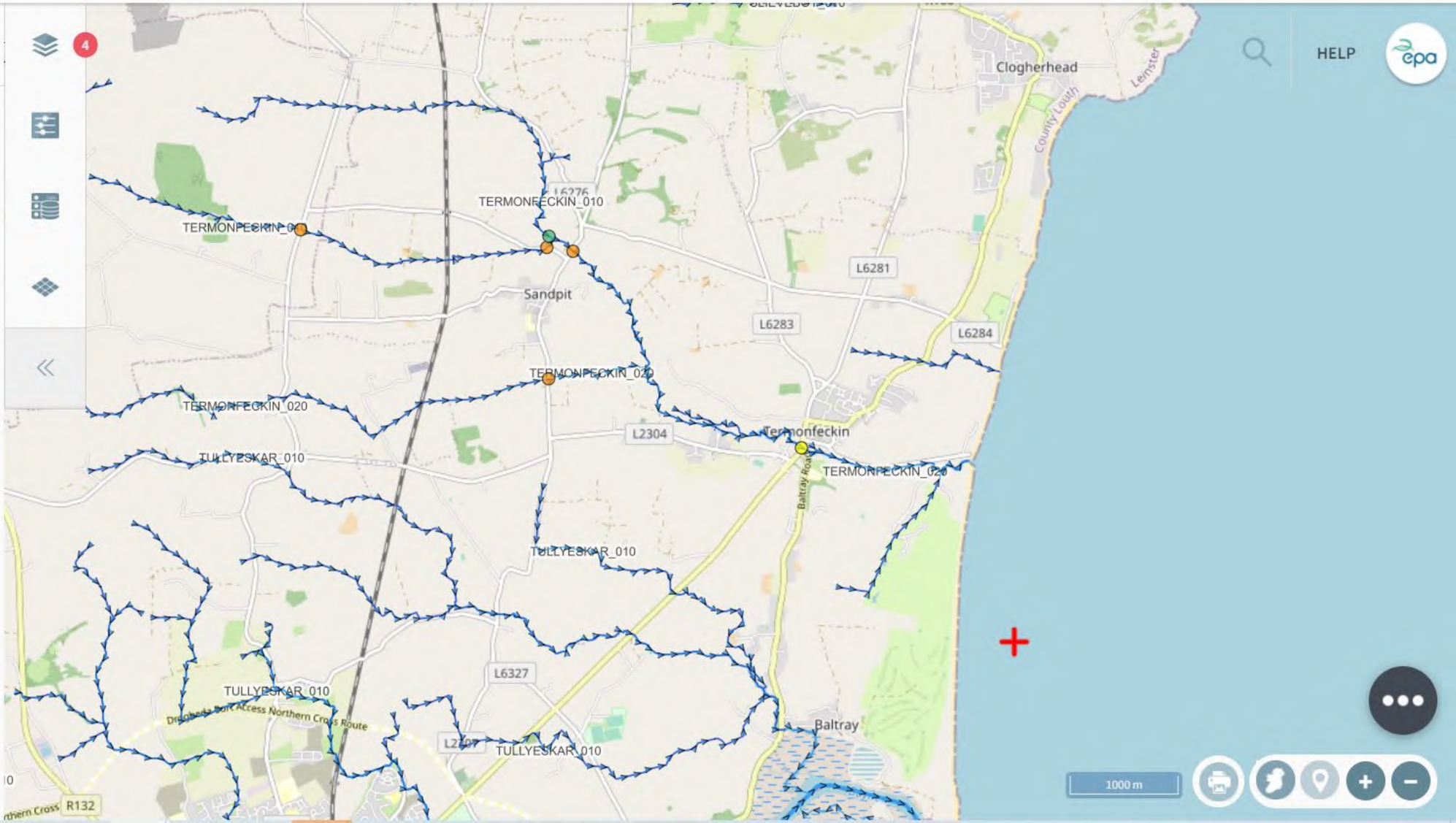

STATUS | MONITORING PROGRAMME | INPUTTING & RECEIVING WATERBODIES | TRENDS & CHARTS

SW 2016-2021

Status	Assessment Technique	Status Confidence	Value
▸ Ecological Status or Potential	Monitoring	medium confidence	Moderate
Phosphorous Conditions			Moderate
Orthophosphate			Moderate

SW 2013-2018

Status	Assessment Technique	Status Confidence	Value
▸ Ecological Status or Potential	Monitoring	high confidence	Moderate
Phosphorous Conditions			Moderate
Orthophosphate			Moderate

Termonfeckin

R.C. Chapel

Quoad

Church

78

Dispensary

43

Castle

20

School Ho.

Newtown House

D U F

OSi

Court Ho. & Dispensary
Temperance Hall
School
Triple House
Constab. Bk.
79
B.M 76
67
Cross
Grave Yd
Ch.
Termonfeckin
Cross
(Site of)
St. Feighin's Well
P.O.
Island Ho.
47
Castle
(Site of)
Castle
50
Castle Well
78
B.M 63·9
F.B.
Trinity Well
34
B.M 35·4
59
Smithy
St. Mary's R. C. Ch.
Yellow Gap
Parochial House
Monastery
(Site of)
83
Weir
Weir
71
B.M 77·5
76
B.M 38
F.B.
Newtown House
76
B.M 68·1
27

