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Regional Seascape Character Assessment for Ireland 2020

Final Report







Ireland's EU Structural and Investment Funds Programmes 2014 - 2020
Co-funded by the Irish Government and the European Union

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

EUROPEAN UNION
This measure is part-financed by the European Maritime and Fisheries Fund

Marine Institute
Foras na Mara

An Roinn Tithíochta, Pleanála agus Rialtais Áitiúil
Department of Housing, Planning and Local Government

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Regional Seascape Character Assessment for Ireland 2020

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contents

1. Regional Seascape Character Assessment 1
2. Outline Methodology 2
3. Seascape Character Types 5
4. Regional Seascape Character Areas 20

SCA 1 Border SCA Lough Foyle 16
SCA 2:North Donegal Atlantic Headlands, Loughs and Beaches 22
SCA 3: North Atlantic Islands, Headlands and Beaches 30
SCA 4: Sligo Bay 37
SCA 5: Atlantic North Mayo & Galway 44
SCA 6: Atlantic Galway Bay and islands 52
SCA 7: Atlantic Clare Cliffs 61
SCA 8: Shannon Estuary and Tralee Bay 68
SCA 9: Atlantic South West Rias, Bays and Islands 75
SCA 10: Atlantic Celtic Bays and Estuaries 84
SCA 11: Cork Harbour and Estuary 91
SCA 12: Celtic Sea bays and beaches 97
SCA 13: South East Irish Sea 105
SCA 14: Irish Sea, Sandbanks and broad bays 113
SCA 15: Dublin Bay 121
SCA 16: Northeastern Irish Sea Islands and Beaches 130
SCA 17: Border SCA -Carlingford Lough 139
Glossary 144
References 148
Annex A: Evolution of the Irish Seascape
Annex B: Consultation Report
Annex C: Data Sheets for each SCA
Annex D: Visual Resource Mapping and methodology

1 Regional Seascape Character Assessment

1.1 Introduction



This is the final report of the Regional Seascape Character Assessment prepared for the Marine Institute. This report presents the Regional Seascape Character Areas along the entire Republic of Ireland coast.

Seascape character assessment represents a core component of the evidence base for Marine Spatial Planning and marine policy formulation. Seascape character assessment (SCAss) has emerged as a method for assessing, characterising, mapping and describing seascape character. The process of SCAss follows the well-established, and widely used, process of Landscape Character Assessment. Seascape is defined as

"an area of sea, coastline and land, as perceived by people, whose character results from the actions and interactions of land with sea, by natural and/or human factors"[1].

The aim of this project is to identify, classify and describe seascape character at a regional scale. The three objectives of the research are as follows:

- Understand different regional seascape character areas along the coast;
- Develop character assessment which describes the key features and character of each seascape character area, and
- Spatially define and represent their distribution and qualitatively assess the socio -cultural value of each of the seascapes across their distribution.

It is important to recognise that seascape character is a dynamic and changing space. In addition, as seascape is perceived by people, it therefore follows that there are many interpretations and understandings as to what contributes to and creates seascape character. Moreover, seascape character can be described at different scales and there are many local variations and nuances of seascape character. The scale of this assessment as required under the project brief is regional and therefore the seascape character is described at this scale.
This project has used a clear, robust methodological approach that provides for a baseline assessment of seascape character. This methodology is summarised in Chapter Two and is based on a best practice review undertaken at the start of this project.

Whilst the key aim of this research has been to fill an identified gap in baseline descriptions of seascape character, it also contributes achieving commitments under the European Landscape Convention 1.2(ELC) and Ireland's National Landscape Strategy (NLS)2015-2025.

[1] Definition from An Approach to Seascape Character Assessment. Natural England 2012. Also used in the most recent County Seascape Character Assessment (Donegal County Council 2016).

1.2 Report Preparation

Name	Role
Ruth Minogue MCIEEM Director Minogue Environmental Consulting Ltd	Project Manager, lead author
Dr Karen Foley School of Architecture, Planning and Environmental Policy, University College Dublin	Technical Review -Landscape and Seascape Character Assessment
Dr Ronan Hennessy School of Biological, Earth & Environmental Sciences	Geology, geomorphology and geological heritage
Dr Tracy Collins Director Aegis Archaeology	Archaeology and cultural heritage
Pat Doherty MCIEEM Director, Doherty Environmental Ltd	Ecology
Eilís Vaughan	Geographical Information Systems
Deirdre Black (November 2019-March 2020)	Landscape Architecture

2 Outline Methodology

2.1 Introduction

A best practice review was undertaken by the project team as Phase 1 of this project. In line with the scope of work, the team reviewed both guidance/guidelines relating to seascape character assessment (SCA), examples of SCAs practice from elsewhere, and examples of SCAs and Marine Spatial Planning[4].

Ireland's ratification of the European Landscape Convention in 2002 led to the development of newterrestrial planning tools. Article 6 of the Convention (Identification and Assessment) required signatories to "identify its own landscapes… and … to analyse their characteristics" (COE 2000 :4). This led to the development of Landscape Character Assessment.

As Landscape Character Assessment (LCA) processes are well established in Ireland and elsewhere, as well as the fact that is useful to enable read-across between land and seascape character assessment, the SCA methodology applied in this report draws substantially on the LCA, supplementing the concept of recognising landscapes through their character with additional specific characteristics associates with the coast. These characteristics are:

- maritime influence
- character of the coastal edge
- character of the immediate hinterland
- human activity: presence or absence[5].

[4] Best Practice Review: Baseline seascape character assessment, Minogue and Associates 2020.
[5] Guidance Note: Coastal Character Assessment Scottish Natural Heritage. 2017.
https://www.nature.scot/sites/default/files/2018-02/Guidance%20Note%20-%20Coastal%20Character%20Assessment.pdf

2.2 Study area

In the absence of national and regional landscape character areas in the Republic of Ireland the project team applied the landward boundary definition used in the Northern Ireland Regional Seascape Character Assessment[6] (NIEA) which defines it based on the "following hierarchy of criteria".

1. Initially based on the coastal road, which as a defined feature, strongly relates to how the seascape is perceived;
2. Further modified to incorporate key natural and cultural physical features that have a strong marine influence; and
3. Where criteria 1 and 2 are not relevant, professional judgements were made to identify the extent to which terrestrial areas demonstrated a strong perceptual experience of the sea (NIEA 2014:17).

This approach was followed for this research to align with the Northern Ireland Regional Seascape Character Assessment. The seaward boundary is 12 nautical miles, also in common with the Northern Ireland approach.

The project team also included the consideration of the zone beneath the water. This follows best practice as identified in the English report "An Approach to Seascape Character Assessment 2012".

In terms of cultural heritage, the project team also considered both the intertidal and underwater zones as opposed to concluding the study area at the high tide water mark.

2.3 Scale

The most appropriate scale for regional SCA, from the 2001 Guidelines[7], is 1:50,000; whilst other national scale assessments (such Wales) is 1:125,000. It was noted during this evaluation phase that the scale of 1:100,000 was near impossible given the extent of the study area. This would have resulted in between two to three Regional Seascape Character Areas. Consequently, given the regional focus of the study, a working scale of 1:500,000 was employed.

Some of the Seascape Character Areas vary from 1:100,000 - 1:125,000. The largest areas are around 1:800,000. For the purposes of presentation in this report, and the focus on character, the units are presented in a consistent size and scale. The final data and boundaries are being integrated to the Marine Atlas and this shall address the variability in scale. Mapping outputs from this project will be available on www.data.gov.ie and will be downloadable to any GIS tools.

2.4 Seascape Character Types (SCTs) and Seascape Character Areas (SCA)

The review of best practice recommended that the study methodology undertake an initial identification of character types at regional scale. These are identified in the Scottish publication[9] as "Recognisable geographical areas with a consistent overall character at a strategic level". This step was as a precursor to identifying character areas. This process is in line with that adopted by the UK best practice.

As part of this process the project team established a Geographical Information System and held a two-day workshop to analysis the patterns of geology, sediment, bathymetry, topography and waves. This was used as a means to compare and refine the preliminary Seascape Character Types that had been prepared in 2013[10]. Following this workshop a number of draft SCTs were identified in advance of field surveys. This workshop also identified as a desk-based exercise, potential regional scale Seascape Character Areas, again in advance of field surveys.

[6] Northern Ireland Regional Seascape Character Assessment 2014. https://www.daerani. gov.uk/publications/northern-ireland-regional-seascape-character-assessment
[7] Guide to Best Practice in Seascape Assessment (2001) Maritime Ireland/Wales INTERREG report No 5
[8] https://atlas.marine.ie/#?c=53.9108:-15.8862:6
[9] Guidance Note Coastal Character Assessment 2017:9 Scottish Natural Heritage
[10] SEA of Offshore Renewable Energy Plan (2010), SEAI

2.5 Consultation and Participation

The review of best practice indicated that the process of stakeholder engagement is an invaluable part of Seascape Character Assessment. It is also a key article in the ELC and the NLS (Articles One of the 5 key principles in Seascape Character Assessment adopted in England was "*Seascape Character Assessment should involve an understanding of how seascape is perceived and experienced by people*"[11].

Such an approach helps ensure that the character assessment reflects sense of place, communicates the knowledge of the people who live and work in the area, and advances the principles of the European Landscape Convention (ELC). The approach to consultation has altered in light of the Covid 19 pandemic. The following steps have been undertaken by the project team to date:

1. Stakeholder meeting to present review 26th February 2020, Dublin.
2. Presentation to Heritage Officers, 10th March 2020, Galway.
3. Press release and online mapping survey issued by Marine Institute on 6th July 2020.
4. The above was circulated to the following groups:
   (a) Marine Spatial Planning Advisory Group
   (b) Local Authority Arts Officers
   (c) Local Authority Heritage Officers.

In addition, a number of small group discussions have been facilitated involving a variety of individuals, groups, sectors and NGOs. A webinar was also held on 22nd July as part of National Heritage Week. Approximately 250 responses were submitted to the online survey.

Three online workshops were held in October 2020 focusing on the draft Seascape Character Areas. A four week consultation period over October 2020 also sought survey submissions on the draft Seascape Character Areas. The consultation process has helped to inform the Seascape Character Assessment, particularly in terms of key characteristics, boundaries, names and Forces for Change.

Please see Annex B for the Consultation Report.

2.6 Fieldwork

Field survey forms were developed as part of the study and were tested in the field in 10th and 11th March 2020. Due to Covid 19 and constraints on travelling, field surveys recommenced early May and in total 17 days fieldwork was carried out. Normally these were undertaken by two team members and involved completing the field survey forms, sketches and photographs. Where possible, boat based surveys have also been undertaken. Please see the map in Annex C that presents all survey locations for this research.

2.7 Forces for Change

Forces for change are defined as the activities that function as a driver of landscape /seascape change. This is a common approach in both SCA and LCA and is usually presented in the form of a discussion chapter on key forces for change; commonly followed by identified of Forces for Change at character type or character area scale. Forces for change are informed by historical analysis, fieldwork, consultation and policy review. Please see Annex A of this report for a discussion on Forces for Change.

2.8 Visual Resource Mapping

An approach to Visual Resource Mapping used the same approach as undertaken in the National Seascape Assessment for Wales. Visual Resource Mapping helps to illustrate the extent to which

(a) Points at sea can be viewed from land, and (b) Points on land can be viewed from the sea.

Visual Resource Mapping helps to illustrate the extent to which (a) locations on land have views of the sea (Land with Sea Views) and (b) locations at sea can be viewed from land (Sea Surface Visibility from Land). Visual Resource Mapping was carried out at a national scale at 500 m resolution, and the resultant maps are presented at the end of this report in Annex D.

[11] English Nature 2012:17).

3 Seascape Character Types

3.1 Introduction



Doolin (Catherine Dunne)

This chapter presents the Seascape Character Types (SCT) identified through research and fieldwork. A definition is provided below in relation to these types and Figure 1 presents the map of SCTs.

Seascape Character Types

These are distinct types of seascape that are relatively homogeneous in character. They are generic in nature in that they may occur in different locations but wherever they occur they share broadly similar combinations of geology, bathymetry, ecology, human influences and perceptual and aesthetic attributes. For example, sheltered bays, rocky coves, sandy beaches or harbours are recognisable and distinct seascape character types.

Seascape Character Types provide a good framework for analysing seascape change since many influences and pressures affect seascapes with similar character in similar ways. Analysis of SCTs can provide a foundation upon which to develop coastal or marine planning or management strategies.

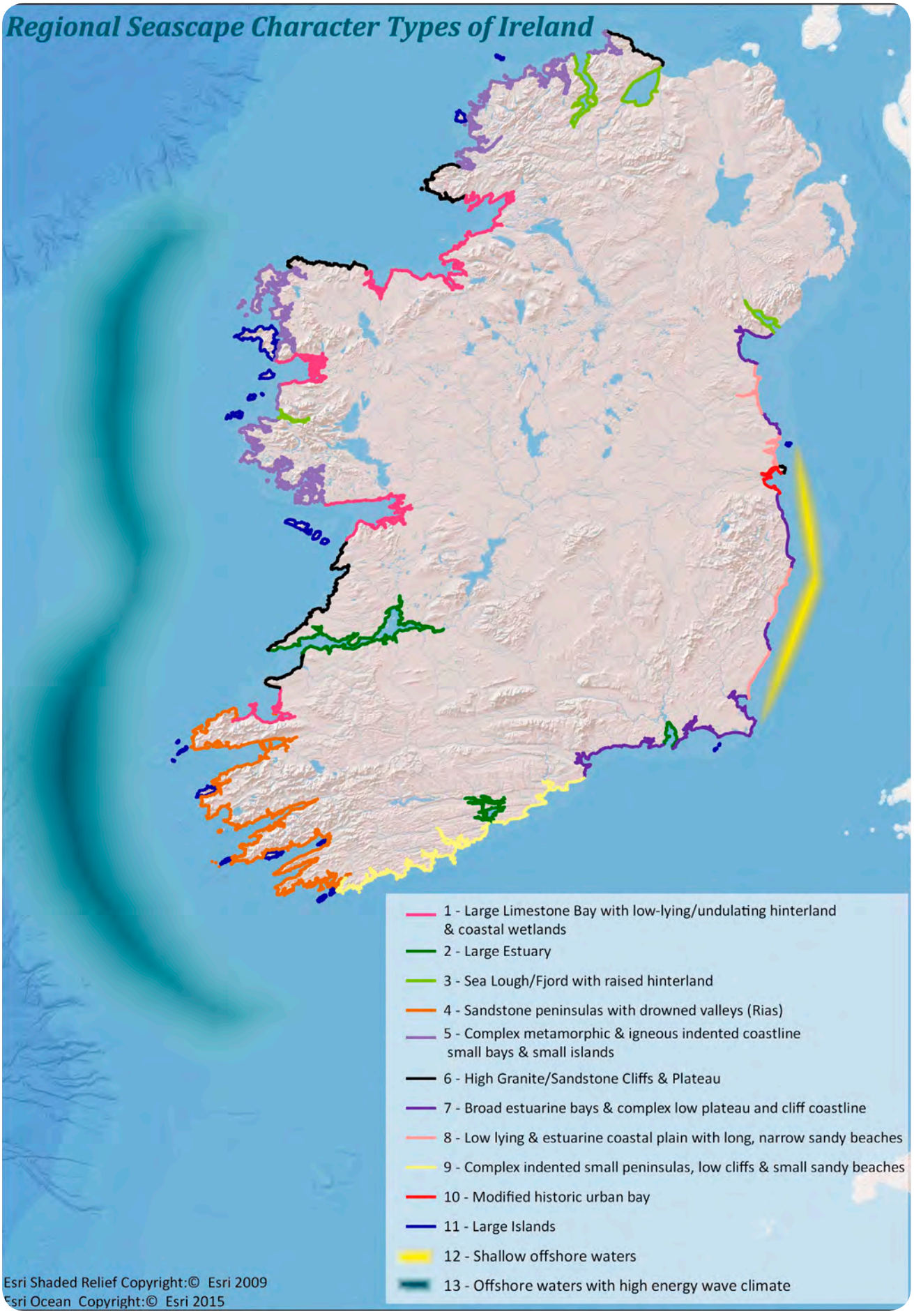


Figure 1 Seascape Character Types

Name	Principal drivers	Key Characteristics	Examples
1. Large limestone bay with low-lying/ undulating hinterland (and coastal wetlands).  Flaggy Shore, Co Clare (www.icatch.ie)	Predominantly limestone and calcareous shale bedrock. Erosional processes of the waves create large, indented bays. Land sea interface informed by sloping topography. Associated with the Atlantic Ocean Shallow bays ranging from -2m to -72m OD	• Large, open sweeping bays. • Low-lying hinterland terrain hosting subglacial landforms (e.g. drumlins, moraines) that indicate ice flow direction seaward towards large bay. • Can include extensive sandy beaches for example Banna Strand, Co. Kerry; Rosnowlagh Beach, Donegal Bay and Strandhill, Co. Sligo). Sand dunes also present. • The islands of Clew Bay are a renowned feature of this bay – often called drumlins, but more correctly drowned ribbed moraines. • Long sweeping views along and across bays a feature. • Macro tidal ranges (>4m) present at all Atlantic Sea limestone bays -Clew Bay, Galway to Tralee Bay, Dingle Bay.	Galway Bay Sligo Bay Clew Bay Donegal Bay Tralee Bay
2. Large estuary  Cork Harbour	Partially enclosed coastal body associated with confluence of large rivers. Complex tidal patterns of tidal channels associated with ebb and flow of tidal streams. Mudflats, and small islands present. Commonly zone of deposition Sloping landform with inlets and small islands Deciduous woodland fringes occasional shorelines Transitional zone between freshwater and marine with rich habitat for a range of flora and fauna. Long history of human activity and habitation associated with sheltered rich estuarine environment.	• Rich estuarine habitat very important for range of mammal species including grey seal, otter and in the Shannon, bottle nose dolphin. • Very important habitat for wide range of wildfowl, reflected in designation under EU Birds Directive; and Habitats Directive for other species and habitats. • Diverse estuarine habitats including mudflats, sandflats, saltmarsh. • Rich resources and shelter is reflected in evidence of extensive human activity from Neolithic to contemporary. • Important communications and transport corridor • Historic urban core with modified estuarine edge and industrial activities associated with sheltered mouth of the river. • Scale of this SCT varies from small to large depending on scale and screening provided by local vegetation and sloping topography. Long views afforded from wider parts of estuary and onto the sea.	Shannon Estuary Cork Estuary Waterford Estuary

Name	Principal drivers	Key Characteristics	Examples
3. Sea Lough/Fjord with raised hinterland  Killary Fjord, Connemara (www.icatch.ie)	Long narrow penetration of sea water extending inland from ocean. Glacial valleys drowned when sea levels rose after the last glaciation. Most include series of small islands, some reclaimed historically Generally shallow (-.1m to -.24m)	• Fjords are elongate, exhibiting an almost consistent width, and bounded by elevated terrain. • Greater enclosure & more sheltered than large bays. • Large sea loughs generally comprising coastal plain with raised sloping hills and headlands. • Tidal mudflats can be a common component of the seascape. • Views are generally constrained across the narrow lough or to the head of the sealough. At mouth of sealough open sea views and greater sense of exposure. • Navigation buoys to guide ships a visible presence. • These sheltered sealoughs often include aquaculture. • Defensive use historically, particularly Lough Foyle and Lough Swilly. • Urban and industrial development sometimes accompany these SCTs at head of sea lough. • Often ferry service (can be seasonal) to reduce times around the sea lough.	Lough Foyle Lough Swilly Carlingford Lough Killary Harbour
4. Sandstone peninsulas with drowned valleys (Rias)  Slea Head, Dingle (www.icatch.ie)	Sandstone bedrock. Submerged coastal valleys or estuaries resulting from sea level rise. Typically v-shaped and deepen progressively towards the ocean. Islands, peninsulas and sounds combine with small beaches. Mountains associated with the drowned valleys	• Indented with numerous inlets, small bays and islands. • Distinctive peninsulas with prominent headlands. • Diverse habitats comprising inshore, intertidal, sandy and rocky shores and cliff habitats • Combination of mountains and sea create elevated views and highly scenic character. • Views vary from long extensive views from elevated areas with strong maritime influence to more intimate views associated with smaller bays and harbours. • Early Christian features strongly associated with these SCTs • Gaeltacht communities and extensive literature associated with the Blaskets in particular. • Historical naval military significance in Bantry Bay.	Beara Peninsula Dingle Peninsula Ivereagh Peninsula Mizen Peninsula Sheeps' Head Peninsula

Name	Principal drivers	Key Characteristics	Examples
5. Complex metamorphic and igneous indented coastline with small bays and [small] islands  Falcarragh Co. Donegal (Failte Ireland)	Diverse geology comprising metamorphic and igneous rocks. Complex coastline. Shallow inlets. Numerous small bays and islands. Lowlying landform often framed by mountains. Raised beaches a feature of Northernmost part of SCT5 on Donegal coast. Beaches and inlets vary between white sandy shores or rocky, indented inlets.	• Indented and diverse SCT that reflects geological variety and influences. • This SCT comprises a large number of islands, often very close to the shore but also larger Islands such as Achill. • Sand dunes, and sand beaches are a common feature, interspersed with more rugged, indented, rocky shorelines with green and brown seaweed. • Frequently quite low lying though mountain ranges frame the hinterland views, particularly the Nephin, Sheeffry, and Twelve Bens mountains. • The complex seascape includes numerous bays that offer shelter and comprise usually small settlements around piers or harbours. • Views range from exposed ocean views of the Atlantic along the western coastal fringe to more intimate, diverse views associated with the south and east facing shorelines and indented coast.	West Connemara North Donegal Belmullet Peninsular
6. High granite/ sandstone cliffs and plateau  Downpatrick Head, Co Mayo (Failte Ireland)	Metamorphosed sedimentary and clastic sedimentary rocks exposed to high-energy. Atlantic wave action and erosion. Commonly vertical/sheer cliffs. High plateau hinterland.	• Thick horizontal rock layers visible in cliffs (Moher, Downpatrick, Kilkee, Bromore, Kerry Head). • Sheer, steep drops into sea at Howth, Slieve League, Benwee Head, and Erris Head. • The resistant bedrock results in sea stacks and caves. • Important areas for seal colonies and seabirds. • Full Atlantic influence apparent at western locations of this SCT. • Generally long panoramas from elevated cliffs across large limestone bays with views also drawn to the incised coastal edge with sea cliffs. • Occasional small bays comprising rocky shore. • Macro tides present.	Cliffs of Moher Slieve League Benwee Head Ceide Fields Downpatrick Head Kilkee Loop Head Howth Head

Name	Principal drivers	Key Characteristics	Examples
7. Broad estuarine bays and complex low plateau and cliff coastline  Dungarvan Bay, Co Waterford viewed from Helvick Head	Swaths of sea-flooded flat low-terrain and embayments. Spits are a characteristic feature (such as Cunnigar spit) formed by longshore drift, sometimes capped by windblown sand forming dunes for example at Ballyteigue Bay, Bannow Bay,Tacumshin Lake; Lady's Island Lake. Rocky shorelines and small coves. Estuarine and offshore islands occasional not frequent. Depositional features such as sandbars present in some bays (e.g Dungarvan)	• Gentle indented bays and sheltered harbours. • Variety of habitats including saltmarsh . • Communications traversing former salt marsh. • Headlands offer long views across bays. • Wooded fringe present on some of the smaller bays. • Numerous rivers and smaller scale estuaries form these SCTs. • Low to medium height cliffs and headlands allow for long views across the medium scale bays. • Clusters of islands where present (e.g: Skerries) help frame the coastal view and add visual interest. • Predominantly around the Celtic and Irish Seas, with historical access to the land via Bannow Bay (Site of initial Norman landing in Ireland)	Dungarvan Bay Tramore Bay Bannow Bay Ballyteigue Bay Tacumshin Lake Lady's Island Lake
8. Low lying and estuarine coastal plain with long, narrow sandy beaches  Skerries Beach, Co.Dublin (Dublin Regional Tourism Authority)	East coast on the Irish Sea. Erosion of drift geology. Narrow beaches a feature. Lowlying topography. More common association with estuaries.	• Frequently a series of small to medium beaches mixture of sand or shingle, the exception being Curracloe, Co. Wexford, one of the longest strands in the country. • Sand dunes present though many modified over the years. • Popular seaside towns. • Views both eastwards to Irish Sea that are more exposed. Varies with more moderate, intimate views framed by smaller headlands and beaches • Estuarine habitats very important for seabirds and wintering birds. • Popular recreational use. • Historically several fishing villages present. Some fishing activity still takes place, influence of Dublin via expansion of commuter belt present in some areas.	Curracloe Beach Skerries Laytown Giles Quay Bettystown

Name	Principal drivers	Key Characteristics	Examples
9. Complex indented small peninsulas, low cliffs and small sandy beaches  Ballycotton, Co Cork (Ballycotton Development Company Ltd)	Diverse geology. Post glacial and oceanic influences form indented, complex coastline. Associated with Celtic sea with primarily south facing beaches. Headlands are smaller in scaleand extent than neighbouring Ria SCTs.	• Indented estuarine coast with small peninsulas, scale and extent of indentation varies according to bedrock and force of sea. • Wooded fringe along more sheltered estuaries and inlets in the south. • Rocky shorelines with green and brown seaweed contrasts with smaller sandy beaches. • Generally undulating or lowlying topography and shallow estuaries and inlets • Variety of larger islands close to shore or connected by bridge/ causeway and numerous rocks named reflecting the importance of understanding navigation into this complex coastal fringe. • Historical communications route with many defensive towers, association with Spanish Armada route for some SCTs.	Ballycotton Youghal Bay Courtmacsherry Kinsale
10. Modified historic urban bay  Dublin Bay (Dublin Bay Biosphere)	Horseshoe shape of Dublin Bay Extensively modified coast and bay Influenced by Dublin city with communications and transport role of capital city. Framed by headlands on either side of bay.	• Influence of this SCT extends beyond its boundary • Dublin Bay framed by headlands of Howth and Bray head and Dalkey Island • Sand banks and bars present • Long settlement and human activity • Earliest seaside resortsnassociated with train system • Modifications to coastal fringe and baynitself (Dublin Port, North Bull) • Traces of Mesolithic at Dalkey and Howth Head • Biosphere reserve, important habitats for seabirds • Iconic views of Dublin city and bay from Howth Head and Killiney	Dublin Bay

Name	Principal drivers	Key Characteristics	Examples
11. Large island  Cape Clear, Co Cork	Variable geology Landmass separated from mainland Open, wind-swept terrain Sea cliffs frequent Often Gaeltacht areas Isolated landform not accessible by foot at low tide Accessible via ferries and boats, islands such as Achill and Valentia now linked via causeway/ bridge. Atlantic and Celtic Sea only Permanently inhabited	• Inhabited (except Blaskets) • Achill may be the exception, without a deep channel separating it from mainland • Intertidal resources and fishing traditions • Havens commonly on more sheltered eastern bays • Several islands though not permanently occupied, are inhabited over summer months • Gaeltacht areas	Tory Island Arannmore Inisboffin Clare Island Aran islands Cape Clear Bere Island
12. Shallow offshore waters  Kish Bank Lighthouse (Irish Lights)	Large extensive distinct banks that may be elongated, rounded or irregular 'mound shapes' or sloping plains of sediments that ranges from gravel to fine sand (NPWS) Important nursery grounds for fish and feeding grounds for seabirds and mammals such as seals. Predominantly along the eastern coast associated with Irish Sea. Erosion of coastal sediments on eastern seaboard are partially arrested by supply of sediments from offshore banks (NPWS 2007)	• Sandbanks in Irish waters comprises distinct banks (i.e. elongated, rounded or irregular 'mound' shapes) that may arise from horizontal or sloping plains of sediment that ranges from gravel to fine sand. • They are primarily composed of sandy sediments permanently covered by water, at depths of less than 20 m below chart datum (though the banks may extend to water depths greater than 20 m). • The diversity and types of community associated with this habitat are determined particularly by sediment type together with a variety of other physical, chemical and hydrographical factors. • The greatest resource of sandbanks is found in the Irish Sea, though present in • Celtic Sea and western seaboard at mouth of the Shannon • 19th Century works to identify and provide safety by Beacon Buoys • Significance to navigation shown in historical maps, these are frequently wreck sites also.	Kish Frazer India Arklow Seven Fathom Bank Blackwater Turbot/ Kilstiffin Banks Hempton's Turbot Bank

Name	Principal drivers	Key Characteristics	Examples
13. Offshore waters with high energy wave climate  Off Inch, Co Kerry (Failte Ireland)	Characterised by high energy waves from the Atlantic Ocean Tidal waves in the open Atlantic are generally small, increasing as they move eastwards across the shelf towards Ireland's west coast Macro tides associated with western bays Deeper off shore waters	• Full offshore waters of Atlantic Ocean • High wave energy • Largest waves recorded off Aran Islands Storm Doris 2017), and Killard Point (Co Clare 2015) • The waves are further enhanced by the funnelling effect of bays and estuaries • Cultural associations with Edge of the World – Hy- Brasil folklore along the Atlantic waters.	Broadly offshore from Belmullet extending towards Fastnet

4 Regional Seascape Character Areas

4.1 Introduction



Doolin (Catherine Dunne)

This chapter describes the individual character of each of the 15 Regional SCAs and the two border local scale SCAs, in terms of their location, key characteristics and the natural and cultural influences that have shaped them.

Given the scope and scale of this Regional Seascape Character Assessment the profile of each Regional SCA is presented under a series of headings as follows:

- Name
- Summary Description
- Boundaries and Location
- Key Characteristics
- Natural Influences (geology, geomorphology, coastal waters designated under the Water Framework Directive, designated habitats and species, tidal range)
- Cultural and Social Influences, subheadings include Archaeological and historical overview, contemporary seascape, art and folklore
- Perceptual Influences (views and vistas, sense of place, sounds and smells).
- Note on Boundaries- these rarely represent a sudden change in character and should be interpreted as gentle lines of transition between character area

The box below provides an explanation of Seascape Character Areas.

A unique geographical area of land, intertidal and marine area with a recognisable sense of place and identity[1].

Seascape Character Areas provide a good framework within which to draw out patterns of local distinctiveness and those factors influencing sense of place. They can be used to develop more tailored policies or strategies, reflecting the things that make a particular area of seascape different, distinctive or special. SCAs may also be more recognisable and identifiable for non-specialists (e.g. local communities)

[1] This defintion was also used in the Northern Ireland Regional Seascape Character Assessment 2014



Figure 2 - Regional Seascape Character Areas

4 Regional Seascape Character Areas

SCA1 - Border SCA Lough Foyle





Summary Description

The key feature of this SCA is the long sea lough of Lough Foyle. This local SCA extends across the international border towards the eastern shore of Lough Foyle in Northern Ireland and towards the mouth of the River Foyle at the largest settlement within the SCA, the city of Derry.

Other settlements along the western shores include Quigleys Point, Muff and Moyvile. The inner part of the lough is more sheltered with lower lying land meeting the small beaches and extensive mudflats; strips of mixed woodland are present around more sheltered undulating slopes.

The contrasts with the more elevated and exposed areas to the north where the land rises, geology alters and the waters of the Lough enter the North Atlantic. This contributes to a more remote character where greater exposure to the natural elements are experienced.

Roads frequently run along or close to the shoreline and a seasonal ferry operates between Greencastle and Magilligan Point.. The Port of Foyle extends across the entirety of Lough Foyle, stretching from Craigavon Bridge in Derry City northward to Greencastle in Co. Donegal and Magilligan Point in Co. Derry. It is the largest freight port in the northwest with bulk cargo, leisure tourism including cruise ships and marine services.

Views are framed by the sloping hills and distinctive skylines towards the north of the lough; views east from this part of the lough are framed by the Binevenagh escarpment and Loughermore Mountain. Strong visual connections and views are present across and along the sea lough. The chimneys and stacks of Derry are a key view as well as the changing patterns and textures associated with the ebb and flow over the mudflats.

Cross Border Consideration: County Donegal shares most of its landward boundary with Northern Ireland which informs the landscape of a large section of the county in both adjoining areas and as a long view from many more; conversely the landscape of Donegal informs the adjoining areas in Northern Ireland (and Leitrim). Donegal also shares a large area of Seascape with Northern Ireland along the tidal estuary of Lough Foyle that contains part of the international border12.

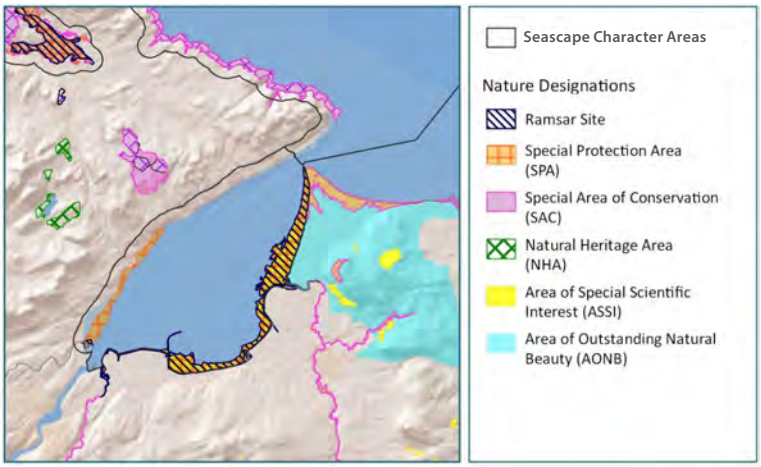
This SCA corresponds to SCA 2 in the Northern Ireland Regional Seascape Character Assessment 2014.

Boundaries and Location

This Border SCA encompasses all of Lough Foyle; commencing in the south at the village of Muff and extending towards Inishowen Head, north of the Lough. It extends across the international border towards the eastern shore of Northern Ireland and to the mouth of the River Foyle towards Derry City. The SCA includes the settlements of Muff, Quigley's Point, Redcastle, Moville and Greencastle in Co. Donegal. Lough Foyle is approximately 30 km long and 13 km wide at the widest section. The mouth of the sea lough is approximately 2 km wide between Greencastle and Magilligan Point.

Key Characteristics

- A well defined distinctive sea lough heavily influenced by numerous glaciations and comprising one of the largest catchments of all Irish sealoughs.
- Whilst the city of Derry at the confluence of the River Foyle is a key urban influence within the SCA, more dispersed and rural settlement patterns dominate much of the remainder of the SCA
- As the lough widens and narrows, the sense of scale can alter. This combines with the more lowlying topography closer to the head of the sea lough, and the wider and more exposed character associated north of Greencastle along the Inishowen peninsula.
- Expansive in parts, this SCA is quite an active and busy area with shipping, recreational and aquaculture all taking place in and around the lough waters and shorelines.



Map 1: Natural Heritage Designations

Natural Influences

- This SCA comprises several main types of bedrock geology. The geological character of the Inishowen Lough Foyle coast is almost entirely Precambrian Dalradian metasedimentary bedrock.
- Narrow sections of Carboniferous sandstone occur from Quigley's Point to Muff, and occupy the onshore and nearshore areas at the head of the lough at the mouth of the River Foyle, and east as far as Limavady.
- The eastern shore and nearshore is characterised by Triassic and Jurassic sedimentary rocks and Palaeocene basalt.
- Landscape topography is greatly influenced by the action of ice sheet during repeated glaciations during the Pleistocene. Ice sheet bedrock erosion sculpted topography along pre-existing geological structural weaknesses (faults) and topographical lows influenced by varying bedrock types. A major fault runs SSW-NNE along the axis of Lough Foyle. Subsequent sea-level rise after ice sheet retreat influenced the development of the sea lough when seawater flooded the area.
- The River Foyle is the largest river entering the lough. Other main rivers include the Faughan and
- Roe from the east side and the Bredagh, Drung and aught rivers from the west.
- With a mean depth of 5 m, the deepest channels occur off Moville running NE through the mouth of the sea lough.
- On the west shore, intertidal sand and mud flats occur in the shallow nearshore areas from Redcastle south to Muff, and more extensively along the inner east shore.
- Topography on the Inishowen peninsula side of the SCA is almost consistent, rising from sea level to hilly terrain of 300 m to 400 m elevation within 5 km of the coast. Topography on the east side of the SCA is dominated by the elevated plateau of the Ulster basalts, rising to over 300 m elevation.
- This SCA is subject to meso tidal ranges <2m<4m. Water Framework Directive: Coastal Waters are classified unassigned for the Lough Foyle coastal waters; similarly for Portsteward Bay that extend northeast beyond Greencastle and Magilligan.
- Parts of Lough Foyle (in the Republic and Northern Ireland) are designated as Special Protection Areas and also designated as a Ramsar Site. The shorelines and mudflats support in excess of 20,000 wintering waterbirds, in particular Whooper Swans, Light Bellied Brent Goose and Bar Tailed Godwit.

- The majority of the wintering waterbirds that utilise this site occur along the southern and eastern shoreline of Lough Foyle in Derry, which is also designated as an SPA in Northern Ireland. Lough Foyle is also designated as an Area of Special Scientific Interest in Northern Ireland, which overlaps with the Ramsar Designation.
- The numerous streams and rivers that flow into Lough Foyle are also significant and support Atlantic Salmon, an annex 1 species under the EU Habitats Directive. Lough Foyle supports one of the largest populations of European native oyster.

Cultural and Social Influences

Archaeological and historical overview

This SCA is relatively small and comprises a stretch of the Donegal coast along the Inishowen peninsula and Lough Foyle. This part of the country was occupied before the formation of the county of Donegal from at least the fifth century by the Uí Néill dynasties (O'Donnells and O'Neills who claimed descent from Niall of the Nine Hostages, a fifth-century High King), the Cenel Conaill and Cenel Eogain. It is from these dynasties that the county's regions are now named: Inis Eogain (Inshowen) and Tir Conaill.[13] Inishowen was noted by Ptolemy in the second century AD and called it Ουεννικνιον (Wenniknion). It is also the ancient homeland of the Meic Lochlainn (descendants of the tribe of Eoghan), an important clan associated with the stone fort at Grianán Aileach.

The earliest material found in this part of Donegal dates to the Mesolithic period in the form of several middens where lithic material dating to this period has been identified in the townland of Eleven Ballyboes, near Greencastle golf course.[14] The wider Donegal/Derry region has quite al lot of Mesolithic evidence and it is likely that further evidence awaits discovery as the earliest evidence for human activity on the island was found in this part of the country at Mount Sandel in County Derry.[15]

In the Neolithic period, this area was occupied by people who were agriculturalists and buried their dead in megalithic tombs. In this SCA these tombs are represented by two unclassified tombs at Carrowkeel and Drung townlands. Bronze Age burial is represented by a flat cemetery of four cists found in the townland of Cabry. There is one piece of rock art at Ardmore in this SCA, that is present on a standing stone there and this is an outlier to the higher concentration in the adjacent SCAs in Co. Donegal.[16] There are six further standing stones present within 1km of the coast of this SCA.

There are currently no monuments dating to the Iron Age period known in the SCA, though this is unsurprising given the relative lack of such monuments elsewhere. There are many more monuments dating to the early medieval period in this SCA. Settlement evidence comes in the form of four ringforts (raths), one unclassified ringfort and two souterrains. A mound, now no longer upstanding may have been another example at Creehennan townland. Early medieval religious evidence is good, with churches, bullaun stones, holy wells, a saint's stone, numerous crosses and cross inscribed stones, dating to this early medieval period. In particular, the ecclesiastical complex at Cooly is an excellent example of its type complete with enclosure, churches, bullaun stone, several stone crosses, a high cross, and cross-inscribed stones. The site is located on excellent land sloping to Lough Foyle to the east, near Moville and tradition claims it was founded by St Patrick. There is some literary evidence noting the presence of Vikings in this part of Donegal and a hoard of Viking silver was found elsewhere on the Inishowen Peninsula at Roosky.[17]

In the later medieval period, by the end of the twelfth century/early thirteenth century, the Normans had arrived, building near the harbour at Greencastle. It became the principal Norman castle in northwest Ulster built by the 'Red' Earl of Ulster, Richard de Burgo in 1305. The castle, then known as Northburgh or Newcastle, was captured by the Scots in 1316 during the invasion of Ireland by Edward Bruce. On the defeat of Bruce two years later, the castle reverted to the Earl and on his death passed to his grandson, the 'Brown' Earl. When he was murdered in 1333, the de Burgo influence in Ireland collapsed. The lordship of Inishowen finally passed to the O'Donnells in the early fifteenth century, and their dependants, the O'Dohertys, established themselves at Greencastle. It was considerably damaged in 1555 as a result of an internecine war among the O'Donnells, but was still wardable in 1586. In 1608 Sir Cahir O'Doherty, the last Gaelic Lord of Inishowen and a former ally

[13] Lacey, B. 2006 Cenél Conaill and the Donegal Kingdoms AD500–800. Dublin: Four Courts Press.

[14] Lacy, B. 1983 Archaeological Survey of County Donegal. A description of the field antiquities from the Mesolithic period to the seventeenth century. Lifford: Donegal County Council. Woodman, P. 2015 Ireland's First Settlers: Time and the Mesolithic. Oxford: Oxbow, p. 8-9.

[15] Woodman, P. 1985 Excavations at Mount Sandel, 1973–1977. Northern Ireland Archaeological Monograph 2. Belfast: HMSO.

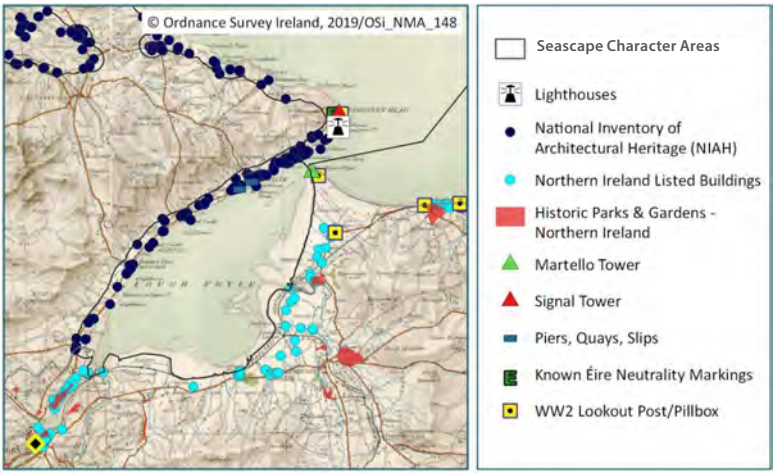
[16] Van Hoek, M. 1987 The Prehistoric Rock Art of Co. Donegal Part I, Ulster Journal of Archaeology, 50, pp. 23-46; 1988 The Prehistoric Rock Art of Co. Donegal Part II, Ulster Journal of Archaeology, 51, pp. 21-47.

[17] Raftery, J. 1969 A hoard of Viking silver bracelets from Co. Donegal. The Journal of the Royal Society of Antiquaries of Ireland, 99 (2) pp. 133-143.

of the Crown, launched O'Doherty's Rebellion by burning Derry. After the defeat of the rebellion much of O'Doherty's former lands were awarded to Arthur Chichester, Lord Deputy, who also received Greencastle. He maintained a small garrison there. It subsequently went into decline during the later seventeenth century and was ultimately abandoned. While there are no known Spanish Armada ships in this particular SCA a number of wrecks of this fleet are known off the Co. Donegal coast, for example, La Trinidad Valencera which was the fourth largest of the ships that made up the Spanish Armada, and a requisitioned Venetian merchantman of 1,100 tons, was lost in Kinnagoe Bay off the northern tip of the Inishowen Peninsula. In the post-medieval period, the sixteenth century saw a number of expeditions to the county and by 1600 the governorship of Lough Foyle was established.

Other Later monuments into the early modern period directly related to the sea in the SCA include the barracks known as Greencastle Fort, coastguard stations at Moville, customs stations at Muff and Greencastle (The Inishowen Maritime Museum and Planetarium), a lifeboat station, two lighthouses (Moville and Greencastle). The Moville example is interesting as it is a freestanding polygonal 'pile' lighthouse or beacon, dated to 1870, mounted on structural iron frame located to the south of Fish Quay in Lough Foyle. The Muff example is a more traditional tower lighthouse and once facilitated vessels approaching Derry city. Carrickarory Pier at Moville is an excellent example of a nineteenth-century pier that is still in use in the SCA.

Lough Foyle was a busy route from the sea into Derry and was used at different times in history. For example, during the first world war the US Navy established a naval air station on Lough Foyle on the Inishowen side on 1 July 1918 to operate seaplanes. At the end of the Second World War, the remainder of the German Atlantic fleet of U-boats used to attack supply lines from North America to Britain during the Battle of the Atlantic were assembled in Lough Foyle and scuttled, as part of Operation Deadlight. The WIID database has 10 recorded wrecks in the SCA. These include 2 airplanes, one lost in 1975 and the precise date of loss of the other unknown, a collier lost in 1982, a sailing ship lost in 1905, a steamship, the Aranda in 1916, a tug lost in 1941 and four vessels of unknown type.



Map 2 Built Heritage

The southeastern part of this SCA (Northern Ireland) is located within the Binevenagh Area of Outstanding Natural Beauty, in part designated due to the presence of historic parks and gardens.

Contemporary

- Recreation and tourism play a significant role within the SCA. Part of the Inishowen 100 coastal drive is within this local SCA and part of the Wild Atlantic Way traverses the County Donegal shoreline in this SCA. A relatively small number of beaches are popular particularly around Stroove (Co. Donegal) and Benone and Downhill Beaches in Northern



The Fid by Lucky Morris, commissioned by Public Art Office, Donegal County Council[18]

[18] http://donegalpublicart.ie/dpa_fid.html. The Fid is a tool used by fishermen to splice ropes.

Ireland. Holidays Homes, campsites, hotels and two golf courses are also present. Sea Kayaking and outdoor adventure activities are run from Moville.

- Fishing and shipping remain important also; Greencastle is the largest port in County Donegal, after Killybegs and a large pier and harbour are present at Greencastle. Oyster and mussel harvesting are well established.
- Foyle Port is considered the primary marine gateway for the North West of Ireland for both commerce and tourism. As its infrastructure and operations are across Northern Ireland and the Republic of Ireland, it is designated a genuine cross-border entity. The Foyle Port Marina acts a base for water sports and ferries/boats for tourists who wish to explore the North West Coast by boat. The port handles bulk cargo with trade levels equivalent to approximately 2 million tonnes annually. The cruise tourism sector is also expanding rapidly, benefiting from its location between the Wild Atlantic Way and the Causeway Coastal Route. A summer season car ferry runs from Greencastle to Magilligan.



View south east from Quigley's Point, towards Derry

Art and Folklore

- A variety of meanings have been attached to the name of Lough Foyle; according to some the name is from Feabhal, son of Lodan who belonged to the Tuatha De Dannann. Other interpretations relate to the name meaning 'Borrowed lake' and a story of two witches, one of whom lent the water to her sister. The Celtic sea god Manna Mac Lir is also believed to have lived in Lough Foyle.
- Artlink is the longest established professional art company in Inishowen, Co. Donegal. Their remit is for the North West, including Northern Ireland.
- Visual artists associated with the SCA include Denise Ferran and Stuart Quigley Perceptual Influences

Views and vistas

- Views from the inner shores of Lough Foyle tend to concentrate directly across the Lough or along the loughshore. Long views are possible depending on the weather conditions.
- Key landmark and seamark features include Martello Tower north of Magilligan and the channel markers within Lough Foyle
- The ferry route offer public views from sea to land during the summer season. Sea kayaking from Moville along the Inishown coast also provides for more intimate coastal and sea views.
- The influence of the weather on character and visibility is profound. The tidal dynamics of the lough create a constantly changing texture and pattern associated with the mudflats and long, shallow views across these changing waterscapes are an important feature of this SCA. The contrast is also associated between natural and managed stretches of the Lough Foyle shoreline.
- The stacks and chimneys associated with the city of Derry are a distinctive feature in an otherwise largely rural landscape.
- As the land becomes more open and elevated past Moville, the sea becomes more exposed and a less tranquil vista becomes apparent.

Lighting[19]

- A necklace of coastal settlements presents as glowing light along the shoreline but are not overwhelming. The lights of Derry city are the principal lighting here. The only lighthouse present is Inishowen at Shrove which has a range of W 18 nautical miles. This was built to help navigate through Tun bank.

Sense of Place

- A strong sense of place is present all along this SCA, the close historical links to Derry and Lough Foyle results in ongoing and close interactions across the border.
- Whilst the SCA presents a very expansive, the area retains a very distinctive lough character, being
- framed by land on three sides.

Sounds and Smells

- At low tide, summer smells of seaweed and mudflats occur particularly around the exposed mudflats.
- The more elevated and exposed coast associated with Inishowen Head can result in stronger winds
- and more crashing waves against the rocks; contrasting with the more gentle lapping tide and waves of the shallower Lough Foyle.

[19] lighting includes private houses, businesses, public lighting, road traffic, telecommunications infrastructure and lighthouses



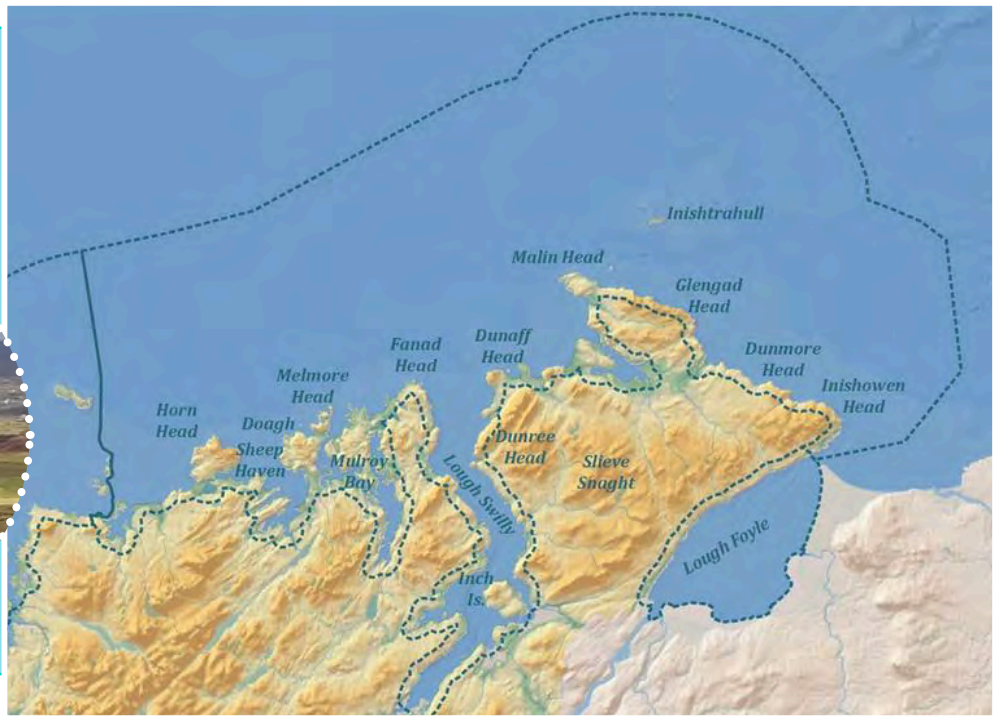
Lough Foyle, Moville
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA2 - North Donegal Atlantic Headlands, Bays and Beaches



Malin Head, looking east (Ruth Minogue)



The key feature of this SCA is its deeply indented coastline with dramatic headlands of resistant rock protruding northwards. This area is very exposed to the force and influence of the North Atlantic and this defines its seascape character. This seascape character is formed by a pattern of granite and schist headlands falling steeply, or gradually, to the shore; interspersed with long sea loughs with raised hinterlands and shallow silted bays.

Long curving beaches with dune systems and raised beaches are also a characteristic of this region and these coastal features are frequently accompanied by a significant visitor economy and seasonal holiday homes, particularly to the west of the region. Smaller and more remote beaches are often enclosed on both sides by low rocky cliffs. Some of the larger beaches have extensive dune systems, for example at Culdaff Beach, Pollan Strand and Five Fingered Strand (the largest of its kind in Europe).

Small rocky islands often occur close to shore at the headlands. Inishtrahull island, 7km from the Inishowen peninsula was inhabited until 1929 and lighthouse keepers manned the lighthouse until 1987.