Termonfeckin

Yellow Gap

Newtown House

St. Feighin's Well
Post Office
Island House
Castle
Castle
Castle Well
Trinity Well
St. Mary's R.C. Church
Monastery (Site of)
Smithy
Parochial House
Yellow Gap
B.M. 49·6
B.M. 35·4
B.M. 38·6
F.P.
1·697
5·487
2·225
2·262
10·852
1·599
1·630
1·601
3·192
2·677
6·318
2·354
3·075
4·577
5·378
9·678
9·854
18·967
11·096
1·118
1·491
1·428
1·052
568
982
643
319
454
653
417
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478
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241
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275
335
523
722
845
320
375
625
515
492
838
574
297
730
578
260
635
160

APPENDIX 2

- NPWS (2013) CONSERVATION OBJECTIVES: RIVER BOYNE ESTUARY SPA [004080]. VERSION 1. NATIONAL PARKS AND WILDLIFE SERVICE, DEPARTMENT OF HOUSING, LOCAL GOVERNMENT AND HERITAGE.

- NPWS (2023) SITE SYNOPSIS FOR NORTHWEST IRISH SEA CSPA [004236]. VERSION 1.0. NATIONAL PARKS AND WILDLIFE SERVICE DEPARTMENT OF HOUSING, LOCAL GOVERNMENT AND HERITAGE

SITE SYNOPSIS

Site Name: Boyne Coast and Estuary SAC

Site Code: 001957

Boyne Coast and Estuary SAC is a coastal site which includes most of the tidal sections of the River Boyne, intertidal sand- and mudflats, saltmarshes, marginal grassland, and the stretch of coast from Bettystown to Termonfeckin that includes the Mornington and Baltray sand dune systems.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[1130] Estuaries
[1140] Tidal Mudflats and Sandflats
[1210] Annual vegetation of drift lines
[1310] *Salicornia* Mud
[1330] Atlantic Salt Meadows
[2110] Embryonic Shifting Dunes
[2120] Marram Dunes (White Dunes)
[2130] Fixed Dunes (Grey Dunes)*

The Boyne River channel, which is navigable and dredged, is defined by training walls, these being breached in places. Intertidal flats occur on the sides of the channelled river. The sediments vary from fine muds in the sheltered areas to sandy muds or sands towards the river mouth. The linear stretches of intertidal flats to the north and south of the river mouth are mainly composed of sand. One or more species of eelgrass (*Zostera* spp.) occur in the estuary.

Parts of the intertidal areas are fringed by saltmarshes, most of which are of the Atlantic type, and dominated by Sea-purslane (*Halimione portulacoides*). Other species present include Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Lax-flowered Sea-lavender (*Limonium humile*) and glassworts (*Salicornia* spp.). Common Cord-grass (*Spartina anglica*) occurs frequently on the flats and saltmarshes.

The two sand dune systems in the site, at Baltray and Mornington, are of conservation value, despite the restricted distribution of the intact areas and the high recreational pressure to which they are subjected. A gradient from embryonic dunes to Marram (*Ammophila arenaria*) dunes and then fixed dunes is shown at both systems.

The largest area of annual vegetation of drift lines within this SAC is located at Baltray, north of the estuary. The vegetation is highly representative of the habitat type, which is limited to a small number of highly specialised species that are capable of coping with harsh environmental conditions including high salinity, wind exposure, and unstable substrate and lack of soil moisture. Species present include oraches (*Atriplex* spp.), Sea Rocket (*Cakile maritima*), Prickly Saltwort (*Salsola kali*) and Sea Sandwort (*Honkenya peploides*). Embryonic dunes are particularly well-developed at Baltray where there is active accretion. Species present include Sand Couch (*Elymus farctus*), Lyme-grass (*Leymus arenarius*), Marram, Sea Sandwort and Prickly Saltwort. The embryonic dunes grade into a narrow band of shifting Marram dunes. Marram is dominant, though there are also such species as Cat's-ear (*Hypochoeris radicata*), Mouse-ear Hawkweed (*Hieracium pilosella*) and Dandelion (*Taraxacum* agg.). The areas of fixed dunes on the site have a typical diversity of species, including Marram, Red Fescue (*Festuca rubra*), Wild Carrot (*Daucus carota*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Common Restharrow (*Ononis repens*), Wild Thyme (*Thymus praecox*), Lady's Bedstraw (*Galium verum*) and Wild Pansy (*Viola tricolor*). Vegetation dominated by bryophytes and lichens is limited, though such species as *Brachythecium albicans*, *Hypnum cupressiforme*, *Peltigera canina* and *Cladonia* spp. occur. Some dune slacks may still occur at the site. A number of scarce plants such as Viper's-bugloss (*Echium vulgare*), Adder's-tongue (*Ophioglossum vulgatum*), Variegated Horsetail (*Equisetum variegatum*) and Wild Clary/Sage (*Salvia verbenaca*) have been recorded from the site in the past. The last-named species is of particular note as it is a Red Data Book species at its most northerly known Irish station.

The Boyne is the second most important estuary for wintering birds on the Louth-Meath coastline. From a recent wetland survey carried out over 4 seasons (1994/95-97/98), it is known that this site supports nationally important numbers of Shelduck (176 individuals), Golden Plover (5,338), Lapwing (4,755), Knot (1,559), Black-tailed Godwit (414), Redshank (539), Turnstone (104), Oystercatcher (922), Grey Plover (112) and Sanderling (93).