The north coast of Donegal is exposed to the full force of the North Atlantic seas, and wind and weather systems are visible approaching over great distances. The Northern lights are sometimes visible in clear skies. While the headlands regularly experience dramatic crashing waves and sea spray; the north facing and indented nature of the coastline shelters bays and sea loughs which offer haven from the prevailing southwest winds.

Boundaries and location

This seascape region includes the northernmost part of the island of Ireland, Malin Head (latitude of 55.38˚N), and the most northerly landfall, Beg Rock, 7km, north of Inishowen Peninsula.

The SCA includes the coast from Inishowen Head to Horn Head, seaward from the coast for 12NM to include the North Atlantic and the island of Inishtrahull. The coastline includes a series of headlands; Inishowen Head, Dunmore Head, Glengad Head, Malin Head, Dunaff Head, Dunree Head, Fanad Head, Melmore Head, and Horn Head and points; Tullagh Point, Rinboy Point, and Rinnafaglagh Point. These headlands and points are interspersed with a series of sea loughs and estuaries including Lough Swilly (a glacial inland fjord containing Inch Island), Sheephaven Bay, Culdaff Bay, Tremone Bay, Tulla Bay, and Dunaff Bay.

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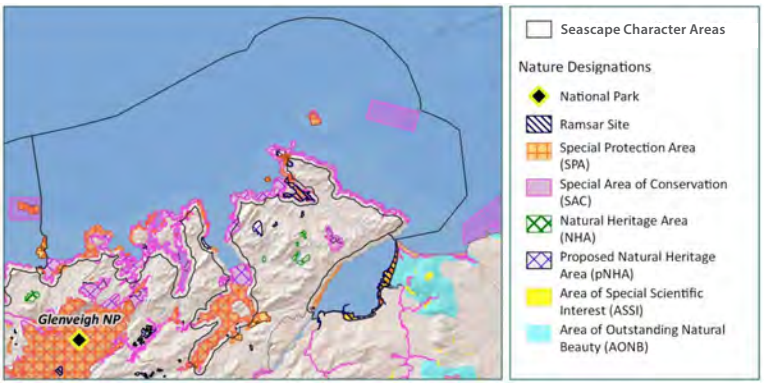
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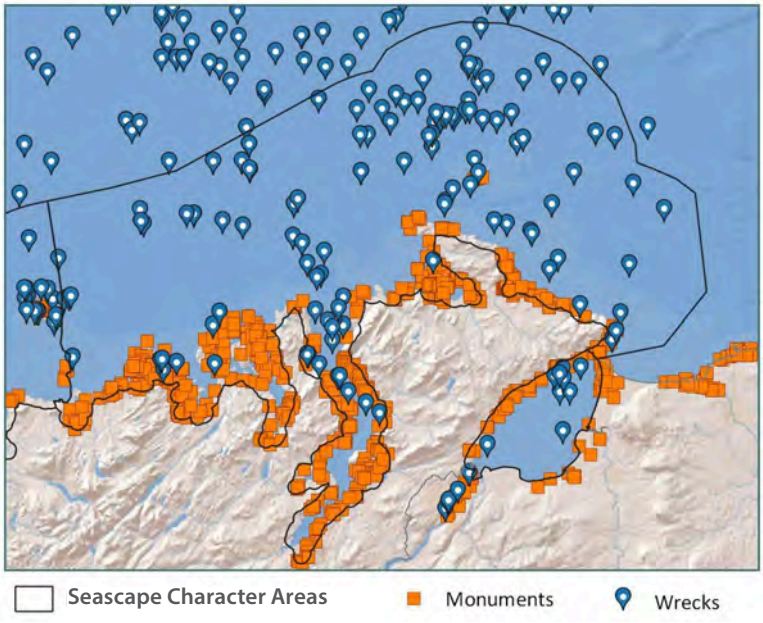
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Key Characteristics

- This SCA is very exposed to the force and influence of the North Atlantic and this defines its seascape character. The full power and fetch of waves are most apparent from elevated locations over cliffs where large swells and rollers travelling over great distances are visible and waves crash dramatically against coast and islets. When winds are high, long and high rolling waves can be immensely powerful with high sea spray at cliffs. The offshore islands, sea stacks and rocky islets provide a sense of scale to the action of waves on landfall and additional drama to the character of the sea.
- By contrast, the wave dynamic along loughs and bays is much gentler, with long shallower waves lapping on the shoreline in these areas. The most inland parts of the loughs resemble large lakes. This is a dramatic coastline and associated hinterland with an epic scaled interplay of mountain bog and coastal pastural agriculture on headlands extending into the North Atlantic, a coastal edge of sloping partly vegetated cliffs with exposed rock bases or steeper rock cliffs dramatically falling to the sea. This seascape contrasts with the lower lying and more fertile coastal agricultural lands and mudflats around shallow bays, and beaches of varying scales, some with extensive sand dune systems.
- This extensive interplay of coastal landform between headland and inlet/beach is a defining characteristic of this region and can be experienced in views from elevated positions on headlands looking across the full length of regional coastline.
- The effect of the sea on the landscape varies within this region. In areas with cliffs the inland seascape aspect is narrow, while at shallow sandy loughs with broad tidal ranges, the viewshed extends further inland.

Natural Influences

- A variable coastal topography comprising islands, cliffs, hilly headlands, rocky promontories, fjords, wide bays, shallow estuarine bays, long sandy beaches, sand spits, active dune systems, raised shoreline features. Hinterland topography exhibits a glaciated signature.
- Ireland's oldest rocks are found on Inishtrahull, 10km northeast of Malin Head. Repeated episodes of deformation and metamorphism reformed the rocks into coarse crystalline banded metamorphic rocks called gneiss. Inishtrahull shares geological characteristics more akin to southern Greenland and the Inner Hebrides of Scotland than to Ireland. The rocks on Inishtrahull and the nearby Tor Mor and Tor Beg crags are dated to around 1,800 million years old.
- The geological character of the ocean-facing coast, the Lough Foyle coast, and the elongate bays of Mulroy and Sheep Haven are almost entirely Precambrian Dalradian metasedimentary bedrock. Collectively part of the Dalradian Supergroup of rocks found in Connemara, northwest Mayo, northwest Ireland, Antrim and Scotland. The exception to this Dalradian predominance are the younger Silurian-Devonian coarse granites that occur across the northern limits of Rosguill, Fanad and close to Dunaff Head. Similar to the Donegal granite coastline south of Bloody Foreland, the granite coast of Rosguill and Fanad comprises jutting headlands and small incised bays. The Dalradian coastline tends to be less jagged in character. There are isolated units of continental Devonian Old Red Sandstone rocks at Ballymastocker and Knockalla at Fanad.
- Donegal's landscape topography is greatly influenced by the action of ice during the Quaternary ice ages, which in Ireland began around 1.6 million years ago. Lough Swilly is a large fjord formed by the sculpting action of ice sheets as they moved northwards over the terrain. Mulroy Bay also records the route of the ice. This sheltered and complex bay of inlets and headlands comprises three straits with strong currents. The Moross peninsula is a large glacial drumlin.
- Seafloor depth in Lough Swilly, Mulroy Bay and Sheep Haven is in a range of less than 20m. Seafloor depths in the outer northern limits of the SCA drop to ~80 m-100 m below chart datum. Depths in Inishtrahull Sound drop to ~90 m.
- The northeast-southwest oriented quartzite ridge comprising Knockalla Mountain (363 m OD), Dunree Head, and Urris Hills and Raghtin Beg (502 m OD) demonstrate the resistive strength of these ancient metamorphic band of quartzite to the erosive forces of ice. Raghtin Beg is classed as a nunatak, as is Slieve Snaght (615 m OD) on inner Inishowen.
- Inch Island is the largest island in the SCA and is accessed from the mainland via a causeway.
- Till deposits are spread as thick cover over low ground, and form drumlins in places such as Mulroy Bay and Sheep Haven. After the last ice age ended around 11,600 years ago, the northernmost parts of Ireland experienced land uplift when the weight of the ice was removed. Subsequent coastal uplift and erosion resulted in post-glacial geomorphological features such as raised beaches, relic and extant cliffs and sea stacks, mud-flat estuaries, beaches and dune systems. Raised beaches such as the renowned example at Ballyhillin near Malin Head occur at 25 m above present sea level. The post-glacial raised shoreline of the northwest of the island extends from Horn Head clockwise around the coast to Co. Dublin.
- Some of the flattest parts of the north Donegal coastal edge have been reclaimed or silted up naturally resulting in flat agricultural areas such as Doagh Isle and Inch Island.



Map 2: Archaeological Records including wrecks

[20] Lacey, B. 2006 Cenél Conaill and the Donegal Kingdoms AD500–800. Dublin: Four Courts Press.

[21] Woodman, P. 2015 Ireland's First Settlers: Time and the Mesolithic. Oxford: Oxbow, p. 8-9.

- Offshore seabed substrate is predominantly coarse-grained substrate, with areas of bare rock along the near shore. Offshore seafloor geology shares much of the same geological signature as the onshore geology, comprising Precambrian metasedimentary rock and Silurian-Devonian granites. An area of Permian-Cretaceous bedrock occupies the northeast of the SCA, which is occurs onshore in Antrim.
- This SCA is subject to meso tidal ranges <2m<4m. Water Framework Directive: Coastal Waters are classified as good at the Northwestern Atlantic Seaboard, whilst Lough Swilly and Mulroy Bay Broadwater are classified as good status. The remaining Northern Atlantic Seaboard, Mulroy Bay Northwater and Sheephaven Bay are currently unassigned.
- Islands such as Inishtrahull are designated for both birds and habitats. The most northerly seabird colony in the country, this island supports a range of seabirds including Shag, Common Gull as well as wintering Barnacle Goose and breeding colonies of Eider. Grey seals also use this island as a haul out site. Inishtrahull Bird Observatory was established in September 2020 to document bird migration on the western seaboard in addition to keeping census records of various species (including marine life).
- The coastal habitats, and the intertidal areas that are exposed when the tides empty many of the bays, provide important feeding grounds for many wintering waterfowl such as Light-bellied Brent Goose (Trawbreaga Bay SPA, also a Ramsar wetlands site).
- Elsewhere the high coasts and extensive sea cliffs that can range from over 10m to 200m support Chough, Peregrine, Fulmar, Cormorant, Shag, Kittiwake, Guillemot, Razorbill, Greenland Whitefronted Goose and Barnacle Goose as well as breeding seabirds (Fanad Head to Horn Head SPA).Habitats within this SCA, include a variety of machairs, sand dunes, vegetated sea cliffs, mudflats and sandflats (Inishowen SAC); the coastal lagoons and estuaries are some of the important habitats associated with Lough Swilly SAC; both these areas support otters.
- Lough Swilly is also a Special Protection Area. Some of its notable species include the Great Crested Grebe (*Podiceps cristatus*), Grey Heron (*Ardea cinerea*), Whooper swan (*Cygnus cygnus*).

Cultural and Social Influences

Archaeological and historical overview

Donegal comprises a number of historic territories. The most important was occupied from at least the fifth century by the Uí Néill dynasties (O'Donnells and O'Neills who claimed descent from Niall of the Nine Hostages, a fifth-century High King), the Cenel Conaill and Cenel Eogain. It is from these dynasties that the county's regions are named: Inis Eogain (Inshowen) and Tir Conaill.[20] The peninsula of Inishowen forms the most of this SCA.

The earliest material found in Donegal to date is of the later Mesolithic period and much of this evidence is concentrated around the Inishowen Peninsula for example at Dunaff Bay, Inishtrahull Island, Eleven Ballyboes, Baylet and Inch Island, Tievebane, Ballymoney, and Red Castle.[21] Based on this fairly concentrated evidence, it is highly likely that there are further Mesolithic sites along the coast of this SCA awaiting discovery, as the earliest evidence for human activity on the island was found in this part of the country at Mount Sandel in County Derry.[22] It is also likely that a number of the middens located along the ancient shoreline and raised beaches represents Mesolithic and later activity, as at Baylet.

In the Neolithic period, this area was occupied by people who were agriculturalists and buried their dead in megalithic tombs. In this SCA these tombs are represented by portal and court tombs, there are several that are as yet unclassified. There is a single wedge tomb. There is a single burial cairn and several unclassified examples and it is likely that at least some of these contain further megalithic tombs, or they may date to the Bronze Age. Bronze Age burial is represented by cists and a number of flat cemeteries. There is a relatively large corpus of rock art in this SCA and over 100 separate pieces have been recorded in the townlands of Carrowreagh or Craignacally, Carrickabraghy, Norrira, Magheranaul, Fegart, Straths, Glengad, Carndonagh, Cluain tSalach, Míobhaigh, Glebe (Desertegny ed) and Lisfannan (fahan ed).[23] Stone ritual monuments dating to the Bronze Age include numerous standing stones and four stone circles; one of which is an embanked example. There is one example of a stone pair at Ballymagaraghy.

Monuments dating to the Iron Age are elusive when compared to other periods. It is highly likely that the coastal promontory forts were either constructed or were already in use by this period. There are 47 examples of coastal promontory forts along this stretch of coast, for example at Carthage townland near Culkeeny.

There is a wealth of monuments dating to the early medieval period in this SCA. Settlement evidence comes in the form of unclassified enclosures, stone cashels, earthen ringforts, and souterrains. There is a single crannog recorded located in Sessiagh Lough to the south of Portnablahy, on Sheep Haven Bay. It is likely that some of the promontory forts were re-used in this period. Early religious evidence is good, with churches, bullaun stones, holy wells, a saint's stone, numerous crosses and cross inscribed stones, dating to this early medieval period. There is some literary evidence noting the presence of Vikings in this part of Donegal and a hoard of Viking silver was found on the Inishowen Peninsula at Roosky.[24]

In the later medieval period, by the end of the twelfth century/early thirteenth century, the Normans had arrived briefly but by the fourteenth century the Cenel Conaill had regained control of all of County Donegal, under the O'Donnells. Religious houses were established in the region: Carmelite friars at Rathmullan and Third Order Franciscans at Ballymacswiny Friary, near Creeslough, Killydonnell Friary to the southeast of Rathmelton, and Balleeghan Friary on Lough Swilly near Newtown Cunningham. Rathmelton is the only historic town in the SCA. Of the 13 castles in the SCA, six are classified as tower houses and the remainder are unclassified.

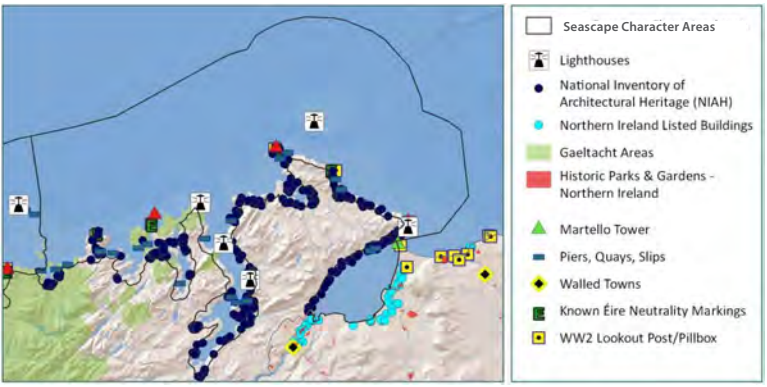
Doe Castle[25] at Sheep Haven Bayis best known. Some survivors of the Spanish Armada were granted refuge here in 1588. One of the fleet, La Trinidad Valencera which was the fourth largest of the ships that made up the Spanish Armada, and a requisitioned Venetian merchantman of 1,100 tons was lost in Kinnagoe Bay off the northern tip of the Inishowen Peninsula in September 1588. Between 1600 and 1614 the castle figured prominently in the local wars between the English and Irish. Several of the churches and graveyards in the SCA date to the later medieval period, and the children's burial ground may have origins in this period also. In the post-medieval period, the sixteenth century saw a number of expeditions to the county and by 1600 the governorship of Lough Foyle was established. The fortification at Croaghcross on the small island of 'Dooanmore' just 7m off the mainland broadly dates to this period. It is locally believed that the island was used as an O'Donnell refuge in the sixteenth century.

Possibly the most defining historical event associated with this stretch of coast is the Flight of the Earls from Rathmullan which followed the Nine Years' War (1594–1603). It took place in September 1607, when a small ship left for Spain with Hugh O'Neill, second Earl of Tyrone, and Rory O'Donnell, first Earl of Tyrconnell, and about ninety followers. It is thought that recent excavations in Spain may have uncovered Hugh O'Donnell's grave, who fled to Spain in 1602 after the Battle of Kinsale, seeking support against the English.[26] The battery and barrack at Rathmullen now houses the Flight of the Earls' Heritage Centre and a poignant sculpture overlooks the shores of Lough Swilly in commemoration.

Later monuments in the SCA include eleven penal mass stations, dating to a period when Roman Catholics were not allowed to freely practice their religion (c. 1695–1829). Penitential stations may also date to this period as well as the coastal holy wells.There are several signal towers and watch huts (Look out posts; LOPs) of which Malin Head is of particular historical interest and reflects the strategic importance of Malin Head for communication and defense .This unassuming and utilitarian building may have been originally built as a semaphore station by the insurance company Lloyds of London when information on Atlantic shipping passed from a semaphore station on Inishtrahull, onto Malin Head station and eventually to London. Later, c. 1900, Guglielmo Marconi (1874 - 1930) established a radio signal station here, and the extant structure was probably built at this time. In 1902 Marconi succeeded in sending the first commercial radio message to a ship, the S.S. Lake Ontario, from this station on Malin Head. This structure is also close to a Napoleonic-era signal tower and a World War Two-era watchman's hut. There are three EIRE neutrality signs in this SCA: Malin Head (EIRE80), Glengad Head (EIRE81) and Inishowen Head (EIRE82).

There are a number of beacons, lighthouses and associated houses all along the coast to assist with navigation and safety at sea and coast guard stations were located at Buncrana and Rathmullan. There are a number of water mills within 1km of the sea, an indication of past industrial activities. There are many

[22] Woodman, P. 1985 Excavations at Mount Sandel, 1973–1977. Northern Ireland Archaeological Monograph 2. Belfast: HMSO.
[23] Van Hoek, M. 1987 The Prehistoric Rock Art of Co. Donegal Part I, Ulster Journal of Archaeology, 50, pp. 23-46; 1988 The Prehistoric Rock Art of Co. Donegal Part II, Ulster Journal of Archaeology, 51, pp. 21-47.
[24] Raftery, J. 1969 A hoard of Viking silver bracelets from Co. Donegal. The Journal of the Royal Society of Antiquaries of Ireland, 99 (2) pp. 133-143.
[25] A national monument in state care (DG026-023001-)
[26] https://www.irishtimes.com/news/ireland/irish-news/archaeologists-are-quite-sure-they-have-found-redhugh-o-donnell-s-burial-place-1.4261382. Accessed July 1, 2020.



Map 3: Built Heritage

historic small piers, quays and slipways all along this stretch of coast; a reminder that the sea has been used as a mode of transport and as a livelihood for generations. The sea off the coast was a busy one and the 143 wrecks within the study area are testament to this. They range in date (where known) from the sixteenth to the twentieth centuries. It includes boats, two planes and 11 submarines. In 1917 the SS Laurentic, one of the most technologically advanced ships in the British navy, hit two mines just at the entrance to Lough Swilly. The ship quickly sank with the loss of over 300 lives. Her secret cargo of 3,211 gold bars worth £5 million (or over €410 million today) was also lost[27].

Contemporary



Malin Head (Ruth Minogue)

- While commercial fishing takes place offshore, there are no fishery harbours in this region, although Lough Swilly and Mulroy Bay support an aquaculture industry which has grown significantly over the past 50 years. Ireland's largest producer of farmed Atlantic Salmon is located on Fanad Head. The coast includes piers and harbours that support small scale fishing.
- Domestic and International tourism is a very important part of the economy of north Donegal. Between 20 and 50% of houses along the coastline are holiday homes. The coastal areas also includes tourism accommodation and physical infrastructure for visitors such as interpretative signage. Given its proximity to the border, there is a long tradition of holiday makers from Northern Ireland visiting with this SCA. Fanad Head Lighthouse is available for holiday accommodation and is listed as one of the Great Lighthouses of Ireland. The Wild Atlantic Way follows the coast road along the full extent of this seascape character area.
- Tourist boat trips are available for shark and dolphin spotting and to Inishtrahull and surfing takes place towards the western end of the region. The region also supports sea activities such as surfing, scuba-diving, sea caving and snorkelling. Ards Forest Park at Sheephaven bay provides a large publicly accessible coastal woodland. Recreational fishing, (deep sea, boat, shore and beach) is popular. Boat angling offers a wide range of species from very diverse locations including offshore reefs, pinnacle rock, offshore wrecks, sand banks and shallow estuaries.
- Late 20th century and early 21st century settlement is more dispersed and aligned along the road network. There are a number of coastal towns and villages with piers, beaches and bridges which are key access points to the interface of land and sea; Culdaff, Buncrana, Malin, Fahan, Rathmullen, Portsalon, Downings, Portnablahy and Dunfanaghy.

Art and Folklore

- Many of the landforms have mythological associations related to their shape or geographic location. Malin head is known as "Banba's Crown", after Banba, one of the triumvirate of patron goddesses of Ireland, with her sisters, Ériu and Fódla.
- A plaque in medieval Gaelic to St Colum Cille (Colmcille) is present at Inishowen. This marks his last stop before leaving Ireland and commemorates his numerous links to Donegal, Derry and the many monasteries he is said to have established in Ireland before departing to the island of Iona, Scotland. 1400 years after his birth, the then president of Ireland, Mary Robinson, retraced his steps from Donegal to Derry to Iona and recited his prayer on the Isle of Skye.
- Artlink is the longest established professional art company in Inishowen, Co. Donegal. Their remit is

[27] Great Lighthouses of Ireland

for the North West, including Northern Ireland.

- The world-famous hymn Amazing Grace was written by John Newton; and it is based on his experiences when he took refuge near Buncrana on the Inishowen Peninsula on April 8th, 1748, having safely survived a shipwreck and storm in the Atlantic Ocean during his voyage from Cape Lopez to England.
- Poet Moya Cannon, born in Dunfanaghy.
- Language – the western part of this regional seascape character area forms part of the Gaeltacht.

Perceptual Influences

Views and vistas

- Views from elevated areas of the northernmost parts of headlands looking along the coastal edge are the most distinctive characteristic of this region. The eye instinctively looks back and forth along a horizontal line (the sea horizon), but scans down a line if it is tilted. Views along the cost of repeating headland ridges and cliffs provides a series of such visual prompts.
- The elevated nature of the views from headlands mean that a longer view to the horizon is possible than from locations at sea level. On a clear day, viewed from a beach, the horizon will be in the order of 3 NM (approx. 6km) distance. Viewed from a height of 60m, the horizon will be in the order of 16NM (approx. 32km). Tory Island is visible on the horizon from as far away as Malin Head. In very clear viewing conditions, it is possible to see Scotland.
- The ferry routes to Tory offer public views from sea to land and in summer the ferry across Lough Swilly allows for views across the sea lough. Boats also bring visitors to Inishtrahull. The views from sea and islands to land foreshorten and the detail along the coast is lost from boat trips.
- The influence of the weather on character and visibility is profound. The blurring and clarity of views of the headlands eastwards and westwards along this coast; combined with the interplay of huge skies create an ephemeral character to these views.
- Lighting[28]–. While coastal settlements present as glowing light along the coast, these tend to be located within the more sheltered bays and loughs and therefore not always visible. In clear winter skies, the northern lights can sometimes be seen across the sea to the north. Lighthouses at Fanad.
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- Lighting[28] - While coastal settlements present as glowing light along the coast, these tend to be located within the more sheltered bays and loughs and therefore not always visible. In clear winter skies, the northern lights can sometimes be seen across the sea to the north. Lighthouses at Fanad Head and Inishtrahull Islands operate automatically and have a range of 18 nm west and 18 nm respectively. Two lighthouses are present on the eastern side of Lough Swilly, Bundcrana and Dunree.

Sense of Place

- A strong sense of place is present all along this SCA, the close historical links to Derry and Lough Foyle results in ongoing and close interactions across the border. 'In Donegal webs of Atlantic exchange run northwards. The intellectual innovations of earlymedieval Ireland were Donegal developments led by figures such as Colmcille and his later follower Adomnan'
- These intertwining relationships can still be noted through ongoing cultural exchanges with Scotland.

[28] Lighting includes private houses, businesses, public lighting, road traffic, telecommunications infrastructure and the lighthouses at Fanad Head and Inishtrahull islands



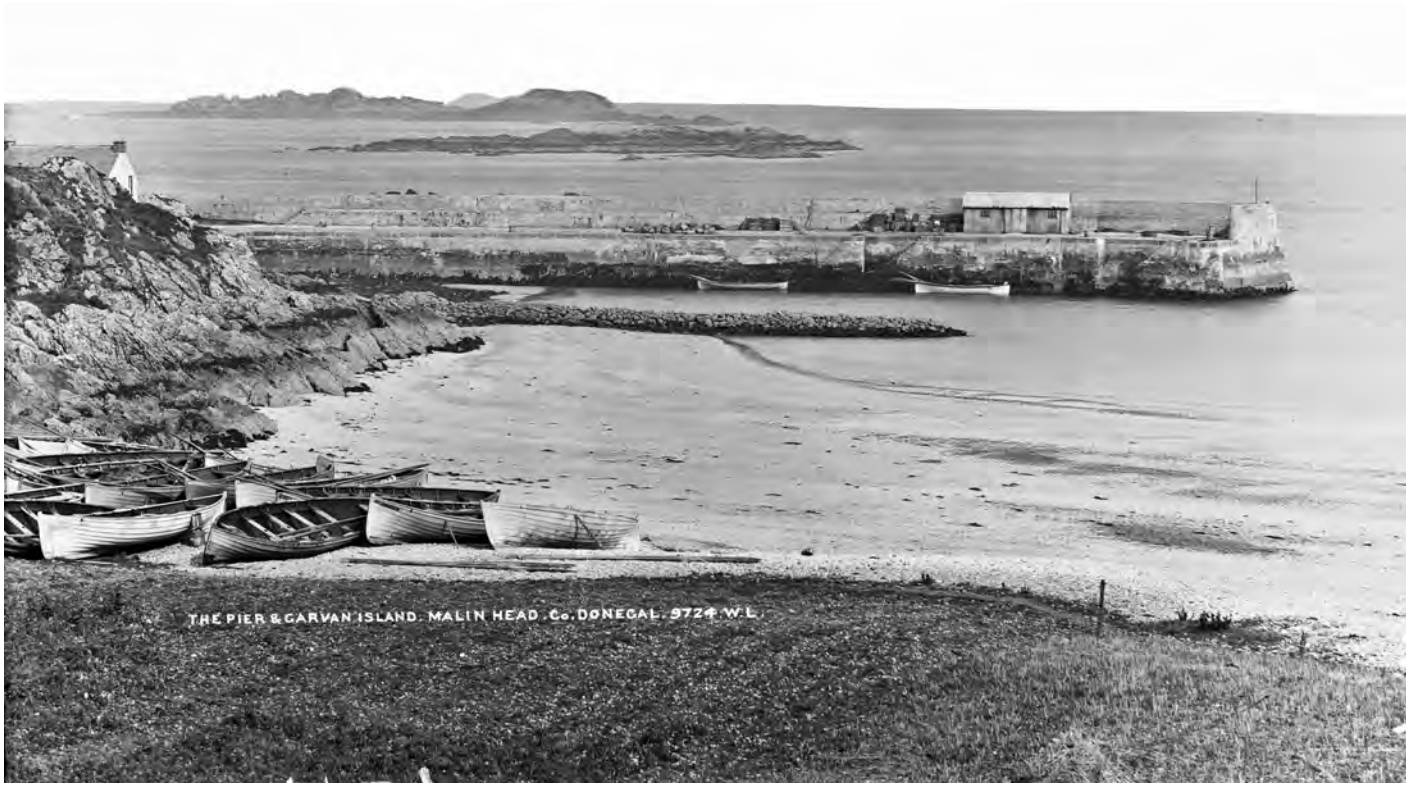
Fanad Head Lighthouse (Ruth Minogue)

A weekly bus services runs from Donegal to Glasgow via the port of Larne, replacing the old Derry Boat

- Nowadays this SCA is a combination of headlands at height that create remote, exposed, wild character with crashing waves and sea spray combined with soaring seabirds. This combines with the busy (albeit seasonally) small towns with a variety of tourism and fishing activities.
- The complex nature of the coastal edge means that the intertidal area ranges from narrow at cliff faces to extensive at shallow bays. The rising and falling of the tide in such areas results in large areas of sand and mudflats which are edged by salt marsh, salt meadows and areas of intertidal peat. This results in a distinctive shifting and liminal character to this area.
- The dramatic scenery along this stretch of coast is often used in tourism promotional material. A Met Eireann weather station is located at Malin Head, and the Head itself forms part of the Shipping Forecast list of maritime places which provides an evocative audio experience of our marine nomenclature.
- The combination of high energy waves and cliffs result in dramatic waves and sea-spray a generally inaccessible cliff bases. Long and neatly curving beaches with large intertidal areas are a key characteristic of this part of North Donegal.

Sounds and Smells

- The smell and taste of wind-blown salt spray is a characteristic of the headlands and areas with coastal cliffs.
- At low tide, summer smells of seaweed and mudflats occur at the flatter sea loughs and bays.
- The sound of wind and waves from headlands is a consistent presence and can be overpowering when rough or stormy weather is coming in from the sea.



The Pier and Garvan Island Malin Head
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA3 - North Atlantic Islands, Headlands and Beaches



Magheraroarty Beach (Ruth Minogue)



Summary Description

An expansive and rugged SCA which includes a series of islands including Tory Island, Ireland's most northerly inhabited offshore island, some 14.5km from the mainland. Islands are a characteristic feature of this SCA, many of which have been occupied historically with concentrations of islands at Gweedore, Inisfree and Maghery Bay. The character of the seascape is diverse within this SCA; the force and sound of the North Atlantic is particularly dominant at elevated stretches of the coastline, for example at Bloody Foreland and the western parts of Horn Head.

In common with other areas of Ireland that include this Seascape Character Type (SCT 6 High sandstone/ metasedimentary cliffs and plateau), sea stacks are a feature; though not always easily visible from the land. This SCA includes Ireland's highest sea stack, Tormore Island, part of a series of stacks and skerries known as Land of the Giants[1].

Much of the coastline in this SCA is low-lying with sea views at, or close to, sea level a particular feature of the western part around the Rosses. Much of this SCA comprises a very indented coastline with numerous smalls bays and islands (SCT 5 Complex metamorphic and igneous indented coastline, small bays and small islands).

The seascape character alters when facing west, with views to the sea variable given the predominantly low-lying coastal landscape.. The sand dune systems are a particularly strong element in this part of this SCA.

Settlement is dispersed across this SCA with villages and towns including Falcarragh, Gortahork, Bunbeg, Burtonport, Dungloe, Ardara and Glencolmchille the principal settlements. Tourism is well established in the SCA and the area is predominantly a Gaeltacht. Coastal activities including walking, Gaeltacht summer schools, surfing, coastal fishing and a number of Wild Atlantic Way Discovery Points.

[1] https://uniqueascent.ie/tormore_island

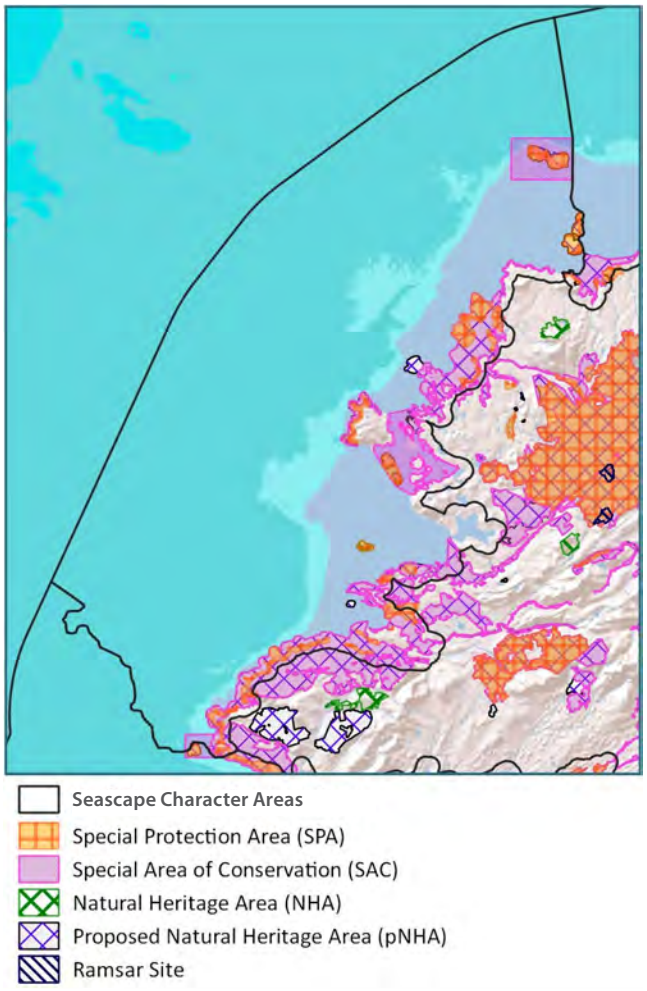
Boundaries and Location

This seascape region stretches from Horn Head to Rathlin O'Beirne island across from Malin Beg. It includes the western part of Horn Head extending across a broad sweeping bay and coastline that includes Tory sound and the islands of Tory Island, Inishbofin, Inisdooey and Inisbeg. After the exposed Bloody Foreland headland, the SCA faces west and the coastline becomes increasingly complex, varied and indented. Again, islands are numerous and include Inis Oirthir, Inis Meáin, Gabhla (Gola), Cruit, Owey, Árainn Mhór, Rutland, Inis Fraoigh and Inis Caorach. Headlands are not a particular feature of this SCA with a small number identified at Horn Head, Crohy Head, Dunmore Head, Dawross Head and Glen Head.

Key characteristics

- Varied seascape character reflecting the geological history and the influence of glacial processes.
- Largest population of Irish speakers in the country.
- Force of the Atlantic particularly pronounced at northern part of this SCA with a remote, wild oceanic character associated with Horn Head and Bloody Foreland.
- Whilst the presence and power of the Atlantic remains a key influence, the western part of much of this SCA is more sheltered owing to the islands, beaches and estuaries, this is particularly noticeable at the seascape associated with the Rosses.
- Tory and Arainn Mhór, the largest and most populous islands with numerous other islands a defining characteristic. Some of these, whilst no longer inhabited full time, do support seasonal habitation and livestock grazing. The history of these islands provide a historical narrative and insight to human history and activity within this SCA.
- Seasonal migration to Scotland from Tory and along the Donegal coast.
- Fierce storms and rogue waves are a feature of this SCA and the numerous islands offered refuge for crews.
- The sea is so storm prone that lifeboat crews discovered stranded sailors often floated barrels of provision their way rather than attempt a rescue'[1].
- Extensive panoramas of the ocean with island views at horizon present from elevated parts of the coast. More intimate views and inter-visbility between sandy beaches and islands particularly associated with the Rosses.
- The coastal hinterland comprises rough pasture, blanket bog, dispersed housing with older clachans visible also.

Natural Influences



- A noticeably indented coastline of protruding large peninsulas and small headlands, wide shallow sandy bays and estuaries, narrow inlets, irregular and incised rocky shorelines and islands, long sandy beaches, high cliffs, glaciated mountains, and low-lying ice-scoured plateaus.
- The coastal and inland geological signature of this SCA is shared by just two major bedrock groups: Caledonian Donegal Granite (~400 million years old) are sandwiched between ~700 million year old Dalradian metamorphic rock.
- Dalradian Supergroup rocks, comprising quartzite, schist and marble (and isolated pockets of similar age metaigneous bedrock) form the southern part of the SCA, from Malin Beg north to Gweebarra Bay, with the exception of the estuarine Ardara coast, which comprises Donegal Granite. Islands are not a common feature along this section.
- The coastline from Gweebarra Bay north to Bloody Foreland/Meenlaragh is entirely Donegal Granite, with the exception of Dalradian rocks around Crony/Crony head and on Arainn Mhór . Islands and rocky headlands are a characteristic topographic feature

[1] Gange,D.2019. The Frayed Atlantic Edge. P228

along this granite coast, similar to the northern granite coast of the Atlantic Galway Bay and Islands SCA.

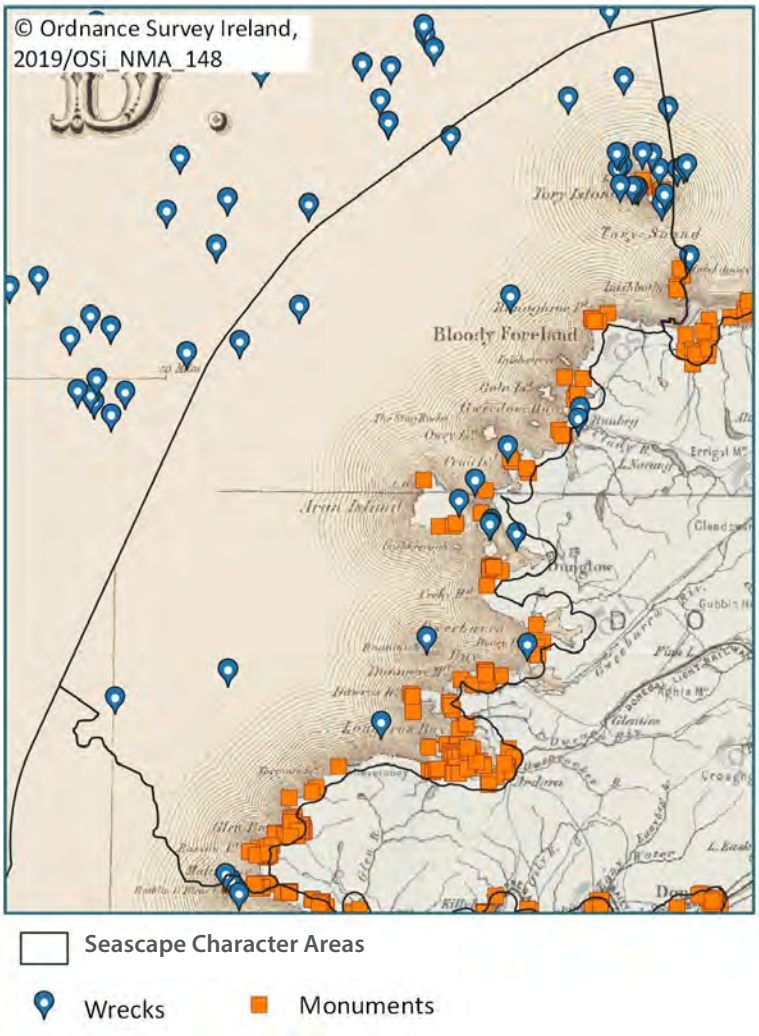
- From Bloody Foreland/Meenlaragh north to Horn Head is Dalradian Supergroup rocks, comprising quartzite, schist and marble. Islands are not a common feature along this section. Wide open bays characterise the low Dalradian sections of the coastline.
- The central granite section exhibits low elevation, undulating topography indented with small shallow bays and inlets, with numerous offshore islands.

Extensive estuarine deposits are abundant in the northern (Ballyness Bay to Tramore Strand), central (Inishfree Bay) and southern (Gweebarra Bay, Loughros More Bay, Loughros Beg Bay) regions of the SCA.

- Montane topography in the immediate proximity of the coast is confined to the Glencolmkill peninsula, where elevations reach >450mOD. The north facing slope of Slieve Tooey host three spectacular corries, each floored with a tarn. The glaciated terrain of Errigal and the Derryveagh Mountains frame the eastern backdrop in the region around The Rosses and Gweedore. Cnoc Fola (314mOD) commands the seascape at Bloody Foreland.
- Tidal ranges are meso- tidal >2m<4m. Water Framework Directive (WFD): Northern Atlantic Seaboard, Tory waters, and Northwestern Atlantic Seaboard are identified as coastal waters, the latter classified as high quality; the others are unassigned.
- Much of the coastline, estuaries and islands support many protected habitats and species.
- Part of Ballyness Bay is designated due to the presence of the corncrake, whilst many of the islands are designed for barnacle goose, corncrake, common gull, artic tern (Inishbofin, Inishdooey and Inishbeg SPA); razorbill, fulmar and puffin are also present at Tory Island SPA whilst peregrines and choughs use Tory Island as breeding grounds.
- Significant habitats present within this SCA include lagoons, sea cliffs, submarine reefs as found on Tory Island SAC; the sheltered bays at Gweedore support habitats including coastal lagoons, salt meadows, sand dunes and machair. Mammals include otter and grey seal (Slieve Tooey/Tormore Island/ Loughros Beg Bay SAC) and cetaceans (including minke whale and bottlenose dolphins). Dungloe Bay has visiting Grey Seals and a resident Common Seal population.

Cultural and Social Influences

The territory of the Cenel Conaill is contiguous with the medieval diocese of Raphoe, which forms the larger portion of this SCA.



Map 2: Archaeological records including wrecks

Archaeological and historical overview

The earliest material found in Donegal, to date, is of the later Mesolithic period, for example at Horn Head, Bann flakes, typical stone tools of the period, were found. It is likely that there remain further Mesolithic sites along the coast of this SCA awaiting discovery, as the earliest evidence for human activity on the island was found in this part of the country at Mount Sandel in County Derry. It is possible that a number of the middens located along the ancient shoreline and raised beaches represents Mesolithic and later activity.

In the Neolithic period, this area was occupied where people practiced agriculture and buried their dead in megalithic tombs. In this SCA these tombs are represented by portal tombs predominantly, a single court tomb (DG080-006-) and a number of structures that are as yet unclassified. These types are considered early in the chronology of megalithic tombs and illustrate the wealth the early peoples had in that they could invest time and resources in their construction. The cairns here may also contain further megalithic tombs, or they may date to the Bronze Age. Bronze Age burial is represented by a single cist and interestingly there are no wedge tombs present in this SCA, though

they are present elsewhere in County Donegal. Several standing stones and one embanked stone circle (DG048-011--- An Machaire) are ritual monuments dating to this period.

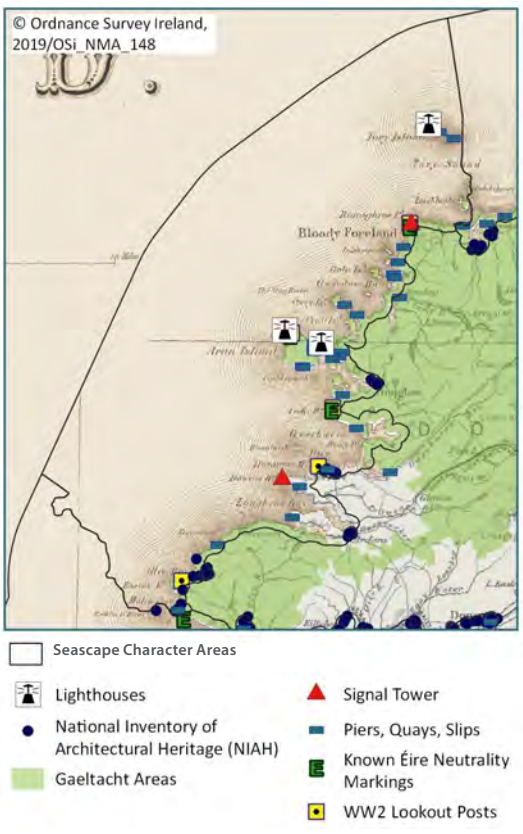
The Iron Age is notoriously difficult to find without excavation, though it is possible that some of the coastal promontory forts were either constructed or were already in use by this period. For example, Dun Balor on Tory Island is a spectacular example of the type in this SCA (DG006-004001-). It is named after the one-eyed god of the Fomorians. Tory island was apparently the home of these mythical people prior to Christianity arriving in Ireland.

Christianity is thought have arrived in Donegal very early in its introduction to the country as a whole. St Colum Cille is attributed to the spread of the new religion within the county and he himself was one of the Cenel Conaill, although many monuments now associated with him are later in date than the saint himself. There are also a number of important objects that are also associated with Colum Cille and other saints such as the Cathach, and the Miosach.

There are a plethora of monuments dating to the early medieval period. Early religious evidence is particularly good here, with ecclesiastical complexes, churches, bullaun stones, holy wells, a saint's stone, a leacht, a round tower, cross slabs, cross-inscribed stones and high crosses, including the rare Tau cross on Tory Island (DG006-002002-) dating to this early medieval period. There is some literary evidence noting the presence of Vikings in this part of Donegal though archaeological evidence is slim here. Viking silver has been found on Inishowen (see SCA2). It has been suggested that the local dynasties were good at keeping the Vikings at bay. In the later medieval period, by the end of the twelfth century/early thirteenth century, the Normans had arrived briefly and some of the mounds documented may be mottes though archaeological evidence for this is difficult to identify without excavation. By the fourteenth century the Cenel Conaill had regained control of all of County Donegal, under the O'Donnells. There are just two castles in this SCA which may date to this period, one being on Tory Island. Several of the churches and graveyards in the SCA date to the later medieval period, and the children's burial ground may have origins in this period also. The sixteenth century saw a number of expeditions to the county and by 1600 the governorship of Lough Foyle was established (SCA1). The bastioned fort and fortification broadly date to this period. Following the Nine Years' War (1594–1603) and the Flight of the Earls in 1607 from Rathmullan (see SCA2), Donegal was divided into plantation estates for settlers to colonise, tracts granted to Trinity College Dublin and portions to native Irish grantees. Inishcoo House on Rutland Island may be the site of the castle and bawn constructed by Thomas Dutton in the early seventeenth century, but the house itself dates to the eighteenth century. The area around the house has been identified as a post-medieval fishing complex by Wes Forsythe. The Rutland wreck dating to the seventeenth century lies just off the southeast corner of the island (W11641). This was a timber ship which was once armed and carried ordnance. There are an additional 37 wrecks lying in the waters off the coast.

Later archaeological monuments in the SCA include two penal mass stations. Pilgrimage was also undertaken and a number of penitential stations would have formed part of patterns dedicated to various saints, for example St Crone, in the townland of An Tearmann, on Crohy Head, which is part of an ecclesiastical complex there[1] A 'mine well' is marked on the 1907 OS six-inch map at Ionascail. Two signal towers, at Cnoc Fola and Dawros Head[2] likely date to the late nineteenth century as they are marked on the 1906/1907 edition of the OS six-inch map the latter being 'in ruins'.

This part of coastal Donegal is very much focused on the north west Atlantic ocean and its offshore islands. Boats would have been a common way to travel along the coast and between the islands. The numbers of wrecks in the area are testament to this. Architectural features highlighting direct links with the sea in



Map 3: Built Heritage and An Gaeltacht

[2] Gange,D.2019. The Frayed Atlantic Edge. P228

this SCA include a boathouse in Portnoo (Lackagh townland); the lighthouse at Rathlin O'Bierne Island (Tory Lighthouse is not on the NIAH); lightkeeper's houses in Glencolumkille, near Rossan Point; the pier at Meenmore, Dunglow; quays at Malin Beg; and two excellently conserved nineteenth-century signal towers at Glen and Malin Beg. The significance of fishing and sea travel is reflected in the density of piers, quays and slips along the coast of this SCA.

Contemporary

- Fishing remains an important activity in this SCA. Herring fishing was historically significant. Burtonport, after experiencing significant declines in fish stocks, is now dependant on landings of crab, lobster, shrimp and velvet crab by small inshore vessels from a large geographical region which stretches from Rosbeg to Bunbeg.
- Tourism and sea based activities have become increasingly important. The Wild Atlantic Way runs for much of the coastal route.
- Árainn Mhór is an important island for scuba diving, and a number of boat trips are available for eco-tourism and sea kayaking. Holiday homes occupy over 52% of housing in certain parts of this SCA namely around Falcarragh, Horn Head and Portnoo.
- Connectivity to and from Tory and Arainn Mhór as well as a number of smaller islands is possible via ferry routes; Arainn Mhór (Arranmore) is accessible from the ferry at Burtonport. Ferries serve Tory Island from Magheraroarty pier and Burtonport. Cruit Island is connected via a bridge and Donegal Airport located close to Kinclassagh.



Gort na Coirce (Deirdre Black)



Mullaghderg Beach (Deirdre Black)

- Settlement is very dispersed with villages/small towns a feature. These villages and small towns are commonly located within the bays and estuaries that offer shelter from the Atlantic.

Art and Folklore

- Tory Island naïve/folk painting. Contemporary photographers include Gareth Wray and Owen Clarke.
- Bád Eddie, Bunbeg – now part of the beach landscape and featured in Clannad and Bono song, the story of this boat towed onto Magherclogher Beach in 1977 , and was the focus of a documentary[5].
- St Colm Cille, who disenchanted Tory from paganism by throwing his crozier onto the island. This is predated by folklore associated with the Formorians and Balor. Balor's Fort found on eastern part of Tory Island.
- The Irish place names commonly refer to geographical descriptions (toponymics); a good example relates to the use of Gaoth (sea estuary), found at Gaoth Dobhair (Gweedore-estuary of the River Dobhar)) Gaoth Beara, Gaoth Luacharois.
- Marcanna na Talamh, land and sea marks to guide navigation in and around the islands is increasingly acknowledged as a key part of the intangible cultural heritage of offshore islands, for example associated with Árainn Mhór. These practices extend beyond the Atlantic to other islands.
- In common with many coastal and fishing communities, naming animals was considered bad luck with 'cold iron' being a replacement word commonly used; Ní Fhloinn (2018) cites a reference from Ardara where 'pot irons' was the terminology used in the 1950s and 60s.

Perceptual influences

Views and Vistas

- Views to the Atlantic from elevated areas of this SCA and along the coastal edge which is diverse are not frequent but are very dramatic and inform the character of this SCA. Within the sheltered inlets, havens and bays, these views are more intimate and smaller in scale, with the eye drawn to the sand dune systems, tidal habitats and offshore islands.
- Long views across the Atlantic are possible from the elevated heads or points and viewpoints off the main road. Horn Head and Bloody Foreland are such examples as well as the more elevated parts of the N56. These northward views include the islands of Tory, Inishbofin, Inishdooey and Inishbeg. These frame the horizon when viewed from the coast. The visibility of these islands varies considerably depending on the weather.
- As the coast primality faces west, a greater sense of enclosure and shelter is present at Ballyness Bay where the two sand beaches fronting the Atlantic and long estuarine habitats create an almost lagoon like quality with diverse views depending on the ebb and flow of the tide. Within the western Rosses, views are shortened by the low-lying road and presence of sand dunes ridges that limit the view from the road; this aspect alters when on the beach with longer views across the frequently sheltered bays to other islets and islands.
- Further south as the land rises, sea views are more consistent westward from the regional road R263 from Glencolmcill to Malinbeg. Where the road rises longer panoramas are possible, with interesting views of estuaries, strands, shorter headlands, indented coast and islands.
- Views to the land are possible from the islands, ferry crossings and fishing/recreational boats. The landward views vary. As much of the area is largely low-lying, this informs these views with the Derryveagh Mountains framing landward views to the south and east.
- Lighting – the dispersed settlement pattern particularly around Falcarragh and the Rosses results in strings of lighting associated with housing. It is noted that many of these houses are not occupied all year. Much of the other settlement is positioned along the more sheltered bays and associated lighting not always visible. Areas of this SCA are also very sparsely populated such as the lands north of Glencolmcille and Bloody Foreland. Lighthouses and navigational markers provide lighting to guide navigation and entry to harbours and piers. Tory Island Lighthouse has a range of 18nm.

Sense of Place

- There retains a strong character relating to wildness and a clear and profound influence of the Atlantic Ocean associated with this SCA.
- The combination of exposure to the elements, dramatic weather and waves, and extensive views northward create a strong sense of wild character and the power of the ocean and nature. This is particularly pronounced along the Northern part of this SCA and the more western islands.
- The coastal edge often appears active and busy, reflecting the continued engagement with the sea and the islands within this area; to identify this area as remote belies its long history of human activity and links along the Atlantic Edge, in particular to Scotland.
- The numerous small islands all have their own story with the connection to the islands continuing, albeit, on a seasonal basis. The larger islands of Tory and Arainn Mhór are very distinctive islands with their own particular history and sense of place.
- The weather informs the perceptions of the ocean with large open skies and long views ensuring the combination of swells and waves interplay with the light on the sea.
- This contrasts with the sense of shelter and refuge from the full force of the Atlantic at the western bays, and beaches in particular.