Other species of regional or local importance include Brent Goose (142), Wigeon (485), Teal (185), Mallard (160), Dunlin (627), Curlew (352) and Ringed Plover (approx. 100). An area of shingle at Baltray Dunes is also an important breeding site for Little Tern, with 14 pairs recorded in 1995. Little Tern is the rarest Irish tern species, and is listed on Annex I of the E.U. Birds Directive. Part of the estuary is a Wildfowl Sanctuary and has been designated a Special Protection Area under the E.U. Birds Directive.

This site has been somewhat modified by human activities. The river is regularly dredged to accommodate cargo ships, which causes disturbance to the bird, fish and invertebrate communities in the estuary. Several factories operate upstream from the estuary and pollution and disturbance associated with them has had an impact on the ecology of the area. There is a proposal to create a deep water facility at the north end of Mornington Dunes on the mouth of the Boyne estuary.

ISSN 2009-4086

National Parks and Wildlife Service

Conservation Objectives Series

Boyne Coast and Estuary SAC 001957

An Roinn
Ealaíon, Oidhreachta agus Gaeltachta
Department of
Arts, Heritage and the Gaeltacht

National Parks and Wildlife Service,
Department of Arts, Heritage and the Gaeltacht,

7 Ely Place, Dublin 2, Ireland.

Web: www.npws.ie
E-mail: nature.conservation@ahg.gov.ie

Citation:
NPWS (2012) Conservation Objectives: Boyne Coast and Estuary SAC 001957. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Series Editors: Rebecca Jeffrey & Naomi Kingston
ISSN 2009-4086

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***

001957	Boyne Coast and Estuary SAC
1130	Estuaries
1140	Mudflats and sandflats not covered by seawater at low tide
1310	Salicornia and other annuals colonizing mud and sand
1330	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
1410	Mediterranean salt meadows (*Juncetalia maritimi*)
2110	Embryonic shifting dunes
2120	Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes')
2130	*Fixed coastal dunes with herbaceous vegetation ('grey dunes')

Please note that this SAC overlaps with Boyne Estuary SPA (004080) and is adjacent to the River Boyne and River Blackwater SAC (002299). See map 2. The conservation objectives for this site should be used in conjunction with those for overlapping and adjacent sites as appropriate.

Supporting documents, relevant reports & publications (listed by date)

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

Title: Boyne Coast and Estuary SAC (001957). Conservation objectives supporting document - marine habitats. [Version 1]

Year: 2012

Author: NPWS

Series: Unpublished Report to NPWS

Title: Boyne Coast and Estuary SAC (001957). Conservation objectives supporting document - coastal habitats. [Version 1]

Year: 2012

Author: NPWS

Series: Unpublished Report to NPWS

Title: An intertidal soft sediment survey of the Boyne Coast and Estuary

Year: 2011

Author: ASU

Series: Unpublished Report to NPWS & MI

Title: Benthic Survey of the Boyne Coast and Estuary Special Area of Conservation and Boyne Estuary Special Protection Area

Year: 2011

Author: EcoServe

Series: Unpublished Report to NPWS & MI

Title: Saltmarsh Monitoring Report 2007-2008

Year: 2009

Author: McCorry, M.; Ryle, T.

Series: Unpublished Report to NPWS

Title: Coastal Monitoring Project 2004-2006

Year: 2009

Author: Ryle, T.; Murray, A.; Connolly, C.; Swann, M.

Series: Unpublished Report to NPWS

Title: The phytosociology and conservation value of Irish sand dunes

Year: 2008

Author: Gaynor, K.

Series: Unpublished PhD thesis, National University of Ireland, Dublin

---

Spatial data sources

Year:	2010
Title:	EPA WFD transitional waterbody data
GIS operations:	Clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used for:	1130 (map 3)
Year:	Interpolated 2012
Title:	Intertidal and subtidal surveys, 2010
GIS operations:	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
Used for:	Marine community types, 1140 (maps 4 and 5)
Year:	2005
Title:	OSi Discovery series vector data
GIS operations:	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
Used for:	Marine community types base data (map 5)
Year:	Revision 2010
Title:	Saltmarsh Monitoring Project 2007-2008. Version 1
GIS operations:	QIs selected; clipped to SAC boundary; overlapping regions with Coastal CO data investigated and resolved with expert opinion used
Used for:	1310, 1330 (map 6)
Year:	2009
Title:	Coastal Monitoring Project 2004-2006. Version 1
GIS operations:	QIs selected; clipped to SAC boundary; overlapping regions with Saltmarsh CO data investigated and resolved with expert opinion used
Used for:	2110, 2120, 2130 (map 7)

1130 Estuaries

To maintain the favourable conservation condition of Estuaries in Boyne Coast and Estuary 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 as 403ha using OSi data and the defined Transitional Water Body area under the Water Framework Directive
Community distribution	Hectares	Conserve the following community types in a natural condition: Intertidal estuarine mud and fine sand with *Hediste diversicolor* and *Corophium volutator* community; and Subtidal fine sand dominated by polychaetes community. See map 5	Habitat structure was elucidated from intertidal and subtidal surveys undertaken in 2010 (ASU, 2011; EcoServe, 2011)

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 Boyne Coast and Estuary 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 4	Habitat area was estimated using OSi data as 403ha
Community distribution	Hectares	Conserve the following community types in a natural condition: Intertidal estuarine mud and fine sand with *Hediste diversicolor* and *Corophium volutator* community; and Fine sand dominated by bivalves community complex. See map 5	Habitat structure was elucidated from an intertidal survey undertaken in 2010 (ASU, 2011). See marine supporting document for further details

1310 Salicornia and other annuals colonizing mud and sand

To restore the favourable conservation condition of *Salicornia* and other annuals colonizing mud and sand in Boyne Coast and Estuary 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: Baltray- 2.91ha, Mornington- 1.14ha. See map 6	Based on data from Saltmarsh Monitoring Project (McCorry and Ryle, 2009). Habitat mapped at two sub-sites surveyed, giving a total estimated area of 4.05ha. 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 6 for known distritbution	Based on data from McCorry and Ryle (2009). Salicornia is an annual species, so its distribution can vary significantly from year to year. At Baltray, saltmarsh is expanding in infilled intertidal zone. Large area of Mornington saltmarsh was reclaimed in the past. 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	Based on data from McCorry and Ryle (2009). Sediment supply is particularly important for this pioneer saltmarsh community, as the distribution of this habitat depends on accretion rates. Sediment supply to saltmarshes at Baltray and Mornington is likely to be affected by the construction of navigation walls and dredging of the main channel. 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 McCorry and Ryle (2009). Creeks deliver sediment throughout saltmarsh system. At Baltray and Mornington the structure is modified by drainage channels. 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 McCorry and Ryle (2009). At Baltray and Mornington there are zonations within the saltmarsh habitats as well as transitions to adjacent sand dune systems. See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimeters	Maintain structural variation within sward	Based on data from McCorry and Ryle (2009). At Baltray and Mornington grazing is absent and sward height is variable. See coastal habitats supporting document for further details

1310 Salicornia and other annuals colonizing mud and sand

To restore the favourable conservation condition of *Salicornia* and other annuals colonizing mud and sand in Boyne Coast and Estuary SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
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 McCorry and Ryle (2009). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover	Maintain the presence of species-poor communities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	Based on data from McCorry & Ryle (2009). See coastal habitats supporting document for further details
Vegetation structure: negative indicator species-*Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%	Based on data from McCorry & Ryle (2009). *Spartina* is well established at this site. Swards of *Spartina* are widespread at Baltray and there has been significant expansion of *Spartina* at Mornington since 2000. See coastal habitats supporting document for further details

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

To maintain the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia*) in Boyne Coast and Estuary 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: Baltray- 17.67ha, Mornington- 8.76ha. See map 6	Based on data from the Saltmarsh Monitoring Project (McCorry and Ryle, 2009). Habitat mapped at two sub-sites surveyed, giveing a total estimated area of 26.43ha. 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 6 for known distribution	Based on data from McCorry and Ryle (2009). At Baltray there has been some extensive recent development of ASM. At Mornington the saltmarsh may have been more extensive in the past. See coastal habitats supporting document for further details
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions	Based on data from McCorry and Ryle (2009). At Baltray and Mornington saltmarsh development likely to be affected by the construction of navigation walls in the past and dredging of the main channel. 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 McCorry and Ryle (2009). Creek and pan structures are well-developed in some parts of Baltray and Mornington but modified in other areas by drainage channels. 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 the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from McCorry and Ryle (2009). At Baltray and Mornington there are zonations within the saltmarsh habitats as well as transitions to adjacent sand dune systems. See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimeters	Maintain structural variation within sward	Based on data from McCorry and Ryle (2009). The saltmarshes at Baltray and Mornington are ungrazed by livestock and the sward height is quite variable. 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	See coastal habitats supporting document for further details

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

To maintain the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia*) in Boyne Coast and Estuary SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
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 Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	See coastal habitats supporting document for further details
Vegetation structure: negative indicator species - *Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%	Based on data from McCorry and Ryle (2009). *Spartina* is well established at this site. Swards of *Spartina* are widespread at Baltray and there has been significant expansion of *Spartina* at Mornington since 2000. See coastal habitats supporting document for further details

1410 Mediterranean salt meadows (*Juncetalia maritimi*)

The status of Mediterranean salt meadows (*Juncetalia maritimi*) as a qualifying Annex I habitat for Boyne Coast and Estuary SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this habitat.

Attribute	Measure	Target	Notes

2110 Embryonic shifting dunes

To restore the favourable conservation condition of Embryonic shifting dunes in Boyne Coast and Estuary 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: Baltray- 2.52ha, Mornington- 0.67ha. See map 7	Based on data from the Coastal Monitoring Project (Ryle et al., 2009). Habitat is very difficult to measure in view of its dynamic nature and was recorded at both sub-sites, giving a total estimated area of 3.18ha. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes. See map 7 for known distribution	Based on data from 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	Based on data from Ryle et al. (2009). Dunes are naturally dynamic systems that require continuous supply and circulation of sand. The training wall at the mouth of the Boyne Estuary has led to an accumulation of sand at Mornington and enhanced the development of dunes at the northern section. The dunes are accreting at the southern end of Baltray, with wide areas of embryonic dune and strandine fronting mobile and fixed dunes. 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 Ryle et al. (2009). Both sand dune systems at Baltray and Mornington occur adjacent to extensive estuarine saltmarshes. See coastal habitats supporting document for further details
Vegetation composition: plant health of foredune grasses	Percentage cover	More than 95% of sand couch (*Elytrigia juncea*) and/or lyme-grass (*Leymus arenarius*) should be healthy (i.e. green plant parts above ground and flowering heads present)	Based on data from Ryle et al. (2009). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover	Maintain the presence of species-poor communities with typical species: sand couch (*Elytrigia juncea*) and/or lyme-grass (*Leymus arenarius*)	Based on data from Ryle et al. (2009). See coastal habitats supporting document for further details