Sounds and Smells

- Crashing rolling waves at elevated parts of the coast can be overwhelming, particularly in windy weather.
- The sound of the seascape is again very pronounced along the more exposed northern part of this SCA; this is replaced by a gentler but still strongly Atlantic tidal regime that greatly influences the seascape character along the western coast.

Full time inhabited islands in this SCA
(with translation from Logainm.ie)

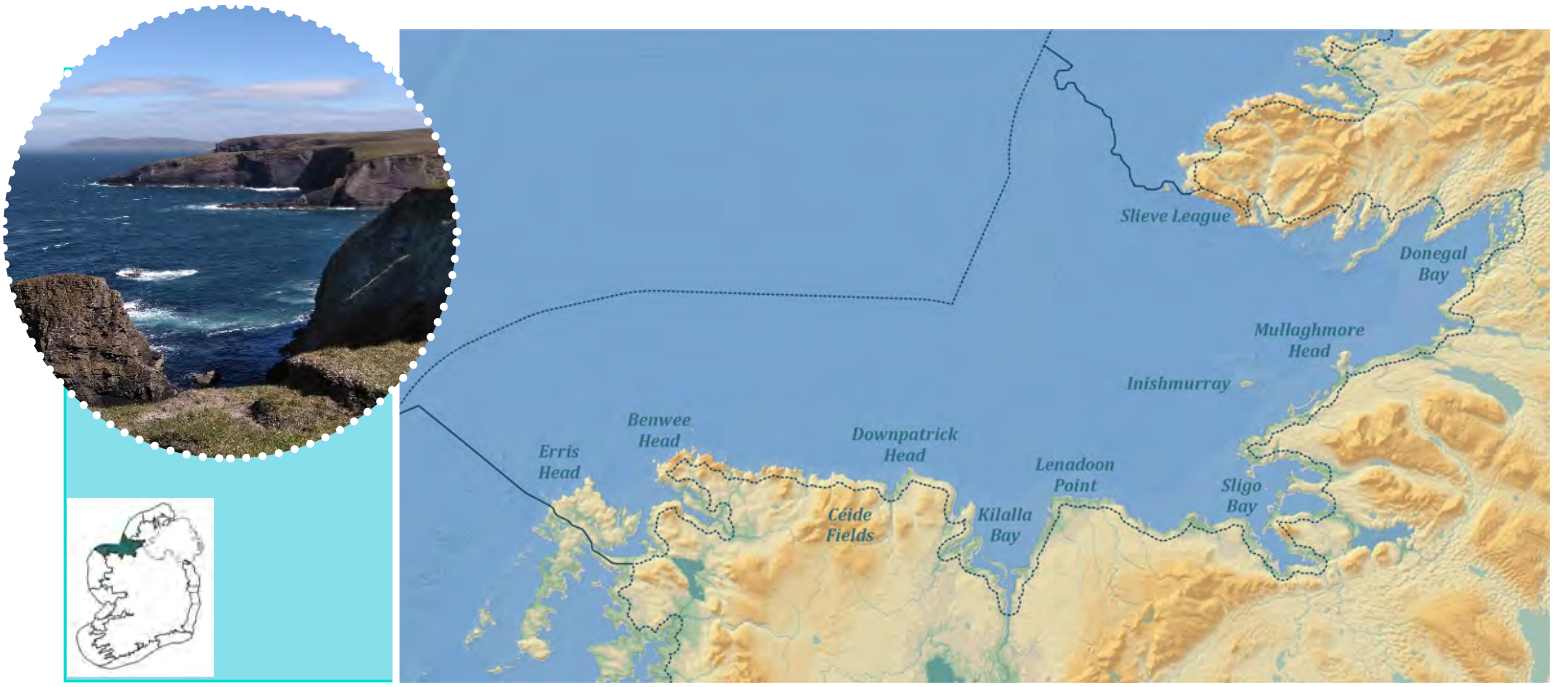
Island	Population 2016
Árainn Mhór Name from Logainm: Big kidney, ridge' 'Kidney' is used figuratively for the shape of the island	469
Inis Bó Finne Name from Logainm 'Island of (the) white cow'	2
Toraigh 'Place of steep rocky heights'	119
Gabhla '(The island of the) inlet, creek'	5



The Islands, Burtonport, Donegal
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA4 - Sligo Bay



Erris Head looking across the Bay (Ruth Minogue)

Summary Description

An extensive SCA, centrally comprising a large limestone bay (SCT1 Large limestone bay), with metamorphic rock seafloor and coast (SCT 6 High sandstone/ metasedimentary cliffs and plateau) in the northeast and south. Seaward protruding headlands at Erris Head, Benorthwestee Head, Rossan Point and St. John's Point and Slieve League. Dramatic cliffs (Slieve League >400m, Benorthwestee Head 225m) and associated sea stacks (Stags of Broadhaven) have formed along the exposed coastal metamorphic terrain in response to the incessant forces of the North Atlantics wave regime. The seacliffs of Slieve League exhibit spectacular coastal morphology, ranging in height from 300m to 600m elevation. A particular cluster of sea stacks, islands and outcrops are associated with the southern part of this SCA including the Stags of Broadhaven, Buddagh, Whin Dyke, Hag Island, Pig Island and Illaundavuck. The sea stack at Downpatrick Head is another famous coastal landform in this region and is immediately adjacent to a two-ended cave and blowhole. At these western fringes the full force of the Atlantic is apparent with swells and crashing waves against the incised cliffs and sea stacks.

The maritime influence of the North Atlantic alters further east as the seascape comprises a lower lying topography encompassing a series of smaller bays that include concave sandy beaches, frequently with white sands and broad sweeping bays with sandbars such as those of Donegal and Sligo Bay. The eastern and southern coast of this SCA are particularly characterised by these sandy beaches, which are largely absent on the Donegal coast of this SCA.

The presence and influence of the sea on the landscape is largely consistent throughout this SCA. This effect varies between the sheltered sandy beaches and low bays to more elevated views overlooking the broad limestone bays as seen from elevated parts of the N15 (Sligo-Donegal) to the adjacent seascapes, with dramatic drops along the R314 (Killala-Blemullet) at the Céide Fields. The exception to this persistent coastal influence is found in the area around Benorthwestee Head where the road curves inland to an expansive Atlantic blanket bog landscape, before heading north along the coastline close to Belderg, Co. Mayo.

Whilst a coherent character area, the western exposed edges of this SCA are dominated by strong North Atlantic influences and this contrasts with the more sheltered, hospitable bays, beaches, sandbars and sandy islands present within the eastern bays of this SCA.

Coastal towns are particularly concentrated within sheltered bays and harbours and include the largest fishing port in the country at Killybegs and the narrow channel of Sligo Harbour and town.

Boundaries and Location

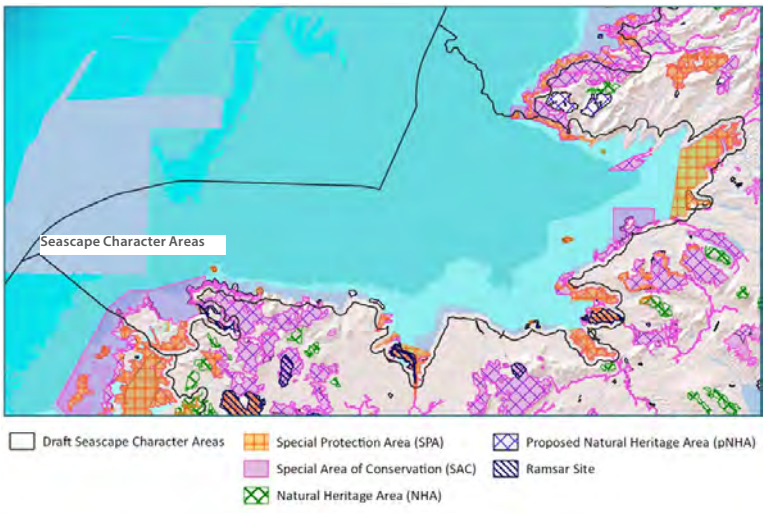
This seascape region includes the largest limestone bay in the country - Sligo Bay, framed by the distinctive cliffs and stacks that front the bay, notably at Erris Head, Bee and Rossan point with Slieve League cliffs. The region includes the coast from Rossan Point to Erris Head, seaward from the coast for 12NM to include the North Atlantic and the Stags of Broadhaven, Rathlin O'Beirne Island, Inismurray and Coney Island. The coastline comprises numerous headlands, points and rocky islets (carricks) including: Rossan Point (Ceann Ros Eoghain), Rossareel Point, Saint John's Point (Pointe Charraig an Rois), Doorin Point, Kildoney Point, Aughrus Point, Streedagh Point, Rahilly Point, Lenadoon Point. Carrigan Head (Ceann an Charraigin), Muckros Head, Drumanoo Head, Carnetullagh Head, Mullaghmore head, Aughris Head, Benorthwestee/Kilcummin Head, Creevagh Head, Downpatrick Head, Benorthwestee Head and Erris Head.

Key Characteristics

- Massive Atlantic Bay associated with series smaller bays and harbours including Killybegs, Sligo, Enniscrone, and bays of Moy, Killala, Donegal Bay and Malin Bay. Whilst much of the limestone bay is characterised by sweeping, open, gently sloping, low-lying bays; this contrasts with headlands and offshore features such as sea stacks most notably at Slieve League, Downpatrick, Benorthwestee and Erris Heads.
- These resistant crystalline rock cliff fronts at Slieve League and northwest Erris frame the entrance to the extensive bay, which once navigated safely, offers haven.
- Variety of sheltered bays with rich estuaries offer evidence of millennia of human activity and habitation. Principal urban centres all located at harbours or estuaries are Sligo town, Donegal town, Killybegs town and Ballina. Popular recreational resorts at Enniscrone, Strandhill and Mullaghmore offering surfing, seaweed baths as well as other coastal recreational activities. Largest fishing port (per landing) at Killybegs, Co. Donegal[1]
- The coastal hinterland varies from expansive blanket bog landscapes, to remote plateaus comprising peaty soils and cliff faces, to more sheltered, fertile agricultural land.
- Islands – numerous islands and islets are present, ranging from Coney Island associated with Coney Island of New York and immortalised by WB and Jack Yeats; the diversity of islands range from sandbars such as Bartragh Island, to Inis Murray and Rathlin O'Beirne Island.
- Abundance of folklore and history associated with coastal and offshore elements such as Stags of Broadhaven
- Long panoramas to the headlands are a feature along the southern coastline and long views also afforded across the bay both north and south. Frequently long sea views are framed by islands and headlands, whilst the Ox Mountains and the distinctive profile of Ben Bulben are dominant features of views landward.

Natural Influences

- The northeast (Glencolmcille) and south (northwest Erris) regions of this SCA share similar geological characteristics in terms of chronology and lithology: roughly 700 million year old metamorphic rocks knorocks are found in Connemara, Mayo, Sligo, Donegal, Antrim and Scotland – the name originating in the Dál Riada Gaelic kingdom of northeast Ireland and southwest Scotland in the Early Medieval Period.wn as the Dalradian Supergroup. Dalraidian



- In southwest Donegal, Carboniferous limestones and sandstones are found from St. John's Point, around the bay (clockwise) to Sligo Bay and west to as far as the Céide Fields in north Mayo. These Carboniferous rocks floor Donegal Bay and extend westwards.
- Sea cliffs in the Dalradian metamorphic rock regions tend to drop steeply into the water, with little visible orderly structure in the exposed rock faces. This contrasts with the layered, and orderly vertical faced sedimentary rock cliffs at Downpatrick and

[1] Central Statistics Office 2017: Killybegs was the most important port for Irish landings in 2017 accounting for 61% (149,908 tonnes) of all landings by Irish vessels.

Kilcummin Heads.

- A major ice-sheet margin moraine feature, the Donegal Bay Moraine, lies along outer Donegal Bay. This feature is associated with deglaciation events dated to 18,000 years ago.
- Glaciomarine sediments exposed in coastal cliffs at Belderg Harbour host abundant shelly material of an Arctic-water bi-valve species Macoma calcarea. This indicates what the environment was like 15,000 years ago in northwest Ireland.
- Evidence of the early rifting of the Atlantic 60 million years ago is found at Ross Point (Co. Mayo) and Inishcrone and Carrowhubbuck (Co. Sligo). Hot magma rose up along fractures and cracks that formed in the Carboniferous limestone, and cooled to form igneous dykes, which can be seen along coastal sections. Windblown sands and dunes, and marine beach sands occur along the immediate coastline along the Killala Bay sections.
- Montane topography overlooking and forming a backdrop to the seascape includes the Slieve League Mountains (>500m), Dartry Mountains (> 600m), Knocknarea (327m), Ox Mountains (>500m) and Maumankeogh (379m).
- Sligo Bay is subject to meso tidal ranges between >2m to 4m. Water Framework Directive (WFD): Coastal Waterbodies classified as High Quality are present at the North Western Atlantic Seaboard(Rathlin O'Beirne island and northwards)



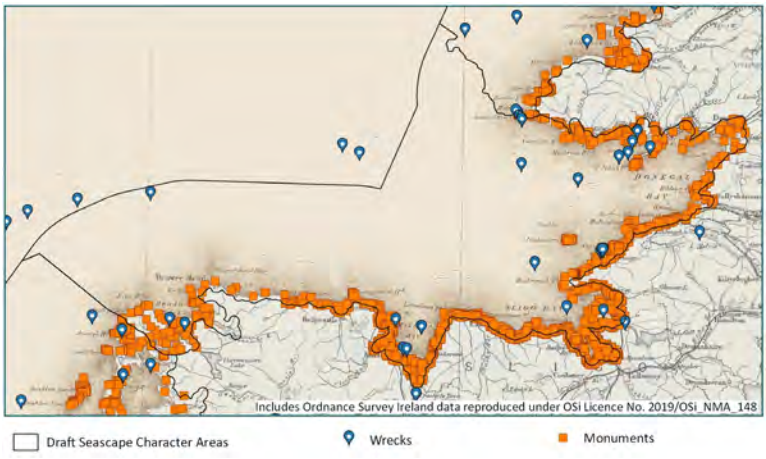
Sligo Bay from boat (Ruth Minogue)

and McSwynes; Sligo, Killala and Broadhaven Bays also classified as coastal waterbodies are classified as 'Good' Status.

- Numerous natural heritage designations, particularly of the coastal habitats, and offshore islands and sea stacks. These range from designations for barnacle goose and storm petrol that frequent various islands along this part of the Donegal Coast (eg; (Rathlin O'Beirne Island SPA and Inis Duff SPA) to marine and intertidal habitats including subtidal reefs (St Johns Point SAC); machair and fixed dunes (Bunduff Lough and Machair/Trawalua/Mullaghmore SAC). Ballisodare Bay in SCA 4 is known for its seal colony. Barnacle geese are known to migrate from Greece to North Sligo with the onset of winter, and the Irish hare is commonly found throughout the region. A pod of bottlenose dolphins, seals and Skuas were all observed during the boat based survey for this SCA.

Cultural and Social Influences

Archaeological and Historical Overview



Map 2: Archaeological records including wrecks

The earliest human activity evidence found in the Sligo Bay area dates to the later Mesolithic period, as at Belderrig Co. Mayo, in the form of shell middens which show the exploitation of marine resources.[2] Large shell middens dating from the Neolithic were found at the sand dunes at Culleenamore, Co. Sligo that are likely associated with the Neolithic seascape/landscape around Knocknarea, topped by Maeve's Cairn and the wider Cuil Irra peninsula[3]. It is likely that many of the middens along this coastline date to the prehistoric period, although without excavation it is currently difficult to demonstrate.

In the Neolithic period, this area continued to be occupied and there is extensive Neolithic activity in this SCA. People practiced agriculture and buried their dead in megalithic tombs. The important site at the Céide Fields, Mayo is thought to represent early Neolithic

[2] https://en.wikipedia.org/wiki/Belderrig_(archaeological_site) Accessed 1 July 2020

[3] Berg, S. 2002 Knocknarea the ultimate monument megaliths and mountains in Neolithic Cuil Irra, northwest Ireland, in Scarre, C. (ed.) Monuments and Landscape in Atlantic Europe. London: Routledge, 32-52. (MA007-003----)

farming activity and there are a number of field systems recorded in the SCA. The area of Knocknarea and the Cuil Irra Peninsula are characterised by their Neolithic remains and are nationally important. Many of the hut sites and settlement platforms around this area likely date to this period. Tombs dating to this period are represented by court tombs predominantly, three court tombs and a number of structures that are as yet unclassified. Unlike SCA2, passage tombs are located in this SCA in south Donegal (2), and Sligo (4). Wedge tombs are well represented (12) and are located along every county coastline, for example the one at Wardhouse, Co. Leitrim. The numbers of megalithic tombs in this area illustrates the wealth of these early peoples in that they could invest time and resources in their construction. The various cairns may also contain further megalithic tombs, or they may date to the Bronze Age.

Bronze Age activity is also well-represented by several burnt mounds and fulacht fiadh recorded along with the hilltop enclosure at Carrownrush that may also date to this period. A single piece of possible rock art (cup mark) at Bartragh Island near Killala would also date to this period. Burial is represented by numerous barrow types all along the coastline, cists, two pit burials, and it is likely that the wedge tombs continued in use in this period. Stone monuments: standing stones, pairs, and circles also belong to this period.

The Iron Age is notoriously difficult to find without excavation, though it is possible that some of the many coastal promontory forts and one inland example were either constructed or were already in use by this period. The cliff-edge forts may be similar. Some many have also continued in use into the early medieval period. An excellent example is that on Downpatrick Head[4] One linear earthwork[5] is recorded at Tullaghan in Leitrim. It may have been a part of the Black Pig's Dyke that forms a boundary between many of the lakes in north Leitrim, but there is no other evidence of the earthwork towards Lough Melvin, though there are traces of it towards the mouth of the River Drowes where it enters the sea.

As with other SCAs the early medieval period is well-represented. Settlement evidence comes in the form of enclosures, earthen ringforts, stone cashels, crannogs, and souterrains. It is likely that some of the promontory forts were re-used in this period. There is a particularly high density of ringforts, cashels and souterrains in the townlands of Foghil, Ross and Killala. It is reasonable to suggest that these had associations with the coast and sea, as well as each other if contemporary, although without the benefit of archaeological investigation this must remain conjecture. Early religious evidence is excellent, with ecclesiastical complexes, churches, bullaun stones, holy wells, two ogham stones (relatively rare in this part of the country) saint's stones, leachts, two round tower, cross slabs, cross-inscribed stones and high crosses. The island of Inishmurray is an excellent, nationally important, example of an ecclesiastical island site of pilgrimage which has been used for well over a thousand years.[6] The penitential stations within the area may also initially date to this period and continued in use over hundreds of years.

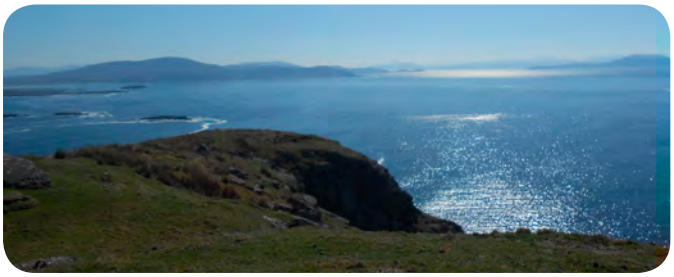
A number of historic territories established in this period are represented in this SCA. Burials in this period likely took place in the ecclesiastical sites and numerous churches. Several of the slab-lined graves recorded and the burial mound at Beltra[7] are likely of early medieval date. Children's burial grounds were used in many cases up until early modern times, though some may have originated in this period.

Archaeology that relates to the later medieval period, includes moated sites, all in county Sligo, There are numerous castle types: ringworks, a hall house at Castleconor, unclassified castles and tower houses all along the coast. Many of these were likely associated with sea trade and probably piracy. Some churches and the religious houses, which are predominantly of the Franciscan order were founded by Gaelic families and Anglo-Norman families. The historic towns of Donegal, Killybegs and Rathfran were established. By the mid thirteenth century much, but not all, of Sligo was in the control of Anglo-Norman lords, especially the Fitzgeralds, although much of the land was held in Gaelic hands for a rent payment or when required render tribute or military service. Over the course of the fourteenth century there was a Gaelic resurgence in the region, so much so that by the end of the century O'Conor (Sligo) had become the most powerful lord in the area. In fighting between Gaelic lords is noted in the Annals, but it was a prosperous time for the region.
In September 1588 a large portion of the 130-strong fleet sent by Philip II of Spain to invade England made landfall along the coast of Ireland, in an event known as the Spanish Armada. Following its defeat at the naval battle off the coast of modern Belgium the Armada attempted to return to Spain via the North Atlantic, when it was driven from its course by violent storms, onto the west coast of Ireland. This SCA is particularly associated with this event and three of the Armada fleet lie off Streedagh Strand, Sligo: The Juliana (a transport vessel), The Lavia and The Santa Maria de Vision (merchant vessels).

[6] O'Sullivan and Ó Carragáin 2008
[7] (MA008-002001-)

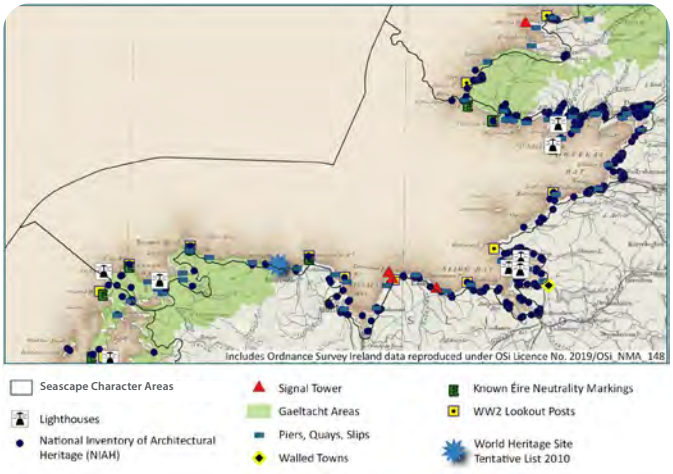
By the seventeenth century the direct power of the Dublin government was restored and English settlers introduced. The Cromwellian confiscations resulted in most of the Gaelic landowners losing both land and political power. The landowners displaced because of the scheme's implementation, if innocent of any part in the rebellion, were to be transplanted and given alternative lands in counties west of the Shannon including Mayo. This resulted in further transplantations within the county as families were moved to make space for others.

This SCA is also associated with another seaward incursion 'Year of the French' (Bliain na bhFrancach) when, in 1798, the French landed in ships at Killala as part of their ongoing conflicts with England. Humbert landed at Kilcummin strand, on Killala Bay, with about 1,100 officers and men of the army of the French Republic. The battlefield site is an archaeological monument[8] . There are two bastioned forts, one overlooking the Drumcliff Bay (SL007052---) and other fortifications were constructed during times of potential conflict from the seventeenth to the early nineteenth century. This incursion later prompted the construction of signal towers, many of which are located at the prominent heads in the SCA for example, at Carrigen Head, John's Point, Kilcollogue Point, with its later twentieth-century look-out post, Streedagh and Benorthwestee Head.



Achill, Keem Bay (Ruth Minogue)

Penal times are particularly presented by mass rocks. Whilst a number of famines hit Ireland in the early nineteenth century, culminating in the Great Famine of 1845—1849, the situation was particularly bad in this part of the country. Many infrastructural features such as roads and piers were built as famine relief projects. There are a number of monument types dating to the post-medieval and early modern period that illustrate people's connections with the resources of the sea, including kelp-drying kilns, salt works, sea walls and several seaweed stands, large and small piers, a quay at Ballyshannon, and small harbours such as Mullaghmore



Map 3: Built Heritage and An Gaeltacht

or Raghly harbours. Other nineteenth-century features include 3 signal towers, boathouses, coastguard stations, 2 beacons, one of which is the impressive 'metal man' at the mouth of Sligo Bay on Perch Rock between Rosses Point and Oyster Island. It was erected in 1821. Several lighthouses and associated keeper's houses assisted in navigation and protection of vessels at sea. A significant number of them associated with guiding boats into the narrow channels of Sligo Harbour – these include the Lower Rosses Lighthouse, the only lighthouse with a timber base; and Blackrock Lighthouse. Signal towers such as the Carrownrush Tower assisted in the protection of the coastline in the nineteenth century. Into the twentieth century watch towers such as the pill box at Castle Point and later signal towers continued the protective function, such as the look-out post near St John's Point, (Dunkineely) Donegal.

Contemporary

- Nowadays, the SCA includes the country's largest fishing port at Killybegs. This account for 61% of all landings by Irish vessels and also is the port with the highest tonnage landed by foreign vessels in Ireland (CSO, 2019). In recent years, cruise ships have also berthed at Killybegs; whilst angling and boat charters are popular. Boat trips are also available from Sligo Harbour to Coney Island, and sightseeing trips of the Sliabh League cliffs.
- Rich in lugworm and clams, the estuaries of Drumcliff, Garavogue and Ballysadare are popular spots for fishing. Shore angling is common in Rosses Point and Coney Island (accessible at low tide), while The Ledge (6km west to Coney Island) and Turbot Bank (northwest of Ballysadare Bay) are preferred for boat angling.

[8] (MA022-017008-)

[9] See Foley, R.2016. Healing Waters. Therapeutic Landscapes in Historic and Contemporary Ireland. Oxon. Routledge

- Surfing has become increasing popular with Rossnowlagh, Mullaghmore, Enniscrone and Strandhill being particularly important in this regard. These latter two towns also support a practice relatively unique to Ireland -seaweed baths; by the early twentieth century, there were 7 such baths in Strandhill alone[9].
- Tourism is well established in parts of this SCA with particular popular discovery points of the Wild Atlantic Way and popular walking routes at Erris Head and the Sliabh Leagues.
- Contemporary settlement patterns in the SCA comprise historic urban settlement cores fringing the coastline, taking advantage of sheltered bays and freshwater rivers; this expansion of housing along the coastal roads and fringing the sea is more pronounced in some stretches than others.
- Numerous navigational markers to guide boats into the havens of bays to avoid both sandbars as well as rocky islets and sea stacks at the mouth of the large bay; these include the Metal Man of Rosses Point (1821). Clusters of piers, slipways, stormwalls, moorings and harbours at Teelin and Tawney Bays (Cill Cheartaigh, Co. Donegal); Killybegs Harbour, the eastern shores of St Johns Point (Co.Donegal); Rosses Point (Sligo) and Broadhaven Bay (Co. Mayo).

Art and Folklore

- Mythical island potentially a local name for Breasáil (Hy Brasil) is Mainistir Ladra, seen from the coasts of South Donegal. This enchanted island, sunken in the sea, appeared above water every seven years. Accounts describe it as a delighted land with churches, towers, sheep and green pastures. It can be disenchanted by coal fire thrown on it. hÓgain (1999) suggests this situation of Mainistir Ladra must be based on the fact there is a breaker in this location, the Tuile Ladrann ('flood of Ladru) which was famed in the mediaeval literature as one of the great waves of Ireland.
- WB and Jack Yeats most notably associated with Sligo. Ballinglen Arts Foundation, Ballycastle, and a sculpture trail around Belmullet. An artists' retreat is present on Coney Island and is a popular location for musicians.
- Contemporary artists include visual artist Alva Gallagher of Killybegs. Ballinglen Arts Centre and Tír Sáile, North Mayo Sculpture Trail are present along the southern part of this SCA.
- Francis Harvey (Poet, Donegal) Haiku: "I watched him that day take his last walk on the strand. The tide was ebbing."

Perceptual Influences

Views and vistas

- Views from elevated areas of the headlands looking along the coastal edge are the most distinctive characteristic of this region. Long views across the sea are often framed by headlands and islands on the horizon; this applies to views eastwards towards the inner part of the SCA from northern and southern coasts of this SCA.
- Lighting[10] - While coastal settlements can be seen as glowing light along the coast, these tend to be located within the more sheltered bays and loughs and therefore not always openly visible. Lighthouses within the bay include Blackrock Lighthouse with a range of 10 nm (white) and 8 nm (red); Rotten Island with a range of 15 nm(white) and 11nm (red), Rathlin O'Beirne Lighthouse- 10 nm (red), 12 nm (white), Broadhaven Lighthouse, range of 17 nm (white), 12 nm (red)
- The islands, sea stacks, islets and sandbars enable some perception of scale and distance to sea views. Their distance from shore, and intermittent visibility depending on weather conditions, highlight the openness character of the ocean. Houses and fields on land also help the viewer make sense of scale along this coast which adds to the appreciation of the dramatic scale and configuration of the coastline. A number of locations include infrastructure to interpret the view including Erris Head, Downpatrick Head and other Wild Atlantic Way discovery points.
- Key views to land –boating trips along the Slieve League, and to Coney Island offer public views from land to sea. While the pattern of inlet and headland is readable at close distances to the coast, travelling further out to sea and in the 3-6NM zone, this coastal characteristic is less perceptible and the character is defined by the mountain skyline in clear weather.
- The metal man and the lighthouses of inner Sligo Bay are key seamarks.

Sense of Place

- The western parts of this SCA is exposed to the full force of the North Atlantic seas, with wind and weather systems visible approaching over great distances. An interesting feature of the Belmullet peninsula is the contrast between the fully exposed

[10] lighting includes private houses, businesses, public lighting, road traffic, telecommunications infrastructure and the lighthouses

heads such as Erris Head and the more sheltered bays and beaches facing Broadhaven Bay.

- At the elevated western part of this SCA, this combination of dramatic cliffs, sea stacks, crashing waves, strong winds, soaring seabirds and exposure to the elements create a strong character of wildness and remoteness.
- Dynamic light and textures associated with the ocean and changing weather systems on water is particularly pronounced at both exposed heads and wide bays.
- The full force of the Atlantic is apparent particularly at the western headlands; however the sound of the waves are a present element along all elevated stretches of this SCA. Weather changes suddenly and conditions can deteriorate or improve quickly. The open skies and open expanse ocean mean that that one can "see the weather coming" and observe cloud formations and ocean swell.
- - The strong Atlantic weather and winds results in an absence of trees or the presence of characteristic windthrown small trees on more sheltered areas, increasing the sense of exposure.
- The Met Eireann Marine Forecast references two the main headlands in this SCA – Erris Head and Rossan point; this provides an evocative audio experience of our marine nomenclature.

Sounds and Smells

- The sounds of the Atlantic weather in particular the waves crashing against cliffs and the strong winds at elevated locations are a distinctive and bracing element of this SCA.
- The soundscape associated with the high energy Atlantic is dissipated somewhat in the indented sheltered bays, particularly those sheltered from the west where the tides and sounds of the waves are constant but less overwhelming.
- The sound of the sea is constant but sound of waves alters as a precursor to changing wind directions and 'weather coming in'.
- Where rocky shorelines are present the iodine smell produced by marine works and algae is a particular and recognisable smell.

Full time inhabited islands in this SCA

Island	Population 2016
Coney	3



Sea Angling by Sliabh League
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA5: Atlantic North Mayo & Galway



Blacksod Lighthouse Belmullet (Ruth Minogue)

Summary Description

This SCA includes some of the best known and iconic coasts and seascapes of Ireland. There is a broad consistency of coast and seascape character across this SCA. Seascapes are frequently framed by mountains that creates a highly scenic views, reflected this area's popularity for recreation and tourism.

The predominant Seascape Character Type is SCT 5 (Complex metamorphic and igneous indented coastline, small bays and small islands). This comprises the western coastline from Slyne Head, West Connemara and extends northwards to Belmullet. This creates a varied seascape, frequently quite close to sea level and comprising a distinctive rocky shoreline and inter tidal zone, interspersed with generally small sandy beaches. Islands contribute to seascape character; many small islands are present close to shore, as well as more substantial islands such as Achill and Clare Islands. Belmullet is included within this SCA and shares both landscape and seascape characteristics with Achill. Eastern and southern bays are more sheltered from the ever present Atlantic influence; this contrasts with the more exposed, wild and remote character as found at Keem Bay and Head on Achill and the northern part of Belmullet towards Erris Head, and the cliffs at western Clare Island.

Further south, Killary Harbour (SCT 3 Sea Lough/Fjord) forms the distinctive boundary between counties Mayo and Galway; with the relatively narrow long penetration of sea water extending inland from the Atlantic and nowadays ensuring that roads must traverse far inland to go around this sea lough. This was not the case historically when a ferry ran across the harbour providing a shorter way to travel across this natural boundary.

Clew Bay is the only large limestone bay (SCT 1 Large limestone bay with low-lying/undulating hinterland and coastal wetlands) within this character area. Associated with the pilgrim mountain of St Patrick and Clare Island; this relatively shallow bay includes numerous gravels bars and glacial moraines dispersed around the inner bay reflecting the process of deglaciation.

The area around Slyne Head at Ballinaleama retains a relatively remote and exposed character, due to the elevated landform and plateau. Slyne Head itself being the largest and most westerly of a cluster of islands off this peninsula.

The presence and influence of the sea on the landscape is diverse within this SCA; the low-lying parts of the Mayo area such as eastern Achill, Mulranny, Ballycroy and Belmullet comprise a close visual link to the sea with small sandbars and beaches present and the interplay of tidal sea inlets a relatively frequent occurrence, particularly around Ballycroy. This alters with more exposed parts particularly those facing west where the full power of the Atlantic again comes to the fore.

Views likewise vary from the views frequently framed by headlands associated with the eastern bays, and expansive sea and sky views with panoramas of the ocean from the exposed heads and cliffs facing west and north.

Boundaries and Location

This seascape area stretches southwards from Erris Head, Belmullet as far south as Slyne Head, west Connemara. The SCA extends from the coast for 12 Nautical miles to include the North Atlantic. Numerous islands, islets and



Clew Bay from boat (Ruth Minogue)

skerries/carraigs are found within this SCA. In addition to heads and points, numerous small bays are present. The principal large bays associated with this SCA are Blacksod Bay, Clew Bay, Killary Habour, Killary Bay Little, Ballinakill Harbour, Cleggan Bay, Streamstown Bay, Clifden Bay and Mannin Bay.

Key Characteristics

- Atlantic facing coasts comprising a mix of elevated land, with cliffs and occasional sea stacks visible. - The mountains that frame much of this SCA create a series of well-known and iconic seascape vistas. Numerous offshore and nearshore Atlantic islands, notably Clare, Achill, Inisturk and Inishbofin; many of the other islands within this SCA have become uninhabited within the past 80-90 years such as Iniskea islands.
- The density of offshore and nearshore islands provides a particular character; the legacy of naming of all these islands from large islands to the numerous offshore skerries/carraigs reflect the use of the coastline for communications.

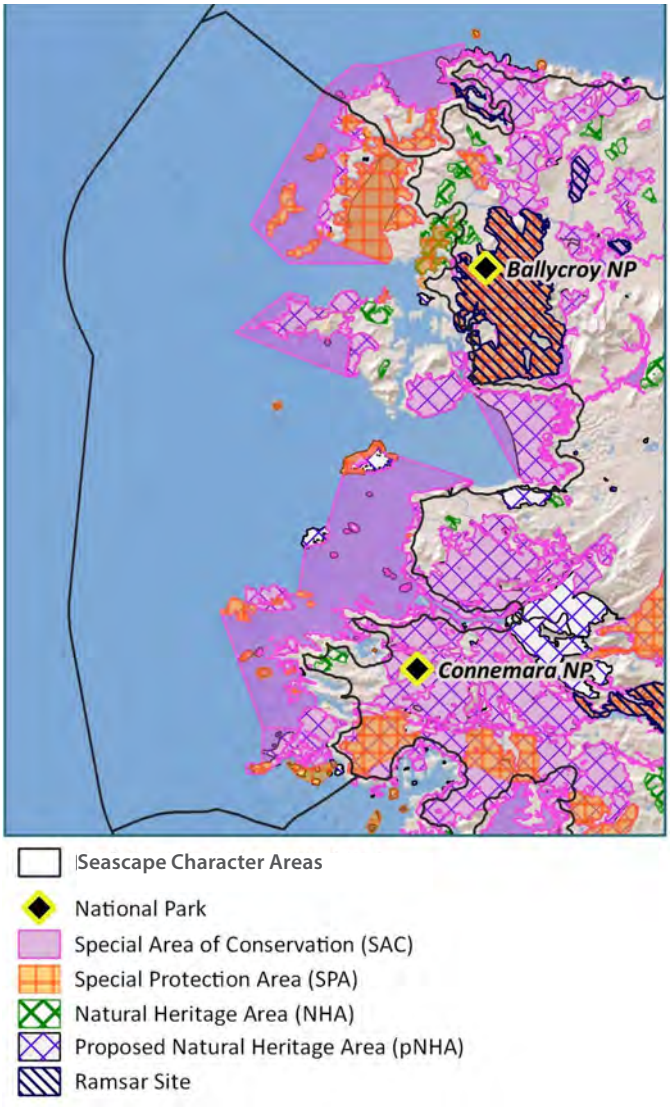


Omey Island (Ruth Minogue)

- Cultural and linguistic ties to the sea remain strong for example placenames at Achill, Belmullet.
- Highly dramatic coastal landscape interacting with the weather systems and force of Atlantic waves. This is particularly pronounced at the northern and western parts of this SCA
- The eastern and south-eastern inlets, bays and sandy beaches are indented and complex.
- Sea is consistently present; even when not visible, the sound of the Atlantic is constant through waves or wind. Salt laden winds and rain can result in salt being deposited on windows and “burned” foliage at inland locations.
- The effect of glaciation of topography is quite pronounced in this SCA particularly around Clew Bay, and the glaciated montane topographies of the Nephin Range, Corraun, Achill, Doo Lough Valley, Killary Harbour and the Twelve Bens.
- Principle towns include Belmullet, Westport and Clifden; all situated within sheltered bays or harbours.
- Ferries run to and from Clare Island and Inisturk islands from Roonagh Pier, boat and fishing trips are variously offers within Clew Bay and Killary Fjord; chartered boats and angling trips also available from Achill and Belmullet. Surfing has become a popular activity off Achill and this area generally has a good reputation for outdoor and sea based activities.
- The coastal hinterland varies from remote plateaus such as Slyne Head, to more blanket peatlands both at elevated and close to sea level. Pasture comprising peaty soils and cliff faces, to more sheltered, fertile agricultural land.

- Key coastal points are identified that present as a juncture between the wilder, exposed Atlantic and the relatively sheltered eastern/southern bays for example at Blacksod Pier, and Keem Head.

Natural Influences

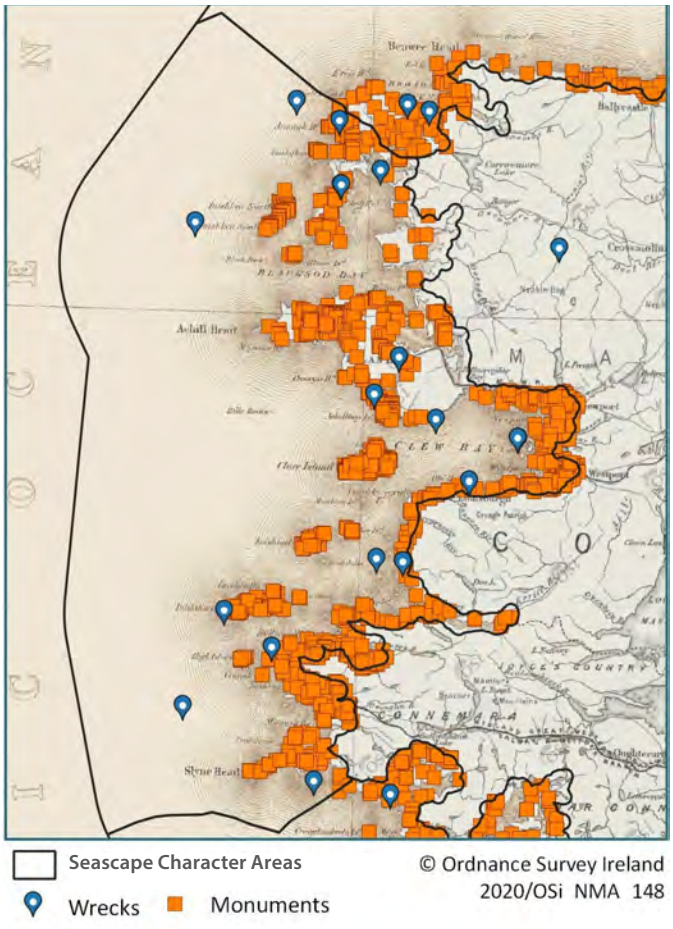


Map 1: Natural Heritage

- The Belmullet peninsula hosts the some of oldest rocks on the island of Ireland: 1,750 million year old metamorphic gneiss rocks at Annagh Head.
- Northwest Erris, Achill, Corraun and northwest Connemara are comprised of a belt of metamorphic rocks known as the Dalradian Supergroup. These rocks are also found in Antrim and Scotland – the name originating in the Dál Riada Gaelic kingdom of northeast Ireland and southwest Scotland in the Early Medieval Period.
- The south shore of Clew Bay and coastal section from Roonagh Pier to Killary Harbour is relatively low-lying, except for the hills at Old Head (102mOD) and Carrowmore (171mOD). Croagh Patrick (764mOD) and Mwellrea (814mOD) command the skyline in this region of variable predominantly Ordovician/Silurian sedimentary bedrock.
- Clew Bay north shore and inner bay comprises Carbonifeous-age limestone and Old Red Sandstone (ORS). ORS is usually associated with Devonian-age terrain in the southern part of Ireland. Clew Bay Carboniferous ORS at Mulranney and along Corraun Alantic Drive is one of the best places in Ireland to observe the sediments from the Carboniferous ORS terrestrial environment at a time when the Carboniferous sea was encroaching over the south of Ireland, eventually to flood the entire island.
- Killary Harbour is the only fjord on Ireland's west coast. The harbour comprises a deep, U-shaped glacial valley, the floor of which has been drowned by the sea.
- The northwest southeast orientation of the headlands, elongate embayments, and lakes in the northwest Connemara are controlled by regional-scale folding in the Dalradian rocks, the axis of the fold running northwest southwest from Omey to Oughterard. The Twelve Bens/Maamturks occupy the core of this fold.
- A very large proportion of Mannin Bay is dominated by a combination of maerl debris and living maerl. Maerl is free living red calcareous algae generally called 'coral'. The silts and sands in the bay and beaches were deposited by longshore drift, or were blown across the locality.
- In low-lying coastal areas where bedrock elevation is near sea-level, geomorphology is characterised by Quaternary deposits (e.g. Clew Bay ribbed moraine field – resulting in numerous islands, gravel bars/banks and profiles of glacial deposits exposed on islands, on bluffs and cliff-faces and inland hilly terrain).
- Much of the glaciated montane topography (Nephin Range, Achill, Corraun, Twelve Bens) of this SCA is on Dalradian terrain. These mountain landscapes host classic glacial features such as corries, tarns, nunataks, scree slopes, u-shalled valleys, ribbon lakes). These sculpted mountain ranges compliment the incised coastline.
- Coastal glacial depositional landforms subjected to sea-level rise and coastal erosion (inner Clew Bay islands and onshore hillocks, Askillaun cliffs, Rinvyle/Tully; Mannin Bay/Ballyconneely cliffs) are a characteristic localised features, often proximal to sandy beaches.

- Island morphology and geology varies within the SAC; from the low-lying islands of Inishkea (metamorphic; Dalradian), Inishturk (sedimentary; Ordovician) and Inishbofin (metamorphic; Dalradian); to the montane and sea-cliff topographies of Achill Island (metamorphic; Dalradian); and Clare Island (sedimentary; mostly Silurian).
- Offshore seafloor bedrock reflects a similar lithological signature and age to the coastal and onshore geology. Offshore seafloor sediment substrate is not available for much of this SCA. The exception is the offshore area west of the Mullet peninsula, comprising sand, coarse sediment and bare rock.
- Macro tidal ranges (>4m) occur at Blacksod Bay/ Clew Bay; the rest of this SCA is subject to meso tidal ranges of >2m<4m. Water Framework Directive (WFD): Coastal Waterbodies classified as High Quality are present at Inner Clew Bay, Clew Bay (good status), Killary Harbour (moderate status); other coastal waters within this SCA are currently unassigned - Western Atlantic Seaboard Ballinakill Bay and Mannin Bay.
- Numerous natural heritage designations; the islands and rocks west of Belmullet (Inishglora and Inishkeeragh SPA, Iniskea Islands SPA and Duvillaun Islands SPA) support a wide range of seabirds such as Storm Petrel and Cormorant, Wintering Barnacle Goose and waders including Oystercatchers. Similarly several of the offshore islands and rocks west of Achill, Clifden and the western cliffs of Clare Island are designated as SPAs for breeding seabirds and wintering barnacle goose (High Island, Inishshark and Davillaun SPA, Cruagh Island SPA, Inishbofin, Omey Island and Turbot Island SPA).
- Habitats and species that are supported through the coastal, offshore and marine habitats include the West Connaught SAC, a substantial area of marine waters, this site extends westwards into Atlantic continental shelf waters up to approximately 7-11 km from the mainland, although in its southern component it remains mostly inshore of the main islands: this is an important areas for the Bottlenose dolphin year round; other coastal and marine habitats include the Clew Bay Complex SAC with a range of habitats such as Atlantic Salt Meadows, coastal lagoons, machairs as well as grey seal and otter populations. The humid southern shore of Clew Bay has given rise to a rich bryophyte flora. The Greenland White-fronted goose (Anser albhifrons flavirostris) uses the Owenboy Nature Reserve as a breeding ground. The Oldhead Wood Nature reserve is a semi-natural woodland, with oak being the dominant species among birch, rowan, willow and introduced beech and sycamore.

Cultural and Social Influences



Map 2: Archaeological record including wrecks

Archaeological and Historical Overview

This SCA comprises the coast of counties Mayo and Galway. At the time of the published archaeological survey for West Galway in 1993[1] there was no definitive Mesolithic evidence, but since then some tantalising evidence for the Mesolithic in this region has been discovered. For example, at Renvyle Beach a midden comprising mainly periwinkle shells returned a later Mesolithic date. This shows the exploitation of marine resources from earliest times. Other Mesolithic finds in Connemara include a number of spearheads from Streamstown Bay and from further inland in the Corrib and at Oughterard.[2] Other coastal middens have been dated to the early medieval period but it is likely than many more are actually prehistoric in date.

In the Neolithic period, this area continued to be occupied and there is important Neolithic activity in this SCA. People practiced agriculture and buried their dead in megalithic tombs. Megalithic tombs represented in the area are portal, court, and wedge. Some of these are

[1] As yet there is no survey published for County Mayo

[2] https://www.irishtimes.com/news/18th-century-quay-identified-in-connemara-1.653897 Accessed 2 July 2020.

either late in the chronology of Neolithic monuments or may have extended use into the Bronze Age. There are a number of currently unclassified megalithic tombs adding to the overall number. Interestingly there is no passage tomb yet identified in this locality, although it has been suggested that a number of the hilltop cairns may contain them.[3] There is a notable concentration of megalithic tombs in northwest Connemara along the coast illustrating intensive prehistoric usage of this place.[4] Some of the many of the undiagnostic hut sites and settlement platforms around this area likely date to this period. Various cairns may also contain further megalithic tombs, or they may date to the Bronze Age.
Bronze Age activity is also well-represented by one burnt mound and many fulacht fiadh. There are two small pieces of rock art on Clare Island.[5] Burial is represented by numerous barrow types all along the coastline, several cists along with the wedge tombs that likely continued in use. Stone monuments: many standing stones, 8 stone pairs, 3 stone rows and 7 stone circles belong to this period also. There are a number of recorded field systems and boundaries right across this SCA particularly in Connemara and on the islands. Some of these likely date to the early prehistoric period, though an Iron Age date from one at Derryinver (outside SCA) returned a date of 600-200BC, in the Iron Age. The Iron Age remains elusive in this SCA but is likely represented by some of the coastal promontory forts/cliff-edge forts like the one at Rinvyle Point. Some may have also continued in use into the early medieval period.

The early medieval period is particularly represented in the SCA with some excellently preserved ecclesiastical sites upstanding. Many of these are located on the larger islands and several have been archaeologically investigated, for example, Inishglora (possibly associated with early medieval nuns), Omey Island, Inishbofin, and High Island. Croagh Patrick, arguably the premier sacred mountain in Ireland, probably since pre-Christian times, is situated centrally in the SCA and it is easy to imagine pilgrims approaching by sea into Clew Bay and visiting the islands as they travelled. These religious sites have the usual associated features such as huts, leachts, ogham stones, churches, burials and graveyards. Holy wells are also a feature and it has been noted that a sizeable proportion of them have a coastal siting, such as the example at Cleggan. St Colum Cille is a common dedication and they are associated with the lore of local fishermen, many being venerated into modern times.[6] Several of the slab-lined graves recorded are likely of early medieval date and several of these have been revealed due to coastal erosion. Children's burial grounds were used in many cases up until early modern times, though some may have originated in this period.

Secular settlement is represented predominantly by ringforts, souterrains and crannogs. Cashels are more numerous than in other SCAs and this is likely due to the generally stonier topography. Many of the hut sites and middens recorded in the SCA would have been used at this time. There is tantalising evidence for Viking activity along the coast at Truska near Ballyconneely, where a burial and settlement have been identified.[7]

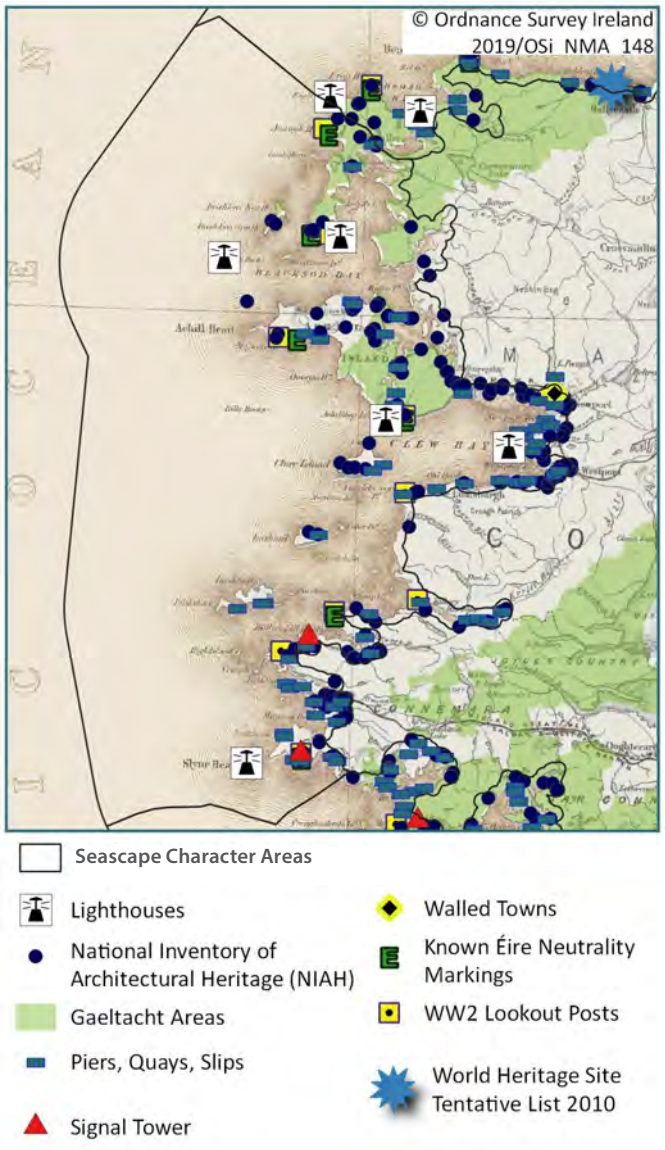
For the later medieval period, the Anglo-Norman influence was not as strongly felt here as elsewhere, so monuments such as moated sites and thirteenth-century castles are lacking. However, there are a number of unclassified castles in the SCA and many of these many prove to fill the current gaps in knowledge. There are however 7 tower houses and it is likely these were used by Gaelic families, many with maritime connections. The most famous example, is Rockfleet Castle, also known as Carrickahowley Castle near Newport in County Mayo, Ireland. It was built in the mid-sixteenth century, and is most famously associated with Gráinne Ní Mháille (Grace O'Malley), the 'pirate queen' and chieftain of the Clan O'Malley. The castle has been speculated as her place of death. It is situated right by the water in Rockfleet Bay and is associated with a medieval settlement.[8] Some churches and the religious houses were patronised by the local lords and were affiliated to the Augustinian (canons and friars), Cistercian (Clare Island)[9] and Dominican orders (Carrowkeel, Mayo). The affiliation of a further three religious houses has been lost. There are no proper medieval towns in the SCA, though there are a large number of smaller settlements and settlement clusters – this perhaps is an indication of the strong Gaelic influence in the area.

The area is rich in archaeology dating to the post-medieval and early modern periods. Many of the early medieval ecclesiastical sites continued to be used for pilgrimage and burial in this period. Several post-medieval settlements have been excavated; such as those on Achill island and Inishbofin, revealing island life in the area over hundreds of years. The booley huts recorded in the area date to this period and were used

[3] Gosling 1993, 7
[4] Gosling 1993, 8
[5] Gosling, P., Manning, C. and Waddell, J. (eds.) 2007 New Survey of Clare Island, Volume 5: Archaeology. Dublin, Royal Irish Academy
[6] Gosling 1993, 116
[7] Gibbons and Kelly 2003
[8] See Kelleher 2020; Naessens 2018; as background see Naessens, 2007 'Gaelic Lords of the Sea: The coastal tower houses of South Connemara', in Doran, L. and J. Lyttleton (eds) Lordship in Medieval Ireland: Image and Reality. Dublin: Four Courts Press, 217-235.
[9] The monastery on Clare Island is a National Monument and has been extensive published. P. Gosling and J. Waddell (eds.) 2005 New Survey of Clare Island, 5 volumes.

as part of the farming method of transhumance; moving animals to summer pastures on higher ground. Fishing was important and a number of commercial fisheries were developed including whaling stations at Blacksod Bay and on the Inishkeas,[10]and a number of salt works. Large numbers left this region during the Great Famine and a museum in Louisburgh records this tragedy.[11]

There are numerous structures which show people's connections with the sea in this SCA, including signal



Map 3: Built Heritage and An Gaeltacht

towers dating to the nineteenth century, 2 beacons on Inishkea South, boathouses, several coast guard stations and lighthouses and lighthouse keepers' houses, such as Slyne Head, Clare Island, and Blacksod Point. Many small piers, quays and harbours, along with twentieth-century look out posts (watch towers) with associated EIRE signs (Renvyle EIRE55; Slyne Head EIRE53). Of particular interest is the stretch of canal at Belmullet. It was completed in 1851 by William Henry Carter with the financial assistance of a loan granted by the Board of Public Works in 1846 (established 1831) under the Fisheries (Ireland) Act, 1846. It represents an important component of the mid nineteenth-century civil engineering heritage of the region 'the [cutting] intended to afford to the fishermen a short passage from [Blacksod Bay to Broadhaven Bay], instead of their being obliged to proceed round the whole coast of the [Mullet Peninsula], or drag their boats with great difficulty over the narrow strip of land through which the canal is to be made' (NIAH citing Sessional Papers 1847, 2-3).

Contemporary

- Tourism plays a very significant role in parts of this SCA; Westport functions as an important service town with trips from the harbour and the well-established Great Western Greenway extending from Achill Sound to Louisburgh. Outdoor recreation both sea and land based significant also; surfing is popular at Achill with wind surfing at Achill, Westport and Killary.
- Clifden is another popular and important tourism town providing access to the western shores of Connemara, Connemara National Park and close by at Cleggan, ferries to Inishbofin island. The Wild Atlantic Way runs for much of the coastal route and includes Signature Discovery Points at Keem Bay and Killary Harbour. Sea Angling and in particular salmon fishing is strongly associated with parts of this SCA.
- Large fishing ports are not a feature of this SCA however, shellfish and sea products including seaweed harvesting are, e.g. Keem Bay Fish Products, Achill; Croagh Patrick Seafoods, Newport; Killary Fjord Shellfish, Leenane; Connemara Smokehouse, Ballyconneely and DK Connemara Oysters, Letterfrack.
- This SCA includes the two planned towns of Clifden (1812) and Westport (this built upon an earlier settlement with the Georgian Malls dating from 1800). Smaller settlements fringe the coastline or are located in the sheltered inlets and bays; the close interactions and historical settlement on the islands attest to the coastal links within this SCA, the mountainous hinterlands historically an obstacle to easy inland movement.
- Holiday homes are present with particular

[10] For a local account of living in this area see R. Nolan 1998 Within the Mullet. Self-published

[11] See http://www.askaboutireland.ie/reading-room/culturenet/museums/mayo/famine-museum-and-grainne/ Accessed 2 July 2020

concentrations (above 52%) in north Achill and Slyne Head Peninsula. The lighthouse on Clare Island is listed as one of the Great Lighthouses of Ireland and can be rented for holiday accommodation.

Art and Folklore

- Inis Gluaire (Inishglora), off the Belmullet Peninsula includes important ecclesiastical sites associated with the establishment of a monastery by St Brendan in the 6th Century. The Children of Lir spent their final 300 years on this island, having spent the previous 300 years at Rathlin Island, and before that at Lough Derryvaragh in Co. Westmeath. Sailing nearby, sailors and fishermen used to lower their top-sails to show their respect and to honour St. Brendan the Navigator12.
- Granuaile (Grace O'Malley) renowned and notorious 'Pirate Queen' sixteenth century pirate with strong associations with the Mayo coastline and Clare Island in particular. Stories abound as to her buccaneering and seafaring capabilities and her O'Malley family motto claimed they were 'powerful by land, powerful by sea'. Her reputation and notoriety only increased after her death with the image of Granuaile as a national icon associated with the 'Money Bill Crisis of 1753'[13] which saw political pamphlets and the first ballad stressing the role of Granuaile as an icon of independence. The famous Jacobite ballad Óró sé do bheatha abhaile was reworked by Padraig Pearse, replacing reference of Bonny Prince Charles with that of Granuaile.
- - One of the characteristic minerals visible along the Croagh Patrick Pilgrim path is the green coloured mineral Serpentinite – coincidently occurring on a mountain associated in folklore with the story of snakes in Ireland.
- The poet Richard Murphy moved to Cleggan in 1954 and restored a currach, the Ave Maria, to ferry people to Inishbofin. Macdara Woods, poet who wrote about Clare Island. Visual artists have a particular association with Achill Island including Robert Henri (1865-1929) and Paul Henry (1877-1958); Art galleries and workshops continue this tradition.

Perceptual Influences

Views and vistas

- Views across and along the bays in this SCA vary from small to large scale but the bay character is reinforced by the land views commonly to the east, north and south; these land views are frequently associated with the mountains in the distance with the horizon view featuring the mountain ridges as a horizon profile. For example, sea views from Clew Bay tend to be framed by Croagh Patrick and in the distance the distinctive profile of Clare Island.
- Other views within this SCA are associated with the western facing heads and elevated cliffs, where long views across the ocean predominate. This can be noted at Keem Head, Clare Island cliffs and Inishbofin cliffs.
- The elevated mountainscapes of Clare and Achill are a striking feature on the western horizon when viewed from the Mayo coast.
- Wider and longer views (though frequently still framed by land at distance) can be found from sea-level at beaches and rocky shorelines.
- Lighting - While coastal settlements can be seen as glowing light along the coast, these tend to be located within the more sheltered bays and loughs and therefore not always openly visible. Lighthouses are present at Eagle Island (range of 18 nm), Blackrock (Mayo, White- 20 nm, Red 16 nm), Achillbeg (White 16 nm, Red (intensified) 18 nm, Red 11 nm), Inishgort, 10 nm.
- The numerous nearshore islands and indented coast enable some perception of scale and distance to sea views. Their frequent proximity to the shore and visibility can create a more intimate seascape view.
- Boating trips within Clew Bay and ferries to the islands such as Clare Island and Inishbofin offer public views from land to sea.. While the pattern of inlets, bays and shoreline headland is readable at close distances to the coast, travelling further out to sea and in the 3-6NM zone, this coastal characteristic is less perceptible with the more open character of the sea receding land views. This again is dependent on weather conditions.
- As with all of the SCAs the influence of the weather on the water is profound and results in huge variability and diversity of light patterns and colour of the sea and landscape.

[12] https://www.mayo-ireland.ie/en/about-mayo/islands/inishglora.html

[13] This relates to the Dublin Parliament in 1753 passing a tax vote without reference to the King. This issue of referencing the King results in a spilt between the court faction and patriot faction. See Eskin, D 2018 for further details

Sense of Place

- The Atlantic presence, though constant, varies within this SCA; the numerous islands and close connections between the islands and coastline has created a distinctive identity and cultural associations in this SCA.
- At the elevated western parts of this SCA, particularly at western facing cliffs, this combination of dramatic cliffs, sea stacks, crashing waves, strong winds, soaring seabirds and exposure to the elements create a strong character of wildness and remoteness.
- For much of the SCA however, the sounds and smells of the Atlantic are more muted due to the connectivity to the islands and the more intimate indented coastline.
- Dynamic light and textures associated with the ocean and changing weather systems on water is very pronounced with inky waters associated with grey skies; this can change very quickly with the turquoise blue shallow waters of the numerous bays and sandy beaches another distinctive part of this SCA.
- The Met Eireann Marine Forecast references two the main headlands in this SCA – Erris Head and Slyne Head; this provides an evocative audio experience of our marine nomenclature.

Sounds and Smells

- The sounds of the Atlantic weather, in particular the waves crashing against cliffs and the strong winds at elevated locations, are a distinctive and bracing element of this SCA.
- The soundscape associated with the high energy Atlantic is dissipated somewhat in the indented sheltered bays, particularly those sheltered from the west where the tides and sounds of the waves are constant but less overwhelming.
- Where rocky shorelines are present the iodine smell of seaweed is a particular and recognisable smell.
- There cluster of licensed aquaculture sites are present in this SCA, including finfish, seaweed and shellfish. The Ferry Routes between Ronnagh and Clare Island, and Cleggan to Inishbofin Island are used more frequently by passenger vessels over commercial ones.

Full time inhabited islands in this SCA

Island	Population 2016
Achill Island/Acaill	2594
Clare Island	159
Inis Bigil	181
Inishcottle	0
Inishlyre	4
Inisturk	5
Inisbofin	175
Clynish	4
Omey	2



Harbour, Clare Island, Co Mayo
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA6 - Atlantic Galway Bay and Islands



Galway Bay from Inis Oirr (Ruth Minogue)

Summary Description

A large limestone bay (Galway Bay) is framed by two distinctive and very different coastlines, north (Connemara) and South (Burren); this SCA extends to encompass the Aran Islands. A coherent SCA, there is considerable diversity associated with it, due to the changing geology, influence of the ocean and the presence of Galway city at the mouth of the River Corrib. The north-western part the SCA is characterised by Slyne Head, itself an island formed from a series of fragmented islets and rocks extended southwest from a peninsula that is bounded by Mannin Bay to the north and Ballyconneely Bay to the south. The coastline retains the rugged, extremely indented character associated with SCA 4 with rocky shorelines clad in brown seaweeds, intertidal zones, smaller headlands, numerous inshore islands, some of which are connected by bridges/roads such as Lettermore , Goruma, and Mweenish Islands. East of Inverin this coastline becomes more regular and no bays are present until closer to Galway; though numerous quays occur. At this stage Galway City and Docks influence the coastal seascape and can be seen across the bay from Tawin Island and the Flaggy Shore on the Clare coast.

The limestone becomes more visible on the Clare coastline and the classic karst scenery becomes increasingly dominant further west with the limestone hills of Turlough Hill, Moneen Mountain and Gleninagh visible across the bay. The escarpment and limestone pavement increasingly hugs the coast after Ballyvaughan Bay and at Blackhead Co. Clare the character becomes more exposed with strong Atlantic winds and waves; however the view retains the islands of Aran at the horizon.

The bays of the southern part of this SCA are less numerous and generally more narrow with shallow waters, small islands and sandbars for example at Kinvara and Aughinish.

The Cliffs of Moher form the southern part of this SCA and comprise high sandstone/metasedimentary cliffs and plateaus, similar to the coast nearer Loop Head and Sliabh Leagues in Co. Donegal. This are very well known and promoted with a popular visitor centre, and coastal walk.

In contrast to the Atlantic Sligo Bay SCA, this area is not bounded by sheer cliffs but the seascape retains its distinctiveness and includes some of the best known images and cultural heritage of the country. In addition to the currachs, associated with much of the Atlantic seaboard, the Galway Hooker is a larger boat and was used to transport more sizeable goods to and from the Aran islands and across the bay.

Art and literature have strong links to this SCA, the Aran islands and Galway Bay as well as the landscapes of Connemara and the Burren having inspired a significant number of writers, artists ranging from JM Synge to Tim Robinson and Moya Cannon.

The presence and influence of the sea on the landscape is largely consistent within this SCA; the network of minor roads and connectivity to islands, the frequently long coastal views allows for almost constant views to the sea and across Galway Bay. Closer to Galway City the visual aspect of the seascape character becomes less expansive.

Settlements have taken advantage of sheltered bays where possible and include the village of Roundstone, Carna, Kilkieran, Carraroe, Inverin, An Spidéal, Salthill and Galway City, Oranmore, Clarinbridge, Kinvara and Ballyvaughan.

Boundaries and Location

This seascape region extends from Slyne Head at the western tip of Illaunamid, encompassing the fragmented groups of islands and rocks towards the land, and extends across to include the Aran Islands (Inismhore, Inis Meain and Inis Oirr) and over to Hags Head on Liscanner Bay. The Aran islands are over 10 nautical miles from the mainland at Galway, although Inis Oirr is much closer to Doolin on the County Clare western coast (c3 nautical miles). This SCA includes numerous bays. Major bays include Ballyconneelly Bay, Beartraghboy, Mweenish Bay, Kilkieran Bay, Galway Bay and Blackhead/Ballyvaughan Bay, while there are a notable the number of smaller bays on the northern part of this SCA.



Seaweed at Inis Oirr (Failte Ireland)

Key Characteristics

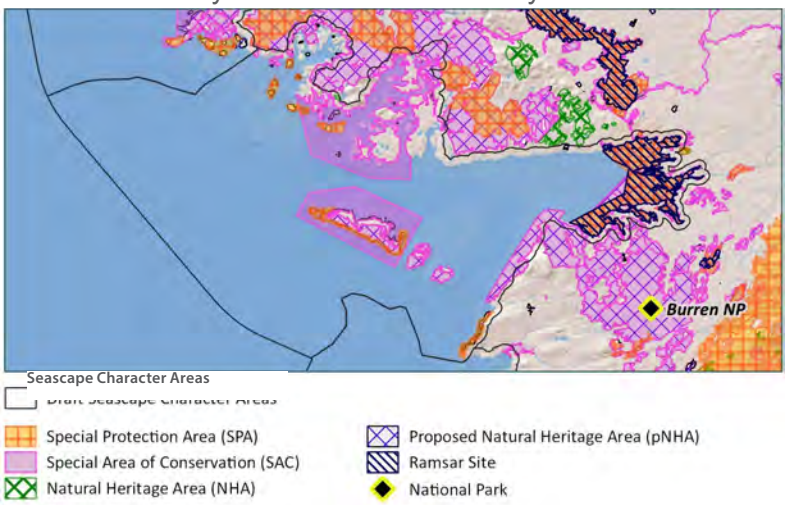
- Broad sweeping bay with diverse and iconic coastline.
- Aran Islands are the most westerly islands associated with this SCA, with a number of inshore islands particularly associated with Connemara coastline, connected with many of the causeways and bridges joining the islands of Lettermullan built between 1886 -1891.
- Aughinish Island, uniquely for Ireland, is joined by road to Co. Galway but is part of Co. Clare; this island was temporarily isolated for five decades following tidal waves originated in the earthquake of Lisbon in 1755[1].
- Tourism and particularly strong associations with art and folk music and seafood are identified for this SCA.
- Distinctive boating tradition of the Galway hookers as well as particular fishing communities associated with this area, notably at Claddagh.
- The density of islands, islets and skerries/carraigs provides a particular character concentrated on the northern part of this SCA but also present around Blackhead Bay. The naming and descriptors given to all these features, from large to small, demonstrate the importance of navigating in and around this SCA.
- Research into the naming and understanding of places, such as the work done by Tim Robinson, gives valuable insights into the sense of place. Oilean Imill (Illaunamid) the island at the tip of Slyne Head with two lighthouses has been interpreted as Edge/Margin island by Tim Robinson; which reflects its remote character before the expanse of ocean[2].
- Influence of the sea on land is generally consistent due to low-lying topography, indented coast and more exposed elevated areas.
- Principal towns include Roundstone, Carna, Carraroe, Galway, Ornamore, Kinvara and Ballvaughan, sited to take advantage and provide haven from the Atlantic.
- Ferries run to and from Galway and Clare to the Aran Islands and between the islands themselves. Galway Bay is renowned for deep fishing further out in the bay.
- The coastal hinterland varies from the exposed peninsula around Slyne Head, to rocky indented shorelines with small harbours, urban and industrial landuse around Galway City and Docks and the limestone coastal shelf and pavement of the Burren.

[1] Walsh, D 2014
[2] Walsh, D. 2014

- Slyne Head, at Illinamaud, and Blackhead provide the key boundaries between the more open, exposed Atlantic Ocean and sheltered Bay.

Natural Influences

- This SCA comprises a large, open bay situated between the irregular, indented and island-abundant south Connemara coastal region to the northwest; the contrasting uninterrupted Clare coastline to the south, and a group of low islands oriented perpendicular to the Clare coast, standing sentry at the mouth of the bay.



Map 1: Natural heritage

- The offshore, coastal, island, and hinterland bedrock geology of the SCA is characterised by four main bedrock types of distinct lithology and age.
- Caledonian granite coastline and immediate hinterland comprising the extensive Galway Granite Batholith and the Roundstone Granite, extending almost continuously from Murvey/Errisbeg to Salthill. These coastal lithologies continue and extend offshore for distances of ~15 km off Errisbeg to ~4km off Cois Fharraige/Salthill.

- A wedge of the Metagabbro-Gneiss Suite rocks underlie Galway City, and extend from Grattan Beach eastwards to Ballyloughaun Beach (Renmore).

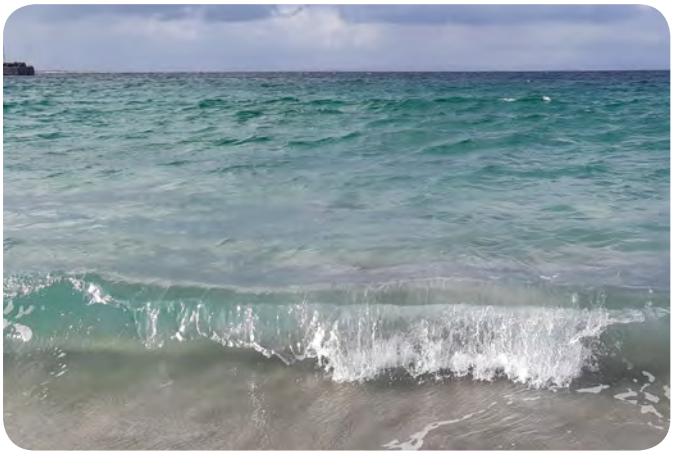
- The geology of the entire coastline and hinterland of east and south Galway Bay, from Renmore to Doolin is characterised by Carboniferous limestone. The Aran Islands share the same bedrock characteristics as the Carboniferous limestones of the Burren. The location of the three large islands at the mouth of the bay is a surface expression of the limestone seafloor underlying most of the bay, extending and tapering out in a northwest direction towards Slyne Head.

- The most southerly section of the SCA, from Doolin to Hag's Head, is entirely Namurian (Late Carboniferous) shale, siltstone and sandstone. The Fisherstreet cliffs southwest of Doolin comprise layers of black deep marine shale, whilst further south, the cliffs expose thick beds of deltaic siltstone and sandstone, typified by the Cliffs of Moher. The seafloor bedrock to the south of the Aran Islands is categorised similarly as Namurian sedimentary lithologies.
- The inshore coastline of Roundstone Bay, Carna and Ceantair na nÓiléan is peppered with low-lying, granite islands and headlands, which serve to shelter the waters from the prevailing southwesterly weather systems.
- The remainder of the SCA coastline is almost devoid of islands, except for a suite of small islands and promontories composed of subglacial deposits landforms in the innermost part of the bay (Tawin Island, Island Eddy) and amid the sheltered bays along southeast shore. These subglacial landforms (e.g. drumlins, morraines) indicate northeast southwest ice flow direction seaward towards the large bay.
- The hinterland and coast is low-lying along the east and northern regions of Galway Bay. with the majority of areas below 30mOD.
- The Burren's karst limestone coastline, from Abbey Hill to Doolin is one of the most unique coastlines in Ireland. Bare limestone rock outcrops in mega scale layers on the hillsides, and on flat plateaus south of Black Head. Huge boulders (limestone and even granite from Galway) are strewn around the open landscape, left behind by the receding ice sheets over 11,500 years ago. Fanore Beach is the only major beach on this west facing coastline. Beach sediments are entirely comprised a broken sea-shells.



Inis Oirr (Ruth Minogue)

- This SCA is almost unique in having an extensive part of its coastline devoid of surface water outflows. The coast from Kinvara to Doolin has only one major river (Caher River) emptying into the sea. Calcium rich water in the Caher River stains the cobbles washed out of the glacial deposits upstream in the Caher valley with Calcium Carbonate, similar to the lime-staining inside an electric kettle. The remainder of the Burren's run-off that goes into Galway Bay does so via intertidal and subtidal springs.
- The black shale Fisherstreet Cliffs stretching southwest from Doolin are a tame introduction to the higher sandstone Cliffs of Moher further south. The Cliffs of Moher are one of the most visited tourist attractions on the western seaboard. The sheer cliffs, sea stack (Branaunmore), and sea caves are a spectacular example of coastal erosion. The horizontal strata exposed in the cliff faces record the changing environment of a river delta entering the sea (similar to the Mississippi delta in the Gulf of Mexico). The Cliffs of Moher rise to 214m and extend for approximately 8km.
- The legacy of the Pleistocene glaciations is evident



Inis Oirr towards Galway bay (Deirdre Black)

throughout the SCA. The coastal topography of the inner bay, from Rusheen Bay/Silver Strand, clockwise around to Ballyvaughan Bay is characterised by streamlined glacial landforms (drumlins, moraines) that record the direction of glacial movement in a northeast southwest direction. The presence of many of the coastal drumlins (partly eroded and fully eroded) has contributed to the development of numerous beaches and shallow silty embayments such as at Silver Strand, Salthill, Ballyloughaun Bay, and Bishop's Quarter. The complex coastal topography around Tawin Island and Island Eddy is a result of the coastal reworking of glacial sediments. The low-terrain of the north Galway Bay/ Cois Fharraige/Ceantair na nOilean/Roundstone



View west from Morooghtuohy (Ruth Minogue)

landscape is a result of glacial smooth of the terrain The smooth hills of the north Burren share a similar glacial smoothing origin.

- Sediment classification varies from muddy/fine sand, coarse shallow sands and rock in Galway Bay and around the Aran Islands. Shallow and deep sands occur off the Fisherstreet/Cliffs of Moher coastline.
- Seafloor depths of <30 m occur in the Galway Bay from the Aran Islands east to Galway City. Depths increase steeply immediately off the Fisherstreet/ Cliffs of Moher, reaching depths of > 100m to the west. Similarly depths of >100m are reached with 15km of the Errisbeg/Roundstone coast.
- The River Corrib empties into Galway Bay at Galway City, draining Lough Corrib, the second largest lake on the island of Ireland.
- Macro tidal ranges (>4m) occur at Galway Bay. The wave energy is influenced by the location of the Aran Islands.
- The entrances of the bays on the northern part of this SCA face the prevailing south-westerly winds and they are subject to strong tidal streams as the sea funnels between islands and through channels[1].
- Water Framework Directive(WFD): Coastal Waterbodies classified as High Quality are present at Outer Galway Bay, whilst Kilkieran Bay and Inner Galway Bay North are classified as good; the remaining coastal water bodies - Aran Islands, Galway Bay, Connemara, Bertraghboy Bay, Inner Galway Bay South, Shannon Plume and Liscannor within this SCA are currently unassigned .
- Barnacle goose, sandwich tern, arctic tern and little tern all use the Slyne Head to Ardmore Point SPA and waters for foraging; this SPA covers skerries/ carraigs and larger islands including Inishlackan, Croaghnakeela Island, St Macdara's Island, Masson

[3] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002111.pdf

Island, Birmore Island, Freaghillaun, Illaunamid and Illaunurra. The cliffs and rocky shore and islands of southwest Inis Mhor also support important colonies of breeding seabirds. Inner Galway Bay SPA is a large marine based SPA that supports significant numbers of wintering wetland birds such as grebes, divers and cormorants well represented; Inner Galway Bay is also a Ramsar Wetland Site.

- Coastal lagoons, Atlantic salt meadows, large shallow inlets and bays, limestone pavements, submerged or partially submerged sea caves and vegetated sea cliffs are some of the habitats present around this SCA. SACs within this area include Kilkieran Bay and Island SAC, Inis Mor island SAC, Inis Meain and Inis Oirr SACs, as well as Blackhead-Poullsalagh Complex and Galway Bay Complex SAC.
- The Cliffs of Moher are a special protected area for over twenty species of seabirds, which also attract breeding pairs of Guillemots, Razorbills, Kittiwakes, Peregrine falcons and Puffins, along with native flora such as Cat's Ear and Sea Pink.
- The rocky shores of the Aran Islands are diverse in seaweed, including the edible traditional carrageen and dillisk. The region also has rare butterflies and moths such as the Pearl-bordered Fritillary, Brown Hairstreak and Burren Green

Cultural and Social Influences



Map 2: Archaeological record including wrecks

Archaeological and Historical Overview

This SCA encompasses the historic town of Galway at its centre to the east of Galway Bay, a settlement that has long strong associations with the sea.[4] It also includes part of the Burren National Park and Geopark, an internationally important location and rich in monuments of all periods.[5] In the prehistoric period the Burren would have looked very different with pollen records showing its uplands was covered in a mixture of deciduous, pine and yew trees. The earliest evidence for the SCA is the relatively recent find of a stone axe factory near Doolin Co. Clare dated to the Mesolithic. A midden excavated at Fanore, further to the north, also returned Mesolithic dates and artefacts. Both were discovered after severe storms shifted sands and the archaeology was revealed. This highlights the potential for other coastal middens and beaches to contain very early material.

In the Neolithic period, this area continued to be inhabited. People at this time practiced agriculture and buried their dead in megalithic tombs. Megalithic tombs represented in the area are portal, court, and wedge—some of which are either late in the chronology of Neolithic monuments or may have extended use into the Bronze Age. There is one currently unclassified megalithic tomb adding to the overall number. As with SCA 4, there is no passage tomb identified in this locality, although it has been suggested that a number of the hilltop cairns may contain them.[6] Various cairns and burial mounds may also contain further megalithic tombs, or they may date to the Bronze Age. The Burren itself has a high concentration of burial monuments dating to this period.

Bronze Age activity is also well-represented by 32 fulacht fiadh. Burial is represented by ring barrows and this SCA has no other types yet identified. Interestingly, there are relatively fewer stone monuments in this SCA than others and all are present in Galway, comprising 3 standing stones and 3 stone circles. A number of recorded field systems and boundaries are present and, in the relatively stonier topography, these are more readily identified. Some of these likely date to the early



The Flaggy Shore (Catherine Dunne)

[4] See Walsh et al 2004 Galway investigations; Walsh and Prunty IHTA; Walsh 2019
[5] Jones 2004
[6] Gosling 1993, 7
[7] Cotter 2012.

prehistoric period, but may continue into the historic period. The two hilltop enclosures may also date to this period.

The Iron Age remains elusive but is represented by some of the coastal promontory forts/cliff-edge forts, with the most impressive examples in the country on the Aran Islands.[7] It has been recently suggested that the stone forts on the Aran Islands, for example Dún Aonghasa, Inis Mór, may have been larger and has suffered coastal erosion over time. Occupation of this important monument spans the Bronze Age through the Iron Age and into the Early medieval period. The Aran Islands are an important part of this SCA having a very distinctive identity and island culture. During the fifth and sixth centuries much of the region, i.e. islands and mainland around the Burren, appears to have been ruled from the Aran Islands by the Eóganacht Árann, a minor branch of the Eóganacht dynasty of Munster.[8]

The early medieval period is represented in the SCA with some excellently preserved ecclesiastical sites, churches and their associated features, such as round towers, bullaun stones and leachts, some of which are enclosed within large enclosures. The early monasteries and churches of the islands are particularly important and were places of pilgrimage. There are 6 high crosses, along with a large number of cross-inscribed pillars and cross slabs. Many of the burial grounds (and children's burial places) in the SCA likely originated in this period with some continuing in use until modern times. There is a relatively large number of holy wells, two holy trees/bushes and three holy stones. One example of a holy well that is still venerated is St Brigid's Holy Well at Liscannor, Co. Clare. St Brigid's cult is also strong on the islands. The Brideog Doll is still used on Inis Oirr, and it is probably the last place the tradition lives on.[9]

Secular settlement is represented in this SCA by cashels which number 107, followed by 66 earthen ringforts, and numerous souterrains and 2 crannogs. The preponderance of cashels may be explained due to the generally stonier topography. Many of the hut sites, clochans and middens recorded in the SCA may have been used at this time.

For the later medieval period, the Anglo-Norman influence was not strong in this SCA, though it was felt in the historic town of Galway, the location of an Anglo-Norman masonry castle. There are two moated sites recorded and a number of hall houses (one located on Inis Oirr/Inisheer), and unclassified castles, though the majority of castles are tower houses associated with the Gaelic elite who likely had maritime connections with their tower houses located so close to the coast. Dungaire (Dungory West) Castle[10], Co. Galway is an excellent example of a coastal tower house, complete with bawn enclosure Two deserted settlements and several settlement clusters indicate further medieval occupation. Lower status people likely used huts and clochans. Various churches and religious houses were patronised by the local lords and, in this SCA, were founded for Augustinian, Franciscan, and Dominican friars. Of the five founded, 3 (one of each order) were located in the town of Galway itself, and there were Franciscans on Arainn/Inishmore, and Dominicans at Toombeola, near Roundstone, Co. Galway.

The area is rich in monuments dating to the post-medieval and early modern periods. Many of the early medieval ecclesiastical sites continued to be used for religious pilgrimage and burial in this period. There are several distinctive leacht cuimhne in this SCA, particularly associated with the Aran islands. These were a type of cenotaph consisting of tall, rectangular or square stone piers, usually of drystone construction, usually surmounted by simple crosses. Set into the piers are stone plaques commemorating, in English, departed relatives. They date from the 1640s. Settlements continued to be lived in and some new villages emerged. Several of the penitential stations date to this period. Six turf stands are recorded along the coast in county Clare. Near Rosmuc, the SCA contains The cottage of Patrick Henry Pearse (Pádraig or Pádraic Pearse; Pádraig Anraí Mac Piarais; 1879-1916) is found Near Rosmuc. Pearse built the cottage in 1909. The presence of windmills (3) show that even in the nineteenth century wind energy was being harnessed along this stretch of coastline.

There are many monuments upstanding which are testament to people's everyday connections to the sea. For instance, several seaweed stands and kelp drying kilns found along the coast provide evidence for the use of seaweed, probably in the production of fertiliser. There are five signal towers dating to the nineteenth century (c.1804), of which two are almost identical, on Inisheer and Inishmore, and several later watchtowers. There are three distinctive Martello towers in the SCA, for example at Finavarra Point, north Clare. Coast guard stations, lighthouses and lighthouse keepers' houses are all upstanding.

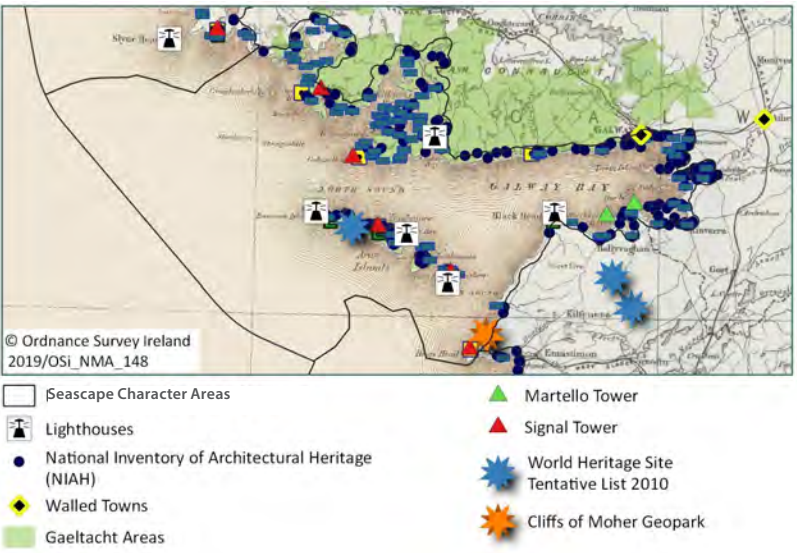
[8] Gosling 2001 'The Burren in Early Historic Times, in O'Connell, J.W.; Korff, Anne (eds.), The Book of the Burren, Tir Eolas, 77–91

[9] https://www.doolin2aranferries.com/blog/feast-day-st-brigid-celebrated-beside-cliffs-moher/. Accessed 29 June 2020.

[10] (GA113-124----)

Salthill, with its iconic promenade represents an excellent example of a seaside resort and recreational use of the coast. Once a small village outside Galway, by the 1800s it was a busy seaside resort.[11] Several of the structures associated with the promenade are important examples of their type. For example, the public toilets at Salthill built about 1950 are recorded on the NIAH as an excellent example of the Art Deco style of seaside architecture and recalls an experimental period in Ireland's architecture. There are numerous small harbours, piers/jetties and quays all along the coast. Nimmo's pier at Claddagh Quay is a particularly fine example and associated with the important fishing village of the Claddagh, which, despite its proximity to the larger town of Galway, retained its own distinct identity well into the early modern period.

Seventeen wrecks are associated with this SCA; including a logboat from near Bearna, Co. Galway, which is likely to be prehistoric in date. Perhaps the most iconic vessel in the region is the one lying on the west coast of Inisheer. This is the Coaster MS Plassy, wrecked in 1960. This wreck is famous for being used in the opening credits of the TV series Father Ted.



Ap 3: Built Heritage and An Gaeltacht

Contemporary

- Holiday homes are present with particular concentrations (above 52%) around Slyne Head; many of the smaller settlements now extend along the coastal road overlooking the bay; this is more pronounced on the less indented coastline towards Galway City.
- The influence of the city is significant with development associated with the docks and a number of settlements close by functioning as commuter towns, particularly Oranmore.
- Recreation, tourism and fishing are all important activities as well as a well-established arts scene linked to the seascape, landscape and Irish language. A number of Colaiste Gaelige (Irish language summer schools) are located along the Galway coast.
- From Ballyvaughan a charter boat operates for the summer months. Several small inshore boats are also available for hire locally.
- Oysters are particularly associated with the Inner bay with the Clarinbridge Oyster festival; periwinkles are harvested around Tawin Island and Roundstone harbour lands lobster, crab, shrimp, mackerel and cod.
- Galway City is a popular university town and has a long running International Arts Festival with a well-established arts scene. It is a popular town for tourists (second only to Killarney on the west coast) and serves as an entry to the wider Galway Region; the city and much of the coastline north and south of this SCA is on the Wild Atlantic Way. The Galway regional port docks commercial vessels facilitating trade in the mainland and islands in the SCA. There are licensed aquaculture sites for shellfish. It serves as an entry to the wider Galway Region; the city and much of the coastline north and south of this SCA is on the Wild Atlantic Way.
- Cultural and ritual links between Aran Islanders and Liscannor are manifest at St Brigid's Well, a well-known holy well above Liscannor, overlooking Lahinch Bay; still venerated and now includes momentoes and cards from tourists who travel to the Cliffs of Moher and along the Wild Atlantic Way.
- The research vessel Celtic Explorer is based in Galway.

Art and Folklore

- Folklore and stories abound of seals and their relationship to humans across the western seaboard. Seals, being both of land and water confers supernatural powers. A story recorded from Rosmuc in 1937 relates to seals behaving like people; similarly families have links with seals such as the Conneely /Chongaile familes taken to be a family origin legend. Such a story was recounted in 1939 near Roundstone[12].
- The mythical island Uí Bhresaíl was said to lie off the Galway coast; but is more frequently referred to as Beag-Árainn or Árainn Bheag. Lying west of the Aran Island, a number of stories and beliefs are recorded in relation to this; its location said to be buried underneath a cod bank known as Iomaire Buí. The persistence of this story was lent further credibility

[11] McGinley, P. 2018 Salthill: A History, Part 1. Galway: Carrowmore Publishing

[12] See Ni Fhloinn, 2000. Islanders and Water Dwellers. Four Courts Press

[13] See ÓhÓgáin, ibid

by a man who claimed to have been brought to this island forcibly in 1668, this was recorded by the scholar Roderick O'Flaherty in 1684[13].

- The Aran Islands have been a persistent source of fascination; their people and culture were documented in the 1907 four part volume by JM Synge, illustrated by Jack Yeats. The drama-documentary 'Man of Aran' (1934 . Robert J Flaherty) purports to show the real life of islanders and whilst artistic license was certainly taken, it remains an important contemporary visual account of life on the island.
- Seamus Heaney's poem 'The Flaggy Shore' was written whilst on holiday on this beach facing across the bay.
- Tim Robinsons lifetime of work mapping and restoring the placenames in Irish rather than the attempts at naming undertaken by the Ordnance Survey Mapping.
- "Irish placenames dry out when anglicized, like twigs snapped off from a tree. And frequently the places too are degraded, left open to exploitation, for lack of a comprehensible name to point out their natures or recall their histories. "[14]
- His maps and gazeeters of Connemara, the Aran Islands and the Burren are a remarkable resource and legacy of his work. Examples include Duirling na Spáinneach (Rockbank of the Spaniards) remembers the Armada ship Concepcion wrecked off this point whose survivors were executed in Galway[14]. Other names include Caladh na hInse, the point of the sandbank and Sruth na Rón the stream of the seals.
- Considered one of the largest waves in the world, the Aileen Wave rises over 3km offshore; its name derives from Aill na Searrach (Foals' Leap) which also has a myth attached to it.

Perceptual Influences

Views and vistas

- Views across the Bay are a defining vista; the Bay itself is 32km wide and views across are a consistent feature of this SCA; details of the coast can be seen, particularly from inner Galway Bay; this characteristic becomes less clear as the Bay opens out past Blackhead Bay.
- Views of land and the Aran Islands often frame the horizon and again the level of detail and variation is highly dependent on weather conditions and visibility.
- Views from the Slyne Head westwards along the indented coastline and islands is smaller in scale and the numerous small headlands, bays, and predominantly rocky shores provide for a diverse, interesting aspect; The low-lying topography means views are often at, or close to, sea level with a horizontal character to the scene, and the eye drawn to the detail at, or close to, the shoreline. The numerous nearshore islands and indented coast enable some perception of scale and distance to sea views. Their frequent proximity to the shore and visibility can create a more intimate seascape view.



The Cliffs of Moher from Doolin (Ruth Minogue)

- Depending on the orientation, views along this western area can include Cnoc Mountain (351m OD) or the Connemara mountains.
- Looking southwards, again the Clare coastline can be seen, with the Sliabh Aughties in the far distance visible from the inner Bay; as the view turns southwest the distinctive limestone hills become a key feature of this view; with the play of light on the karst landscape variable.
- Lighting[15]; coastal settlements can be seen as contiguous glowing lights along the coast, particularly along the northern shoreline; on the southern coast it tends to be more dispersed with areas such as the Murrough Mountain largely devoid of lighting or any settlement. The cluster of lights around sheltered bays such as Ballyvaughan, Kinvara and Roundstone tend to be less visible across distance. Lighthouses within this SCA include Slyne Head Lighthouse (range of 19nm), Cashla Bay (range of White: 8 nm, Red and Green: 6 nm), Blackhead (White 11 nm, Red 8 nm), Inisheer (White 20 nn, Red 16 nm), Straw Island, 15 nm and Eeragh Lighthouse, 18 nm.
- Boating trips within Galway Bay and ferries to the Aran islands offer public views from land to sea. While the pattern of inlets, bays and shoreline headland is readable at close distances to the coast, travelling further out to sea and in

[14] Connemara Gazetteer; quoted in Patrick Duffy https://maynoothgeography.wordpress.com/2014/09/30/whats-in-a-name-whats-in-the-landscape/

the 3-6NM zone, this coastal characteristic is less perceptible with the more open character of the sea reducing land views. This again is dependent on weather conditions.
- As with all of the SCAs the influence of the weather on the water is profound and results in huge variability and diversity of light patterns and colour of the sea and landscape.
- Beyond Blackhead Bay the sky becomes increasingly vast with the Aran Islands on the horizon.

Sense of Place

- This SCA has a strong sense of place; the relationship and connections to the Bay and thereafter the Aran Islands and sea is a long historical connection, reflected in place names and cultural ties between the Aran Islands and both coasts.
- A remote and wilder character, creating by greater exposure to the elements is found around Slyne Head and past Blackhead where the bay opens up and the power of the ocean is very present.
- The Aran Islands essentially protect Galway Bay from some of the force of the Atlantic and the islands themselves have a significant influence on perceptions of place; being variously seen as at the edge of the World, with a strong tradition of Gaelic identity. Whilst this continues the islands remain an active and lived in landscape with notable innovations including the Aran LIFE programme, renewable energy, eco-tourism amongst others.
- The numerous islands and close connections between the islands and coastline has created a distinctive identity and cultural associations in this SCA.
- Galway City, the city of Tribes presents it own sense of place and urban character that extends and influences the eastern part of this SCA in particular.
- The Met Eireann Marine Forecast references Slyne Head in this SCA this provides an evocative audio experience of our marine nomenclature.
- Strong tradition of marine research and development.
- As with several of the western Atlantic SCAs, there is a tradition of seaweed

Sounds and Smells

- The sounds of the Atlantic weather in particular the waves and tidal pattern vary within this SCA. The inner bay and the sheltered indented western coast can include the sounds of lapping waves on the numerous bays with the pattern of the tides a key feature; this can vary depending on Atlantic and local weather.
- This alters particularly around the Co. Clare coastline westwards where the increase in elevation provides more vertical coast and the sound of the waves coming in from the south sound is a strong feature.
- The prevailing southwesterly winds and the primary inflow of Atlantic water into Galway Bay is through the South Sound and the sounds of the waves and wind from this southerly direction becomes a key feature along the coasts of this SCA.
- The soundscape associated with the high energy Atlantic is dissipated somewhat in the indented sheltered bays, particularly those sheltered from the west where the tides and sounds of the waves are constant but less overwhelming.
- At the low-lying areas the smell of iodine can be a particular feature when the tide is ebbing.

Full time inhabited islands in this SCA
(with translation from Logainm.ie)

Island	Population 2016
Árainn kidney(-shaped island)/ridge	762
Inis Oírr East island/rear island	281
Inis Meáin Middle island	183
Inis Bearacháin	0
Inis Treabhair	0
Inse Ghainimh	2



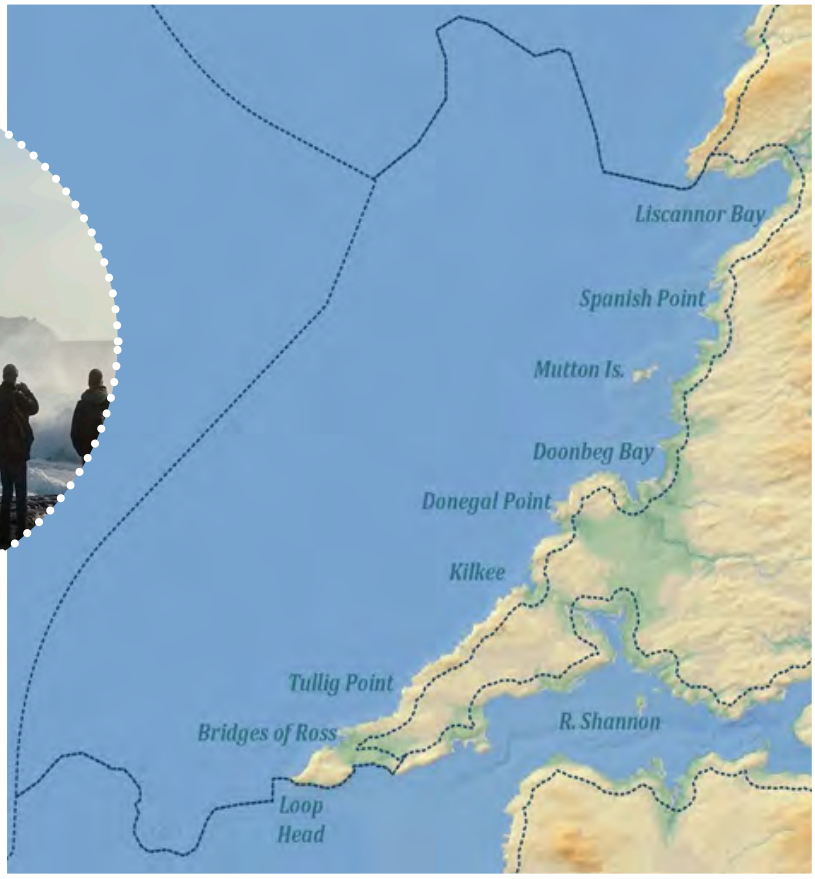
Bull being taken to SS Dun Aengus, Galway Bay
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA7 - Atlantic Clare Cliffs



Cliffs of Moher from Doolin (Ruth Minogue)



Summary Description

A small SCA that is framed by the large Galway Bay and islands to the north and Shannon Estuary to the south. It is largely a low-lying coastal area, rising up to 100m above sea level at its highest elevation and sloping gently towards the coastline. This is composed of flat rocky headlands and bays with long broad beaches of bright yellow sand, with shingle berms. This character changes at the Loop Head Peninsula which forms the southern coastal part of this SCA. Here coastal features including sea stacks and the rocky peninsula protruding out to the Atlantic ocean.

The headlands and islands such as Mutton and Mattle Island on the sea and coast from Spanish Point to Doonbeg experience some of the most severe conditions of exposure to the Atlantic nationally. Sea caves, sea arches and blowholes are an abundant feature in the cliffs along the Kilkee-Loop Head coastal section, and along the north shore of Liscannor Bay.
Seafloor depths of drop steeply along the entirety of the SCA coast, reaching > 50m within 5 km of the shore at Spanish Point; to > 50 m depth within 1km of the Kilkee coast. Depths of > 100 m occur in the western parts of the SCA.

This is a relatively indented coastline. The western aspect provides for a strong Atlantic influence throughout. The hinterland comprises agricultural land, scattered settlement with minimal tree cover with the trees shaped by the prevailing winds.
A number of well-established resort towns and villages are present within this SCA including Liscannor, Lehinch, Milltown Malbay, Spanish Point and Kilkee; with sandy beaches interspersed with more rocky/shingle strands.
Islands are not a particular feature of this SCA with Mutton Island 1.5km off Lurga Point. Other small islands include Mattle Island and Illanonearaun; other offshore features are primarily skerries/carraigs.

Views along the coast northwards are framed by the dramatic Cliffs of Moher and seawards across to the Aran Islands. The views from Loop Head northwards are dominated by the waves and the sky; however views from the southern part of Loop Head allows for long view southwards across the mouth of the Shannon to the Kerry headlands as far as Mount Brandon on a clear day.

Boundaries and Location

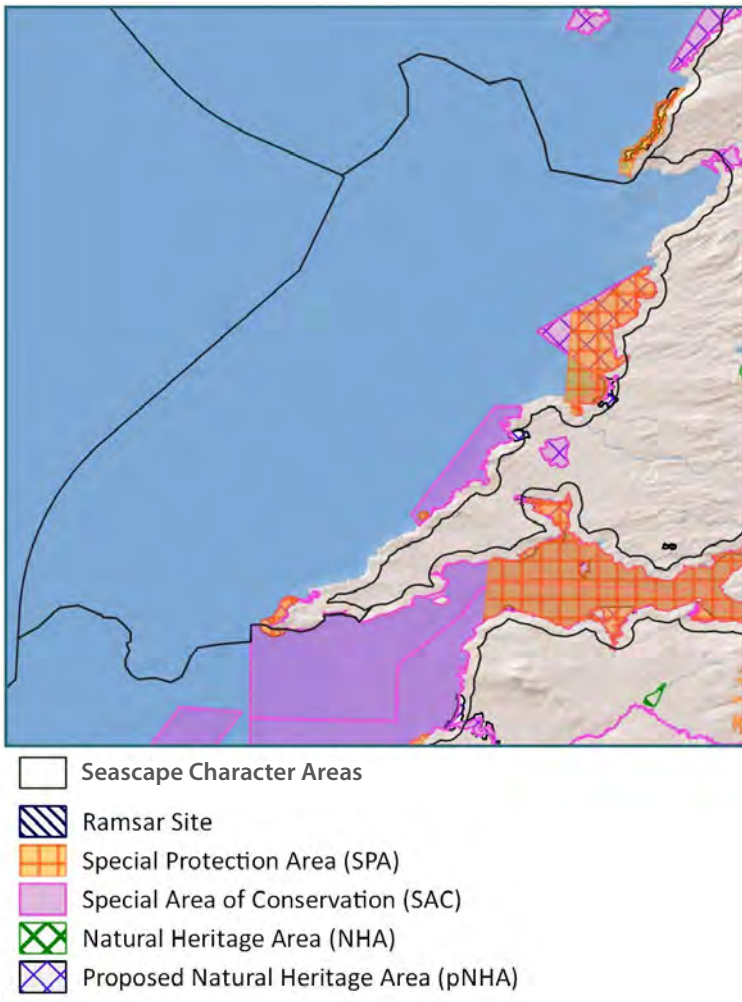
The SCA extends southwards from Hag's Head the most southerly point on the Cliffs of Moher, and extends 12 nautical miles offshore. It includes Liscannor Bay, Mal Bay, Doughmore Bay, Doonbeg Bay, Ballard Bay and Moore Bay. The Loop Head peninsula protrudes southwestwards to the sea and provides the southern part of this SCA (Oileán na Léime).

Key Characteristics

- The indented coastline is interspersed with some sandy beaches and provide for long established coastal resorts with golf courses, surfing, and mobile homes present.
- The rocky and indented coastline has a number of shipwrecks including those of the Spanish Armada (commemorated at Spanish Point). San Esteban (246 men) foundered off White Strand and San Marcos (409 men) on the reef off Lurga Point.
- Promontory forts are a feature including one on Mutton Island. Towerhouses near promontories provide a similar visual focus to the landscape.
- The coastline alters further south becoming increasingly dramatic as the striking cliffs, arches, stacks and inlets increase along the Loop Head Peninsula. This peninsula has an isolated, remote and increasing wild character.
- Tourism is long established in this area; Sea bathing was recorded in Kilkee in the 1780s[1] though the nineteenth century saw its transformation into a seaside town proper.. More recently Loop Head has won European Ecotoursim awards in relation to the tourism practices undertaken within this area.
- The sea is a constant presence and influence on the coast within this SCA which has quite an exposed coastal character, and limited tree cover. Where trees do grow, they lean distinctively away from the prevailing winds.
- The western facing bays and heads allow for wide ocean views across the sea and waves at sunset.

Natural Influences

The offshore, coastal, island, and hinterland bedrock geology of this SAC is characterised entirely by Namurian (Late Carboniferous) bedrock. Three dominant rock types occur in the SCA: deep-water marine shales (Clare Shales), turbidite sandstones and siltstones (e.g. Bridges of Ross) deltaic siltstones and sandstones (e.g. Spanish Point).