2110 Embryonic shifting dunes

To restore the favourable conservation condition of Embryonic shifting dunes in Boyne Coast and Estuary SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Ryle et al. (2009). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea buckthorn (*Hippophae rhamnoides*) should be absent or effectively controlled. See coastal habitats supporting document for further details

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

To restore the favourable conservation condition of Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) in Boyne Coast and Estuary 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: Baltray- 2.97ha, Mornington- 1.99ha. See map 7	Habitat was mapped during the Coastal Monitoring Project (Ryle et al. 2009). Habitat was recorded at both sub-sites, giving a total estimated area of 4.97ha. Habitat is very difficult to measure in view of its dynamic nature. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes. See map 7 for known distribution	Based on data from Ryle et al. (2009). Shifting dunes were recorded at both Baltray and Mornington sub-sites. 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	Dunes are naturally dynamic systems that require continuous supply and circulation of sand. Marram (*Ammophila arenaria*) reproduces vegetatively and requires constant accretion of fresh sand to maintain active growth encouraging further accretion. The training wall at the mouth of the Boyne Estuary has led to an accumulation of sand at Mornington and enhanced the development of dunes at the northern section. The dunes are accreting at the southern end of Baltray, with wide areas of embryonic dune and strandine fronting mobile and fixed dunes. 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 Gaynor (2008) and Ryle et al. (2009). Both sand dune systems at Baltray and Mornington occur adjacent to extensive estuarine saltmarshes. See coastal habitats supporting document for further details
Vegetation composition: plant health of dune grasses	Percentage cover	More than 95% of marram (*Ammophila areanaria*) and/or lyme-grass (*Leymus arenarius*) should be healthy (i.e. green plant parts above ground and flowering heads present)	Based on data from Ryle et al. (2009). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities dominated by marram (*Ammophila arenaria*) and/or lyme-grass (*Leymus arenarius*)	Based on data from Ryle et al. (2009). See coastal habitats supporting document for further details

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

To restore the favourable conservation condition of Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) in Boyne Coast and Estuary SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Ryle et al. (2009). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea buckthorn (*Hippophae rhamnoides*) should be absent or effectively controlled. Ragwort (*Senecio jacobaea*) was recorded from Mobile dunes at both Baltray and Mornington. See coastal habitats supporting document for further details

2130 *Fixed coastal dunes with herbaceous vegetation ('grey dunes')

To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation (grey dunes) in Boyne Coast and Estuary 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: Baltray-26.41ha; Mornington-20.46ha. See map 7	Based on data from the Coastal Monitoring Project (Ryle et al., 2009). Habitat was recorded at both sub-sites, giving a total estimated area of 46.87ha. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes. See map 7 for known distribution	Based on data from the Coastal Monitoring Project (Ryle et al., 2009). Fixed dunes recorded at both Baltray and Mornington. 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	Based on data from the Coastal Monitoring Project (Ryle et al., 2009). The training wall at the mouth of the Boyne Estuary has led to an accumulation of sand at Mornington and enhanced the development of dunes at the northern section. The dunes are accreting at the southern end of Baltray, with wide areas of embryonic dune and strandine fronting mobile and fixed dunes. 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 Ryle et al. (2009). Both sand dune systems at Baltray and Mornington occur adjacent to extensive estuarine saltmarshes. See coastal habitats supporting document for further details
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes	Based on data from Gaynor (2008) and Ryle et al. (2009). The estimated area of bare sand at Mornington currently accounts for greater than 10% of the fixed dune habitat. See coastal habitats supporting document for further details
Vegetation composition: sward height	Centimeters	Maintain structural variation within sward	Based on data from Gaynor (2008) and Ryle et al. (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 Ryle et al. (2009)	Based on data from Gaynor (2008) and Ryle et al. (2009). The locally rare species viper's bugloss (*Echium vulgare*) was recorded in the fixed dunes at Baltray. Mornington is the most northerly known site in Ireland for wild clary (*Salvia verbenaca*). See coastal habitats supporting document for further details

2130 *Fixed coastal dunes with herbaceous vegetation ('grey dunes')

To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation (grey dunes) in Boyne Coast and Estuary SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Ryle et al. (2009). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea buckthorn (*Hippophae rhamnoides*) should be absent or effectively controlled. At both Baltray and Mornington, creeping thistle (*Cirsium arvense*), ragwort (*Senecio jacobaea*) and common nettle (*Urtica dioica*) were recorded in fixed dunes. See coastal habitats supporting document for further details
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control	Based on data from Ryle et al. (2009). See coastal habitats supporting document for further details

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Department of Arts, Heritage and the Gaeltacht

MAP 1:
BOYNE COAST AND ESTUARY SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

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

SITE CODE: SAC 001957
CO.LOUTH; version 1.01, CO. MEATH; version 1.06

0 0.5 1 km

Map Version 1
Date: Sept 2012

SAC 001957

SPA 004080

SAC 002299

Legend

- SAC 001957 Boyne Estuary and Coast
- SAC 002299 River Boyne and River Blackwater
- SPA 004080 Boyne Estuary
- OSi Discovery Series County Boundaries

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Department of Arts, Heritage and the Gaeltacht

MAP 2:
BOYNE COAST AND ESTUARY SAC
CONSERVATION OBJECTIVES
ADJOINING / OVERLAPPING DESIGNATIONS

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

SITE CODE:
SAC 001957 CO. LOUTH; version 1.01, CO.MEATH; version 1.06
SAC 002299 CO. CAVAN; version 1.01, CO. LOUTH; version 1.01, CO. WESTMEATH; version 1.05, CO.MEATH; version 1.11
SPA 004080 version 3