Map 1: Natural Heritage

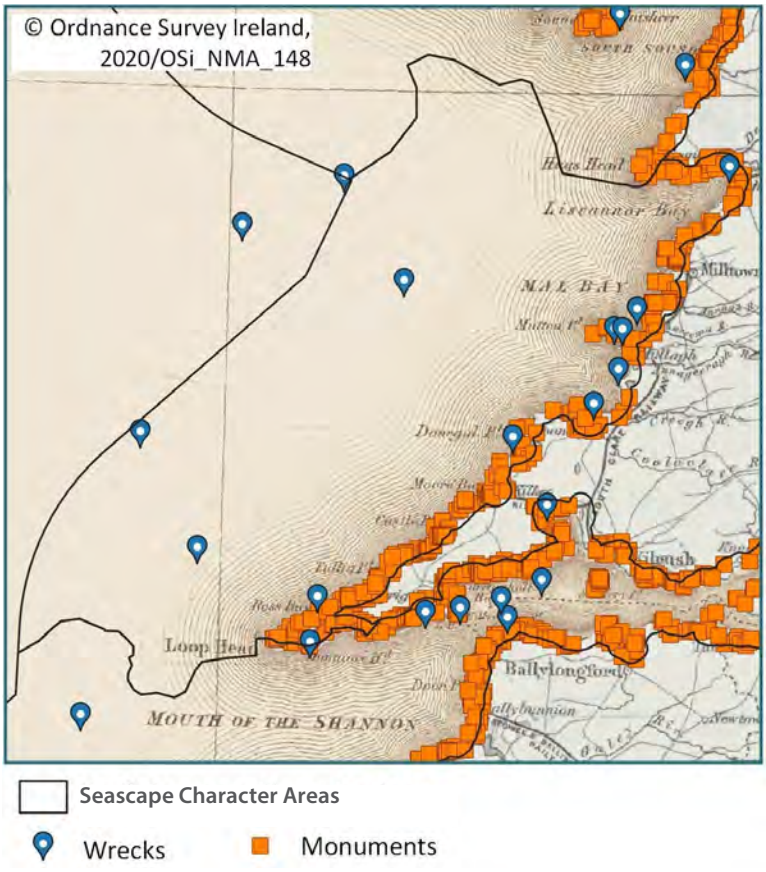
- The Namurian rocks are about 315 million years old and were deposited in an ancient sedimentary basin similar to modern day deltas in the Gulf of Mexico, West Africa and Brazil. The West Clare coast is an internationally renowned training destination for geology students.
- The coastal strata exposed around Ross Bay, including the famous Bridges of Ross, exhibit a variety of features of geological interest. The sea-bridge is a result of modern coastal erosion, whilst the sandstone layers display folds formed by massive submarine sliding of sediment. Sand volcanoes are a particularly interesting feature in the locality.
- The exposed rocky coastline is predominantly delineated by mostly low cliffs (<50mOD) or sandy beaches backed by low terrain (<20mOD).
- The Kilkee-Loop Head coastal section hosts a number of islets and sea stacks, notably at Gull Island and Dermot and Grania's Rock at Loop Head.

[1] Foley, R. 2016

- Offshore seafloor bedrock reflects a similar lithological signature and age to the coastal and onshore geology.
- - Seafloor sediments vary from deep offshore sands and bare rock in the northern part (off Liscannor to Doonbeg); to predominantly coarse deep sediment in the central offshore SCA section west of Kilkee; to bare rock, muddy sand and coarse sediment west of Loop Head.
- There is one major river mouth at Lehinch, draining the confluence of the Inagh and Dealagh Rivers.
- The horseshoe beach at Kilkee has been a famous visitor destination since the 1800s. The diversity of coastal geomorphology (sands, cliffs, islands, sea stacks, Pollock holes, blowholes) a contributory factor to the town's popularity.
- This SCA is subject to macro-tidal ranges of >4m. Water Framework Directive (WFD): Coastal waters are identified at Liscannor Bay, the Shannon Plume and Doonbeg Bay. These are all currently unassigned.
- The rocky reefs and marine waters, mudflats and sandflats support cormorant, barnacle goose, ringed plover, sanderling, purple sandpiper, dunlin and turnston (Mid Clare SPA); A small island close to shore, Illaunonearaun, SPA is designated for wintering barnacle geese and breeding seabirds. Further south, Loop Head cliffs support large numbers of breeding seabirds and are designed for kittiwake and guillemot.
- This area contains valuable dune ecosystems; some are designated, such as the Special Area of Conservation (SAC) at White Strand and the coastal and marine area from Carrowmore Point to Spanish Point and islands. This latter designation is due to the number of coastal habitats found within this area, including sandflats, a lagoon, and rocky sea cliffs. The Kilkee Reefs SAC also include a number of submerged marine caves which have been formed due to the erosion of the sedimentary rock. These are known to occur in areas such as Donegal Point, George's Head and Biraghty Mor. The caves give shelter to a range of fauna species, including lobsters, crayfish, spider crabs and conger eels, and in summer may be visited by sunfish and triggerfish. Where light permits, soft corals, sponges, jewel anemones and colonial sea squirts crowd the walls[2].



Kilkee (Ruth Minogue)



Map 2: Archaeological Records including wrecks

Cultural and Social Influences

Archaeological and Historical Overview

There is as yet no archaeological evidence dating to the Mesolithic period; although, the find of a stone axe factory near Doolin and a midden near Fanore, Co. Clare (SCA5) dating to this period, it is likely that it is only a matter of time before Mesolithic activity is found along this coastline. The six middens in this area may date to this or later periods and only excavation will establish a clear chronology.

The Neolithic period, is identified in the area by a megalithic structure and an unclassified megalithic tomb. The number of tombs in the area is in stark

[2]https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002264.pdf

contrast to SCAs further north. However, this SCA is relatively smaller than the others and this may account for the difference. The cairn and mound may also contain further megalithic tombs, or they may date to the Bronze Age. Interestingly there are no fulacht fiadhs identified in this SCA.

Bronze Age burial activity is represented by ring barrows, classified as ring and embanked types. The is a single standing stone and 3 stone circles. A field system is present. This may date to the early prehistoric period, but may also be of historic date. There is a single piece of rock art recently identified at Ballyvorda, a townland near Lahinch, comprising several cup and ring motifs on an earthfast boulder. Coastal promontory forts and a cliff-edge fort may represent the Iron Age and this monument type is identified all along the Atlantic seaboard.

The early medieval period is well represented in the SCA when compared to the prehistoric periods. Secular settlement is represented by a great number of earthen ringforts (86) and cashels (7). This is in contrast to SCA5 where cashels were predominant, likely due to the stonier terrain. Despite the great number of earthen ringforts, souterrains here are strangely lacking and only three have been identified within 1km of the coastline. The hut sites and clochans recorded may have been used at this time. The preponderance of ringforts suggests that the land in this SCA, even close to the sea, was good for pasture and cattle rearing. Some of the promontory forts may have been used in this period also.

The large ecclesiastical complexes, found further north, are not present here, although there are examples further inland. There is a single large enclosure, identified on the basis of size and morphology, that may be an ecclesiastical enclosure. The church, burial place and cross on Mutton Island dates to this period.[3] Kilmacreehy Church and graveyard in the townland of Liscannor contains a bullaun stone and has its origins in this period. The church is associated with 'MacCreehy's Bed' which is shown on the 1916 OS 6-inch map, lying some 200m offshore and 350m to the southeast of the church. This is a natural area of rock outcrop and shingle and folklore regarding St Mac Creithe tells that his coffin was to be placed on the shore within reach of the tide and thereafter buried at its next resting-place.[4] There are nine holy wells along the coast; many of these continued to be venerated into early modern times. The Liscannor well dedicated to St Brigid is visited regularly. For the later medieval period, the Anglo-Norman influence appears, from the archaeological record at least, to have been minimal. There is a tower house on the point at Freaghcastle, north of Miltown Malbay, and there are a further eight along the coast. No religious houses were established in the region.

The area contains monuments dating to the post-medieval and early modern periods. There are two signal towers dating to the nineteenth century (c.1804), one sites overlooking Ballard Bay, marked on the first edition six-inch map as a telegraph station, and the other at Knocknagarhoon, south of Kilkee, which was previously, erroneously, labelled a castle on early editions of the OS maps.[5] Interesting there are no Martello or watch towers (LOPs) along this stretch of coast. There is a coast guard station at Spanish Point and the iconic Loop Head lighthouse and lighthouse keepers' house. Its importance is added to in that former Taoiseach Enda Kenny's maternal grandfather James John McGinley served as a lighthouse keeper there in the 1930s. Only the small harbour at Liscannor is recorded by the NIAH, though there are many other unrecorded slipways.



Loop Head Lighthouse from Eire Sign (Ruth Minogue)

The villages of Lahinch and Kilkee were transformed in the nineteenth-century into seaside resorts and both were served by the railway.[6] Kilkee was just a small

[3] It is possible to walk out to this island from the mainland during certain tides. See https://eoceanic.com/sailing/harbours/239/mutton_island#:~:text=Today%2C%20Mutton%20Island%20is%20inhabited,reef%20extending%20from%20Seafield%20Point. Accessed 3 July 2020

[4] Swinfen, A. 1992 Forgotten stones: Ancient church sites of the Burren and environs. Dublin. Lilliput Press, p. 64.

[5] Ua Cróinín and Breen have traced its history, see 'The Castles and Tower-houses of Co. Clare' (unpublished report). Available at: https://webservices.archaeology.ie/arcgis/rest/services/NM/NationalMonuments/MapServer/0/7372/attachments/12355. Accessed 29 June 2020.

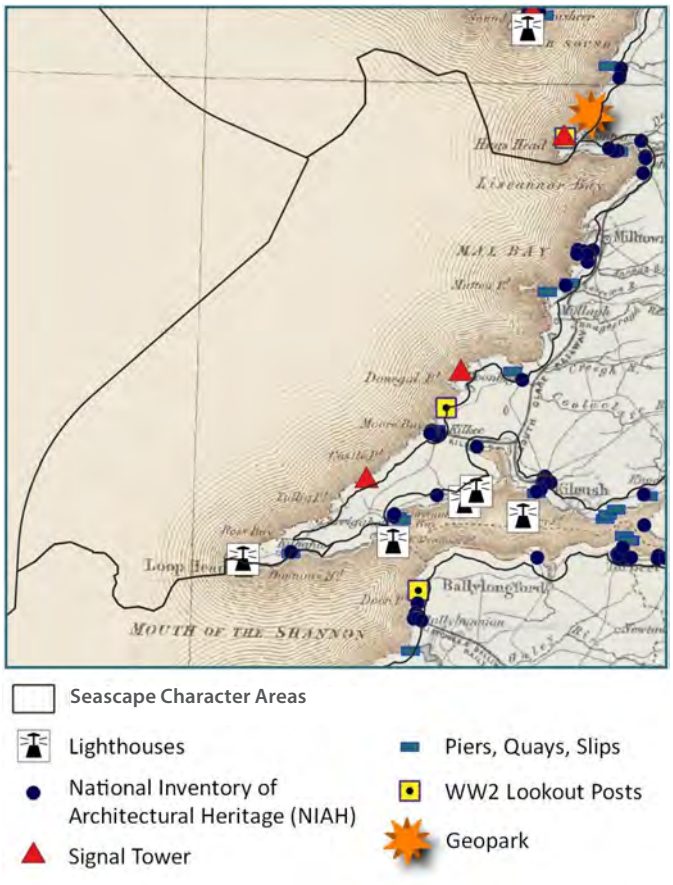
fishing village which grew up around a medieval church, but in the 1820s, when a paddle steamer service from Limerick to Kilrush was launched, it began to attract visitors. Since then it has been a resort. It was featured on the front page of the Illustrated London News as the premier bathing spot in what was then the United Kingdom of Great Britain and Ireland. The town grew as the demand for holiday homes by the sea increased, resulting in a building boom in the 1830s. A number of these are recorded on the NIAH. Several hotels were also built.[7] Kilkee is considered an excellent example of a Victorian seaside resort that has maintained its nineteenth-century ambience.

Kilkee 'The bay is magnificent, with a sandy shore, and shut in by the land with a bar, partly extending across the mouth, with the broad Atlantic beyond. Altogether Kilkee is the most picturesque and pleasing watering-place I have yet seen in Ireland. It is situated in the south west and is much frequented by Limerick people, being so convenient of access for them. The way they come is by steamboat down the Shannon to Kilrush' (Barry, W. 1867. A walking tour around Ireland in 1864. London, extract reprinted in The Strangers Gaze. Travels in County Clare 1534 -1950[8]

Lahinch was a settlement in the medieval period and its name is derived from Leath Inse; half island or peninsula. The town was recorded by the Annals of the Four Masters as Leith Innse. In 1891 Lahinch's beach was 'not to be excelled in Ireland' and the 'accommodation is excellent, neat and respectable'.[9] Hotels such as the Claremont were built to accommodate tourists and in 1892 the golf club was established there.

Several wrecks are associated with this coastline. Quilty and its Star of the Sea Church is associated with the wreck of the Leon XIII. On 2 October 1907 the French three-masted full-rigged ship, was driven up on some of the very rocky reefs on Quilty Bay. The local fishermen, went out to sea in their currachs, risking the gales and Atlantic breakers in small open boats. They reached the wreck and somehow managed to save the crew and bring them safely ashore. The church porch contains a replica of the Leon XIII in a glass bottle, and the ship's bell stands in front of the altar. Money was donated by the French to the church in gratitude for the rescue. Three wrecks are off Kilkee: The Intrinsic a ship from Liverpool bound for New Orleans, was blown into a bay near Bishop's Island in 1836. The ship was dashed repeatedly against the cliffs and sank along with her crew of 14, of whom none survived. A chartered passenger sailing vessel the Edmond sank at Edmond Point on 19 November 1850. The ship was sailing from Limerick to New York City but was driven into Kilkee Bay by a storm. In 1886, the Fulmar sank just north of Kilkee in an area known as Farrihy Bay. The ship was a cargo vessel transporting coal from Troon in Scotland to Limerick, but never reached its destination. Of the 17 crew members aboard only one body was ever recovered. In 1894, the Inishtrahull went missing somewhere near the Kilkee coast. The ship was transporting a consignment of coal from Glasgow to Limerick but never reached its intended destination. The ship was only confirmed to have sunk in 1985, when a section of a port bow from a ship with a brass plate marked 'Glasgow' was picked up by the Kilkee coastguards.[10] Eleven further wrecks are recorded.

The most significant are two sixteenth-century (1588) Man O'Wars from the Spanish Armada fleet. The San Estaban lies off Doonbeg, and the San Marcos lies in Bad Bay, on the reef between Mutton Island and Lurga Point, near Spanish Point.



Map 3: Built Heritage

[6] http://www.clarelibrary.ie/eolas/coclare/places/kilkee_history.htm and http://www.clarelibrary.ie/eolas/coclare/places/lahinch_history.htm. Accessed 29 June 2020.

[7] See contemporary nineteenth-century descriptions of Kilkee e.g. John Manners's travel narrative Notes of an Irish Tour, (1846); Sidney Godolphin Osborne's Gleanings in the West of Ireland (1850).

[8] ibid

[9]

[10] See http://www.irishshipwrecks.com/. Accessed 28 June 2020

Contemporary

- Seaweed harvesting is established at Quilty, whilst there is an absence of licensed aquaculture sites in this area, unsurprising given the lack of havens and exposed character of much of this coastline.
- The Wild Atlantic Way follows much of this coastline with Signature Discovery Point[11] at Loop Head. Loop Head lighthouse is listed as a Great Lighthouse of Ireland with tourism accommodation available.
- Recreation and tourism continue to play a significant role in the SCA, whilst beach/seaside resorts are associated with Kilkee and Lahinch; with the latter having long been a popular town for Limerick people to visit for holidays. Lahinch, in more recent years, has become a very popular surfing resort with a number of surf schools and supporting services. Sea angling from beaches and piers is possible along this coast of this SCA.
- Ferries to and from the Aran Islands and a Cliffs of Moher sea cruise are available from Doolin Pier.
- Donegal Point and Farrihy Bay offer spectacular underwater marine flora and fauna, and archaeology (shipwreck's i.e. the Quebec and the Fulmer) for marine and sub aqua enthusiasts.

Art and Folklore

- One legend states Hag's Head was so called after a witch (Mal of Malbay), fell in love with the hero, Cú Chulainn and chased him across Ireland. Cú Chulainn escaped by hopping across sea stacks as if they were stepping stones. The witch was not as nimble so she lost her footing and was dashed against the cliff, hence the name attributed to Hag's Head.
- Anti-social behaviour and the right mental attitude was believed to be important to have success with fishing; Ni Fhlionn accounts a story from Kilkee that stressed the importance of avoiding cursing or bad language, as it was considered unlucky.
- "You never said a vulgar word or bad language in the canoe, and there were times when a man said many a quare one under his lips, but 'twas very unlucky to curse or swear in a canoe. This applied whether you were fishing or not"[12].
- Cill Stuifín was a tract of land, sunk under the waves outside Liscannor Bay, southwest of Lahinch. The belief attached to Cill Suifín was that at a future date it would rise back up from ocean and Lahinch, in turn, would sink beneath the waves. This is an interesting link to another local toponymic for the town Leath Inse – half the island. There are a number of folklore and myths linking the town of Lahinch with Cill Suifín.
- Contemporary artists include Philip Morrison who runs his own gallery in Lahinch, incorporating both sea and sky in his paintings. Photographer Ann O' Connell has photographed extensively around this coast.

Perceptual Influences

- Liscannor Bay is a broad open bay that affords long views out over the Atlantic Ocean, with low shelving cliffs.
- The western facing coast allows for long sunset views across the ocean.
- Views along the coast are influenced by the Cliffs of Moher from Hags Head with views over to the Aran Islands in the distance.
- Other views from the coast are generally large in scale with sky and sea dominating. This is very distinctive at Loop Head which faces out to the Atlantic and has long views across to Kerry Head, some 8 nautical miles (c.15 km), and Brandon Head some 17 nautical miles (c.33 km) on a clear day.
- Lighting – coastal settlements are concentrated within the more sheltered bays and clusters of lighting associated with same can be seen. Lighthouses are not present along this SCA until Loop Head Lighthouse, classified as a Great Lighthouse of Ireland, with a range of 23 nm.

Sense of Place

- Parts of this SCA comprise some of the most exposed headlands in the country receiving the full brunt of Atlantic weather systems coming in from the west and southwest; this is further influenced by the macro tidal ranges. This results in a strong maritime and Atlantic character; the western facing bays and heads allowing for vast views at sunset and a strong 'Edge of World' perception at evening time.
- The popularity of the resorts is reflected in the constant and frequent visitors as well as locals who walk the Lahinch strand daily.
- The Atlantic character is slightly altered on the Loop Head Peninsula which has an almost island character being surrounded on three sides by the waters of the Mouth of the Shannon and the Atlantic Ocean. At the cliffs and Bridges of Ross, the sea stacks, crashing waves, exposed character and sea birds combine to create a strong maritime character that is both remote and wild.

[11]Wild Atlantic Way "Signature Discovery Points" are identified as "iconic must-see sights along Ireland's west coast" Fáilte Ireland

[12] Ní Fhlionn, 2018. Cold Iron. Aspects of Occupational Lore of Fishermen. Four Courts Press. Dublin

- The Met Eireann Marine Forecast references one main headlands in this SCA – Loop Head, this provides an evocative audio experience of our marine nomenclature.

Sounds and Smells

- Sounds are a very distinctive part of this SCA partly due to the western facing coastline and the mass of waves forming and meeting the coast - the sounds of waves are a constant presence.
- This varies between the large swells and rolling waves coming into broad bays such as Lahinch, to noisy crashing waves and sea spray at cliffs.



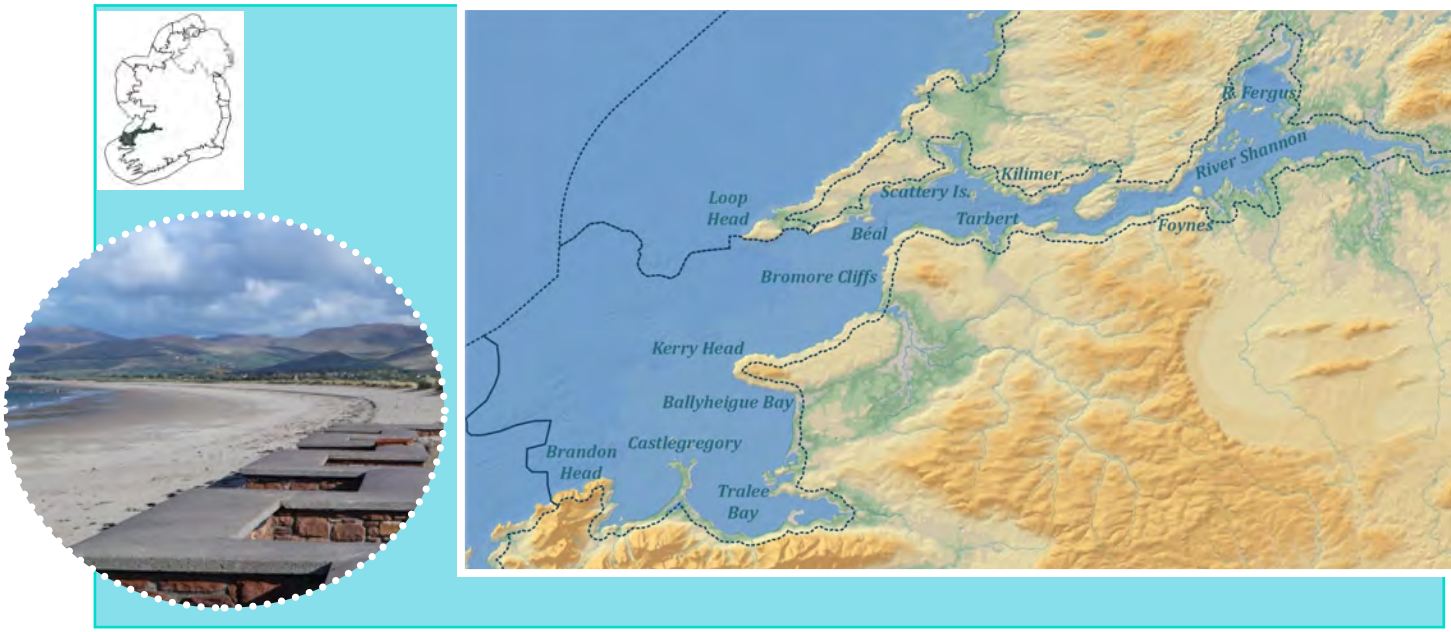
Atlantic Ocean from Doolin (Ruth Minogue)



Sampson's Island, Loop Head
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA8 - Shannon Estuary and Tralee Bay



Beach Tralee Bay (Ruth Minogue)

Summary Description

An expansive SCA that includes both the Shannon Estuary, the Mouth of the Shannon, Tralee Bay and extends offshore for 12 nautical miles. The seascape character alters within this SCA at local scale with the more sheltered estuary contrasting with the elevated and wilder headlands; in turn the broad sweeping Bay of Tralee (SCT1 Large Limestone Bays) includes Brandon and Kerry Head; the former in particular allowing long expansive views across Tralee Bay and further north to Loop Head in clear conditions.

Concentrations of islands are present particularly the southern part of the Fergus Estuary, around Foynes, Scattery and Carrick Island; and islands associated with Tralee Bay include Fenit and the Magharee islands off the Magharee Peninsula.

The coastline is diverse; the cliffs and coastline along the mouth of the Shannon include dramatic cliffs and sea stacks whilst the southern part of Tralee Bay at Mount Brandon is framed by cliffs and the second highest mountain in Ireland. The seascape character type is identified as SCT 5 (High Granite/sandstone cliffs and plateau).

The area is steeped in navigational lore including St Brendan and the Shannon navigation allowed historical flows of human activity along this coastline and further inland along the estuary. As a result this SCA includes numerous sites and features that attest to the extensive human interest and activity along and within this SCA. The wildlife and ecology of this area is particularly important, providing a range of habitats and features and connecting to the marine waters and continental shelf. This area includes a distinct population of Bottlenose dolphins and the inlets, mudflats, tidal habitats and islands of the estuary, as well as sea stacks and cliffs offer habitat for a wide range of seabirds and wintering birds. The confluence of the River Fergus south of Clarecastle further adds to the wildlife and biodiversity interest of this SCA.

From the elevated headlands the views are expansive, and face the force of the Atlantic as well as long expansive panoramas to headlands north and south. Where the estuary narrows, for example at Killimer to Tarbert, the ferry journey takes approximately 20 minutes and this part of the SCA is scattered with woodland, small piers/quays and rocky shorelines with dynamic estuarine habitats.

Boundaries and Location

The SCA extends eastwards from Limerick including the Shannon Estuary, Mouth of the Shannon from Kilcredaun Point to Kilconley Point, extending landward to the north at Loop Head, encompassing Kerry Head and Brandon Head (Brandon Point/ Dulick Point). This SCA extends 12 nautical miles offshore.

Bays within the estuary include Labasheeda, Clonderlaw, Tarbert, Bunaclugga , Carrigaholt. Within the Mouth of the Shannon Kilbaha and Ballybunnion Bay; whilst coastal bays are south of Kerry Head and include Ballyheigue, Tralee Bay and Brandon Bay.

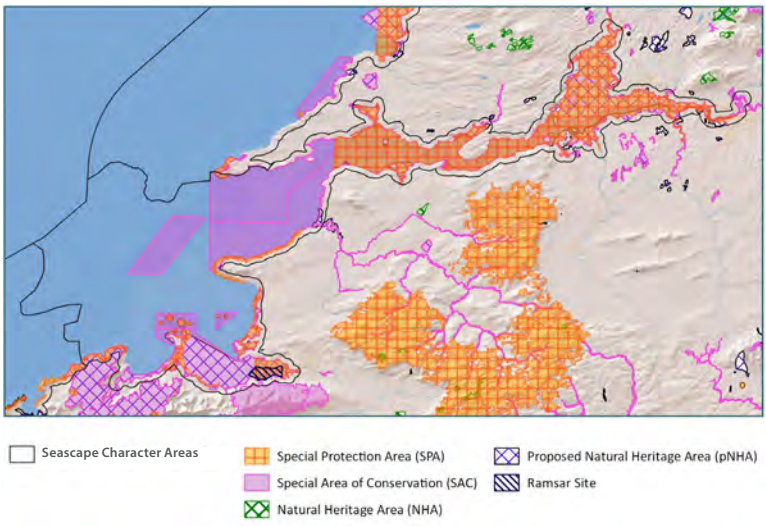


Bromore Cliffs (Ruth Minogue)

Key Characteristics

- Profoundly influenced by the River Shannon and estuary, this SCA alters considerably with a stronger maritime influence from the Mouth of Shannon westwards.
- The scale of this SCA varies from the more medium scale estuarine habitat, expanding to vast Atlantic Ocean.
- This SCA has long been the focus of human activity and habitation, the limestone bay and rich sheltered estuarine environment offering navigational routes, and rich estuarine resources.
- Major settlements at Limerick City, Tralee and seaside towns of Kilrush and Ballybunnion.
- The rich estuarine habitats are important for shellfish production but are also key foraging habitats for a number of bird species and this area supports a distinct population of bottlenose dolphins.
- Dramatic seascapes associated with the cliffs and sea stacks for example at Bromore Cliffs, Loop Head and Kerry Head;
- Long sandy beaches are present particularly along the Kerry coastline with popular resorts at Ballybunnion and Castlegregory.
- - Foynes a significant deep harbour extending to Limerick Docks; whilst Ferry to Scattery Island from Kilrush town.
- Views vary from panoramas across the Mouth of Shannon and over the Atlantic to more intimate, moderate scale views across the Shannon Estuary.

Natural Influence



Map 1:Natural Heritage

- The onshore and offshore bedrock geology of this SCA is entirely sedimentary and of Devonian-Carboniferous age.
- The Shannon Estuary is bounded almost entirely by Carboniferous bedrock, with a minor exception of Devonian bedrock between Pallaskenry and Cratloe. The outer estuary (westwards from Foynes/ Fergus Estuary) comprises Namurian bedrock: deep-water marine shales (Clare Shales), turbidite sandstones/siltstones, and deltaic siltstones/ sandstones.
- Marking a transition between the northern Shannon Estuary part of the SCA and the southern Tralee/Brandon Bay section, Kerry Head protrudes seawards from the Kerry coastline. Its topography is controlled by Devonian Old Red Sandstone that occupies the core of an eastwest oriented fold (anticline) that traverses northwest Kerry.
- Montane topography overlooking the SCA is mainly confined to the Dingle Peninsula. This Old Red Sandstone topography, together Kerry Head contrasts with the low-lying Carboniferous

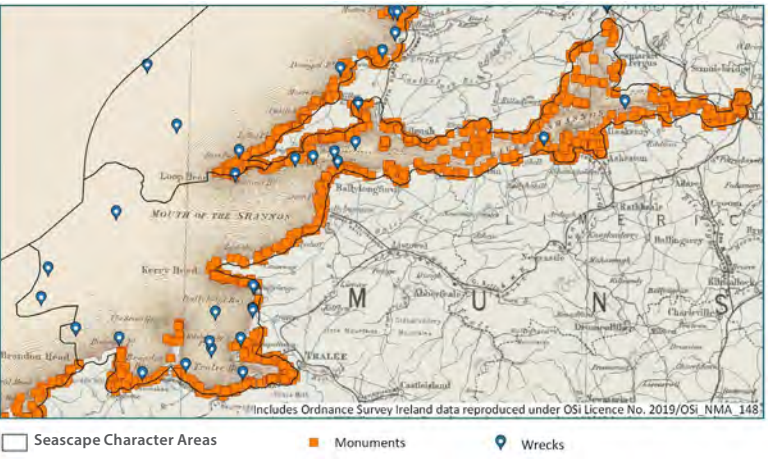
coastline and hinterland in the SCA north of Kerry Head. The hilly terrain at Cratloe at the head of the Shannon Estuary is similarly Old Red Sandstone.

- South of Kerry Head, the coastline around Tralee Bay, from Ballyheigue to Camp, is backed by low-lying terrain underlain almost entirely by Carboniferous limestone and shale.
- The Magharee peninsula extends ~5 km north from Castlegregory. At the northern end of the peninsula, Carboniferous rocks are exposed along the rocky shoreline (and also on the Magharee Islands). The remainder of the headland extending south to Castlegregory comprises sandy beaches and sand dunes, and is a classic example of a tombolo (spit). Lough Gill, a natural sedimentary lagoon, is located at the southern end of the Magharee Peninsula.
- With the exception of the Magharee peninsula, the coast from Camp, westwards to Brandon Head is entirely Devonian Old Red Sandstone. The glaciated montane terrain at Brandon Head, where the northern slopes of Mount Brandon (952 mOD) descend to sea-level represents the southern limit of the SCA.



Beal Strand (Ruth Minogue)

- Long sandy beaches are a characteristic feature of the southern part of the SCA, such as Ballyheigue/ Banna Strand, Derrymore Strand, Castlegregory Beach, and Fermoyle Strand, said be the longest beach in Ireland.
- Several large rivers empty into the SCA. Of most significance, the River Shannon, the largest river in Ireland empties into the Shannon Estuary at Limerick City. Other major rivers include the Fergus, Maigue, and Feale rivers.
- The majority of Tralee Bay is shallow and composed of sublittoral sediments.
- This SCA is subject to macro-tidal ranges of >4m. Water Framework Directive (WFD) : Coastal waters are identified at Mouth of the Shannon, Inner Tralee Bay, Outer Tralee Bay, Brandon Bay and Southwestern Atlantic Seaboard. Mouth of the Shannon and Inner Tralee Bay are classified as good status; Outer Tralee Bay as good status, Brandon Bay and Southwestern Atlantic seaboard are currently unassigned.
- The estuaries of the River Shannon and River Fergus form the largest estuarine complex in Ireland and represent an internationally important site that supports over 20,000 wintering waterbirds including light-bellied brent goose, dunlin, black-tailed godwit and redshank. Kerry Head SPA is situated on the south side of the mouth of the River Shannon and includes the sea cliffs from just west of Ballyheigue, around the end of Kerry Head to the west and north-eastwards as far as Kilmore. This supports an important breeding population of chough. Tralee Bay and the low-lying islands of Magharees, 2km off the peninsula are important for breeding seabirds and wintering geese.
- Offshore habitats in this SCA include the reefs of Magharees, as well the Kerry Head Shoal SAC. This is of particular note comprising a deep limestone reef exposed to the full force of Atlantic swells. The reefs of the Kerry Head Shoal support a remarkable diversity of fauna and flora, including the best known example of the Axinellid sponge community in Ireland.
- The Lower River Shannon SAC includes a variety of habitats including such as Cloonconeed pool, which represents a habitat that may be unique to Ireland, with an almost entire substrate of peat; the adjacent shore also features a fine example of a drowned forest. Mudflats, saltmarsh, reefs, cliffs, inlets and bays are also designated and the site includes sea, river and brook lamprey, salmon, bottlenose dolphin and otter. The Shannon Dolphin Project (run through the Irish Whale and Dolphin Group) aims to increase public awareness on the small, discreet population of the bottlenose dolphins found in the region. A variety of dune habitats amongst other habitats are designated further south at the Tralee Bay and Magharee Peninsula, West to Cloghane SAC. Both the Fergus and inner Shannon estuaries feature vast expanses of intertidal mudflats. Mudflats occupy the shallow estuarine area at Blennerville and also further west at Cloghan in Brandon Bay.



Map 2: Archaeological Records including wrecks

This SCA comprises a stretch of coastline of counties Clare, Limerick and north and west Kerry. Archaeological evidence dating to the Mesolithic period has been found along the Shannon Estuary and it is likely that this entire region was used during this early period and it is likely that it is only a matter of time before further Mesolithic activity is found along this coastline.[1] There are a plethora of fish weirs along the estuary of the River Shannon some of which may have been used in prehistoric times; while others date to the historic period. These show the potential for fishing and its exploitation over time in this SCA. Similarly, the six middens in this area may date to this or later periods and only excavation will establish a clear chronology.

Interesting megalithic tombs of the Neolithic period are relatively rare in this SCA[2]. Fulacht fiadhs, burnt mounds and burnt spreads date to the Bronze Age. Burial activity in this period is represented by various barrows types. A single cursus at Annagh Co. Kerry (possibly Neolithic/ Bronze Age) is associated with a barrow cluster there. Field systems and a number of field boundaries are recorded. This may date to the early prehistoric period, but may also be of historic date. Three pieces of rock art are identified in the SCA all located in Co. Kerry. Thirty-three coastal promontory forts and three cliff-edge forts may represent the Iron Age and these monument types are identified all along the Atlantic seaboard. An excellent upstanding promontory fort along with a ringfort and a later unrecorded watch hut (LOP) can be seen at Bromore Cliffs near Ballybunnion.[3]

The early medieval period is well represented in the SCA. Secular settlement is identified through several earthen ringforts (356), souterrains (82) and cashels (39). There is a single crannog in Co. Clare. The hut sites and clochans recorded may have been used at this time. The preponderance of ringforts suggests that the land in this SCA, even close to the sea, was good for pasture and cattle rearing. Some of the promontory forts may have been used in this period also. The early Christian heritage is represented by ecclesiastical sites and enclosures, such as the large enclosure on Carrig Island, Co. Kerry. The important ecclesiastical complex on Scattery Island in the Shannon Estuary founded by Saint Senan is complete with several important features including a round tower. It was raided on several occasions by the Vikings and was described as being 'in the mouth of the sea'.[4] There is also later activity on this island dating to the nineteenth-century including cottages and a seawall on the eastern side of the island. Dedications to Saint Senan remain popular throughout this region across the three counties. Illauntannig, Co. Kerry (one of the the Maharee Islands) is another excellent example of one of these early ecclesiastical complexes within the SCA. Several of the churches, burial places and crosses in the region relate to this period. There are 36 holy wells along the coast with various dedications; many of these continued to be venerated into early modern times. The historic town of Limerick, as its name suggests, was established in this period as a Hiberno Norse town.

The later medieval period is represented by a number of monuments in the region. The historic towns of Bunratty and Askeaton join Limerick as the main coastal/ estuarine urban centres. Other occupation dating to this period includes deserted medieval settlements and moated sites. This region, particularly counties Limerick and Kerry was influenced by Anglo-Norman activities. This can be first identified in the number and variety of castles in the area and Anglo-Norman motte and baileys, ringworks, mansonry castles, hall houses, and tower houses are all present. The castles of Askeaton, Ballybunnion, Bunratty, Beagh, and Carrigafoyle are particularly iconic examples in the region. Religious houses were founded by Anglo-Norman and Gaelic families of the region at Canon Island, Co. Clare (Augustinian canons); Limerick City (Augustinian nuns, Dominican and Franciscan Friars, Fratres Cruciferi

[1]O'Sullivan, A. 2001 Foragers, Farmers and Fishers in a Coastal Landscape: An intertidal archaeological survey of the Shannon Estuary. Dublin: Royal Irish Academy

[2]A single megalithic structure in Limerick an unclassified tomb in Kerry and there may be sited more inland. The unclassified cairns and mounds may contain megalithic tombs, or they may date to the Bronze Age. Stone monuments of standing stones, stone pairs and rows are present, but there are no stone circles recorded within 1km of the coastline

[3]http://www.bromorecliffs.com/ Accessed 20 June 2020

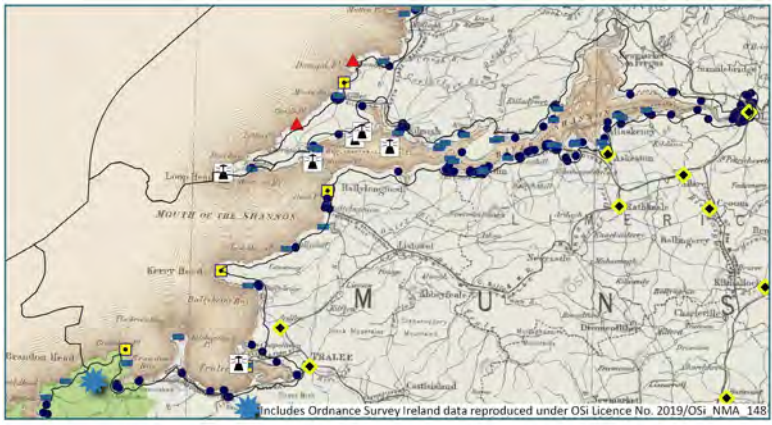
[4]O Riain, P. 2011 A Dictionary of Irish Saints. Dublin: Four Courts Press, pp. 557-560 at p. 557

and Knights Hospitallers), Lislaughtin, and Askeaton (Franciscan Friars). The Spanish Armada of 1588 sailed past this coastline on their route southwards and a wreck from this fleet lies in Tralee Bay at Mucklaghmore Rock.

The area contains monuments dating to the post-medieval and early modern periods. Those which have particular links with the sea include a beacon known as Spillane's Tower (or the Snuff Box) in the docks at Limerick, in Gothic Revival style dated to 1870 and its Custom House (now The Hunt Museum) which is a nationally important structure. There are fortifications, docks and harbours such as Foynes and Limerick and a number of smaller piers an quays all along the coastline. The example at Harvey's Quay in Limerick City is better known as 'Poorman's Kilkee' which recognises the city's long associations with the seaside resort in Co. Clare.

Somewhat surprisingly there is but a single lighthouse at Kilcredaun (Clare). Mills, both powered by water and wind highlight various industrial activities along this stretch of coastline; Blennerville Mill being the most iconic. Ballybunnion and perhaps Ballyheigue appear to be associated sea side resort towns as a result of tourism in the nineteenth century. Banna Beach is associated with Tralee some distance inland and is historically associated with Sir Roger Casement and the War of Independence. He alighted a German U-Boat at Banna strand expecting to meet a boat The Aud, which had a shipment of guns bound for the Irish revolutionaries. The plan was a failure and Casement was captured, tried for treason and executed. A monument now stands in the dunes of Banna Strand as a reminder of this event.5

Dumfort's Caves at Clashmelcon, Co. Kerry is associated with an episode from the Civil War when a siege of six republicans took place, two falling to their deaths from the sheer cliffs. Another died fleeing the caves and the remainder were executed at Balymullen Barracks (Tralee). The Clashmelcon event is considered one of the last acts of extreme violence of the Civil War.6 Shannon Airport is an important monument in this region as it represents Ireland's modernisation and its transatlantic connections across the sea, particularly to America, as does the Foynes Flying Boat and Maritime Museum.7 In addition to the sixteenth-century Spanish Armada wreck there are 25 further wrecks recorded along the coastlines, the majority of which (where it is known) date to the nineteenth century.



Map 3: Built Heritage

Contemporary

- The Shannon Estuary Way is promoted off the Wild Atlantic Way though tourism infrastructure is not particularly well developed along the estuary itself. However, some of the coastal archaeological and geological sites are spectacular such as Scattery island and Bromore cliffs. Ferries to Scattery Island operate from Kilrush. Further south, the Wild Atlantic Way runs along the coast with a Signature Discovery Point at Brandon Point.
- Ballybunnion is a well-established coastal seaside resort and the sandy beaches on the Kerry coast including Beal Strand, and beaches of Tralee Bay support a variety of sea-based recreation including diving, walking and watersports. Castlegregory is another important tourism centre within this SCA.
- Fishing: the estuarine habitats of the Shannon and Tralee bay include shellfish fisheries primarily oysters at Poulnasherry, Carrigaholt, Ballylongford and Tralee Bay (this latter bay includes mussels). Carriagholt Fishing Port hosts the Carriagholt Sea Angling Centre which provides chartered deep sea fishing activities.
- The Estuary includes areas of industrial activity and harbours associated with the deep harbour as well as Moneypoint ESB Generating Station in Co. Clare and Tarbert in Co. Kerry. The Shannon Foynes Port Company in SCA 8 is Ireland's second largest port operation with statutory jurisdiction over marine activities over a 500 sq. km on the Shannon Estuary, and is designated a Tier 1 National Port (Responsible for 15% to 20% of overall tonnage through Irish ports. Other terminals are located at Limerick, Shannon, Aughinish, Tarbert and Moneypoint.

Art and Folklore

- The belief around mystical islands in this SCA are considered homogenous with those previously described for Cill Stuifín around Liscannor Bay. In this SCA, the island is more closely associated with the Mouth of the Shannon; however another name is given to an island off Brandon Bay, an Chathair idir Dhá Dhrol (city between two loops). Credence to the existence of such islands was provided by the occasional bringing up of masonry, buckets or food from the sea via boat anchors1 ; probably flotsam from wrecks.
- Brandon Bay is named after St Brendan who began his 7 year sea voyage from here to lands variously described as The Isle of Blessed or UI Breashail. One of his companions was said to be St Malo, the namesake of Saint Malo in Brittany, reflecting the ties and connections along this Atlantic coast. He encounters a sea monster or whale. He is considered the patron saint of boatmen, mariners, sailors, travellers, and whales. Tim Severin famously recreated his voyage in 1976.
- Monsters also abound in relation to Scattery Island with a monster called the Cathach who lived on the island, terrorising people. Various endings to the Cathach are recorded but St Senan banishes the monster and it ends up in the dark waters of Doolough lake, situated in the middle of the county, far inland.
- Brendan Kenneally writer and poet born in Ballylongford.

Perceptual Influences

Vistas and Views

- Within the estuary views are across the channel with parts of the views framed by the indented shoreline and strips of woodland close to the shoreline, often associated with former demesne landscapes. The vertical features of industrial units such as the towers of Moneypoint and Tarbert help to situate views within this area as it largely low-lying and sloping to the shoreline. Whilst industrial elements can be a features within this part of the SCA the eye is often drawn to the interesting and diverse inlets with wooded shorelines, small rocky shores and a dynamic intertidal zone.
- At Beal strand and westwards the estuary becomes the mouth of the Shannon and views become more expansive looking westwards towards the sea.
- At the elevated parts of this SCA, the views become expansive and long views are possible north and south; where sea stacks and cliffs are visible they draw the eye and the crashing waves against the rocks can dominate the view.
- Expansive views across the broad sweeping Bay of Tralee includes Brandon and Kerry Head; the former in particular allowing long expansive views across Tralee Bay and further north to Loop Head in clear conditions. In clear weather views from Brandon Head north to Loop Head are possible, some 17 nautical miles (c33km).
- Lighting – clusters of lighting associated with the larger settlements and villages can be seen across the estuary and along the coast. Lighting at Tarbert, Moneypoint, Auginish can be seen associated with stacks and chimneys. The lightspill from Limerick City is also visible closer to the city.



Islandman Gate at Carrig Island, Shannon Estuary (Ruth Minogue)

Sense of Place

- The Shannon provides and creates the sense of place for much of this SCA and its confluence with the ocean has had a profound influence on how people have engaged with this SCA for millennia.
- There is a strong sense of history and human activity within this SCA and that contributes to this sense of place.
- Limerick City and docks exert an urban influence at the River Shannon; Foynes and Limerick Docks continue to provide primarily freight shipping under the ownership of the Shannon Foynes Port Company.
- The sheltered and more moderate scale of the inner estuary, whilst different in character, nonetheless are shaped and affected by the tides and the relationship to the wider Atlantic Ocean beyond.
- The seascape character become much more pronounced at the mouth of the Shannon, the waves become larger, choppier and the wind and level of exposure increases.

- The wilder, remote and exposed character continues along the elevated coast with spectacular and largely inaccessible from land sea stacks and caves at the western parts of this estuary.
- The sweeping limestone bay with the distinctive peninsula and sandy beaches of Tralee Bay, Fenit and Magharee create their own character but at regional scale still relate to Loop Head in particular.

Sounds and smells

- Sounds of wind and wave are a particular feature of the elevated coast with a strong and profound sense of the power of the Atlantic very apparent.
- On the (sometimes) more sheltered smaller bays the sounds are more influenced by gentle swells and waves rolling along and up to the sandy beach, a hypnotic and rhythmic soundscape.
- Smells associated with the tide and mudflats and sandflats of the estuary.



Fishing Village, Scattery Island, Shannon Estuary
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA9 - Atlantic South West Rias, Bays and Islands



Baile na Gall (Ruth Minogue)

Summary Description

This SCA comprises an indented coastline of the five southwestern peninsulas of counties Kerry and Cork; Dingle, Iveragh, Beara, Sheep's Head and Mizen, and their intervening bays; Dingle Bay, Kenmare Bay (River), Bantry Bay, Dunmanus Bay and Roaringwater Bay. This iconic Ria seascape/landscape creates an expansive and dramatic seascape character. Fastnet Rock, Ireland's most southerly point is located over ten nautical miles southwest of Baltimore.

Large offshore and nearshore islands (groups or solitary) are a characteristic feature of the SCA, such as the Blasket Islands, Valentia Island, the Skellig Islands, Scarrif Island, Dursey Island, Bere Island, Whiddy Island, Sherkin Island and Cléire Island. Smaller island and rocky islets are numerous along the entire nearshore zone. The islands most strongly associated with this SCA are the Skellig islands off the Iveragh Peninsula and Blasket Islands off the Dingle Peninsula. Several of the Blasket Island complex rise to some height and this creates a strong and distinctive profile from shore

This is an SCA of considerable contrast in terms of seascape character; the incised, often indented deep drowned valleys are commonly framed by the mountains of the neighbouring peninsula, creating strong visual links and intervisibility between the sheltered estuaries and bays and the impressive ridged mountains. These interior seascapes are overlooked by settlements taking advantage of the freshwater and relative shelter of the estuaries. These include Dingle, Castlemaine, Killorgan, Kenmare, Caherdaniel, Castletown-Berehaven, Glengarriff and Skibereeen. Whiddy Island shelters the town of Bantry, and similarly Baltimore is afforded some shelter from the ocean due to the cluster of islands close to the shore including Sherkin and Clear islands.

Numerous rivers and streams flow off the ridged mountains (Slieve Mish, Macgillicuddy Reeks, Caha and contribute to a distinctive braided pattern to this area, entering the rias and sea via numerous river valleys. The topography of the land is dominated by a series of mountains, and the settlements, piers, quays and roads all hug the lower coastal and estuarine landform.

Headlands associated with these peninsulas are not especially high (commonly between 100m to 110m OD[1];but are often located adjacent to vertical cliffs and slopes; creating a strong sense of elevation and

[1] For example Dursey Head 97m OD, Three Castle Head 109m OD; Bray Head 156m OD

proximity to the sea. At these headlands, and areas leading up to them, the expansive Atlantic is a constant and very close presence. The offshore islands, weaving in and out of view, offer a sense of scale and offer a viewpoint against an expanse of sky and ocean that creates this distinctive seascape character. Remote headlands within this SCA create a strong 'edge of world' character and the attractiveness of the remoteness of this character contributed to the establishment of the early Christian monastic settlements associated with this area.

At regional scale, each of these peninsulas share common characters with the distinctive ridges of the mountains running east-west, and incised drowned valleys with numerous islands, islets and carraigs. The historical seascape and coastal landscape are particularly renowned for early Christian features, though evidence of human settlement extends for millennia.

Sailing and fishing are long established and continue today with sailing schools, clubs as well as the busy fishing port at Castletown Bere.

The highly scenic seascape and coastline has made this a popular tourism and recreational area. The area is renowned for fishing, sailing and has a strong literary tradition. Iconic elements in this SCA include Mizen Head, the Blaskets and Skellig Michael.

Boundaries and Location

The boundary of this SCA is framed by Dingle Bay in the north and Long Island Bay and Roaringwater Bay to the south, with a number of expansive other bays and harbours between This SCA extends seaward for 12 nautical miles and includes a significant number of islands, both at some distance (Skellig Islands) and many close to shore (Blasket islands, Abbey island, Inisfanard, Valentia Island, Dursey, Bere Island, Whiddy Island, Sherkin and Cléire Island). Large bays include Dingle Bay, Kenmare, Bantry Bay, Dunmanus Bay, Long Island Bay and Roaringwater Bay.

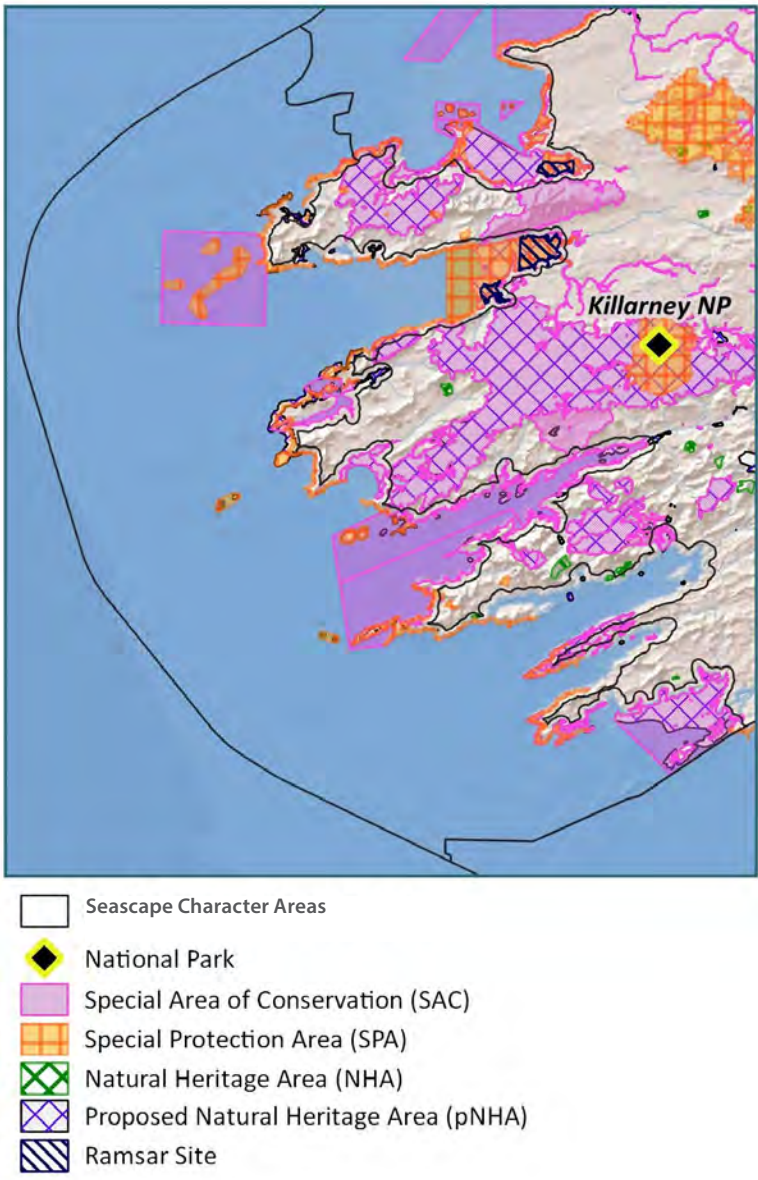
Key Characteristics

- Expansive SCA that encompasses dramatic headlands, numerous large and small islands, rugged indented coastline and iconic seascapes.
- Rich in historical and archaeological seascapes with extensive and deep relationship between the sea, shore and coast.
- Key seascape features include the Skelligs, Blaskets, Fastnet and Mizen head lighthouses.
- Islands confer a particular character to this SCA - inhabited islands include Cléire, Sherkin, Durrus, and Valentia.
- Massive sky and sea with long views and changing light and weather; this can result in the ephemeral appearance and disappearance of the offshore islands. Such "shape-shifting" is accompanied by folklore and myths.
- Castlemaine Harbour, sandwiched between the Dingle and Iveragh Peninsula is protected from the ferocity of the Atlantic by Inch and Rossbeigh spits. Kenmare, Bantry and Dunmanus Bays are narrower in scale, and extend inwards to land over 50km (Dursey Island to Kenmare).
- The smaller quays, beaches and harbours function as havens and contrast with the dramatic headlands and marine seascape.
- Sailing, fishing, tourism, walking and colaiste summer schools, and Wild Atlantic Way make this area popular for visitors.