0 5 10 15 km

N

Map Version 1
Date: Sept 2012

Legend

- SAC 001957
- 1130 Estuaries
- OSi Discovery Series Coastal Boundary

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Department of Arts, Heritage and the Gaeltacht

MAP 3:
BOYNE COAST AND ESTUARY SAC CONSERVATION OBJECTIVES ESTUARIES

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

SITE CODE: SAC 001957
CO.LOUTH; version 1.01, CO. MEATH; version 1.06

0 0.5 1 km

N

Map Version 1
Date: Sept 2012

Legend

- SAC 001957
- 1140 Mudflats and sandflats not covered by seawater at low tide
- OSi Discovery Series Coastal Boundary

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MAP 4:
BOYNE COAST AND ESTUARY SAC CONSERVATION OBJECTIVES TIDAL MUDFLATS AND SANDFLATS

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

SITE CODE: SAC 001957
CO.LOUTH; version 1.01, CO. MEATH; version 1.06

0 0.5 1 km

N

Map Version 1
Date: Sept 2012

Legend

SAC 001957

OSi Discovery Series Coastal Boundary

Marine Community Types

Fine sand dominated by bivalves community complex

Intertidal estuarine mud and fine sand with *Hediste diversicolor* and *Corophium volutator* community

Subtidal fine sand dominated by polychaetes community

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Department of Arts, Heritage and the Gaeltacht

MAP 5:
BOYNE COAST AND ESTUARY SAC
CONSERVATION OBJECTIVES
MARINE COMMUNITY TYPES

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

SITE CODE: SAC 001957
CO.LOUTH; version 1.01, CO. MEATH; version 1.06

0 0.5 1 km

N

Map Version 1
Date: Sept 2012

SMP: 0033

SMP: 0034

Legend

SAC 001957

OSi Discovery Series Coastal Boundary

SMP: 0033 Saltmarsh Monitoring Project Site Codes

Saltmarsh Habitats

Qualifying Interests

1310 *Salicornia* and other annuals colonising mud and sand

1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)

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Department of Arts, Heritage and the Gaeltacht

MAP 6:
BOYNE COAST AND ESTUARY SAC
CONSERVATION OBJECTIVES
SALTMARSH HABITATS

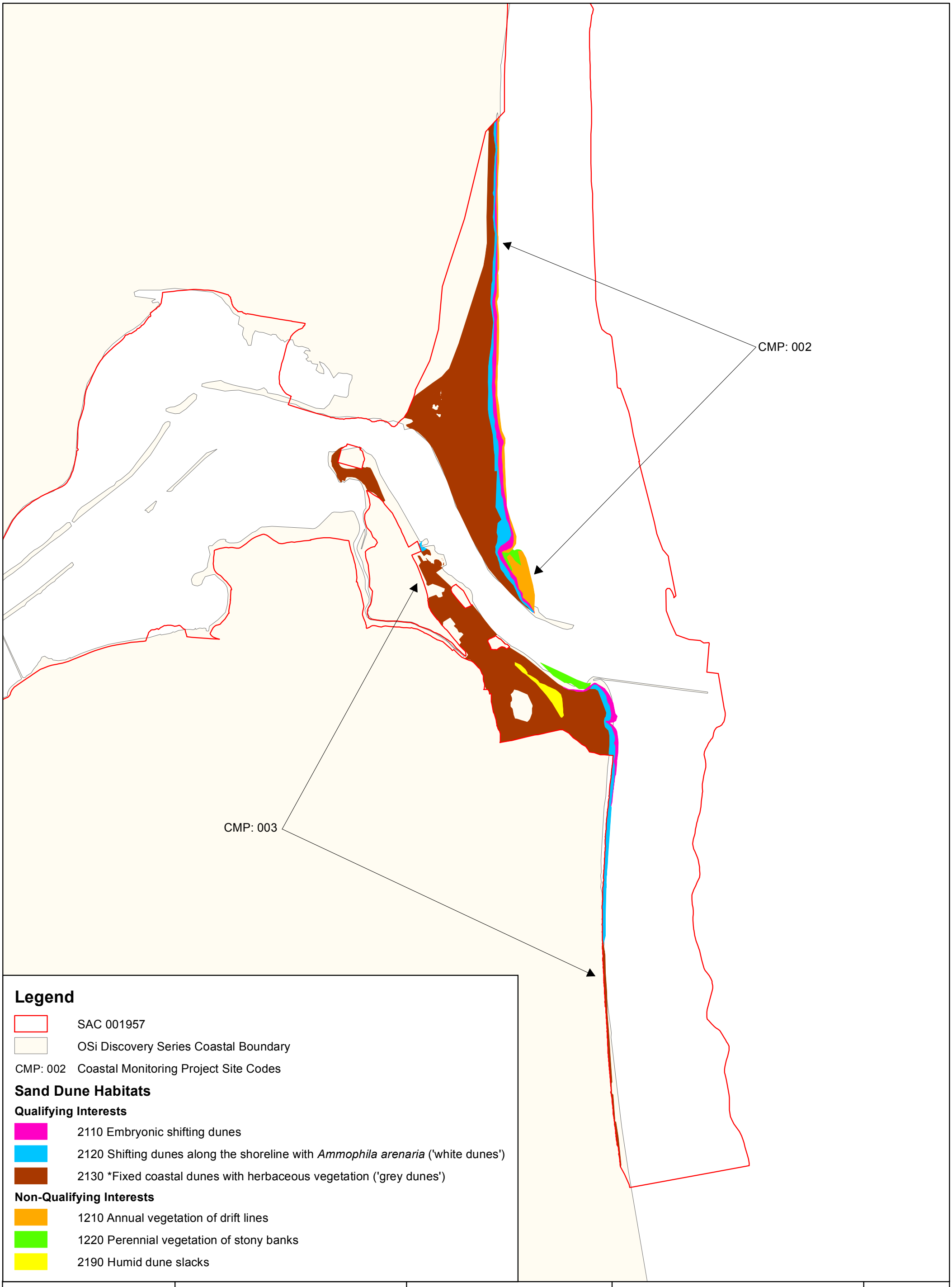
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE: SAC 001957
CO.LOUTH; version 1.01, CO. MEATH; version 1.06

0 250 500 m

N

Map Version 1
Date: Sept 2012



Legend

SAC 001957

OSi Discovery Series Coastal Boundary

CMP: 002 Coastal Monitoring Project Site Codes

Sand Dune Habitats

Qualifying Interests

2110 Embryonic shifting dunes

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

2130 *Fixed coastal dunes with herbaceous vegetation ('grey dunes')

Non-Qualifying Interests

1210 Annual vegetation of drift lines

1220 Perennial vegetation of stony banks

2190 Humid dune slacks

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Department of Arts, Heritage and the Gaeltacht

MAP 7:
BOYNE COAST AND ESTUARY SAC
CONSERVATION OBJECTIVES
SAND DUNE HABITATS

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

SITE CODE: SAC 001957
CO.LOUTH; version 1.01, CO. MEATH; version 1.06

0 250 500 m

N

Map Version 1
Date: Sept 2012

The site is of considerable conservation interest as a coastal complex that supports good examples of eight habitats that are listed on Annex I of the E.U. Habitats Directive, including one which is listed with priority status, and for the important bird populations that it supports.

	Coordinates in WGS84	
	Latitude	Longitude
A	53° 50' 53" N	5° 43' 38" W
B	53° 47' 54" N	5° 30' 27" W
C	53° 19' 43" N	5° 32' 45" W

A

B

C

IRISH SEA
Muir Éireann

ISLE OF MAN

HOLYHEAD
LIVERPOOL
HOLYHEAD

Baile Átha Cliath

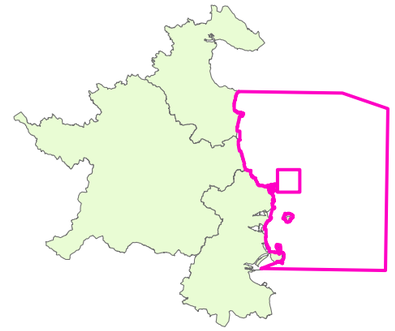
DUNDALK
Dún Dealgan
Ballagan Point
Cooley Point
Greenore Point
Blackrock
Na Creagacha Dubha
Dundalk Bay
Dunany Point
Clogher Head
Ardee
Drogheda
Droichead Átha
Navan
An Uaimh
Trim
Baile Átha Troim
Kells
Ceannanna
Mhúrna
Dunleer
Dún Léire
Annagassan
Castlebellingham
Dromiskin
Tallanstown
Kingscourt
Dún an Rí
Stabannan
Drumcondra
Baile Átha Fhirdhia
Dromin
Togher
Grangebellew
Clogherhead
Termonfeckin
Collon
Mellifont
Tullyallen
Baltray
Mornington
Bettystown
Laytown
Julianstown
Mosney
Donore
Slane
Wilkinstown
Castletown
Carlanstown
Rathkenny
Nobber
Smarmore
Kilberry
Gibstown
Yellow Furze
Duleek
Damhliag
Kentstown
Bohermeen
Bóthar Mín
Brownstown
Dunderry
Robinstown
Skreen
Rathfeigh
Clonalvy
Garristown
Naul
Bog of the Ring
Balrath
Ardcath
Bellewstown
Stamullin
Gormanston
Balbriggan
Baile Brigín
Skerries
Na Sceirí
Loughshinny
Rush
An Ros
Lusk
Portrane
Lambay Island
Donabate
Malahide
Portmarnock
Ireland's Eye
Howth
Baile Átha Troim
Laracor
Drumree
Dunsany
Kilmessan
Tara
Dunshaughlin
Dún Seachlainn
Oldtown
Ashbourne
Cill-Dhéagláin
Ballyboghil
Ratoath
Summerhill
Batterstown
Kilsallaghan
Swords
St. Margaret's
Kinsaley
Rathcore
Dunboyne
Dún Búinne
Clonee
Dublin Airport
Finglas
Blanchardstown
Mulhuddart
Johnstown Bridge
Newtown
Kilcock
Maynooth
Leixlip
Lucan
Clondalkin
Phoenix Park
Celbridge
Rathcoffey
Staplestown
Straffan
Prosperous
Clane
Robertstown
Sallins
Kilmeage
Carragh
Kilcullen
Newcastle
Rathcoole
Saggart
Tallaght
Dundrum
Dalkey
Killiney
Shankill
Killiney Bay
Dun Laoghaire
Glencullen
Brittas
Glencree
Kilbride
BRAY
Bré
Bray Head
Dublin Bay
LOUTH
MEATH
DUBLIN
R. Dee
R. Boyne
R. Nanny
R. Liffey
Grand Canal
M1
M2
M3
M4
M50
N1
N2
N3
N4
N51
N52
N7
N81
Toll