Natural Influences

- The topography of the five main peninsulas (Dingle, Iveragh, Beara, Sheep's Head, Mizen), and the intermittent bays, is a result of a great tectonic event (continental collision) that occurred at the end of the Carboniferous Period, known as the Variscan Orogeny. Buckling and folding of the Earth's crust created the eastwest oriented ridge-and-trough terrain that is characteristic of SW Ireland. The peninsulas represent the fold ridges, where Devonian Old Red Sandstone occupies the core of the up-folds (anticlines). The bays represent the fold troughs (valleys), and are floored by younger Carboniferous sandstone and limestone.
- The fold troughs, or valleys were flooded by rising sea levels when the ice sheets receded at the end of the last glaciation, around 12,000 years ago.
- Devonian Old Red Sandstone (and minor pockets of Devonian volcanic rock) dominates the rocky and cliff-lined coastal terrain in the SCA, particularly along the peninsulas. The montane topography of the peninsular hinterlands is Devonian Old Red Sandstone. Carboniferous bedrock occupies the head of the bays, where the topography tends to be low-lying.
- The Dingle Peninsula is the only peninsula where bedrock pre-dating the Devonian Old Red Sandstone occurs: at the west end Silurian sedimentary rocks extend from Ferriter's Cover south to Dunquin; and a northeast southwest belt of Ordovician sedimentary rocks traverses the peninsula at Annascaul, outcropping near Minard Head.

- The montane topography overlooking the coastline exhibits spectacular examples of glaciated terrain, particularly on the Iveragh and Beara Peninsulas. Coastal topography at the head of Bantry Bay is characterised by pasture-covered hills comprised of glacial deposits. These ribbed moraines (drumlin-like), some of which have eroded cliffs faces, are similar to Clew Bay, albeit on a smaller areal extent.
- Large offshore and nearshore islands (groups or solitary) are a characteristic feature of the SCA, such as the Blasket Islands, Valentia Island, the Skellig Islands, Scariff Island, Dursey Island, Bere Island, Whiddy Island, Sherkin Island and Cléire Island. Smaller island and rocky islets are numerous along the entire nearshore zone. . Some rise steeply and create a distinctive profile (Great Blasket 292 m, Inishtooskert 162 m, Inishnabro 175 m, Inishvickillane 138 m and Tearaght 184 m). 'Waisting' is a feature of many islands – these are narrow points where the islands are almost cut in two, occasionally three by the sea[2].
- Long sandy beaches include those at Smerwick and Ventry harbours, Inch Beach and White Strand (inner Dingle Bay), Inny Strand (Ballinskelligs) and Barley Cove (Mizen Head). The beach at Allihies is a manmade feature, composed of crushed quartz extracted during nineteenth century mining operations in the locality.
- The Castlemaine Harbour area of inner Dingle Bay is a shallow, estuarine area, sheltered from the out bay by the sand tombolos (spits) of Inch Strand and White Strand.
- Rocky coastal outcrops on Valentia Island host some of the oldest recorded examples of amphibian footprints in the world, dating from the Devonian Period.
- Seafloor surveys have been completed in four of the five bays of the SCA (Dingle Bay, Kenmare River, Bantry Bay, Dunmanus Bay). Muddy sands are predominant in Kenmare River, Bantry Bay, Dunmanus Bay, whilst sand and coarse sediment is prevalent in Dingle Bay. Bare rock seafloor extends seaward from the western ends of the peninsulas, with sand and coarse sediments covering most of the offshore seafloor in the SCA.
- Water Framework Directive (WFD): Coastal Waters identified under the WFD for this area are: Dingle-Feale, Southwestern Atlantic Seaboard, Outer



Map 1:Natural Heritage

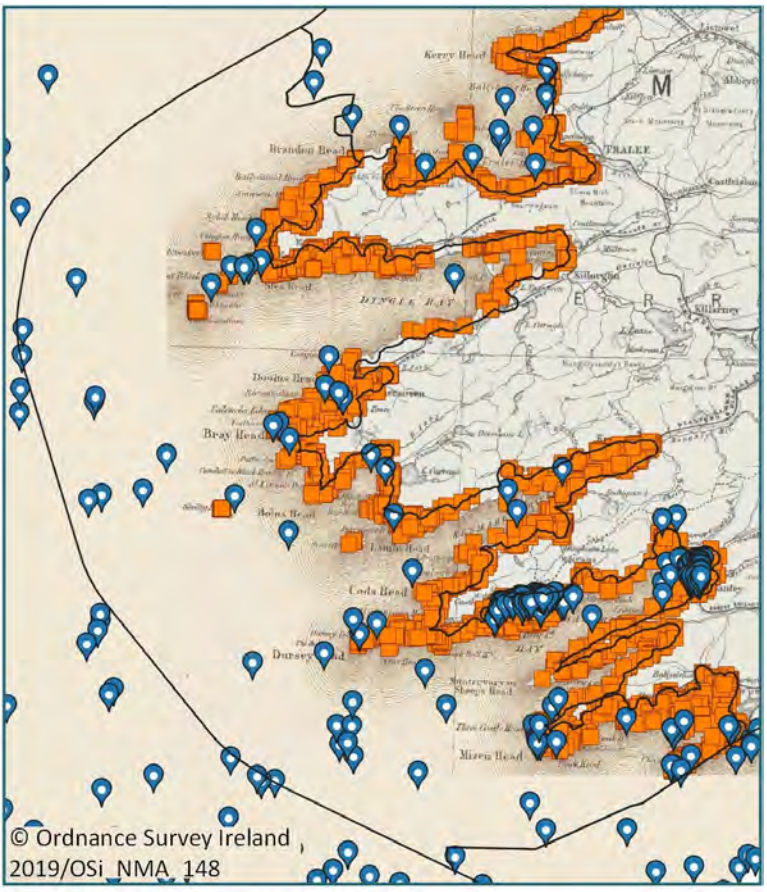


Kerry_ClogherHead over to Sybil Head and Three Sisters (Ruth Minogue)

[2] Walsh, D 2014

Dingle Bay, Valencia Harbour, Portmagee Channel, Ballinskelligs Bay, Outer Kenmare River, Outer Bantry Bay, Berehaven, Dunmanus Bay, Roaringwater Bay and Fastnet Waters. Of those waterbodies assigned a status the following are of good status -Valencia Harbour, Portmagee Channel, Outer Kenmare River, Berehaven and Roaringwater Bay; Outer Bantry Bay is classified as High Status.

- The Blasket Islands SPA is one of the most important seabird colonies in the country, with at least 11 species of seabird breeding regularly. It is the most important site in the country for Storm Petrel and Manx Shearwater, The Skelligs comprise one of the most important seabird colonies in the country for populations and species diversity. Great Skellig has an internationally important population of Storm Petrel. Little Skellig is best known for its long established and internationally important Gannet colony, by far the largest colony in Ireland and one of the largest in the world. Great Skellig also has one of the largest Puffin colonies in the country, and Birdwatch Ireland hold a long term lease on Little Skellig. Fulmar, Manx Shearwater, Storm Petrel, Lesser Black-backed Gull, Arctic Tern and chough use the islands of Deenish and Scariff Islands, some 7km off Lamb's Head. The inaccessible and steeply vertiginous rocks of Bull and Cow Island off Dursey Head supports storm petrol, gannet and puffin. Along the coast the sea cliffs and sand dunes also offer a favourable habitat for seabirds such as chough and peregrine as reflected in the Sheep's Head to Toe Head SPA that encompasses much of the coastal headlands of this area.
- Outside the study area, the Belgica Mound Province SAC is located on the eastern edge of the Porcupine Seabight, approximately 100 km south-west of the Co. Kerry coastline; it is designated for reef habitats.
- Grey seals, harbour porpoise, otter, lamprey and salmon are present within the estuaries, bays and marine waters associated with this SCA. This area is also renowned for a range of cetaceans using the coastal waters as a summer feeding group for whale species and year-round resident dolphin species including Harbour porpoise. Baleen Whales commonly seen off the south coast include Fin Whales and Minke Whales.



Seascape Character Areas

Wrecks Monuments

Cultural and Social Influences

Archaeological and historical overview

- This area has a rich and varied cultural heritage and an archaeological survey has been undertaken and published on each peninsula.[3]
- Archaeological evidence dating to the Mesolithic period has been found on the Dingle peninsula at Ferriter's Cove. This was interpreted as a seasonal settlement site situated in a sandy cove, which continued in use into the Neolithic. Coastal middens in this area may date to this early period or later periods and only with investigation will a clear chronology be established. While there is little evidence for settlement in the Neolithic along this coastline, the presence of megalithic tombs shows that people were in the locality during this period. Megalithic structures and unclassified tombs are present, as well as wedge tomb types which are particularly well represented. The example at Altar near Schull, Co. Cork has been excavated and conserved.[4] There is an unusual occurrence of a single passage tomb in the region on Cléire island, which includes passage tomb art. The unclassified cairns and mounds may contain megalithic tombs,

[3] Cuppage, J. 1986 Corca Dhuibne, Dingle Peninsula Archaeological Survey. Ballyferriter: Oidhreacht Chorca Dhuibhne; Power, D. 1992 Archaeological Inventory of County Cork Volume 1: West Cork. Dublin: Government of Ireland; O'Sullivan, A. and Sheehan, J. 1996 The Iveragh Peninsula: An Archaeological Survey of South Kerry. Cork: Cork University Press; Ronan, S., Egan, U., and Byrne, E. 2009 Archaeological Inventory of County Cork Volume 5. Dublin: he Stationery Office.

[4] O'Brien, W. 1993 Altar tomb and the prehistory of Mizen, Mizen Journal, pp. 19-26

or they may date to the Bronze Age.

- The Bronze Age is very well represented in this SCA. There are several fulacht fiadhs, highlighting occupation and burial activity is identified through ring barrows. Boulder burials are also present—this is a new monument type along the coastline and is not identified in the previous SCAs. This part of Ireland has a relatively high concentration of prehistoric mining and metalworking and copper mines have been discovered at, for example, Mount Gabriel, outside Schull, and Goleen, Co. Cork and Coad Mountain Co. Kerry[5]. The Iveragh peninsula is internationally known for its corpus of Bronze Age rock art and pieces continue to be found. Sixty pieces of rock art are identified in the SCA within 1km of the coast. As with the other SCAs, coastal promontory forts are very common and over 400 examples are known along this coastline as well as a number of cliff-edge forts. Stone monuments of this period are numerous in this SCA and include standing stones, stone pairs and rows, five-stone circles, radial stone cairns, and multiple stone circles. These may represent the Iron Age, although when excavated have been known to date from the earlier Bronze Age or later early medieval period, as at Dunbeg on the Dingle peninsula Co. Kerry.[6]
- The early medieval period is also well represented. Secular settlement is identified through earthen ringforts, souterrains, and cashels. The hut sites and clochans recorded may have been used at this time. The iconic clochans (beehive huts) of the Iveragh and Dingle peninsulas in particular, have been suggested as over-night places for the many pilgrims that flocked to the area in the early medieval period, many of them travelling by sea.[7] The preponderance of ringforts suggests that the land in this SCA, even close to the sea, was good for pasture and cattle rearing. Some promontory forts may have been used in this period also. The SCA is especially rich in early Christian religious heritage and many of the best examples in the country are in this SCA. Sceilg Mhichíl (Great Skellig/ Skellig Michael) is a unique example of an island monastic hermitage and is a designated World Heritage Site.[8] Many of the islands of the SCA retain evidence of early medieval religious activity in the form of churches, crosses, leachts, and burial places. Several have been archaeologically excavated. This SCA is especially associated with St Brendan the Navigator and his sea travels are recounted in his Navigatio Brendani (The Brendan Voyage). This story is an example of a popular literary genre, Immram, peculiar to Ireland, dated to the seventh and eighth centuries. Typically, it is a story that describes the hero's series of seafaring adventures and is frequently allegorical. It is reputed that St Brendan reached the continent of America well before both the Vikings and Columbus. He is remembered at places such as Mount Brandon, Co. Kerry and throughout the Dingle Peninsula, as well as an iconic sculpture at Bantry, Co. Cork.[9] There are over 60 holy wells along the coast with various dedications; many of these continued to be venerated into early modern times and indicate local devotion. There was likely Viking activity all along this coastline and it has been suggested that places along it were used as 'way stations' or resting points for sea trade between the Hiberno Norse towns of Limerick and Cork, such as Beginish, Co. Kerry where a Viking or Hiberno-Norse house was identified or the naust (artificial boat shelter used for the repair or storage of Viking boats) at Lonehort Harbour on Bere Island.[10] The later medieval period is represented by a number of monuments in the



View from Ballyferriter, Co Kerry (Catherine Dunne)

[5] O'Brien, W. 1997 Mount Gabriel and metal sourcing in the Bronze Age. Journal of Historical Metallurgy, 31(1), pp. 8-11.

[6] Barry, T. 1981 Archaeological excavations at Dunbeg promontory fort, Co. Kerry, 1977, Proceedings of the Royal Irish Academy, 81C, pp. 295-329

[7] Harbison, P. 1991 Pilgrimage in Ireland: The monuments and the people. London: Barrie and Jenkins

[8] http://www.worldheritageireland.ie/skellig-michael/. Accessed 1 July 2020

[9] Ó Riain, P. 2011 A Dictionary of Irish Saints. Dublin: Four Courts Press, pp. 115-118.

region. The historic town Dingle was a thriving fishing port in this period, complete with town defences. Much of the region was retained by Gaelic families, though there was certainly Anglo-Norman influence over time. There is a single moated site, but many castles including an excellent hall house at Ballycarbery, near Valentia Harbour and some iconic tower houses, such as Ballinskelligs (Kerry) and Dunboy (Cork). Religious houses were founded in the SCA at Ballinskelligs (Augustinian canons), associated with the Skellig Michael community; Dominican friars near Dingle and Franciscan friars on Sherkin Island and Bantry.[11]

- A wreck of the Spanish Armada fleet of 1588, the Santa Maria de la Rosa, (a merchant vessel) lies off the Kerry coast in the Blasket Sound on Stromboli reef. There are a number of 'fish palaces' along the coastline. These are coastal curing stations for the processing (smoking, pickling and pressing) of herring. Traditionally known as 'pallices', they date to the 1600s and 1700s.[12] This stretch of coastline is synonymous with privateering of the later medieval and post medieval periods. Roughly hewn steps and small slipways/piers/quays can be identified all along the coast; these, Connie Kelleher has suggested are the archaeological remains of smuggling and privateering. Only a portion of these are as yet recorded. It has also been suggested that Derrynane Harbour near Derrynane House (home place of Daniel O'Connell) was also used for smuggling at this time.[13] One of the more infamous episodes centres on a Cork coastal village where 'The Sack of Baltimore' took place on 20 June 1631, when the village was attacked by slavers from the Barbary Coast of North Africa, Moroccans, Dutchmen, Algerians and Ottoman Turks. They captured over 107 villagers, mostly English settlers along with some local Irish people who were taken to be sold into slavery. At most three of them ever returned to Ireland; one was ransomed almost at once and two others in 1646. The remaining villagers moved to Skibbereen after the raid and Baltimore was deserted for generations.[14]



Mizen Head, Co Kerry (Catherine Dunne)

- Many monuments of the post-medieval and early modern periods, have direct associations with the sea. For example, Bantry Bay and town was an important coastal base in this period and was at the centre of the lordship of the O'Sullivan Beare.[15] There are the remains of boat houses, signal towers and beacons all along the coast, and four Martello Towers; one at Garinish Island (Glengarriff) and the remainder on Bere Island. The island itself is renowned for its military remains, for example Lonehort, a military fortification dating from 1899 and housing two six-inch guns, an infantry trench, engine house and various underground structures. There are a number of other batteries across the island, dating to the nineteenth century, and pill boxes of the early twentieth century. There are five historic lighthouses along this coast with associated keeper's houses and a coast light on Sherkin Island. Mizen Head, which is a signal station, is still in use and its bridge which links it to the mainland has become an iconic architectural feature[16]. Fastnet Rock and Lighthouse is another icon of the sea in this SCA.[17] There are no less that ten historic coastguard stations, an indication of the necessity to police this indented stretch of coast.
- Two islands are worthy of special mention in relation to cultural heritage. The Great Blasket inhabited since early medieval times, produced several internationally renowned writers of the

[10] Sheehan, J., Stummann Hansen, S. and Ó Corráin, D. 2001 A Viking maritime haven: a reassessment of the island settlement at Beginish Co. Kerry. Journal of Irish Archaeology, 10, 93-120

[11] Sherkin Friary has been excavated. See Lynch, A. 2018 The Franciscan Friary on Sherkin Island, Co. Cork: Excavations 1987-1990, Journal of the Cork Historical and Archaeological Society, 123, pp. 55-128

[12] For a comprehensive account on these monuments in the region see https://roaringwaterjournal.com/2019/02/17/fish-palaces-and-how-they-worked/; https://roaringwaterjournal.com/2015/01/18/pilchards-and-palaces/ Accessed 1 July 2020

[13] Kelleher, C. 2020 The Alliance of Pirates: Ireland and Atlantic Piracy in the Early Seventeenth Century. Cork: Cork University Press

[14] Ekin, D. 2006 The Stolen Village: Baltimore and the Barbary Pirates. Dublin: O'Brien Press

[15] Breen, C. 2005 The Gaelic Lordship of the O'Sullivan Beare: A landscape cultural history. Dublin: Four Courts Pres;2007 An Archaeology of Southwest Ireland 1750-1670. Dublin Four Courts Press

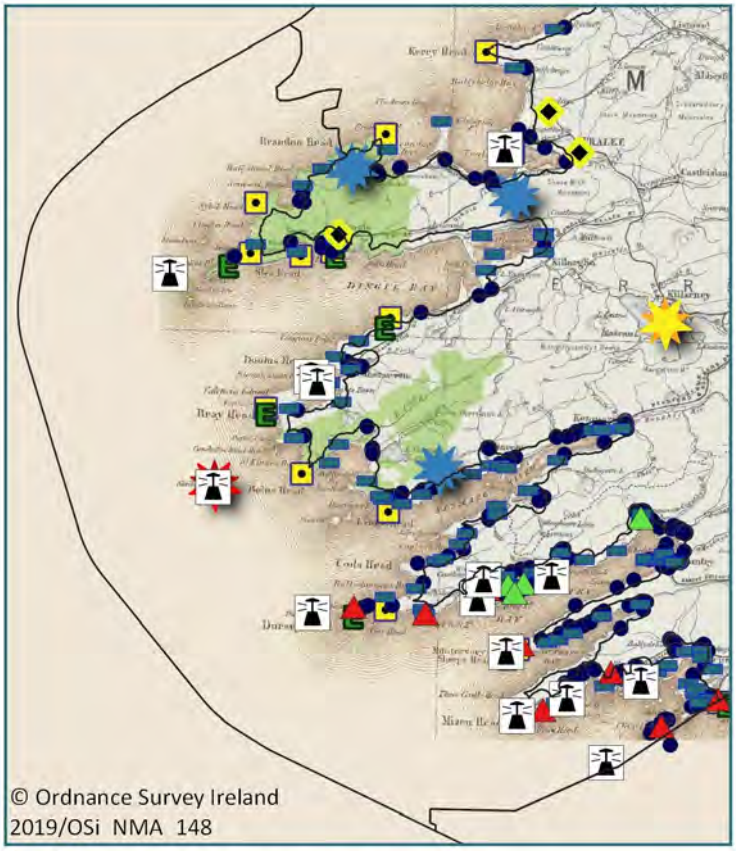
[16] http://www.mizenhead.ie/. Accessed 29 June 2020

[17] https://www.irishlights.ie/tourism/our-lighthouses/fastnet.aspx. Accessed 29 June 2020

twentieth century, who wrote of the island's life and customs before these disappeared in the 1950s when the last inhabitants left the island.[18] Valentia Island is particularly important as it is the site of a transatlantic cable and station. After many failed attempts to lay a communications cable across the Atlantic, it succeeded on the third attempt on 27 July 1866, when the cable was pulled ashore at Newfoundland from Valentia; a distance of 1686 nautical miles. The Great Eastern, the ship that laid the cable had averaged 120 miles a day. The first message sent on the cable was 'A treaty of peace has been signed between Austria and Prussia'. Today the Valentia Transatlantic Cable Foundation hopes to gain World Heritage Status for the historic site.[19]

Contemporary

- Maude Delap (1866 -1953) a self-taught marine scientist, lived on Valentia Island for most of her life and her research profoundly contributed to understanding of marine life in and around this area; her role highlights also how many Victorian collectors based in the urban centres relied considerably on locally based collectors and self-taught scientists[20].
- The sheltered waters in the lee of Bere Island were used as a naval base until 1938. At the other end of Bantry Bay, the sheltered waters in the lee of Whiddy Island were used by US Air Force seaplanes during WW1.
- Gaeltacht areas on the Dingle Peninsula remain popular for summer schools -Coláiste.
- Walking, Sailing, sea kayaking, fishing are all important recreational activities and this area gained further prominence for visitors with Wild Atlantic Way and use of locations including Skellig Michael and Valentia Island in Stars Wars Films. Valentia Island lighthouse is classified as a Great Lighthouse of Ireland.
- Coastal towns and villages offer sailing and berthing facilities with sailing and schools along this coast at various locations including Baltimore, Bantry and Dingle.
- Seine boats are associated with South Kerry, this tradition of coastal rowing races dates back to the late 1800's in South Kerry and every coastal locality in the region hosts its own Regatta during the summer. Seine boats are timber built boats that hold 12 oars men and a coxswain and were commonly used in the last century by fisherman in the Iveragh Peninsula. These boats were traditionally used to haul fish captured in floating nets[21].
- SCA 9 is dense (particularly around the Kenmare river) in licensed aquaculture sites, including various finfish, shellfish and seaweed, with some businesses (Kenmare Fishing Tours, The ROSA Sea Fishing and Scenic Tours) offering angling tours. Bantry Bay generally has a number of cruise vessels operating out of the harbour, although this has been halted over the COVID-19 pandemic.



Art and Folklore

- Accounts of island life from Great Blasket Island were encouraged in the early part of the twentieth century by scholars and folklorists to tell their experience of life on the island, the best known books are An tOileánach (The Islandman) by

[18] http://blasket.ie/amline-agus-leabharliosta/ .Accessed 29 June 2020
[19] https://valentiacable.com/. Accessed 29 June 2020
[20] Gange, D 2018
[21] From: https://roaringwaterjournal.com/2019/02/17/fish-palaces-and-how-they-worked/ Accessed on 22/07/2020

Tomás Ó Criomhthain, Peig by Peig Sayers, and Fiche Blian ag Fás (Twenty Years A-Growing) by Muiris Ó Súilleabháin. J.M. Synge was one of the visitors to the island in 1905.

- The islanders accounts include many folklore and folk belief relating to fishing and living in this maritime world. The bad luck and name avoidance of 'pig' is a common theme across many fishing communities not just in Ireland; but was particularly associated with the West Cork/Kerry fishing communities, the replacement name 'cold irons' is a relatively common term used instead and one of the earliest records of the use of this word is from Cléire, Co. Cork[22].
- Iveragh and Dingle peninsulas shared a strong tradition relating to a sunken island under the wave of Tóim, called Cathair Tonn Tóime. Various stories attach to this island and it relates to a breaker outside Rossbeigh[23].
- The clear light and water infused air attracts artists with Ballydehob, in particular, establishing itself as a bohemian hub from the 1960s[24]. A (hons) in Visual Art is a community-based, four year, honours degree, visual art programme based on Sherkin Island.
- The Deepmaps of West Cork project combines the research skills of cultural historians with those of marine biologists and seeks to bring together many of the different aspects of place. http://www.deepmapscork.ie/

Perceptual Influences Vistas and Views

- Panoramic views from the coastal road and headlands help to define the seascape character. The heads of the main peninsulas offer extensive vistas and views that extend to the horizon. These views extend along the frequently rugged coastlines and outwards to the horizon.
- The profile of the offshore islands particularly the Skelligs and Inis Tuaiseart from the Dingle Peninsula are very distinctive and offer an orientation and sense of scale to the large ocean and key views.

- Coastal views from and between the peninsulas are interesting and frequently comprise ridged profiles of the uplands in muted browns, strips of green and yellow of pasture and sand and the commonly indented rocky coastline and sea.
- Weather systems can be seen coming in and banks of clouds moving across the sky, altering the colour of the ocean. This interplay of light on water and land moves and changes quickly within this SCA.
- Lighting – This SCA has a significant density of lighthouses, reflecting the dangerous navigation around these drowned mountains. These include- Inisteargart Lighthouse, an island off the Dingle Peninsular has a range of 19nm, Valentia Directional Lighthouse has a range of White 11 nm ; Red and Green 8 nm; Skelligs Lighthouse is one of the main sea lights off the South West coast and is located on the outer and larger of the Skellig rocks; eight miles (12.8km) from the nearest mainland point, North East of Puffin Island. It has a range of 12 nm. Bull Rock lighthouse has a range of 18 nm. Ardnakinna lighthouse (White 17 nm, Red 14 nm), Roancarrigmore, Sheep's Head Lighthouse and Crookhaven Lighthouse. Other lighting is associated with the settlement that hugs the coast.
- The ferry routes/rib boat trips to Cléire, Sherkin, Blaskets, Skelligs and trips around Fastnet allows for views across the bays, inlets and from sea to the land.
- The influence of the weather on character and visibility is profound and the blurring and clarity of views of the islands looking southwards along this coast; combined with the interplay of huge skies helps create an ephemeral character to these views. Weather systems, light and sky profoundly influence the visibility of these islands particularly the Skellig Islands which appear to float in and out of the horizon over 5 nautical miles offshore.



Inisteargart Lighthouse (www.irishlights.ie)

[22] Ní Fhloinn, 2018
[23] Ó hÓgáin, 2000
[24] https://ballydehobartsmuseum.com/exhibitions/ Accessed 17/07/2020

Sense of Place

- Fastnet Rock is familiar as an iconic offshore feature although difficult to access or land on. It is also known as Ireland's "Teardrop" as it is the last sight of Ireland for emigrants sailing to America. Fastnet is known, in part, due to the Fastnet yacht race held every two years. The name "Fastnet" is popular in commercial ventures around this area, including Fastnet Foods and Fastnet Film Festival.
- A Met Eireann weather station is located at Mizen and the Head itself forms part of the Shipping Forecast list of maritime places which provides an evocative audio experience of our marine nomenclature.
- The steep topography and terrain has resulted in a close connection and use of the sea as a means to traverse around these indented peninsulas and between the islands. Whilst much of this area includes havens and sheltered bays, the numerous islands and changeable weather means fierce tides with dangerous eddies and overfalls can be a feature.

Sounds and smells

- The smell and taste of wind-blown salt spray is a characteristic of the headlands and areas with coastal cliffs, while the brackish lagoons of the eastern part of the region generate a subtle salty odour.
- At the harbours and fishing villages, smells and sounds of fishing boats, maintenance of same and gulls are a characteristic feature.
- The sound of waves varies across the region, from the gently lapping waves of the estuaries to the stronger waves of the wide open beaches and the crashing waves at the base of small cliffs and off shore rocks.
- Roaringwater Bay is an example of the sound of a seascape being so important to reflect its name. When the wind drops after a storm or a huge swell arrives from the ocean, the bay can be flat and calm but the air is filled with a roar from the outer coastline of Sherkin and Heir Island absorbing the waves.

Full time inhabited islands in this SCA (with translation from Logainm.ie)

Island	Population 2016
Bere	167
Oileán Chléire	147
Dursey	4
Heir	28
Long	20
Sherkin	111
Whiddy	18
Valentia	657



Fish curing, Valentia Island
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA10 - Atlantic Celtic Bays and Estuaries







Kinsale (Ruth Minogue)

Summary Description

This large SCA comprises a stretch of Cork and Waterford coastline and bays from Cape Clear to Helvick Head, Co. Waterford. This SCA is predominantly influenced by the Celtic Sea but the Atlantic continues to exert an influence particularly at the western end. The mouth of Cork Harbour (and outlet of the River Lee) is a major feature that bisects this extensive SCA.

The coastal form of bays, estuaries and headlands is generally more moderate in scale than the neighbouring SCA 8 (Atlantic South West Rias, Bays and Islands), with the headlands commonly extending outwards between 3km to 7km (Old Head of Kinsale, Helvick Head). Bays and headlands are more pronounced on the western part however, this pattern continues, albeit on a lesser scale in the smaller headlands and bays between Cork Harbour and Helvick Head.

Moderate but steep, cliffs are a feature of this SCA and this contributes to a sense of height and attractive views across the seascape throughout this SCA.

West of Cork Harbour, narrow, estuarine harbours are predominant (Glandore, Castlehaven, Rosscarbery, Clonakilty, Courtmacsharry, Bandon River, Oysterhaven) with sandy beaches at Rosscarbery Bay, Inchadoney and Garretstown. East of Cork Harbour, the coast is sandy and beaches are predominant, e.g. Ballycotton, Youghal, Whiting and Ardmore bays.

These beaches, especially south facing beaches, have long being popular for local visitors from Cork and Waterford, with Youghal having a promenade, bandstand and racecourse near the beach.

Islands are less numerous within this SCA, though a greater number are present in the western part of this area; several close to the headland having being cut off through rising waters and/or erosion over time. Ballycotton Island is a prominent local landmark close to Ballycotton Pier.

The Stags of Toe Head, some 1.5km off Toe Head, are now associated with the Kowloon Bridge disaster, the massive ship sank just off these rocks in 1986 resulting in significant pollution of the waters. Wrecks more generally are a feature of this SCA, with over 180 recorded, reflecting the historical nautical activity associated with this extensive seascape. The Lusitania is another well-known wreck from within this SCA.

Fishing, sailing and tourism are all popular and this SCA encompasses both the Wild Atlantic Way and Ireland's Ancient East. Fishing ports are located at Union Hall,

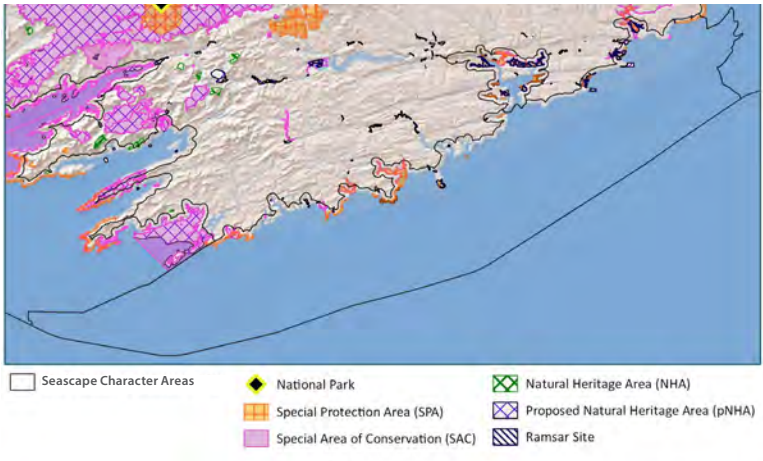
Kinsale, Ballycotton. The population of these towns can increase substantially over the summer months.
Smaller settlements have established in the sheltered bays such as Glandore Harbour which includes Union Hall, Leap and Glandore. The larger towns include Clonakilty, Kinsale and Youghal.

Boundaries and Location

This SCA extends westerly from Cape Clear to Helvick Head, Co. Waterford. The SCA extends from the coast for 12 Nautical miles and includes bays such Traguma, Toe Head, Castlehaven, Glandore Harbour, Rosscarbery Bay, Dirk Bay, Clonakilty Bay, Seven Heads, Broadstrand, Coolmain, Courtmacsherry, Holeopen Bay, Kinsale Harbour, Oysterhaven, Newfoundland Bay, Reanies Bay, Powerhead Bay, Ballycottan Bay, Youghal Bay, Ardmore Bay, Whiting Bay and Mughorts Bay.

Key Characteristics

- A complex and extensive SCA; that is subject to influence of both Atlantic Ocean and Celtic Seas.
- Series of estuaries, bays, headlands, low cliffs and beaches with a broadly consistent coastal form.
- Key seascape features relate to the series of headlands including Seven Head, Old Head of Kinsale, Ardmore and Helvick Head.
- Protruding Old Red Sandstone Peninsulas more pronounced in the western part of this SCA are accompanied by cliffs usually between 40 -60m OD
- Three important historic towns are located in this SCA: Rosscarbery, Kinsale and Youghal. Kinsale and Youghal were both enclosed with towns walls and defences and Rosscarbery may have been walled. All three towns have a long associations with the sea throughout their histories.
- The vertical scale of the cliffs and headlands create a more dramatic character and present closer dramatic views to the sea and along the series of headlands in good visibility.
- Popular for recreation, tourism, sailing, fishing, arts and food production, this is an active and busy SCA, contrasting with a more remote character associated with the headlands.
- Strong connections to the sea remain with clear maritime character; the estuaries offer a sense of shelter and haven; the presence and influence of the Atlantic Ocean and Celtic Sea is constant.
  An Rinn is the most southerly Gaeltacht area in Ireland.



Map 1: Natural Heritage

Natural Influences

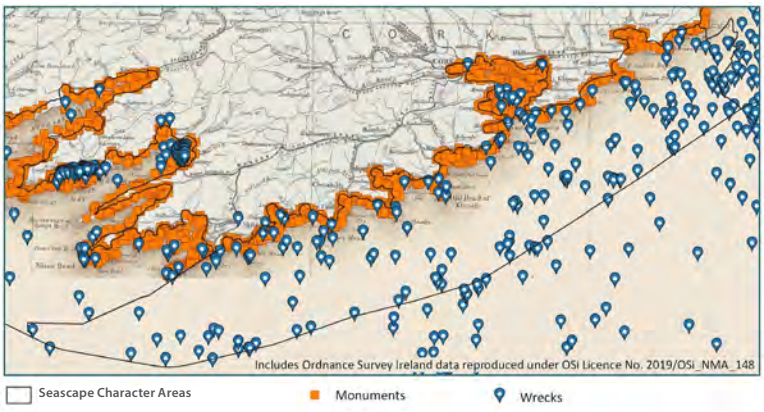
- The coastline in this SCA follows an east northeast-west southwest orientation. West of the mouth of Cork Harbour, the coastal orientation (excluding incised bays and protruding headlands) is parallel to, and most likely controlled by, the regional geological structure of fold ridges and troughs. The ridge-and-valley terrain of southwest Cork (the result of Variscan folding at the end of the Carboniferous 300 million years ago) is oriented east northeast -west southwest. A glance at a map of the SW Cork coast will reveal the parallel orientation of the Sheep's Head and Mizen peninsulas and the Sherkin-Clare Island-Baltimore ridge with the Baltimore to Cork Harbour coastline.
- Bedrock strata exposed along the entire length of the SCA are noticeably inclined, and in many places dipping at steep angles into the sea or subsurface. Originally laid down as horizontal layers of sediment, these layers of rock were inclined (folded and pushed upright).
- Bedrock geology along the Baltimore-Galley Head section is predominantly Devonian siltstone, mudstone and sandstone. The Galley Head-Cork Harbour section is predominantly Carboniferous mudstone, siltstone and sandstone. These lithologies are visible along the shoreline and cliffs as purple-green-grey strata.
- This entire coastline records a period of Ireland's geological past when the great Old Red Sandstone continent, on which the Irish landmass was situated, was eventually flooded by marine waters. In short, the Devonian Old Red Sandstones which originated on land, were covered over by sediments washed into the sea, and eventually topped by limey-muds of the tropical waters in early Carboniferous times.
- The coastal topography of the seaward protruding

Devonian Old Red Sandstone peninsulas of the SW is repeated, albeit on a lesser scale in the small headlands and bays between Cork Harbour and Helvick Head. Devonian lithologies extend inland from the east-protruding heads. Ballycotton, Youghal, Ardmore Bays are floored by Carboniferous limestones and mudstone. The overall geological structure along this section is oriented eastwest.

- Akin to a straight-edged saw, the coastline is characteristically cliff-lined, cut by narrow, elongate harbours and jutting seaward with narrow headlands along much of the SCA. Cliff heights vary within the 40-60 mOD elevation.
- The Blackwater and Bandon rivers empty into sea via long estuarine harbours. Elsewhere along the entire section of the SCA, rivers and streams meet the sea, commonly at river-mouths oriented perpendicular to the coastline. Many of these rivers occupy meltwater channels that formed during deglaciation at the end of the last ice age.
- Several sites along this coastline (Courtmacshary, Ballycotton, Ardmore) exhibit pre-glacial shoreline (raised) features that are important to the understanding of relative sea-level changes during the great climatic and environmental fluctuations that Ireland experienced during the past 70,000 years.
- The offshore seafloor cover is characterised as predominantly bare rock and muddy sand, with areas of sand off Baltimore, Cork Harbour and the eastern bays in the SCA. Seafloor depth (bathymetry) along the SCA gradually drops to 80m-100m at the outer SCA limits.
- This SCA is subject to meso-tidal ranges of >2m <4m. Water Framework Directive (WFD): the largest coastal water within this SCA is the Western Celtic Sea which extends for the full SCA; its status is currently unassigned. Other coastal waters include Rosscarbery (unassigned), Clonakilty (good status), Courtmacsherry (good status), Youghal Bay (moderate).
- As with other SCAs the cliff habitats are important as well as offshore islands; The Galley Point to Duneen Point SPA is of particular importance for Chough; it also supports a population of Peregrine and a suite of breeding seabird species. The intertidal sand and mudflats associated with the estuarine habitats such as those at Clonakilty Bay provide important habitats for internationally important population of Black-tailed godwit. The Sovereign islands SPA, small islands about 1km supports a breeding colony of Cormorant, which is both the largest in Co. Cork and of national importance. The Blackwater Estuary is a Ramsar Site and also designated as its habitats providing important feeding and roosting ground for wintering waterfowl. Finally the Helvick Head to Ballyquin SPA extends into the neighbouring SCA and is of special conservation interest for the following species: Chough, Peregrine, Cormorant, Herring gull and Kiittiwake.
- Lough Hyne has been recognised as an internationally important ecological site, with both botanical and zoological interest. It is designated as a SAC with three habitats listed on Annex I of the E.U. Habitats Directive, with the habitat 'large shallow inlets and bays' making up over 60% of the site. Approximately 4,000 years ago this was a freshwater lake, but due to the post-glacial rise in sea-level it is now saline. Other estuarine habitats as outlined above for bird species are also designated as SACs due to estuaries, salt meadows and dune systems.

Cultural and Social Influences

Archaeological and Historical overview



Map 2: Archaeological Records and wrecks

Archaeological surveys have been published for this SCA.[1] Archaeological evidence dating to the Mesolithic period has been found during fieldwalking exercises in a number of lithic (flint) scatters along the coast to the east of Cork Harbour, indicating early activity along this coastline. Unlike others SCAs there are relatively few middens recorded in this area, with just 2 identified, both in Co. Cork. The Neolithic is represented by the presence of megalithic tombs indicating that people were in the locality in this period, i.e. one megalithic structure, two unclassified tombs and a portal tomb at Ahaglaslin townland near Rosscarbery

[1] Power, D. 1992 Archaeological Inventory of County Cork Volume 1: West Cork. Dublin: Government of Ireland; Power, D. 1994 Archaeological Inventory of County Cork Volume 2: East and South Cork. Dublin: Government of Ireland; Moor M. 1999 Archaeological Inventory of County Waterford. Dublin: Government of Ireland; Ronan, S., Egan, U., and Byrne, E. 2009 Archaeological Inventory of County Cork Volume 5. Dublin: he Stationery Office

The Bronze Age is represented by several burnt mounds in Cork and Waterford and fulacht fiadhs, highlighting occupation activity. Burial activity is identified by a single ring barrow in Castlefreke townland. Two boulder burials are also present. These are outliers to the larger numbers found in SCA 8 (Atlantic South West Rias, Bays and Islands). Unlike the previous SCA, there is just one fragment of rock art recorded near Castletownshend, although there are a number of cup-marked stones recorded along the Cork coast. Coastal promontory forts continue to be common and 63 are recorded as well as a number of cliff-edge forts. Stone monuments of this period are relatively less varied along this coastline with standing stones and a single stone pair recorded. As elsewhere, the promontory forts may represent the Iron Age, but without excavation this is impossible to demonstrate.

The early medieval period is well represented by five cashels and over a hundred earthen ringforts and a number of souterrains. Many of the hut sites recorded may have been used at this time. There are just three ecclesiastical enclosures recorded in the SCA, for example at St Multose's medieval church in Kinsale. Like Kinsale, Rosscarbery was established on the site of an early monastery founded by St Fachtna of Molana in the seventh century, and was raided by the Vikings in AD 990.[2] A very important early ecclesiastical complex is located at Ardmore, Co. Waterford. The earliest monastery at Ardmore was established by Saint Declan, who is thought to have been in the south of Ireland prior to the arrival of St Patrick. In the twelfth century it had a cathedral and bishop and in the sixteenth century was leased for a time to Sir Walter Raleigh. Ardmore retains one of the best-preserved round towers in Ireland, several ogham stones and the church has unusual exterior Romanesque (twelfth century) sculptures.[3] The only crannog recorded in the SCA is near on the foreshore of Ardmore Bay. There are many holy wells along this coast with various dedications; many of these continued to be venerated into early modern times and indicate local devotion.



Ballycotton Island (Ruth Minogue)



Baltimore Beacon (Ronan Hennessy)

The later medieval period is represented by a number of monuments in the region. Three important historic towns are located in this SCA: Rosscarbery, Kinsale and Youghal. Kinsale and Youghal were both enclosed with towns walls and defences and Rosscarbery may have been walled. All three towns have a long associations with the sea throughout their histories.[4] There is a single moated site near Knockadoon Head south of Youghal Bay. A number of castles also date throughout this period and the vast majority along the coast are tower houses. In addition to the larger towns, other stretches of this coastline also had strong connections to smuggling and privateering—right into the post-medieval and early modern period. One such coastline is around Galley Head in West Cork; from Roaringwater Bay in the west to Hangman's Point in the east, and includes the settlement at Baltimore (boundary of SCA 9 and 10). This area has a number of main bases and places ultilised by pirates, over a considerable period of time.[5]

There are two examples in the west of the SCA of coastal curing stations for the processing (smoking, pickling and pressing) of herring, known as fish palaces and they date to the 1600s and 1700s.[6] This stretch of coastline was also used for privateering in the later medieval and post medieval periods. Roughly hewn steps and

[2] Coleman, J. 1904 Rosscarbery, Co. Cork, Journal of the Cork Historical and Archaeological Society, 10, pp. 125-128

[3] Harbison, P. 1992 Guide to National and Historic Monuments of Ireland. Dublin: Gill and Macmillan, pp. 324-325

[4] Thomas, A. 1992 The Walled Towns of Ireland Volume 2. Dublin: Irish Academic Press, pp. 137-141; 215-220; Kelly, D. and O'Keeffe, T. 2015 Youghal. Irish Historic Towns Atlas No. 27. Dublin: RIA

[5] This area is the focus of a recent publication: Kelleher, C. 2020 The Alliance of Pirates: Ireland and Atlantic Piracy in the Early Seventeenth Century. Cork: Cork University Press, see especially pp. 10-11 for maps showing places, monuments and settlements associated with pirates.

[6] For a comprehensive account on these monuments see https://roaringwaterjournal.com/2019/02/17/fish-palaces-and-how-they-worked/; https://roaringwaterjournal.com/2015/01/18/pilchards-and-palaces/ Accessed 1 July 2020

small slipways/piers/quays can be identified all along the coast; these; Connie Kelleher has suggested are the archaeological remains of smuggling and privateering. The port towns of Kinsale and Youghal would have likely seen many attempts at smuggling of goods.

There are many churches, burial grounds and graveyards that would have originated in this period. Religious houses were patronised by the wealthy of the locality and remains of these are found at Youghal (Benedictine monks; Dominican and Franciscan friars; Franciscan nuns; and Knights Templars close by at Rincrew), Kinsale (Carmelite friars), Timoleague (Franciscan Friars) and one unclassified religious house near Whitegate, east of Cork Harbour. Timoleague is a particularly fine example on the shore of Courtmacsherry Bay.

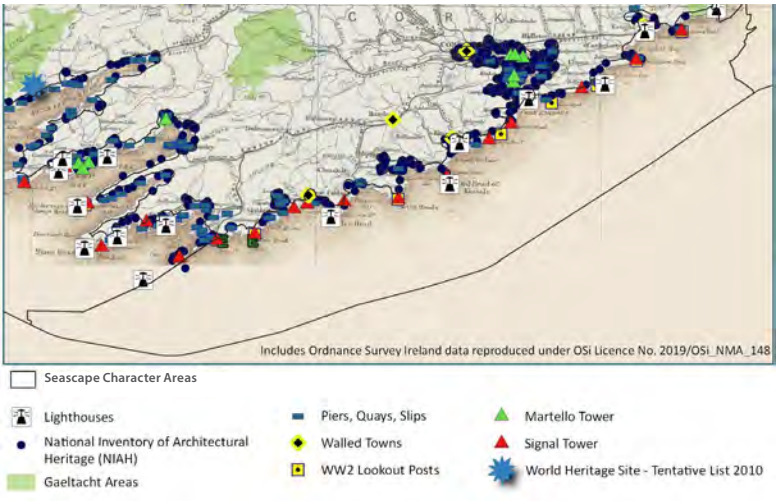
In the post-medieval and early modern periods, the historic towns of the areas continued to be important. Youghal was particularly associated at this time with Richard Boyle, first earl of Cork (1566-1643). He was instrumental in the Plantation of Munster.[7]

There are a number of military fortifications along this coastline. The two most impressive are situated at the mouth of Kinsale Harbour; James Fort to the west and Charles Fort to the east.[8] James Fort was the earlier and constructed in 1607 to protect Kinsale town and harbour.[9] Charles Fort was constructed in 1677 as a star-shaped fort in the reign of Charles II to further protect the town and harbour of Kinsale. It is associated with a number of important historical events such as the Williamite War in 1690 and the Irish Civil War of 1922-23. It was renovated on several occasions over its period of use and remained garrisoned by the British army until 1922.[10]

Many of the monuments of these periods have direct associations with the sea. There are the remains of several historic boat houses and signal towers along the coast, for example at Ballymacotter near Ballyandreen Bay in east Cork. There are several historic lighthouses with associated keeper's houses. There is a plethora of historic coastguard stations listed by the National Inventory of Architectural Heritage (NIAH) in this SCA—Youghal and Ballycotton both retain a terrace of houses for coastguard staff. Kinsale retains a good example of an eighteenth-century custom house associated with the harbour there. The relatively short stretch of county Waterford coastline in this SCA in and around Helvick Head has strong and long associations with fishing and oyster farms, oysters being known as Seoda na Mara (jewels of the sea). The name Helvick Head reveals its Viking associations in the place name. The second part, -vík, means in English, 'bay' and there are further examples around the Irish coast, such as Smerwick in Co. Kerry. The meaning of 'Hel' is more ambiguous but it may mean bright, white, holy, healthy, or safe.[11]

Due to the number of busy harbours and smaller historic piers and quays all along the coast, it is no surprise that there are over 180 wrecks recorded in the this SCA. All types of wrecks are represented. Of particular interest is the seventeenth century Spanish galleon the Santa Ana Maria, flagship of the New World Spanish treasure fleet which was lost during a storm after a circuitous voyage from Cuba to the shallows of Castlehaven Harbour, where it was lost in 1628. Three submarines are recorded. The U-260 wrecked off Galley Head,[12] UC-42 off Roches Point at the mouth of Cork Harbour,[13] and U-58 off Power Head.[14]

Perhaps the most famous historical event associated with this SCA is the sinking of the Lusitania on 7 May 1915. It was a Cunard ocean liner and was sunk during the First World War, as Germany waged submarine warfare against the United Kingdom which had



Map 3: Built Heritage and An Gaeltacht

[7] Power, D. 2007 The archaeology of the Munster Plantation. In Horning, A., Ó Baoill, R., Donnelly, C. and Logue, P. (eds) The Post-Medieval Archaeology of Ireland 1550–1850. Dublin: Wordwell, pp. 37-50

[8] See Kerrigan, P. 1995 Castles and Fortifications in Ireland 1485–1945. Cork: The Collins Press

[9] https://www.discoverireland.ie/Arts-Culture-Heritage/james-fort-kinsale/49739. Accessed 29 June 2020

[10] https://www.heritageireland.ie/en/south-west/charlesfort/ Accessed 29 June 2020

[11] https://www.logainm.ie/49599.aspx. Accessed 1 December 2020. Also see Fellows-Jensen, G. 2001 Nordic Names and Loanwords in Ireland, in Larsen, A. (ed.) The Vikings in Ireland. Roskilde: The Viking Ship Museum, pp. 107-13. For wider background to Viking influence in the region see, Russell, I. and Hurley, M.F. (eds) Woodstown: A Viking-Age Settlement in Co. Waterford. Dublin: Four Courts Press.

[12] See http://www.divesitedirectory.co.uk/dive_site_ireland_cork_baltimore_wreck_U-260.html; http://archive.divernet.com/wrecks-general/p301569-lost-and-found:-one-u-boat.html. Accessed 29 June 2020

[13] https://www.wrecksite.eu/wreck.aspx?1688. Accessed 29 June 2020

[14] https://www.wrecksite.eu/wreck.aspx?1596. Accessed 29 June 2020

implemented a naval blockade against Germany. The ship was torpedoed by the German U-boat U-20, sinking in just 18 minutes. The vessel went down 11 miles (18 km) off the Old Head of Kinsale, killing 1,198 and leaving 761 survivors. The sinking of the Lusitania turned public opinion in many countries against Germany, contributed to the American entry into World War I and became an iconic symbol in military recruiting campaigns.[15]

Contemporary

- This SCA retains a strong relationship with the sea through settlement, fishing and tourism in particular.
- Most of the settlement are located in the more sheltered parts of the bays and estuaries and the historic towns continue to play an important role for fishing, sailing, services and tourism.
- Tourism plays a significant role both in terms of local visitors from Cork and Waterford, as well as international tourists. The SCA includes both Wild Atlantic Way, Ireland's Ancient East tourism brands.
- Popular beaches and seaside towns include Courtmacsherry, Kinsale, Ballycotton and Tramore.
- West Cork has its own fuschia tourism brand and strongly promotes local and artisanal food producers.
- Fishing ports, generally small are spread along the coast and there are several shellfish waters farming oysters and mussels mainly Monkfish (Greater than 750kg) is designated to land in the Kinsale Port. As a commercial port, Kinsale receives about a hundred vessels annually, largely involved in the importation of animal foods.

Art and Folklore

Inside St. Multose Church, Kinsale, there is a large flat stone carved with a round handed figure; this was traditionally rubbed by fishermen's wives to bring their husbands home safe from the sea[16].

Folklore associated with the mythical island continues along this seascape with stories from 1878 relating to a vanishing island off Ballycotton, with distinctive features such as woodlands and mountains[17].

Jonathon Swift spend four months travelling southwest Ireland and his poem Carbery Rocks is linked to this area[18].

Martha Cashman, ceramicist, highlights plastic pollutions in artwork along this part of the coast.

Perceptual Influences

Vistas and Views

The views to and from headlands due to the vertical scale of the cliffs, (although not very high) do generate long views; the eye tends to be drawn across the bays which may be sweeping, as at Youghal Bay, with low headlands in the distance and the yellow of the large strand.

This contrasts with smaller bays and accompanying headlands, views from some of these such as at Ballycotton and at Knockadoon are influenced strongly by the nearby island; at Ballycotton this is a distinctive view seen from some distance along the coast.
Broad expansive sea views are possible from these headlands,(weather dependant) and depending on visibility some headlands allow for considerable intervisibility. For example. Ballycotton to Ardmore and Mine Head, a distance of over 17 nautical miles (c.33 km).

The head of Kinsale as the longest and narrowest peninsula within this SCA, is surrounded by the sea on three sides, this contributes to an island sense with expansive views across the sea.

Boat trips for both recreational (sailing, wildlife trips) and fishing purposes allow for views along the coastline.

Sense of Place

- This SCA is characterised by more intimate and sheltered bays with a strong coastal character informed by the influence of numerous settlers; the influence of the later medieval period and Norman influence can still be experience in the older towns and islands such as Oilean na Caplaigh (Capel Island, named after a Norman Family De Capelle).
- A strong maritime character is present within this SCA due to its coastline facing southwards onto the Celtic Sea; whilst the estuaries offer a sense of shelter and haven; the presence of the Celtic Sea and Atlantic is constant.
- Exposed areas and headlands provide for a more bracing experience with less shelter, more exposure to the elements, and the combination of vast sky and the broad Celtic Sea.
- This is an active SCA, the numerous small piers,

[15] See Moore, F., Kelleher, C., Brady, K. and Lawler, I. 2019 RMS Lusitania: The Story of a Wreck. Dublin: Wordwell

[16] https://www.kinsale.ie/2010/06/11/st-multose-church/

[17] (https://coastmonkey.ie/terrifying-tales-unexplained-mysteries-irish-coast/

[18] Further information can be found at http://www.deepmapscork.ie/past-to-present/art-literature/jonathan-swift-and-carbery-rocks/

quays, fishing ports, history of settlement and links to continental Europe.

- Where the headlands include signal towers, promontory forts or lighthouses, combined with the cliffs, a romantic and iconic view is presented. Galley Head Lighthouse, Ballycotton Island Lighthouse, both classified as Great Lighthouse of Ireland and Mine Head Lighthouse,. There are numerous promontory forts and signal towers along this coastline; reflecting this SCA significance and importance for military defence.

Sounds and smells

- Under very calm conditions the sounds of the waves are lapping quite gently as experienced from Knockadoon Head, overlooking Youghal Bay.
- In stormy and windy conditions the waves crashing against cliffs at headlands, and sweeping over exposed coastal roads can be extremely strong, generating an exposed, wild and powerful sense.



Glandore Harbour
(Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA11 - Cork Harbour and Estuary



Cork Harbour (Deirdre Black)

Summary Description

This SCA is relatively small at regional scale but due to its historical role and influence on the surrounding seascapes, is identified with its own character area.

A deep estuarine form with the River Lee flowing into Lough Mahon and entering the harbour proper south of Monkstown and Rushbrooke. Many intertidal areas are present and include smaller inlets, bays and estuaries including Douglas River, Owenboy River, Ringabella Creek, Owenacurra , inner Lough Mahon, Monkstown Creek, Lough Beg, , Whitegate Bay, and the Rostellan and Poulnabibe inlets.

The entire area has evidence of being used and inhabited since earliest times. The city expands southwards along the head of the estuary with urban development, docks and industrial development, particularly on the western eastern shores of this SCA. This area is composed of SCT 2 (Large Estuary). It bisects the larger SCA 10 (Atlantic Celtic Bays and Estuaries).

The estuary includes many islands, some of which connect and overbridge to form a network of small islands linking across the upper bay. These islands show evidence of long human settlement and activity; and they remain diverse in terms of landuse today. These range from Cobh which sits on the southern banks of Great Island, and is unique amongst Irish Islands in having the large Victorian town on its southern flank; Ringaskiddy (primarily industrial use) to Fota Island with Fota House and Wildlife park, Little Island and Spike Island (now a visitor attraction, longer history as defensive and penitentiary site)

The SCA retains an active character with gentle rolling hills framing the estuary and its busy navigation associated with shipping, ferries, sailing and fishing boats.

The motto of Cork City's crest reflects the outward looking, maritime function of the harbour '-a trustworthy anchorage of ships[1]'.

In addition to the City, key settlements include Cobh, Passage West, and Carrigaline.

Boundaries and Location

This area extends from Robert's Head on the western part of the estuary, extending northwards to Cork City and docks and southwards to include Roches Point. Islands include Great Island, Haulbowline Island, Rocky Island, Spike Island, Fota Island and Little Island (now filled in and is no longer an island).

[1] O'Flanagan.P & Butler C1993. Cork: History and Society. Dublin. Geography Publications

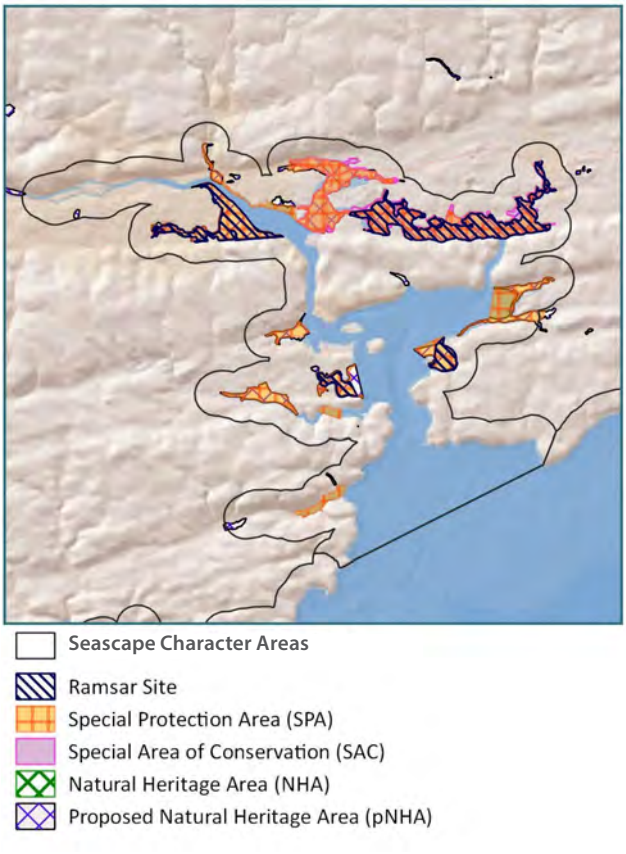
Key Characteristics

- A deep estuarine form with the River Lee estuary with several rivers and inlets draining into the estuary proper.
- Extensive, deep harbour with long established maritime character.
- Flow of goods and people continue with passenger, freight and fishing activities.
- Maritime importance reflected in location of Irish Naval Service at Haulbowline.
- Significant influence of Cork city and environs on the wider character area.
- Cluster of islands with diverse landuse and connectivity across the harbour.
- Industrial and power generating uses along the harbour.
- Increasingly rural character as the estuary opens out with rolling farmland overlooking the estuary.
- Large sheltered character, protected from full force of Celtic Sea and Atlantic Influences.
- Considerable navigational markers in the estuary to guide ships and boats
- In addition to Cork City, Cobh, Carrigaline, Passage West main settlements plus smaller settlements overlooking the harbour such as Roches Point.
- SCA retains an active character with busy navigation associated with shipping, ferries, sailing and fishing boats



Cobh Harbour (Chris Hill)

Natural Influences



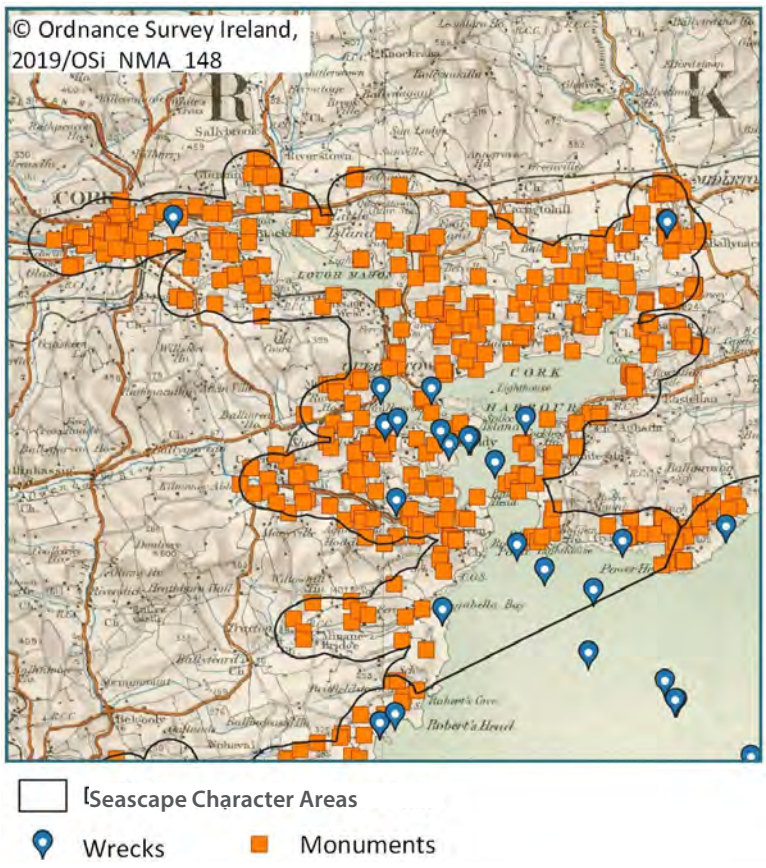
Map 1: Natural Heritage

- Cork Harbour is one of the largest natural, enclosed harbours in Europe.
- Bedrock geology in the harbour region comprises Devonian Old Red Sandstone (ORS) and Carboniferous limestone.
- The regional topography is controlled by the structure and variation in lithologies, such that higher ground is mainly underlain by Old Red Sandstone, and low elevation basins occupying areas of Carboniferous limestone. The harbour is traversed in two major anticline fold sets (arch-shaped) and two major syncline (U-shaped) fold sets. The orientation of the folds is roughly in an east-west direction.
- Old Red Sandstone comes to the surface along the ridge of the anticline folds. The southernmost ridge of Old Red Sandstone crosses the mouth of the harbour from Myrtleville/Crosshaven towards Roches Point. The northern Old Red Sandstone runs across Great Island, continuing on to the east and west.

- Carboniferous limestone occupies a syncline traversing the wide east-west spread of Cork Harbour, running from Carrigaline to Cloyne (and continuing further east to Ballycotton Bay). Cork City, Lough Mahon, Little Island and Fota Island similar occupy a low-elevation syncline. North of this limestone belt, the topography rises again to Old Red Sandstone terrain north of Cork City.
- A major fault runs north-south through the mouth of the harbour, cutting through the Old Red Sandstone. - Rock outcrop at the mouth of the harbour in the centre of the channel causes the channel to split into two directions. - A similar north-south fault cuts through the Old Red Sandstone ridge along Passage West channel. The weaknesses in the rocks along these faults were exploited by erosion over millions of years, served as meltwater channels during deglaciation episodes, and now serve as flooded navigation routes through the adjacent high ground.
- The deepest parts of the harbour (10m-30m below chart datum) occur along channels, eroded by rivers or tidal flows. From the Port of Cork, the passes south by Passage West, meandering and passing east between Cobh and Haulbowline, and then curving south to exit through the mouth of the harbour. The deep channel is floored by coarse sediment. The shallower areas (Carrigaline, Monkstown, Ballinacurra, Fota Island) are mainly mud and muddy sands. South of the harbour mouth the seafloor is variably bare rock, coarse sediment, sand and mud.
- Tidal rises in the harbour Cork range from 3.4m on neap tides (1.9m range) to 4.4m on spring tides (4m range). Tidal fluctuations occur throughout the harbour and as far as Sunday's Well on the River Lee.
- Water Framework Directive (WFD): Coastal waters are designated south of Monkstown and are named Cork Harbour and Cork Outer Harbour; the former is of moderate status, the latter is classified as good status.
- Cork Harbour is a large, sheltered bay system, with several river estuaries, principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poulnabibe inlets.
- Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl. Of particular note is that the site supports internationally important populations of black-tailed godwit (1,896) and redshank (2,149). In addition, it supports nationally important wintering populations of 22 species, as well as a nationally important breeding colony of common tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. whooper swan, little egret, golden plover, bar-tailed godwit, ruff, mediterranean gull and common tern. The site provides both feeding and roosting sites for the various bird species that use it. Cork Harbour is also a Ramsar Convention site and part of Cork Harbour SPA is a Wildfowl Sanctuary.
- The sheltered tidal sand and mudflats and Atlantic salt meadows providing important wetland habitat for waterfowl with internationally important numbers of black-tailed godwit (1,181) and redshank (1,896), along with nationally important numbers of nineteen other species.

Cultural and Social Influences
Archaeological and historical overview

Archaeological surveys and several histories have been



Map 2: Archaeological records and wrecks

published on the Harbour.[2] Archaeological evidence dating to the Mesolithic period in Cork Harbour has proved somewhat elusive but prehistoric lithic (flint) scatters along the coast just to the east of Cork Harbour, such as at Trabolgan, do indicate early activity along this coastline. The many shell middens recorded in this SCA may date to this earlier prehistoric period, or they may have been used later, even in the medieval period. The Neolithic is represented a single megalithic structure recorded at Rostellan, (though there is some debate as to whether these remains do constitute a simple megalithic tomb). The Bronze Age is represented by two burnt spreads and several fulacht fiadhs, highlighting occupation activity. Burial activity is identified by two mound barrows. The rock art and the single fragment of passage tomb art are part of a collection at University College Cork. (This collection also includes a number of early medieval ogham stones). While there is a single coastal promontory fort at Trabolgan, they are not a feature of the inner harbour. Stone monuments of this period are less varied along this coastline with only a small number of standing stones being represented.

The early medieval period is represented by earthen ringforts and souterrains. There are two ecclesiastical sites recorded in the SCA, on Spike Island and in Ballintaggart townland. Cork City itself began as an ecclesiastical complex founded by St Finbarr in the late sixth or early seventh century, thought have been on the same site as St Finnbarre's Cathedral in the city. This monastery grew in importance and was raids by Vikings were recorded in 820, 838, 845 and 863. By 917 the Vikings had established their own settlement at Cork and Viking age material has been uncovered in a number of excavations in the city centre. There are a number of holy wells with various dedications; many of these continued to be venerated into early modern times and indicate local devotion.

The later medieval period is represented by a number of monuments in the region. Cork city became an important Anglo-Norman settlement, being granted by Henry II to Robert FitzStephen and Milo de Cogan in 1177. Within about ten years the town was declared a dependency of the crown and it dominated the history of the SCA into the early modern period. There are several churches, burial grounds and graveyards that would have originated in this period. Several religious houses were established by wealthy families of the region. Augustinian canons were established at Gilabbey, Cork city and a smaller cell at Kilmoney, near Carrigaline. There were also houses of Augustinian, Dominican and Franciscan Friars at Cork, Benedictine monks at Monkstown and a Cistercian monastery of Chore at Midleton.



Cork Harbour (Deirdre Black)

In the post-medieval and early modern periods, Cork port and harbour was particularly important in the region, with several industries located there, and a role as an international port.[3] The entire harbour was highly fortified. The area was important in the seventeenth century; Cromwell captured it in 1649 and in 1690 it was besieged by John Churchill (later Duke of Marlborough) for William of Orange. The Jacobite army and Patrick Sarsfield fled to France from Cork in 1691. During these periods of conflict, a number of fortifications were constructed at the mouth of the harbour and on the islands within it.[4] For example, Fort Davis/Carlisle[5] on the eastern side of the harbour dated to the sixteenth century and a second at Crosshaven (Camden) on the western side of the harbour;[6] the large star-shaped fort on Spike Island (later known as Fort Mitchell) constructed in the eighteenth century (and later a prison, once the largest in the world).[7] Haulbowline Island was first fortified in 1602, and initially an important base for the British Army. In 1720, much of the island was owned by the Cork Water Club, later connected to the Royal Cork Yacht Club (claimed as the world's first yacht club).[8] The city had several forts also, for example, Elizabeth Fort. Cork Harbour was one of the 'treaty ports' and it

[2] Power, D. 1994 Archaeological Inventory of County Cork Volume 2: East and South Cork. Dublin: Government of Ireland; Rynne, C. 1999 The Industrial Archaeology of Cork City and Environs. Dublin: The Stationery Office; Ronan, S., Egan, U., and Byrne, E. 2009 Archaeological Inventory of County Cork Volume 5. Dublin: The Stationery Office; Crowley, J., Devoy, R., Lenihan, D., and O'Flanagan, P. and Murphy, M. (eds) 2005 Atlas of Cork City. Cork: Cork University Press; McCarthy, C. 2019 Cork Harbour. Dublin: Merrion Press.

[3] For background see Rynne, C. 2006 Industrial Ireland 1750-1930: An Archaeology. Cork: The Collins Press

[4] See McCarthy 2019 for background

[5] https://www.buildingsofireland.ie/buildings-search/building/20908790/fort-davis-carlislefort-county-cork/ Accessed 29 June 2020

[6] ttp://www.camdenfortmeagher.ie/history/. Accessed 29 June 2020

[7] https://www.spikeislandcork.ie/discover/. Accessed 29 June 2020

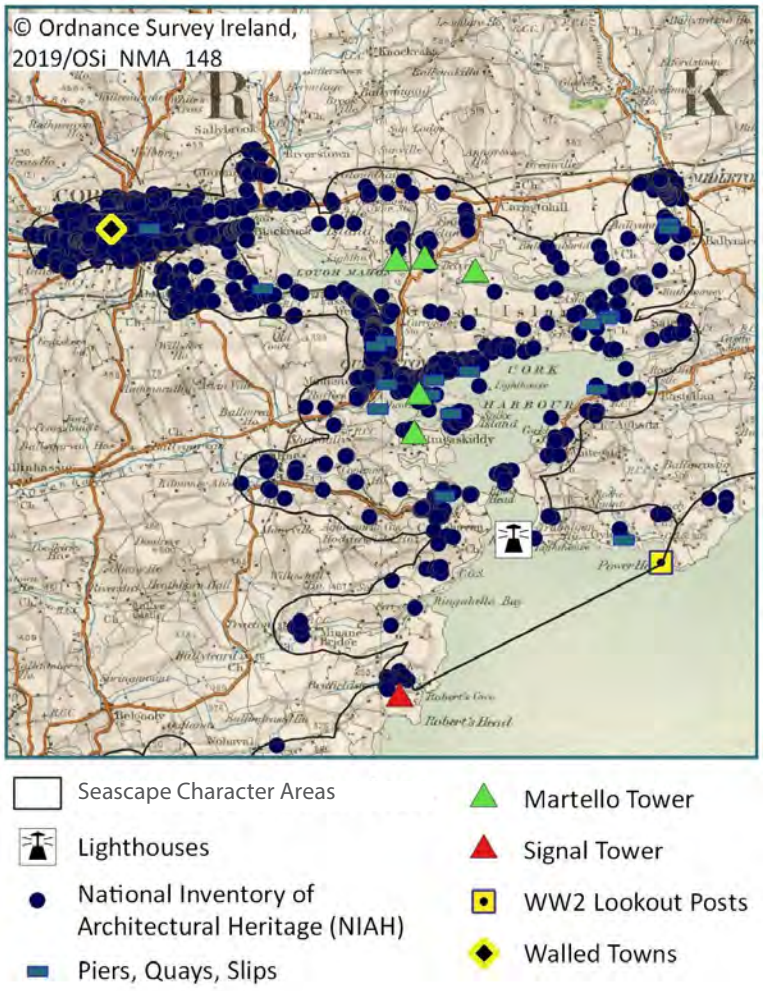
was not until 1938 that British naval defences handed it over to the Irish Government. There are five nineteenth-century Martello towers in the harbour; both on the mainland, such as at Ringaskiddy and on the islands, as at Haulbowline.

The entire SCA has a number of country houses around the periphery of the harbour and on the islands. Cobh is an important, but relatively late, urban centre outside of Cork City. At the end of the eighteenth century, it was described as a small fishing village consisting of 'a few scattered houses'. Its rise to prominence arose from its convenient location for shipping in Cork Harbour. It also benefited from fortifications in the areas. In the nineteenth century Cobh developed as a winter resort and in 1894, due to a royal visit from Queen Victoria, the name of Cobh was temporarily changed to Queenstown. Cobh also remained a British naval base until 1937 and was the principal base of American naval forces in European waters during the First World War. Cobh has links with the ill-fated Titanic as it was a stop on the way to America. The ship did not moor at Cobh in 1912 but at Roches Point, the outer anchorage of the harbour, and passengers and cargo were brought out from Cobh on smaller tenders. A total of 1,308 passengers were on board as they left Queenstown together with 898 crew members making a total of 2,206 people on board as she embarked on her final journey[9] Cobh has a rich maritime heritage; it was also the location from which 'coffin ships' left Ireland during the Great Famine and many thousands emigrated from the nineteenth century into the twentieth century.

Many of the monuments of these periods have direct associations with the sea. There are the remains of several historic boat houses and signal towers along the coast, for example at Carrigaline, Seamanship Bay, Haulbowline and a tower at Trabolgan. There is a lighthouse and houses at Roches' Point and an historic coastguard station at Crosshaven. Both Cobh and Cork City had custom houses. The shipbuilding industry, once very important in the region, is represented by the historic dry dock at Cork Dockyard and the dockyard at Passage West. Many industries have been established over time in the Cork Harbour area and this has continued to the present day with sections of the SCA being highly industrialised. For example, Ireland's only steelworks were located on Haulbowline Island in 1939 and continued until its closure in 2001.

Considering the intensity of use of Cork Harbour over a long period of time and the many smaller historic piers and quays within the SCA, there are surprisingly few wrecks recorded (15) in the this SCA. This must be a considered a minimum number but perhaps highlights that once in the Harbour itself, it was relatively safe for navigation. The oldest recorded wreck is the Man O'War the Bredah which was wrecked off Spike Island in the turbulent times of 1690.

Contemporary



Map 3: Built Heritage

- Navigation and transport continue to play a significant role in this area. From ports at Ringaskiddy and Tivoli, shipping routes include those within Ireland to Waterford and Dublin; and further abroad including Zeeebruge, Bremerhaven, Roscoff, Antwerp, Rotterdam and Africa and the Americas[10]. The port of Cork has also functioned as a service port for offshore energy exploration since the 1970s.
- The strategic importance of the Harbour is reflected in both historical maritime and defence activities with the Irish Naval base and Headquarters based

[8] https://www.royalcork.com/club-history/. Accessed 29 June 2020
[9] https://www.cobhheritage.com/. Accessed 29 June 2020
[10] Based on weekly

on Haulbowline Island. Meitheal Mara, a community boatyard in operation since 1993 is a registered charity and training centre; work includes boat building, seamanship, maritime, heritage and wider activity around engagement with the Lee and Harbour[11].

- Cork city and environs are a key driver and exert considerable influence on this SCA; the role of Cork Harbour is recognised in the Southern Regional Economic and Spatial Strategy with an Integrated Framework Plan to be prepared.
- Science Foundation Ireland Research centre based at Ringaskiddy; key research areas are the Energy Transition, Climate Action and the Blue Economy.
- Tourist attractions include Spike Island, Fota Island, Cork City attractions, Cobh Titanic experience, boat trips in and around the harbour from Cork City docks, Cobh and other locations. This SCA is located within Ireland's Ancient East Tourism route and close to Wild Atlantic Way.
- Smaller beaches and cove further south along the estuary are popular for local trips including beaches at Fountainstown, Myrteville, Roberts Cove. Trabolgan Beach and resort along with walks to Roches Point on the eastern shore. Crosshaven well known for sailing with the Royal Yacht club and sailing school.
- The Port of Waterford is involved in bulk, general cargoes and container handling.

Art and Folklore

- The influence of Norse 'loan' words for maritime terminology can be seen in relation to Haulbowline, its Irish name is Inis na Sionnach (island of the fox); but it may also derive from Old Norse - ál-boling or similar = "eel dwelling (place where eels dwell).
- Port of Cork holds a collection of maritime art[12]
- Blackwater Artists Group within Cork City is currently supporting 45 artists in many different disciplines.
- Cora Murphy, contemporary landscape artist, associated with Graball Bay, Crosshaven

Perceptual Influences

Vistas and Views

- Views from the elevated rolling hills are drawn across the estuary and harbour, the typical estuarine habitats of mudflats and rocky shoreline with seaweed add diversity to the view.
- In sheltered areas strands of woodland extend to shoreline.
- Views are possible from the range of boats that use the harbour and the more elevated area around Roches Point with its lighthouse provide a local landmark.
- Telecommunication masts and water storage towers punctuate the skyline in parts as well as towers associated with industrial, pharmaceutical and energy production.
- Lighting: Industrial scale in places. Roches Point Lighthouse on eastern boundary of this SCA has a range of white 20 nm, red 16 nm.

Sense of Place

- Strong links between the city and harbour.
- This expands further with a key element of the sense of place associated with an outward looking, maritime role.
- Reflected in associations in food, drink, sailing, navigation and art and events such as Cork Harbour Festival.

Sounds and Smells

- Tidal character of the estuary results in waves of stronger smells associated with tide and mudflats.
- The sound of the sea is more apparent at the southern edges of this SCA where elevated areas such as Roches Point front the Celtic Sea.
- Elsewhere the sounds are more gentle with a strong sense of shelter associated with the harbour; this is diluted somewhat by the sounds of ships, ferries etc.
- Low, waves within the large sheltered bay.



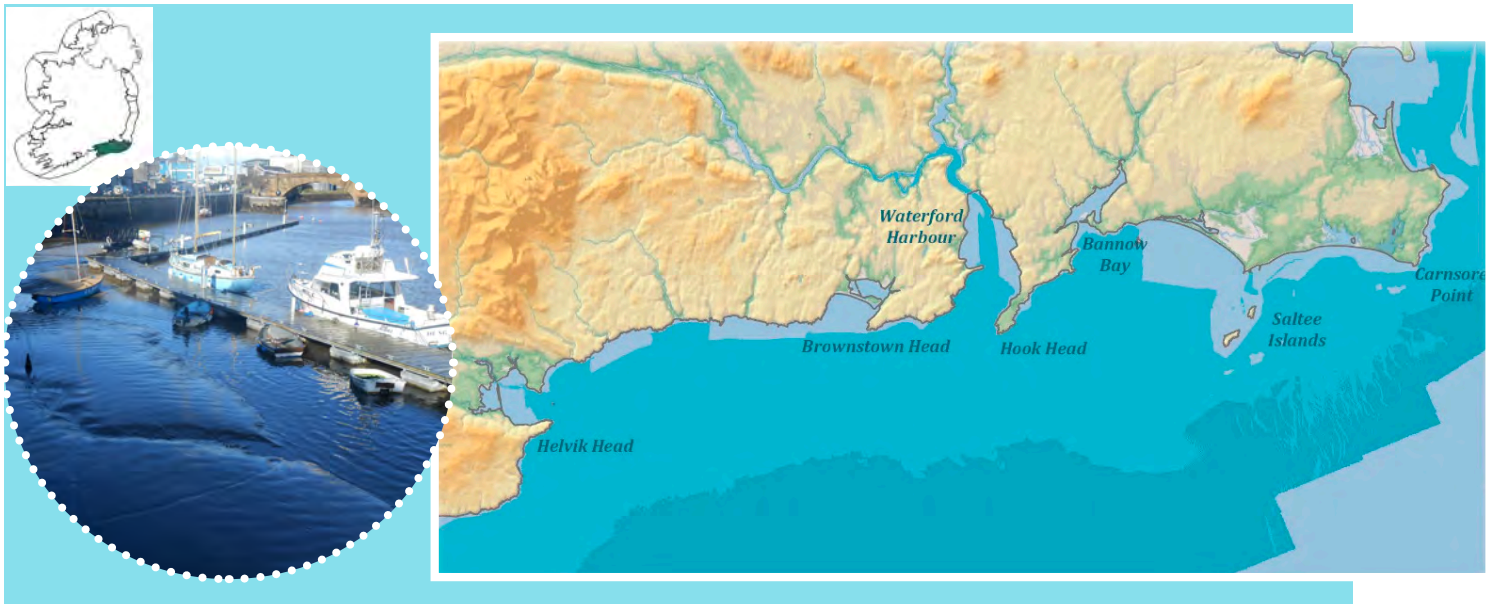
Cobh from Spike Island, Cork Harbour (
(Image Courtesy of the National Library of Ireland)

[11] A guide to circumnavigation around the city with historical notes is just one of the publications from this group- http://meithealmara.ie/wp-content/uploads/2017/08/Down_the_Lee_and_up_the_Sabhrann.pdf

[12] https://www.portofcork.ie/index.cfm/page/maritimeart

4 Regional Seascape Character Areas

SCA12 - Celtic Sea Bays and Beaches



(Dungarvan Harbour (Ruth Minogue)

Summary Description

This SCA comprises a stretch of coastline in Counties Waterford and Wexford . The coast is defined by a series of very broad shallow bays with low-lying hinterlands, divided by the key protruding headlands; Helvik Head, Brownstown Head, Hook Head, Forlorn Head and Carnsore Point.

The seascape also includes two longer estuaries; Waterford Harbour and Bannow Bay which, historically, have been strategically important landing places and are particularly associated with Viking and Anglo-Norman settlement. The settlements of Tramore and Dungarvan grew at the two most concave and sheltered bays along the coastline and other settlements such as Kilmore Quay and Dunmore East grew up around fishing villages.

The coastal hinterland is fertile and very low-lying. While much of the coastal edge is formed of sand or shingle beach, towards the western end of the region, along the Copper Coast Geopark, low and medium sized cliffs and distinctive off-shore rocks enclose small coves and beaches. A significant extent of the coastline is experiencing deposition.

The eastern end of the region is the most low-lying and there are slobs at Ballyteige and very distinctive brackish lagoons at Tacumshin Lake and Lady's Island Lake. This part of the seascape region also contains very long beaches with sand spits extending into the sea and across lagoons and extensive sand dune systems. These sand dune systems are locally termed "Burrows" due to the 12th century Anglo-Norman management of these areas for rabbit production.

Fishing is a long established industry in the region with a key commercial fishing harbour at Dunmore East. Oyster cultivation has been historically associated with Bannow Bay and oyster and mussel aquaculture continues across the region. Coastal wind energy development is in place at Carnsore Point. The Copper Coast UNESCO Geopark extends across the western part of this region and many of the beaches and harbour/bay towns support a busy seasonal tourism industry. Southerly Gaeltacht area east of Dungarven, Gaeltacht na nDéise.

The southern facing aspect of the coastline and the broad expanse of water visible give a distinctive character to the play of light on the sea. Wave energy is relatively low in comparison to the western seascapes of Ireland although tides can be very strong and where coastlines are open to the prevailing south-westerly winds, and vegetation is very low, there is a sense of exposure to the elements particularly in the very flat eastern parts of the region. Extended panoramas across

the coastline and to sea along the huge open beaches on the eastern part of the region are a distinctive character of the area.

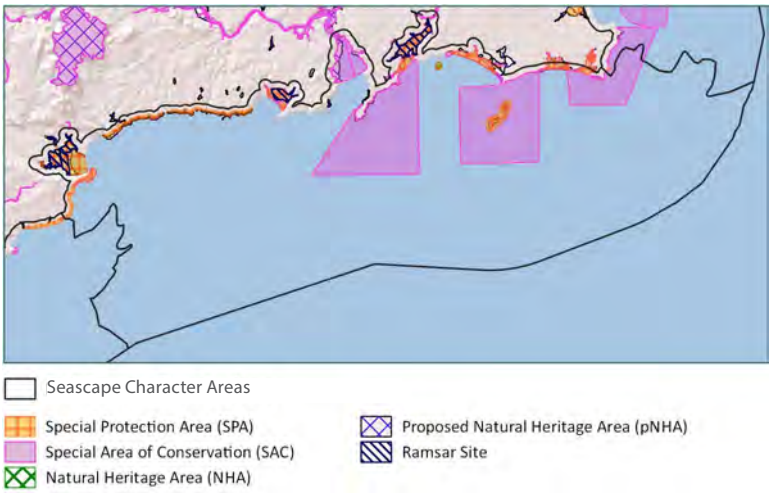
Boundaries and Location

This seascape region includes the southeasternmost part of the island of Ireland, Carnsore Point, and the marine transition from St. George's Channel to the Celtic Sea. The region incorporates the coast from Helvik Head to Carnsore Point, and a marine area seaward from the coast for 12NM to include the Celtic Sea and the Saltee Islands, Keeragh Islands, Sheep Island, Gull Island and Burke's Island as well as a number of islets such as Selskar Rock, Lavender Rock and Water Witch Rock.

Key Characteristics

- This SCA encompasses the comparatively shallow Celtic Sea, enclosed by the western edge of Wales and Southwest England with St George's Channel and the English Channel to the east and the Atlantic Ocean to the west.
- While the relatively straight coastline means that a wide area of water is visible along most of the coastline, a gentler character of "sea" is perceptible, rather than the wilder characteristics of "ocean" associated with the west of Ireland. These expansive vistas mean that the broad interplay of light, cloud formations and the surface of the water is readily available to viewers along the coast
- Historic settlements include Waterford City is the county town; other settlements include Dungarvan, Dunmore East and Fethard. Tramore a popular coastal resort.
- The significant amount of named smaller headlands, sometimes just slight protrusions, demonstrate their historic importance in providing definition and historic navigation especially around the key estuaries where shifting sands could be a danger. These include: Ballyvoyle Head, Dunabrattin Head, Great Newtown Head (with the Metal Man navigation aids), Brazen Head, Beenlea Head,
- The prevailing south-westerly winds, strong tides, sand banks and offshore islands and rocks mean that the waters are often dangerous as exemplified by the number of historic and more recent tragedies at sea. These prevailing winds also support surfing along some of the region's beaches, particularly at Tramore.
- The offshore islands and rocky islets provide a sense of scale where these are visible. The main offshore islands, the Saltee Islands, are uninhabited bird sanctuaries 5km from the coast and a popular day trip from Kilmore Quay.
- Hook Head is a very distinctive coastal landform with the combination of low vegetation, and water on both sides giving an almost island character to the most extended part of the peninsula.
- Where shingle forms the coastal edge, such as at Carnsore point, the suck and crash of the waves are particularly distinctive.
- The effect of the sea on the landscape varies within this region. In areas with cliffs, the inland seascape extent is narrow, and at shallow sandy bays with broad tidal ranges, the effect extends further inland.

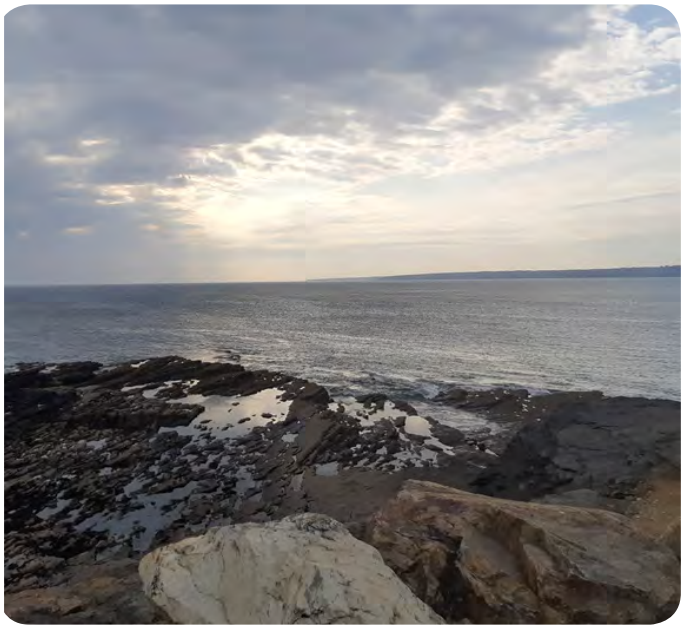
Natural Influences



Map 1: Natural Heritage

- This SCA exhibits a variety of geological characteristics. The chronological and lithological range is one of the most diverse of all SCAs. Bedrock types range from 600 million year old Precambrian Rosslare Complex metamorphic rocks (best seen at Kilmore Quay), to fossiliferous Cambrian slates at Waterford Harbour. Also present are Ordovician deep-marine sediments and volcanics along the Copper Coast, Caledonian granites at Carnsore, Devonian Old Red Sandstone and Carboniferous limestones rocks at Dungarvan, Dunmore East, Hook Head and Ballyteigue Bay, and one of the few locations of Triassic rocks in southern Ireland underlying burrows west of Kilmore Quay. The Saltee Islands are entirely formed of Saltees Granite, which also occurs on the mainland adjacent to the Carnsore Granite.
- Sedimentary and volcanic rocks at Tuskar Rock were metamorphosed when the Carnsore Granites were squeezed into the crust during Silurian times.

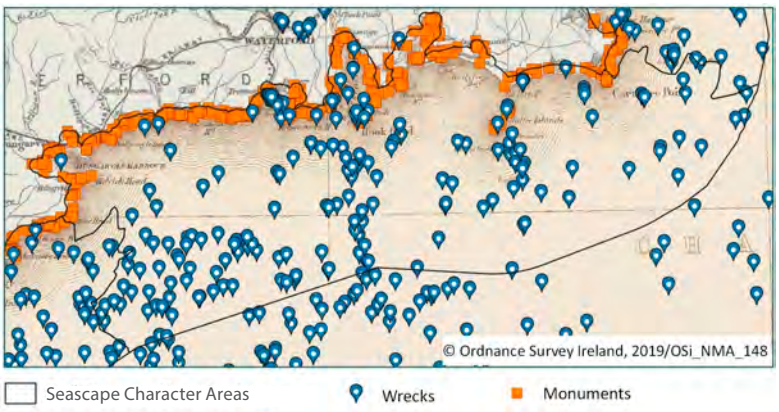
- The Hook Head Peninsula is perhaps Ireland's best known fossil site. Many museum collections worldwide include specimens first described from Hook Head. Fossil-bearing rocks range from Cambrian in age (Booley Bay) to Devonian (Oldtown Bay to Harrylock Bay, Sandeel Bay) and continuously upwards into the Lower Carboniferous (Hook Head). On the east side of Waterford Harbour at Booley Bay are a group of mudstones, formed during the Cambrian Period. These rocks are of international palaeontological significance in that the rocks host Ediacaran fauna fossils, and are the youngest example of Edicarian fauna in the world, aged around 515 million years old, and are some of the earliest examples of the evolution of multicellular organisms on Earth.
- Waterford Harbour is the largest harbour along this coastal section, and is the mouth of the Three Sisters rivers: the Nore, Suir and Barrow rivers. The harbour, from Hook Head to Passage East is over 10km long (N-S). The River Suir and River Barrow (Nore) confluence lies 4km north of Passage East. Sandy beaches are a feature in the inner harbour, north of Creadon Head and Broomhill Point.
- The Copper Coast hosts a superb collection of geological and landscape features, with ore-mineral resources historically the fulcrum of a thriving mining industry. The Copper Coast is so-named because of the historical mining of copper, mostly in the 19th century, which has left a widespread impression along the coast but especially around Bunmahon, Knockmahon, Stage Cove and Tankardstown. This includes cliff top shafts, cliff face adits, dressing floors, mine buildings, a tramway and the iconic engine house and chimney at Tankardstown.



Carnsore Point (Deirdre Black)

- With elevations of 40-60mOD, the cliff-lined coast between Stradbally and Tramore is dramaic, with numerous sea-stacks dotted along the entire nearshore area. West of Waterford Harbour, sandy beaches occur at Tramore, Annestown, Bunmahon, and Clonea Bay. The Cunnigar Spit at Dungarvan is a 2.5 km long spit, formed as a result of deposition by longshore drift.
- Tramore Burrow is a 4km long, wide sand spit, stretching across the mouth of Tramore Harbour. The spit has been the result of wind erosion and deposition over the millennia since the Ice Age and several large dunes have formed across it. The highest of these dunes is almost 30m high, and is therefore one of the highest dunes in the country.
- The low-lying nature of this region means that some intertidal areas extend over 1-2km in width. These are a distinctive characteristic of this region and include the Deadman Sand/Whitehouse Bank in Dungarvan Harbour, Back Strand at Tramore, Passage Strand south of Passage East, and Bannow Bay.
- Tacumshin Lake is a lagoon, separated from the sea by a wedge-shaped sand and shingle barrier that extends eastwards along this gently-curving coast to Carnsore Point. The Irish name for the lake, Loch Sáile, accurately alludes to the saline nature of the lake. The barrier has undergone numerous human-induced changes since the 1840s, with the cutting of sluiceways (1860, 1974) and inlets (pre-1925); and the western Mountpill Burrows dunes effectively disappearing. The long, dune-capped barrier spit encloses a lagoon backed by limestone lowlands.
- Even more distinctive to the region are the brackish waters of Ireland's only two back-barrier seepage lagoons, Lady's Island and Tacumshin Lake. By contrast, the western end of the region has a shorter intertidal area, with tidal range mostly experienced within the small coves and beaches between cliffs.
- Lady's Island Lake is a natural, brackish, percolating lagoon (separated from the sea by a sand and shingle barrier through which seawater seeps or spills over the top), and is the largest of this type of sedimentary lagoon in the country. It is in a relatively natural condition, despite regular breaching of the sand and shingle barrier (often human-induced) which causes wide fluctuations in water-level and salinity. There is no natural outlet to the sea except seepage through the barrier to Coombe beach. The man-made breach in the barrier is known as 'The Cut'.
- The offshore seafloor cover is predominantly bare rock and sand, with areas of muddy-sand off Dungarvan Harbour.

Cultural and Social Influences



Map 2: Archaeological record including wrecks

Archaeological and Historical Overview

This stretch of coastline in Counties Waterford and Wexford is particularly rich in cultural heritage from prehistory to early modern times. There is archaeological evidence dating to the Mesolithic period found in Waterford in the 1980s by the Bally Lough field walking project; where lithics dating to the later Mesolithic were discovered[1]. The Ballynamintra Cave Project is also examining very early deposits in a cave close to Dungarvan (outside the study area for this project[2]). Some of the coastal middens recorded may date to this early period as has been the case elsewhere; though without archaeological investigation, they remain difficult to date accurately.

The Neolithic period, which is characterised by farmers living a more sedentary lifestyle than in the Mesolithic, is identified in this area by a megalithic structure in county Wexford and a single court tomb in Waterford. The low number of coastal tombs in this area is in stark contrast to other SCAs in the northwest, and it would appear that other locations were favoured for tombs in this SCA. There are further tombs beyond the 1km boundary used in this study and all four types of tombs are represented there. Small passage tombs around Tramore have been compared to those on the Scilly Isles and there seems to be a connection between them[3]. The cairns and mounds may also contain further megalithic tombs, or they may be later and date to the Bronze Age. Fulacht fiadhs identified in this SCA represent Bronze Age and it is likely that the burnt mounds and spreads also date to this period. Burial activity is represented by a small number of unclassified barrows, both located in Wexford, a cist, pit burials and ring-ditches. Stone monuments of this period are represented by single standing stones—there are no pairs, rows or circles within 1km of the sea. A number of field systems and boundaries are present and some of these may be prehistoric, but may also be of historic date. There are a large number of coastal promontory forts (40) and one inland fort may represent the Iron Age and these monument types are identified all along coast in relatively large numbers. Rock art is very rare in this part of the country (possibly two pieces from Waterford and one from Wexford) and, none are represented in this SCA.

The early medieval period is very well represented in the SCA when compared to the prehistoric periods. Secular settlement is represented by a great number of earthen ringforts (51). Despite the great number of earthen ringforts, souterrains here are strangely lacking and only five (all in Waterford) have been identified within 1km of the coastline. The hut sites recorded may have also have been used at this time. The preponderance of ringforts suggests that the land in this SCA, even close to the sea, was good for pasture and cattle rearing. Some of the promontory forts may also have been used in this period. There is a large number of enclosures recorded in the SCA, which are visible from aerial photos but are not upstanding and some may date to this period; or perhaps be associated with the later medieval period.



Sand Art by Sean Corcoran

[1] Zvelebil, M. and Green, S.W. 1985 Bally Lough Archaeological Project, Decies Journal of the Old Waterford Society, vol. XXVII, pp. 37-42

[2] https://www.ria.ie/sites/default/files/jennings_r._archaeology_excavation_report_2018_web_summary_gdpr_comp.pdf . Accessed 29 June 2020

[3] Powell, T. 1941 A new passage grave group in south-eastern Ireland, Proceedings of the Prehistoric Society, vol. 7, pp. 142-143

There are a large number of monuments related to Christianity of the early medieval in this SCA. There are several ecclesiastical enclosures, bullaun stones, burials, burial grounds, fonts, graveyards, churches and cross inscribed stones, which would have been used in this period and likely continued in use in subsequent periods. There are a number of important ogham stones, mostly in county Waterford and one in Wexford at Portersgate. There are twenty holy wells along the coast; many of these continued to be venerated into early modern times, along with a single holy tree/bush and a holy stone at St Vogue's. St Vogue's is an excellent example of an ecclesiastical site in this SCA and excavations revealed the remains of a very early timber church at the site[4]. The recorded children's burial grounds may have originated in this period and continued in use over time. Waterford is a town that was established by the Vikings in ninth century (and previously an upriver longphort at Woodstown) and it became a thriving urban centre, which greatly influenced its hinterland[5]. Viking influence can be particularly identified in the place name evidence for example, Helvick Head, Waterford, Wexford, Ballytruckle, Ballygunner and Gaultier[6]. It is possible that Dungarvan may also have been a Viking foundation as there are references to Ostmen there as late as the thirteenth century.

There is a wealth of cultural heritage relating to the later medieval period in this SCA. The Anglo-Normans first arrived in Ireland in Wexford in 1169, landing at Bannow Beach on May 1 after a request from the King of Leinster to assist him in regaining his throne[7]. County Waterford itself was established as an administrative unit by the Anglo-Normans in the later twelfth century. The Archaeological Survey notes that Dungarvan was the centre of the administration. Waterford, and the barony of Gaultiere, meaning the 'foreigner's country' has always been considered something of a separate entity because of its foundation by the Norse (Vikings)[8].

The historic towns of Dungarvan, Clonmines, and Bannow would have reached their zenith in this period; Dungarvan is the only one to have survived to the present day. Monuments within the SCA that date to this period are: deserted settlements and settlement clusters, several castle types; mottes, motte and bailey at Duncormick, a ringwork at Templetown, Co. Wexford, a hall house and two stone castles at Dungarvan and Dunmore East. There are a number of tower houses, and six unclassified castles due to their ruinous or complete lack of upstanding remains. Several of the churches, graveyards and graveslabs listed in the SCA date to this period. Three religious houses were established in the SCA in this period: Augustinian friars at Abbeyside (Dungarvan) and Clonmines and a house of Knights Hospitallers at Crooke near Passage East. The Hook Peninsula in this SCA is a very distinctive place nationally, and although contains monuments of all periods, can arguably be considered a very important later medieval landscape[9]. The Hook Lighthouse was established in the thirteenth century by Marshall as a navigation aid for his new port at Ross, It is the longest functioning lighthouse in Ireland[10].



Hook Head Lighthouse (Ruth Minogue)

The area contains monuments dating to the post-medieval and early modern periods. There are seventeenth-century saltworks at Slade, where the salt produced was used in the fishing industry, which was conducted from Slade pier and the numerous boathouses, piers and quays all along the SCA (see for example Nimmo's harbour at Dunmore East). There are six windmills recorded, highlighting the harnessing of wind power in the past. There are two beacons in the

[4] Excavated by Professor M.J. O'Kelly. See Ó Carragáin, T. Churches in Early Medieval Ireland, New Haven: Yale, pp. 17-18 [5] For summary, see Hurley, M. 2010 Vikings elements in Irish towns: Cork and Waterford. In Sheehan, J. and Ó Corráin, D. The Viking Age: Ireland and the West. Dublin: Four Courts Press, pp. 154-164

[6] See Fellows-Jensen, G. 2001 Nordic names and loanwords in Ireland. In Larsen, A. (ed.) The Vikings in Ireland, Roskilde: The Viking Ship Museum, pp. 107-113

[7] See e.g. Bartlett, T. 2010 Ireland: A History. Cambridge: Cambridge University Press

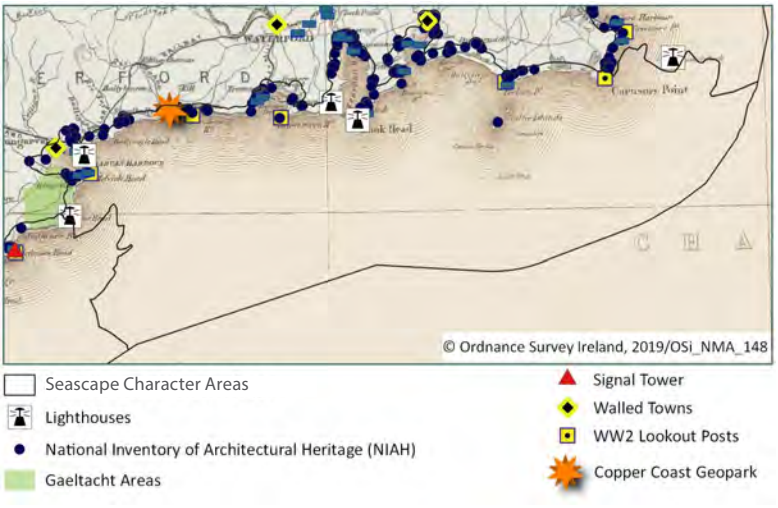
[8] Moore, M. 1999 Archaeological Inventory of County Waterford. Dublin: Government of Ireland, p. x.

[9] See Colfer, B. 2004 The Hook Peninsula. Cork: Cork University Press

[10] Colfer 2004, pp. 84-91

SCA: one the iconic Metal Man at Brownstown Head. It stands on one of three pillars near Newtown Cove. The maritime beacons were constructed through Lloyds of London at the behest of the Admiralty after the tragic loss of 360 lives after HMS Seahorse sank in 1816 after becoming grounded at Brownstown Head in bad weather. The figure was designed by Thomas Kirk. Only two of the four figures originally planned, were cast (the other sits in Sligo Bay at Rosses Point) The three towers at Westown and their sisters at Brownstown Head, Tramore were erected in 1823. They are sometimes thought to be the work of Alexander Nimmo, the same architect who designed Dunmore East lighthouse, but Irish Lights records George Halpin Snr as the designer. There are three nineteenth-century Martello towers; two at Duncannon and one at Baginbun Head. This stretch of coast was busy with ships and boats entering Waterford Harbour or going to Cork Harbour. It is no surprise then that six lighthouses and keepers' houses are located here, in addition to six coast guard stations. Duncannon Fort, itself a bastioned fort on the site of an earlier castle, probably a tower house and church, is a complex multi-period structure, with strong associations with the sea, and an excellent example of its type. It is a national monument.