0 5 10 15 20 km
Scála / Scale 1:350,000

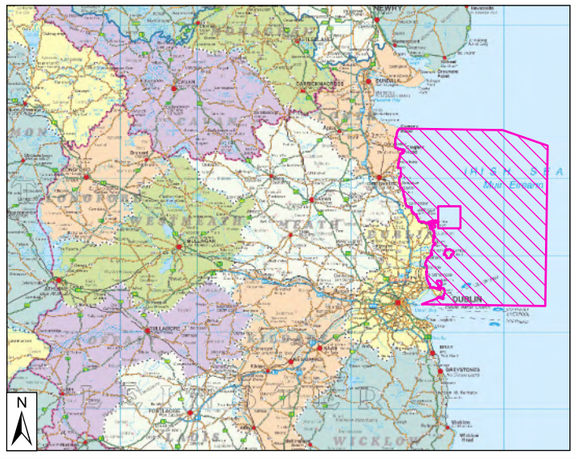
LIMISTÉAR FAOI CHOSAINT SPEISIALTA MOLTA
CANDIDATE SPECIAL PROTECTION AREA

Limistéar faoi Chosaint Speisialta Molta
Candidate Special Protection Area

North-west Irish Sea cSPA
004236
Achar / Area 233,343 ha



CO. BHAILE ÁTHA CLIATH, CO. LÚ AGUS CO. NA MÍ
CO. DUBLIN, CO. LOUTH AND CO. MEATH



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

NATURA 2000

Leagan / Version: 3.00 Arna chló an / Printed on: 12/07/2023

SITE SYNOPSIS

SITE NAME: NORTH-WEST IRISH SEA cSPA

SITE CODE: 004236

The North-west Irish Sea cSPA constitutes an important resource for marine birds. The estuaries and bays that open into it along with connecting coastal stretches of intertidal and shallow subtidal habitats, provide safe feeding and roosting habitats for waterbirds throughout the winter and migration periods. These areas, along with more pelagic marine waters further offshore, provide additional supporting habitats (for foraging and other maintenance behaviours) for those seabirds that breed at colonies on the north-west Irish Sea's islands and coastal headlands. These marine areas are also important for seabirds outside the breeding period.

This SPA extends offshore along the coasts of counties Louth, Meath and Dublin, and is approximately 2,333km^2 in area. This SPA is ecologically connected to several existing SPAs in this area.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Common Scoter, Red-throated Diver, Great Northern Diver, Fulmar, Manx Shearwater, Shag, Cormorant, Little Gull, Kittiwake, Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull, Great Black-backed Gull, Little Tern, Roseate Tern, Common Tern, Arctic Tern, Puffin, Razorbill and Guillemot.

The breeding seabird species listed for those SPAs, which abut the North-West Irish Sea SPA are: Fulmar (Lambay Island SPA); Cormorant (Skerries Island SPA; Ireland's Eye SPA; Lambay Island SPA); Shag (Skerries Island SPA; Lambay Island SPA); Lesser Black-backed Gull (Lambay Island SPA); Herring Gull (Skerries Island SPA; Ireland's Eye SPA; Lambay Island SPA); Kittiwake (Lambay Island SPA; Ireland's Eye SPA; Howth Head SPA); Roseate Tern (Rockabill SPA); Common Tern (Rockabill SPA;); Arctic Tern (Rockabill SPA); Little Tern (Boyne Estuary SPA); Guillemot (Lambay Island SPA, Ireland's Eye SPA); Razorbill (Lambay Island SPA, Ireland's Eye SPA); and Puffin (Lambay Island SPA). The Common Tern population that is listed for the nearby South Dublin Bay and River Tolka Estuary SPA is also likely to use this SPA as a foraging resource.

Informed by two surveys of the western Irish Sea region in 2016 an estimated 120,232 and 34,626 individual marine birds occurred in this SPA during autumn and winter respectively. Those marine bird species whose estimated abundances equalled or exceeded 1% of the total estimated size of the winter assemblage are: Red-throated Diver (538), Fulmar (506), Little Gull (391), Kittiwake (944), Black-headed Gull (508), Common Gull (2,866), Herring Gull (6,893), Great Black-backed Gull (2,096), Razorbill (4,638) and Guillemot (13,914).

The estimated 2016 summer abundance of Manx Shearwater in the North West Irish Sea SPA is 13,010 and is of international importance. The estimated 2016 autumn and winter abundances of Great Northern Diver in the North West Irish Sea SPA is 248 and 230 respectively and are of international importance. The estimated abundances of Common Scoter over parts of this SPA can reach significant numbers (e.g. 14,567 in December 2018) which is also of international importance.

17.7.2023

North West Irish Sea cSPA 004236

ACTIVITIES REQUIRING CONSENT (ARCs)

ARC 01 Reclamation, including infilling.

ARC 03 Blasting, drilling, dredging or otherwise removing or disturbing fossils, rock, minerals, mud, sand, gravel or other sediment.

ARC 06 Introduction, or re-introduction, of plants or animals not found in the area. [Consent is not required for the planting of crops on established reseeded grassland or cultivated land.]

ARC 08 Undertaking scientific research involving the collection and removal of biological material.

ARC 30 Any activity intended to disturb birds, including by mechanical, air, gas, wind powered or audible means.

ARC 31 Developing or consenting to the development or operation of commercial recreational/visitor facilities or organised recreational activities.

ARC 35 Undertaking active acoustic surveys in the marine environment.