Due to the high usage patterns of the sea in this SCA, there are 191 wrecks associated with this stretch of coast. In the nineteenth century, Ballyteige Bay was the "Graveyard of a Thousand Ships". The prevailing southerly winds blow into the circular bay making it difficult for sailing ships to escape from the bay against the wind especially when laden with cargo and with reduced manoeuvrability due to fouling of the hull after crossing the Atlantic Ocean. During the winter of 1805-06 "no fewer than seventeen ships of large burthen are known to have come ashore on Ballyteigue Strand"[1]. There are boats and ships of many types recorded, but of particular interest is one airplane and two World War One submarines sunk in 1917 and 1918.



Map 3: Built Heritage, An Gaeltacht and Geopark

Coastal resorts, notably Tramore, are long established and the therapeutic qualities of the sea air can be noted in accounts from 1894[2]. The development of the railways in particular hastened the promotion of Tramore as a satellite coastal resort for Waterford City. Tramore also became a popular resort for the landlocked counties of Laois and Kilkenny.

Contemporary

- Fishing and aquaculture are very important industries within this region. Dunmore East is a key fishing port and other harbours along the coastline also support fishing activities. Oyster cultivation is present in several locations and mussel cultivation is a growing industry.
- The coastal soils and microclimate support a wide range of agriculture. Dairy, sheep and tillage are the main forms of farming along the coast.
- Dispersed one-off housing is laid out along the dense local road network across the coastline. Many of the houses along the coast are holiday homes including over 50% of houses on Hook Head and 30-50% of the houses at Carnsore Point.
- Many of the areas around beaches have developed significant visitor infrastructure and services such as Tramore and Bunmahon. The Copper Coast Geopark Visitor Centre is located at Bunmahon and a series of interpretive features are located along coastal features and car parks within the Geopark. Hook Head Lighthouse has been developed as a significant tourism attraction and this area is popular for kayaking and scuba diving.
- Kilmore Quay has a large marina and seafood festival and boat trips are available to the Saltee Islands.
- A range of coastal and sea activities such as surfing, sailing, swimming, scuba-diving and stand up paddle-boarding primarily concentrated in the established coastal towns of Tramore and Dungarvan. - Recreational fishing (deep sea, boat, shore and beach) is popular. A number of coastal walks have been developed including the Kilmore Quay Way along the Ballyteige Burrow. The Déise Greenway includes coastal sections east of Dungarvan.

[1] Fraser, R. 1807. Statistical Survey of the County of Wexford. Dublin: Graisberry and Campbell. Quoted http://www.wexfordnaturalists.com/wp-content/uploads/2012/08/Keeragh-Islands-leaflet.pdf

[2] Foley, R, 2016

Art and Folklore

- Great Saltee Island and links to stories about St Patrick though the name is Viking in origin (salt island); the rocky northern part is called the Devils Bit with connections to the hills in County Tipperary of the same name. The devil with his clump of land from the hills of Tipperary, fleeing St Patrick, dumped this rocky soil at the northern part of the Saltee Islands.[3]
- Maeve Binchy's best selling novel was set in and around Dunmore East.
- The new Déise Greenway uses coastal imagery to promote the cycleway. The associations of the region with Ireland's Viking and Anglo-Norman history is well known and likely to be further promoted as part of Ireland's Ancient East marketing. Hook Head lighthouse is an iconic structure.
- Waterford Cultural Quarter aims to provide a creative supportive for residents and business; Builds upon the Spraoi Street festival running for over twenty years and the Waterford Walls Festival, urban in nature several of the murals reference the sea and estuary itself:
- Sean Corcoran, sand artist and heavily involved in Celtic Connection activity on going.

Perceptual Influences

Views and Vistas

- To the west, the defining characteristic is the enclosed nature of the small coves and beaches. The headlands offer the most opportunity for intervisibility (particularly Hook Head), although in most cases, due to the low-lying nature of the seascapes, these views can be enclosed by slightly protruding landform.
- Views from the main headlands can extend across sweeping bays such as those from Helvik Head eastwards across Dungavan, from Hook Head east and west.
- On a clear day, viewed from a beach, the horizon will be in the order of 3NM (approx. 6km) distance.
- The ferry routes to the Saltee Islands, from Passage West to Arthurstown, and other options for accessing the water such as sailing, surfing, boat hire and working at sea offer views from sea to land.
- The views from the sea and islands towards the land foreshorten and the detail along the coast is lost. Given the low lying nature of the coastal hinterland it is difficult to see individual features or distinguish between different areas of land in views from the sea. The views from sea therefore become dominated by the scale of water and sky and it is easy to feel far out to sea when relatively close to shore. The lighthouse at Hook Head becomes a key focus in views from sea, especially at night.
- Lighting[4] –lighthouses at Mine Head (12 nm range), Dunmore East (white 17 nm, Red 13 nm). And Ballinacourty Lighthouse (range of white 10 nm, Red 8 nm, Green 8 nm) located within this SCA. Hook Head, one of the oldest lighthouses in the world an iconic site on the extended Hook Head peninsula.
- Coastal settlements can be seen as glowing light along the coast.



Photo: © Karl Kachmarsky

Sounds and Smells

- - The smell and taste of wind-blown salt spray is a characteristic of the headlands and areas with coastal cliffs, while the brackish lagoons of the eastern part of the region generate a subtle salty odour.
- At the harbours and fishing villages, smells of fresh fish and the sounds of offloading boats is a characteristic feature.
- The sound of waves varies across the region, from the gently lapping waves of the estuaries to the stronger waves of the wide open beaches and the crashing waves at the base of small cliffs and off shore rocks. Freshly caught seafood, and particularly fresh local oysters are distinctive tastes along this seascape region.

[4] Lighting includes private houses, businesses, public lighting, road traffic, telecommunications infrastructure and lighthouses

Sense of Place

- This diverse SCA combines estuaries with millennia of human activity such as Bannow Bay (Anglo-Norman) with other areas that have a strong remote, isolated and maritime influence (Carnsore Point, Hook Head).
- Whilst views of the sea are not always present given the frequently more low-lying parts of this SCA, these areas often include salt marsh or estuarine habitats thereby the connection to the sea whilst not always visible, remains a consistent presence and reminder of the sea and coast nearby.
- Attractive, established fishing ports and harbours at Waterford, Dunmore East, Dungarvan and Helvick pier strengthen the ongoing relationship between the community and the sea. Tourism is well established within the SCA.
- The estuaries and coastal habitats around this SCA along with islands such as the Saltees provide for associations and significant presence of variety of sea birds, migrant birds and wetland birds.



Dungarvan Harbour
(Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA13 - South East Irish Sea



Curracloe Beach (Deirdre Black)



Summary Description

This SCA comprises a portion of the coastline of east Wexford and Wicklow and extends from Carnsore Point in the south, to 12 nautical miles offshore and ends at Wicklow Head. It comprises a variety of SCTs, namely SCT 7 (Broad estuarine bays and complex low plateau and cliff coastline), SCT 8 (Low lying and estuarine coastal plain with long, narrow sandy beaches) and offshore SCT 12 (Shallow offshore waters).

The SCA forms the juncture between the Celtic and Irish Seas; the imaginary boundary between St George's Channel extending from Cansore Point to St David's Head, Pembrokeshire. Ireland's most southeasterly island Tuskar Rock is within this SCA.

The coastal form comprises an interplay of broad, moderate scale bays and estuaries. Long, relatively narrow beaches are a key characteristic in this SCA and are punctuated by Carnsore Point, Cahore Point, Kilmichael Point and Wicklow Head. From Raven Point north to Cahore Point a spectacular series of strands are present including Curracloe, Ballinesker and Morriscastle Beach.

The hinterland is primarily agricultural with tillage and pasture; holiday homes, caravan parks associated with the beaches are present particularly around Curracloe and Courtown. Coastal and inland topography is generally low in elevation along this SCA, even at headland such as Greenore Point (22mOD) and Cahore Point (35mOD). Tara Hill (253mOD), to the NE of Gorey, is the only noticeable elevated feature along the coastal plain.. The rocks at Greenore Point, south of Rosslare are the oldest bedrock in the south east of Ireland, and are associated with the Avalonia continent, when the Iapetus Ocean was in existence around 600 million years ago.

The SCA includes historical towns and harbours including Wexford with long established tourism and fishing bases. The Slaney River Estuary empties freshwater into the harbour. The low-lying coastal area around the harbour comprises the shallow estuarine waters, reclaimed polders known as the North and South 'Slobs', and the tidal section of the River Slaney. The harbour has been subject to both natural and human interventions; the storms of 1925/25 breaking the Rosslare peninsula and creating Rosslare Fort Island, Tern Island , a mobile sandbank, washed away in a storm in 1977.

Arklow town is a very long established settlement with a Norse origin to its current name and tradition that St Patrick landed here. Other principal towns along the coast include the major port of Rosslare, Courtown and Arklow. A popular holiday area, known as the 'Sunny South East' this area includes one of the longest beaches in the country at Curracloe, Co. Wexford.

Fishing ports include Wexford, Courtown and Arklow. Towns such as Wexford have a bustling active feel, with fishing, commercial and local service and retail services, as well as an attractive open harbour area that is largely pedestrianised. Arklow has a strong maritime feel also with docks and references to fishing grounds dating back centuries.

Views along the coast are framed by low headlands for example from Kilmichael Point to Raven Point. Coastal panoramas expand further north along the coast as elevation increases and the presence of the Wicklow Mountains becomes more apparent. The Wicklow Mountains provide a montane topography backdrop to the coastal areas along the northern section in the vicinity of Arklow.



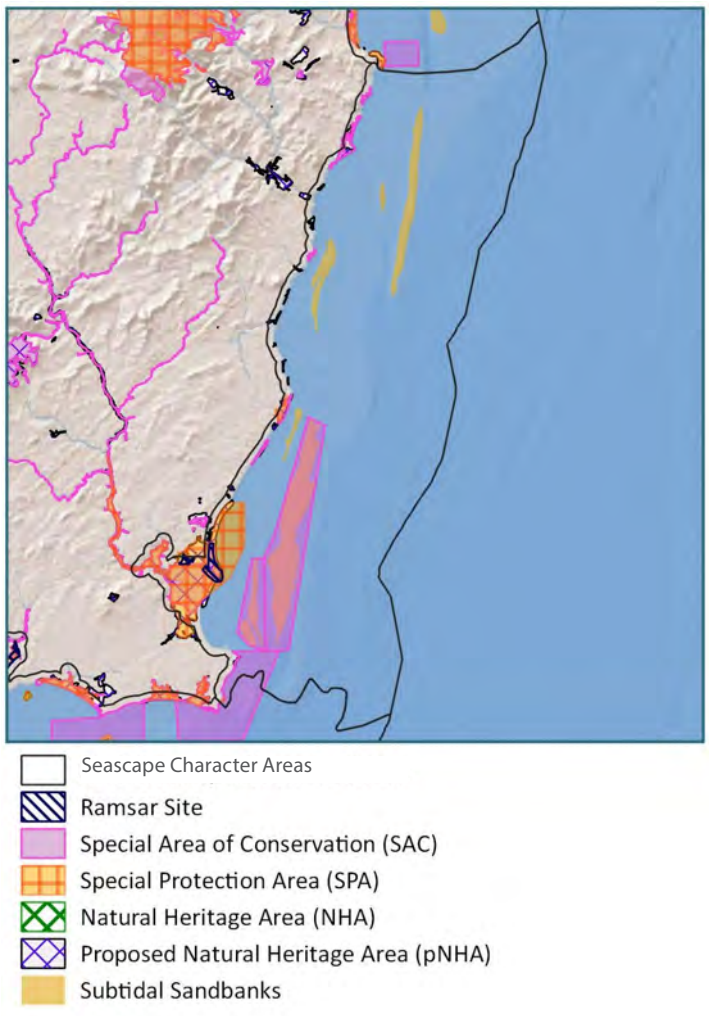
Tuskar Rock Lighthouse (Irish Lights)

Boundaries and Location

Carnsore Point to Wicklow Head, extending out to 12 nautical miles and including Tuskar Rock, over 4 nautical miles off the coast. Sandbanks are a feature and include (from south to north), the Long, Holdens, Lucifer, Blackwater/Moneyweights, Rusk, Glassgorman, Seven Fathom Bank, and Arklow Banks. From the south the main points and headlands are Carnsore Point, Greenore Point, Rosslare Point, the Raven Point, Cahore Point, Kilmichael Point, Arklow head, Mizen Head (less well known than its Cork counterpart) and Wicklow Head.Bays and Harbours are Rosslare Harbour and Bay, Wexford Harbour, Wexford Bay and Brittas Bay.

Key Characteristics

- This SCA includes the most southeasterly point in Ireland at Carnsore Point and forms the juncture between the Celtic and Irish Sea.
- Ireland's most southeasterly island Tuskar Rock is within this SCA.
- Coastal form comprises broad, medium scale bays and estuaries
- The SCA is renowned for its long sandy beaches and is well established coastal resorts such as Courtown.
- Long established historical towns that retain a fishing function including Arklow and Wexford. These are active, busy settlements with strong connections to the sea.
- Dynamic coastline that has seen considerable effects of erosion and deposition associated with Wexford Harbour as at Rosslare Island.
- Views vary from south to north, with low headlands framing those in the south, as the land rises further north, the mountains provide a montane setting to the coastal areas from Arklow onwards.



Map 1: Natural Heritage

Natural Influences

- This SCA exhibits a variety of geological characteristics. Bedrock geology in the SCA comprises Precambrian Rosslare Complex metamorphic rocks, Cambrian and Ordovician marine sedimentary and volcanic rocks, Silurian granites, and Carboniferous limestones. The most southern part of the SCA, around Carnsore Point, comprises granite, which can be seen in the local stonewalls.
- The protruding headland of Greenore Point comprises Rosslare Complex metamorphic rocks (gneiss, amphibolite). These rocks represent the oldest bedrock in the SE of Ireland, and are associated with the Avalonia continent, when the Iapetus Ocean was in existence around 600 million years ago.

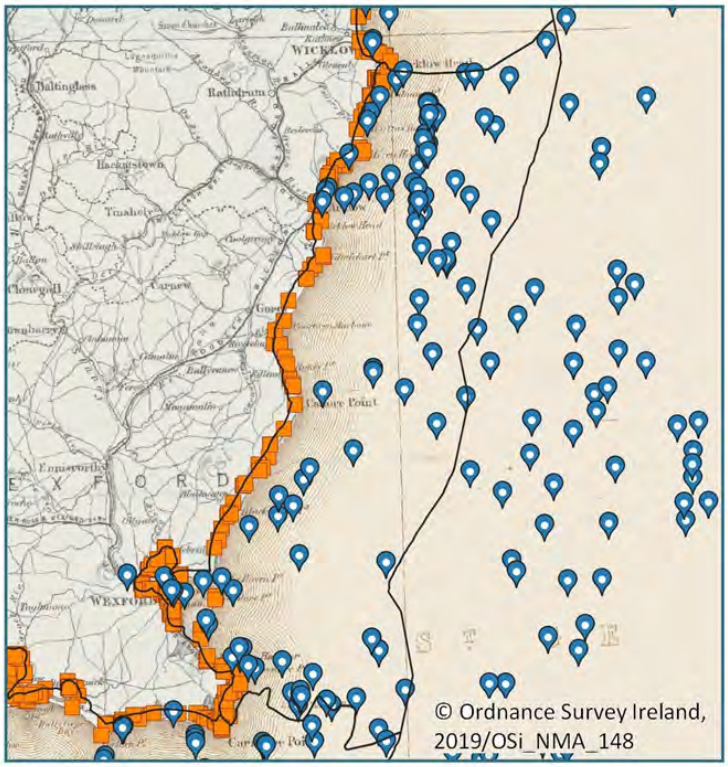


Wexford Harbour (Deirdre Black)

- -The southern half of Rosslare Strand and hinterland overlies Cambrian and Ordovican bedrock. The northern half overlies Carboniferous limestone. The coastal geology from Blackwater Head to north of Cahore Point is Cambrian marine bedrock, the quartzite exposures of which are best seen at Cahore Point. Ordovician deep marine sedimentary and volcanics are found along the remainder of the coastline northward to Arklow town.
- Wexford Harbour is a wide coastal limestone-floored embayment, flanked on either side by long sand spits and sandy beaches, and incorporating wide expanses of coastal flats. The low topography of the bay probably developed in pre-Quaternary (pre-glacial) times, was further enhanced during the Pleistocene glaciations, and later drowned by rising sea-levels after the end of the last ice age.
- Formed by longshore drift at the north side of Wexford Harbour is the Raven Point sand spit. The dynamic nature of the Raven Point system is best observed at the south end of the spit where sand flats, lagoons, driftlines and dune slacks are continually being transformed by tidal wave and wind activity. Dunes were planted with commercial coniferous forestry in the 1930s and 1950s, as a coastal defence measure and to protect the polder of the North East Slob.
- North of Raven Point, Curracloe Beach is the result of wave action by which waves or currents move sand, which makes up the beach, as these particles are held in suspension. Sand may also be moved by saltation (a bouncing movement of large particles). The sand in the beach originated in the sands and gravels deposited in the Screen Hills and Blackwater areas at the end of the last Ice Age, and have been continually eroded, deposited and reworked since then.
- Polder and dunes also occur just south of Cahore Point, another excellent representation of a dynamic coastal depositional environment on the Irish Sea coast. South of Arklow town, the Kilpatrick Sandhills comprise a 2km long mature and fairly intact sand dune system which exhibits the developmental stages of dunes from foredunes to mature fixed dunes.
- The coastal section from Raven Point north to Cahore Point is spectacular in its 25km length of uninterrupted beach. Long beaches feature to the north of Cahore Point such as at Courtown. This beach-lined coast is the result of sediment deposition due to longshore drift. The offshore seafloor is predominantly sand and coarse sediment, with seafloor depths ranging to depths of ~60m.
- Offshore sandbanks, at shallow depths of 10-20m, are a characteristic feature of this SCA.. Composed of sandy sediments and permanently covered by water, sandbanks are elongate, round or irregular 'mound' in shape.
- Tidal ranges are predominantly micro tidal, increasing to meso-tidal further north. Water Framework Directive (WFD): Coastal waters within this SCA include the Eastern Celtic Sea, Southwestern Irish Sea, Wexford Harbour, Southwestern Irish Sea -Brittas Bay and Southwestern Irish Sea – Killiney Bay (part of). Of those that are classified to date; the South western Irish Sea is of moderate status, Wexford Harbour good status and Southwestern Irish Sea – Killiney – high status; the remainder are currently unassigned.
- Wexford Harbour and Slobs is one of the top three sites in the country for numbers and diversity of wintering birds. The estuarine habitats and polder habitats provide good feeding and roosting areas for a range of species. This SPA is one of the two most important sites in the world for Greenland

white-fronted goose; they feed almost entirely within the Slobs and roost at The Raven, a separate SPA to the north. The modified polder grasslands further north at Cahore are another important area for wintering waterfowl -Greenland white-fronted goose, Wigeon, Golden plover and lapwing. Wicklow Head SPA supports Kittiwake.

- Offshore SACs within this area relate to the sandbanks and include Blackwater Bank, Long Bank and Wicklow Reefs SAC. Estuarine and dune habitats are present along the coast and reflected in SAC designations at Buckroney-Brittas Dunes and Fen SAC.



Cultural and Social Influences
Archaeological and Historical Overview

This SCA, which is less indented when compared to other SCAs, has two main harbours at Rosslare and Wexford.[1] There is not a great amount of prehistoric archaeology currently known within 1km of this stretch of coastline. Archaeological evidence dating to the Mesolithic period in both coastal Wexford and Wicklow has not yet been found but a prehistoric lithic (flint) scatter from the townland od Seabank, Co. Wicklow found during fieldwalking may be indicative of activity dating to the early prehistoric period. There are just two middens recorded in this SCA, both from County Wexford. It is generally considered that coastal middens may be prehistoric in date, as is the case in a number of other SCAs. But in these two cases, both were found during an excavation in Wexford town and associated pottery was dated to the seventeenth century. This example serves to illustrate that sometimes it can be difficult to assign a chronology to a monument without archaeological investigation.

There are relatively few features which date clearly to the later prehistoric period. For example, there are no megalithic tomb types to represent the Neolithic, and the three mounds that are recorded are likely later in date. The Bronze Age is represented by burnt mounds spreads, a burnt pit, and several fulacht fiadhs, highlighting occupation activity. Several of these were excavated in advance of the Arklow Bypass project. Burial activity is identified by two ditch barrows and a pit burial. The rim of a collared urn and a small sample of cremated bone, probably representing an older adolescent, were recovered from this pit.[2] There are three coastal promontory forts recorded along the stretch of coastline. Stone monuments of this period are strikingly absent along this coastline with just two standing stones being represented. A single cup-marked stone is in Artramon townland, which is likely prehistoric though is associated with the only early ecclesiastical enclosure recorded. De Courcy Ireland has suggested that in this period, 'the Wexford coast continued to be the point of arrival of influences, artefacts, sea faring families and individuals from Britain and the Continent: some at least of the local coastal dwellers must have crossed the sea themselves in these exchanges'.[3]

The early medieval period is represented earthen ringforts and a single example of a possible souterrain at Ballytrent, to the south of Rosslare Harbour, which is associated with a highly unusual large enclosure, later incorporated into a walled garden. There only ecclesiastical site is in Artamon townland, is D-shaped in plan and associated with a later medieval church and graveyard. A number of the churches and graveyards in the SCA may have had origins in this period and continued in use over time. The High Cross at Ballinatray Lower dates to this period, one of just four examples in

[1] Whelan, K. 1987 Wexford, History and Society. Dublin: Geography Publications; Noland, W. and Power, T. 1992 Waterford, History and Society. Dublin: Geography Publications; Moore, M. 1996 Archaeological Inventory of County Wexford. Dublin: The Stationery Office; Grogan, E. and Kilfeather, A. 1997 Archaeological Inventory of County Wicklow. Dublin: The Stationery Office; Colfer, B. 2008 Wexford: A Town and its Landscape. Cork: Cork University Press

[2] Sikora, M. 2011 3.96 Newtown, Co. Wexford, E1189, in Cahill, M. and Sikora, M. (eds) Breaking Ground, Finding Graves. Reports on the excavations of burials by the National Museum of Ireland, 1927–2006, vol. 1. Dublin: Wordwell, pp. 596-598

[3] De Courcey Ireland, J. 1987 County Wexford in Maritime History. In Whelan Wexford, pp. 490-540 at p. 491

Wexford, and a number of other cross types.[4] A number of coastal holy wells and saint's stones may be attributed to this period.

This part of Ireland shows the influence of the Vikings who arrived in Ireland, first as raiders, at the end of the eighth century, and who later stayed becoming Hiberno-Norse. De Courcy Ireland suggests that the Vikings observed the shelter offered by the lower reaches of the River Slaney, and eventually they founded a permanent urban settlement at Waesfjord (Wexford) meaning the fjord of the mudflats. He suggests that Scandinavian Wexford developed 'into an independent maritime statelet whose ships and seafarers initiated innumerable voyages, partly commercial, partly aggressive, particularly in the direction of Wales […and…] across the Bay of Biscay and along the coast of Iberia'.[5] Colfer has also identified Viking influence in place names of this SCA. These placenames have a distinctly coastal distribution 'reflecting the seafaring ethos of the Norse and their control of the littoral', for example, Carnsore (ore meaning headland), Tuskar, Selskar (sker meaning rock), Greenore, Kayser, Cahore,[6] and further north in the SCA, Arklow and Wicklow. This placename evidence supports the thirteen-century documentary evidence for Ostmen near Rosslare.

This SCA and SCA 12 (Celtic Sea bays and beaches) are intrinsically linked with the coming of the Anglo-Normans in the later medieval period and their subsequent influence can be seen along this coast. They undertook no fewer than five expeditions from Pembroke in Wales in 1169-1170 to land at Bannow and Baginbun Point at the invitation of Diarmait Mac Murchada (Dermot MacMurrough). De Courcy Ireland notes that no losses were recorded during the expedition, highlighting the experience of the seafarers involved at a time when there were no written navigational aids, no compasses, no buoys, no lighthouses and no charts as far as can be ascertained. The Anglo-Norman vessels would not have been so different from their Viking predecessors; timber, of shallow draught, relatively flat-bottomed that could be beached quite easily.[7] There is a wealth of monuments dating to this period in the SCA. Several churches and graveyards date to this period and the historic towns of Wexford and Arklow, which were established in the earlier period, continued to grow as important port towns. Castles are particularly impressive in this SCA. There are earthen castles such as a motte, motte and baileys, and a ringwork as well as an Anglo-Norman stone castle in Wexford town. There are also a number of unclassified castles and four tower houses, all in Co. Wexford; the most impressive perhaps being right by the water at Ferrycarrig. The townland



Arklow Harbour (Ruth Minogue)

name recalls a ferry that ran across the mouth of the River Slaney at this location. The ferry may have lasted until a wooden bridge was built here in 1795.[8] Several religious houses were established by wealthy Anglo-Norman families of the region. For example, Cistercian and Dominican religious houses were established at Arklow at Ferrybank and to the south of the River Avoca at Abbeylands, respectively; Franciscan Friars in Wexford town and a monastery of the Order of Tiron near Glascarrig Point. This was the only house of this order to be established in Ireland and it was a dependent on St Dogmell's in Pembrokeshire Wales.[9]

In the post-medieval and early modern periods, both historic towns of Arklow and Wexford continued, despite the conflicts of the seventeenth and eighteen centuries. There is a single bastioned fort recorded strategically positioned in the mouth of Wexford Harbour just to the south of Raven Point, which was used over a long period of time. The narrow part of the sand-bar (L c. 3km) has now been washed away and the fort is inaccessible, but a few walls are still to be seen above the water'.[10]

Wexford town from the seventeenth century onwards was, as Colfer describes it, a place of 'trade and tribulation', and it was the fulcrum of movement of Cromwellian and Confederate forces in the 1640s. The capture of the fort in the harbour by Cromwell facilitated his success in the region and laid waste to the town and

[4] Harbison, P. 1992 The High Crosses of Ireland: An iconographical and photographic survey, 3 volumes. Dublin. Royal Irish Academy. Bonn: Dr. Rudolf Habelt GMBH

[5] De Courcy Ireland, Wexford in Maritime History, p. 491

[6] Colfer, Wexford, pp. 35-37 at p. 35

[7] De Courcy Ireland, Wexford in Maritime History, p. 491-492

[8] Lewis, S. 1837 A Topographical Dictionary of Ireland, 2 volumes. London. Lewis and Co., vol. 1, p. 280. For an image of this timber bridge by Du Noyer see Colfer, Wexford, p. 129

[9] Gwynn, A. and Hadcock, R,N. 1970 Medieval Religious Houses Ireland. Dublin: Irish Academic Press, p. 112-113

[10] Description of WX038-007001- from ASI. See for full description and references: https://webgis.archaeology.ie/historicenvironment/ Accessed 30 June 2020

[11] Colfer, Wexford, pp. 80-113

its hinterland.[11] In the eighteenth century, the town of Wexford and its hinterland was also instrumental in the 1798 rebellion due to its strategic position on the coast, and Rosslare Fort again features prominently in this episode culminating in the suppression of the Rebellion, leading to the Act of Union in 1801.[12]

Arklow is an excellent example in this SCA of a fishing community.[13] Rees records that the fishing grounds off Arklow are found in Patrician legends and medieval documents. Fishing and Arklow became synonymous, so that by the 1800s the 'Arklow Fishery' denoted both the practice and the place. Lewis recorded in 1837 that Arklow was 'a fishing station since time immemorial […and…] is divided into the Upper and Lower Towns, which the latter is called the fishery.' It would appear that the fishermen's community was quite a distinct entity from the rest of the town, perhaps similar to the Claddagh at Galway.

Rees states that pinpointing the location of the fishery is more difficult than establishing its 'separateness' as its boundaries were not fixed. They were prone to move seaward, as more houses for the poor were built on the eastern fringe, especially during rapid increases in population in the early 1800s and again in the aftermath of the Famine, while the western edge, abutting Main Street, grew more prosperous and was thus subsumed into the perceived respectability of the 'Upper Town'. Despite its shifting locale, there was a general understanding as to what part of the town was implied when the 'Fishery' was referred to. Therefore, it should not be viewed as a specific set of streets and lanes but as a community with a distinct heritage and lifestyle. Families whose livelihood was gleaned from the sea but who lived in lanes at the west end of the town and off Main Street were as much part of the 'Fishery' as those who lived in the eastern end adjacent to the harbour. It was as a way of life and sometimes could be considered nomadic. For example, many of the men followed migratory shoals of herring and mackerel which led to serious misrepresentation of population figures in the Fishery when censuses were taken. The 1901 census was taken on 31 March, and the 1911 census was taken at roughly the same time of year. Each shows a remarkable scarcity of young and middle-aged men in the Fishery, but Rees points out this was a misrepresentation as they were mackerel-fishing off Kinsale and Baltimore. This is fundamental to understanding not only how that community worked but also how it came into being, evolving from a centuries-old fishing industry, and how it disappeared when that industry faded into insignificance as the local economic base changed in the first half of the twentieth century.

Many of the monuments of these periods have direct associations with the sea. There is an early beacon recorded on the North Quay at Arklow, and two historic boat houses, one at the small seaside resort and harbour of Courtown. Coastguard stations were located at Ballymoney, Kilmichael Point, Cahore Point and Rosslare Harbour, with lifeboat stations at Courtown and Rosslare Harbour. Historic harbours, docks, piers and quays are recorded at Courtown Harbour, Cahore, Carnsore Pier, Crescent and Custom House Quay, Wexford. Tuskar Rock's lighthouse and keeper's house is a particularly good example.

Due to the intensity of use of this coastline and its sea routes over a long period into present times there 109 wrecks recorded and several types of vessels are represented. It is likely that this number represents just a fraction wrecks in these waters. For example, in 1865 the barque of the Royal Mail the SS Armenian was lost on the Arklow Bank en route from Liverpool to Madeira to Tenerife to the West Coast of Africa.



Curracloe Beach (Deirdre Black)

Contemporary

- This SCA remains a popular area for beach and pier fishing in addition to commercial fishing landings at Arklow and Wexford.
- Arklow Harbour has an active fishing sector with catches of mussels, herring, and whelks. Wexford harbour and town retain a strong maritime tradition also. The harbour itself is used on a commercial basis by local fishing vessels. The harbour front is an important public amenity in the town with attractive public realm and well used amenity space. The ballast bank is an important seamark from the harbour and is used as the base for the fireworks display announcing the start of the Wexford Opera Festival.

[12] Colfer, Wexford, pp. 134-147

[13] There is a long tradition of seafaring and fishing in Arklow. See https://www.arklowmaritimeheritage.ie/. Accessed 30 June 2020

- Recreational and tourism activity is well established with seaside restaurants, beach activities, hotels, caravan parks and tourism accommodation within this area. The Sunny south East and Irelands' Ancient East are the main tourism marketing brands. Arklow town has an impressive maritime museum that tells the story of the maritime history of the town with a focus on boat building, life boat and fishing traditions.
- Influence of Dublin region is more apparent further north within this SCA.
- From Arklow northwards to Howth sailing this part of the coast is very popular.
- The Rosslare Europort (bordering on SCA 12) operates both passenger and freight lines and expects to grow into a port suitable for the needs of a post-Brexit Ireland by strengthening trade with mainland Europe.

Art and Folklore

- 'An Urgent Inquiry' Biodiversity and Art projects along Counties Wexford, Dublin and Fingal. The Wexford project biodiversity specialists along Ireland's East Coast is a unique public art project brings art and science together.
- Arklow has a considerable amount of folklore recorded associated with the significance of full-time fishing. The avoidance of the word 'rabbit' was a common practice with stories dating to the 1990s of bad luck associated with a man naming his sailing dingy ' an Coinín Bán' (the white rabbit) narrowly escaping catastrophe when his boat went up on the rocks due to a strong inshore wind14
- Arklow Maritime Museum

Perceptual Influences

Views and Vistas

- Views along the coast comprise mostly low lying headlands that frame the view but do not dominate.
- With islands largely absent, visual reference points and clues are provided by these headlands and sometimes by the offshore turbines.
- The increasing elevation further north provides for longer visibility in certain areas, for example at Wicklow Head.
- Views from sea to land are possible from the passenger and freight ferries from Rosslare Port, the fishing vessels and recreational users such as kayakers and inshore fishermen.

Sounds and Smells

Gulls screeching and flying over fishing boats are notable around Arklow and Wexford in particular.
Largely low topography and micro tides creates medium swells, particularly in sheltered bays or where slobs are present, small waves.

Sense of Place

- The towns of this SCA in particular Arklow and Wexford have a strong maritime character with the working harbours a prominent feature. The open and pedestrianised form of the Wexford Harbour makes it a popular area with a strong sense of place; this combines with the older buildings of the town fronting and facing the harbour.
- Arklow retains its character as an active maritime time with docks, marina, storage, fishing boats and supporting services. maritime museum.
- The beaches of Wexford and Wicklow have a long established tourism and recreational character for family holidays with holiday homes, caravan parks as well as hotels a common feature close to these areas. Certain places have been welcoming returning families (frequently from Dublin) to this area, such as Kellys Resort established as a tearooms in 1895 and connected via railway.
- The northern part of the SCA is influenced by proximity to Dublin with some towns having high numbers of commuters.
- This is the first SCA to have an offshore wind farm on the Arklow Banks.

[14] Ní Fhloinn. 2018. Cold Iron. Dublin UCD pg72



Harbour Arklow, Co Wicklow
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA14 - Irish Sea, Sandbanks and broad bays



Bray (Ruth Minogue)



Summary Description

This SCA differentiates from its neighbours due to the changing geology, increased elevation and ever greater influence of the Dublin region as seen through a greater urbanisation and modification of the coast. It includes well known seaside resorts and well represented bays such as Killiney Bay and Bray Head. This area comprises two principal Seascape Character Types; SCT 7 (Broad estuarine bay and complex low plateau and cliff coastline); and SCT 11 (Shallow offshore waters). The India and Codling Banks lie offshore at shallow depths of less than 20m. Seafloor depths extend to approximately 60m with the exception of the Codling Deep, a depression of approximately 70m 6km west of Wicklow Head, where tidal speeds are 2 -ms-1.

In common with the Irish Sea, this has long been an area of considerable navigational and trade activity, the inter-visability between lands in this relatively narrow sea means that from early times "we find the Irish Sea a busy thoroughfare of criss-cross routes[1]"

Wicklow head with its large lighthouse is a key seascape feature along this SCA, combined with Bray Head; these are the most significant headlands along this part of the coast. Historically Bray was a popular town for seaside holidays from Dublin; and has retained its popularity as a site for day trips. Coastal and inland topography is generally low in elevation in this SCA, except at Wicklow Head (82mOD) and the adjacent hills (<190mOD) and Collan Hill (238mOD) further south are the only major elevated features along the coastline.

The Wicklow Mountains provide a montane backdrop, whilst Great Sugarloaf Mountain (501mOD) is a commanding feature along the northern section of the SCA. The hinterland comprises towns and suburbs including Wicklow, Greystones and Bray, the main transport corridors of the N11 and railway and DART plus agriculture and forestry further inland.

Popular coastal walks from Bray to Greystones and the railway has facilitated access along this area since the nineteenth century.

This SCA includes Dalkey island at the northern boundary. Wicklow harbour is the commercial fishing port within this SCA with maritime services, sailing clubs and the Round Ireland Yacht race every two years-a 704 nautical mile race starting and ending in Wicklow Port. The shingle bar that was constructed to facilitate the railway line has created the longest coastland wetland in the country at the Murroughs.

[1] Chadwick.N.D 1970 quoted in Brett, D A book around the Irish Sea, 2009, Dublin Wordwell

Panoramic views prevail with the elevated headlands; the views of Killiney bay and Dalkey Island are well known and Killiney Hill takes full advantage of this sweeping view. The popular coastal walk from Bray Head to Greystones allows for long views across the sea and views over to Killiney Hill and Bray Head heading north. Views from Black Castle (ruins of 12th century Norman Castle) allows for elevated views across Wicklow town, harbour, bay and southwards to Wicklow Head and St George's channel. The eastern facing coast allows for early dawn and sunrise views across the Irish Sea.

Boundaries and Location

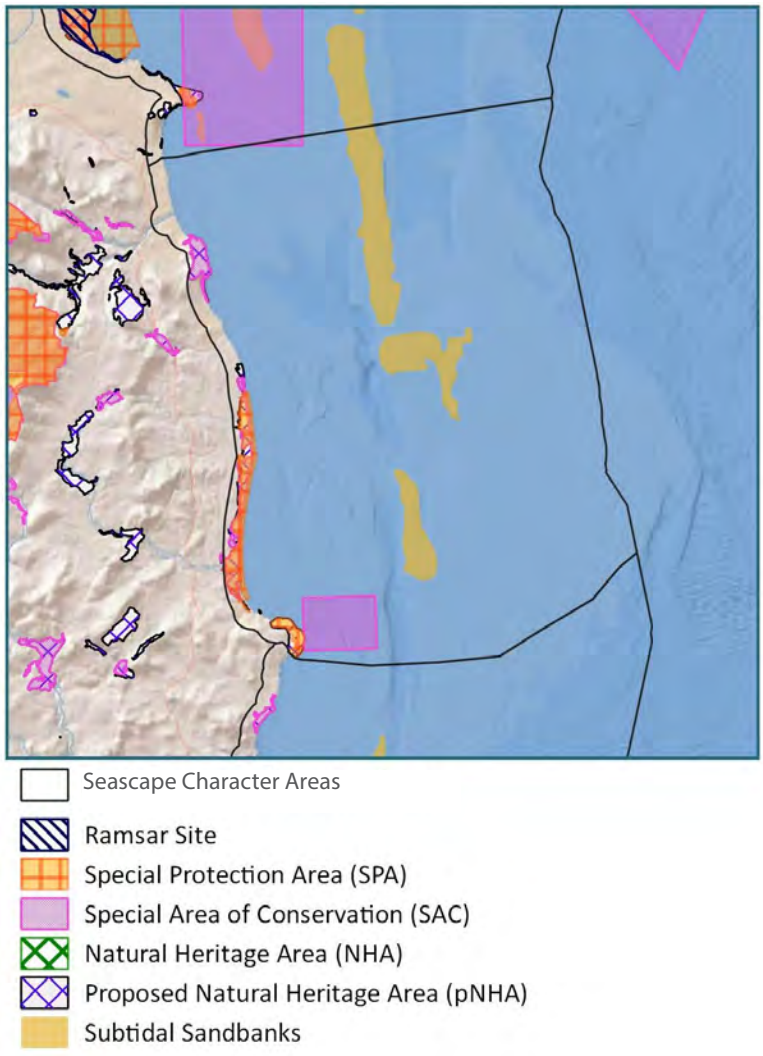
Stretches from Wicklow Head, Co. Wicklow towards Dalkey Island, Co. Dublin and extends to 12 nautical miles offshore. St George's Channel stretches northwards for this full SCA with the Wicklow Bay and Killiney Bay. Wicklow Head and sea cliffs form the easternmost point of Ireland.

Key Characteristics

- A busy and active SCA with long history and navigation and human settlement
- The busy towns of Wicklow, Greystones and Bray nowadays within the commuter zone but retain a strong link to the sea with the former the most significant fishing port in the SCA.
- Bray, well established seaside resort. The railway has afforded easy access to the town.
- The increasing presence of the Wicklow Mountains and rising topography creates a highly scenic landscape in parts with long views and panoramas afforded from Bray to Greystowns and Wicklow Head Cliff Walks.
- Longest coastal wetlands at the Murroughs created due to the construction of the shingle bar to facilitate the railway line.
- Increasingly urbanised towards the north, the hinterland comprises primarily agriculture and forestry.

Natural Influences

- This SCA comprises two main bedrock geology types, comprising an almost 50/50 split along the coast. The southern section, from Arklow town north to Five Mile Point comprises Ordovician deep-marine meta-sedimentary bedrock with a pocket of Ordovician volcanic rocks around Ballynacarrig. North of Five Mile Point, bedrock consists of Cambrian deep-marine quartzite and greywacke.
- Lithologies at Wicklow Head and Wicklow town on silver-grey mica-schist bedrock, whilst Mizen Head to the south is blue-grey slate. The two lights at Wicklow Head were built, not only to help mariners differentiate between Hook Head and Howth Head, but also gave a lead west-north-west between the south end of the India Bank and the north end of the Arklow Bank, and more locally through the Wicklow Swash to the anchorage off Wicklow tower or the coastal channel to Dublin. At Greystones, Cambrian greywacke rocks outcrop along the esplanade coastline.
- The 17km long stretch of shore from Wicklow to Greystones is an uninterrupted stretch of shingle beach. Topography along this coastal section is flat, and almost at sea-level in places. The uninterrupted shingle ridge consisting of smooth rounded pebbles interspersed with sand particles. - -Sediment size increases from north to south, being dominated by sand along its northern stretch near Greystones, and by larger pebbles nearer Wicklow. The variation is understood to be a result of wave-induced grading of the ridge deposits by longshore drift.
- Much of the Wicklow to Greystones shore is backed

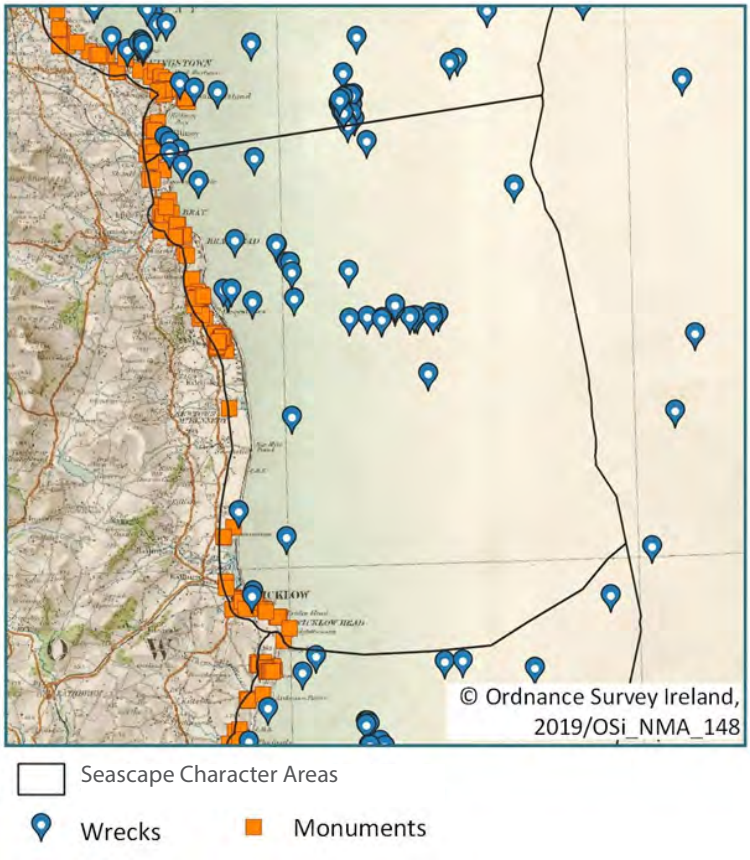


Map 1: Natural Heritage

by a 15km long coastal wetland area known as the Murrough. The wetlands drain through breaches in the shingle (The Breaches). At Six Mile point, a salient point on the shingle coast has been armoured with a large boulder rampart placed to protect the railway. The shingle ridge carries the Dublin-Rosslare railway line.

- The sand and shingle shoreline from Greystones, northwards to Cable Rock is backed by low, glacial till cliffs that are subject to continuous coastal erosion. The till was deposited at the base of the last major ice sheet that covered this region approximately 20,000 years ago. The till hosts large boulders of local Leinster granite and more impressively small pebble erratics of microgranite from the island of Ailsa Craig, in the Firth of Clyde, off the SW Scottish coast. Fragments of Cretaceous chalk and flint, and Tertiary basalt from Antrim can also be seen both in the cliff faces and strewn along the beach.
- Many sections of the till cliffs at Greystones are heavily slumped due to coastal erosion. Coastal erosion is a persistent threat along this section of the east coast despite efforts to stop recession of the cliff, such as the erection of baffles and mesh-wire structures.
- The offshore seafloor is predominantly sand and coarse sediment.
- Within this SCA, the Vartry River is the major river emptying, via Broad Lough, into the sea at Wicklow Town.
- Seafloor geology within the 10km zone characteristic of the onshore geology. Further east (10-20km) seafloor geology is variable in age, comprising Carboniferous, Triassic, Jurassic and Paleogene sedimentary rocks. The shallow bays, sandbanks and with seafloor depths ranging to depths of ~60m.
- The India and Codling sandbanks lie offshore at shallow depths of <20m. Composed of sandy sediments and permanently covered by water, sandbanks are elongate, round or irregular 'mound' in shape. The Codling Deep is a ~70m deep seafloor 'depression' lying 6km west of Wicklow Head. Peak tidal current speeds here exceed the 2 ms-1.
- Meso tidal ranges of >2m <4m. Water Framework Directive (WFD): most of the SCA lies in within the Southwestern Irish Sea- Killiney Bay with a small area of coastal waters around Dalkey Island included in the Irish Sea Dublin coastal waters. The former is classified as high quality; and Irish Sea Dublin of good quality.
- In addition to the Wicklow Head SPA, the Murroughs coastal wetland complex as outlined above is an important site for wintering waterbirds, being internationally important for light-bellied brent goose and nationally important for red-throated diver, greylag goose, wigeon, teal, black-headed gull and herring gull. It is probably the most important site in the country for nesting little tern. As with so many of the coastal and offshore islands, Dalkey Islands SPA is of particular importance as a post-breeding/pre-migration autumn roost area for roseate tern, common tern and arctic tern. The recent nesting by roseate tern is highly significant.
- In term of habitats and other species, the Wicklow Reefs SAC is located largely within this area, the Murroughs also support important wetland habitats; the extensive offshore SAC Rockabill to Dalkey Island SAC include sandy and muddy seabed, reefs, sandbanks and islands. This site extends southwards, in a strip approximately 7 km wide and 40 km in length, from Rockabill, running adjacent to Howth Head, and crosses Dublin Bay to Frazer Bank in south Co. Dublin. The site is designated for reefs and the year round population of Harbour Porpoise.

Cultural and Social Influences
Archaeological and Historical Overview



Map 2: Archaeological record including wrecks

This SCA comprises a stretch of coastline from Wicklow Head to Dalkey Island, just south of Dublin Bay.[2] Archaeological evidence dating to the Mesolithic period in this SCA comprises two lithic scatters found during fieldwalking in the coastal townlands of Clonmannan and Corporations lands; that latter now being part of Wicklow Golf Course. A rock shelter and caves investigated in the 1930s on Dunbur Head have also yielded prehistoric flints, some of which may date to this early period.[3] Dunbur Head (Bride's Head) is an excellent example of how many of these coastal projections have been used over a long period of time and a promontory fort, church, holy well, and souterrain are all recorded there. There is no prehistoric midden recorded along the coast in this SCA; the only example is medieval and associated with Rathdown Castle. It is highly likely that they once existed and perhaps due to erosion, the effects of which are clear at a number of monuments, if is possible that they have been lost along this stretch of coastline. Two middens associated with the promontory Fort on Dalkey Island were excavated in the 1950s revealing evidence of pig remains. Amongst the finds were polished stone axes, potsherds and limpet scoops.[4]

There are relatively few features which date clearly to the later prehistoric period. For example, there are no megalithic tomb types to represent the Neolithic. It is likely though that monuments relating to this period are slightly further inland in this SCA rather than being entirely absent. It is noted that the increasing usage of this coastal region from antiquity to the present day may have resulted in many earlier monuments being destroyed without record over time. The Bronze Age is represented by burnt mounds, spreads, and several fulacht fiadhs, though there are no barrows in the SCA to identify possible Bronze Age burial activity. An interesting pit circle monument was excavated in the townland of Newcourt, where a series of pits, containing charcoal, human and animal bone, enclosed a central burnt area which also had inclusions of burnt and crushed bone, were uncovered. A number of worked flint tools were also recovered. The excavator dated the site to the late Neolithic or Early Bronze Age.[5] There are six coastal promontory forts recorded along the stretch of coastline and an additional example excavated on Dalkey Island.[6] Stone monuments of the period are strikingly absent along this coastline and no examples are recorded.

In the Iron Age, the east coast of Ireland was tantalising close to the expanding Roman World. While is it generally accepted that the Romans did not 'invade' and settle in Ireland, there are several places where their influence or contact can be identified.[7] For example, Ptolemy's map, (Claudius Ptolemaeus), thought to date to the middle of the second century AD, was created by him in Alexandria of Egypt and was likely based on previous scholarship and second hand reports of sailors who had travelled to Ireland. It shows that the coastline of Ireland was well known at that time.[8] There is archaeological evidence along the east coast dating to this period and it is likely that several small harbours and slipways were used by sailors from the Roman Empire; some may have been citizens of the Empire or Irish returning from the Empire. For example, in this SCA, a cemetery of several inhumations was discovered near the seafront in Bray. It was recorded that the bones crumbled on exposure to the air, but the burials were accompanied by several Roman coins. One was a coin of the Emperor Trajan (AD 97-117) and another was of the Emperor Hadrian (AD 117-138).[9]

The early medieval period is represented by earthen



Swimmers in Killiney Bay with Bray Head in distance (Ruth Minogue)

2 Grogan, E and Kilfeather, A, 1997 Archaeological Inventory of County Wicklow. Dublin: The Stationery Office. There is no published inventory of County Dublin, so the sites and monuments record has been relied on. See https://webgis.archaeology.ie/historicenvironment/. Accessed 30 June 2020; Hannigan, K. and Nolan, W. 1994 Wicklow History and Society. Dublin: Geography Publications. Corlett, C. and Weaver, M. (eds) 2002 The Liam Price Notebooks. The Placenames, Antiquities and Topography of County Wicklow 2 Volumes. Dublin: Dúchas The Heritage Service.

3 Martin, C.P. 1932-3 Human flints in east county Wicklow. Irish Naturalists' Journal 4, p. 58

4 Liversage, G.D. 1968 Excavations at Dalkey Island, County Dublin 1956–1959. Proceedings of the Royal Irish Academy 66C, pp. 53-233

5 Excavated by Clutterbuck under licence 01E0252. See https://excavations.ie/report/2001/Wicklow/0007275/. Accessed 30 June 2020

6 Liversage 1968

7 For a recent review of the evidence and new investigations see Cahill Wilson, J. (ed.) 2014 Late Iron Age and Roman Ireland (LIARI): Discovery Programme Reports 8. Dublin: Wordwell; Raftery, B. 1994 Pagan Celtic Ireland: The Enigma of the Irish Iron Age. London: Thames and Hudson, esp. Chapter 9, pp. 200-219

8 Condit, T. and Moore, F. 2003 Ireland in the Iron Age: Map of Ireland by Claudius Ptolemaeus c. AD 150. Archaeology Ireland Heritage Guide No. 21. Dublin: Wordwell

9 Davies, K.M. 1989 A note on the location of the Roman burial sit at Bray, Co. Wicklow, Archaeology Ireland, 3(3), pp. 108-109

ringforts and a single souterrain at Dunbur Head. There only ecclesiastical site recorded is at Newcourt townland. In the 1840s a large enclosure or 'moat' was described as surrounding the church there (National Monument no. 262). The church is known as Raithín a' Chluig, or 'little rath of the bell'. This is one of several churches recorded in the SCA. Two coastal holy wells may also be attributed to this period; only one of which, dedicated to St Bride (Brigid) is extant. It is situated at Dunbur Head (Bride's Head) in a low cliff overlooking the sea-cliff to the east. It is now dried up but was described as a natural spring just above the high-water mark. There is no surviving local tradition at this well.[10] This part of Ireland also shows the influence of the Vikings who arrived in Ireland, first as raiders at the end of the eighth century and who later stayed becoming Hiberno-Norse. They established the town of Dublin which grew in importance over time and greatly influenced its wider hinterland known as Dyflinarskiri, which extended into Wicklow.[11] Wicklow town at the mouth of the Vartry was also established by the Norse in the ninth century and was known as Vikingaló. Its Irish name Cill Mhantáin derives from the early medieval church founded there by St Mantán. It is reputed that both Palladius and Saint Patrick arrived at the mouth of the River Vartry in the fourth century—presumably by sea—only to be driven away by local rulers.[12]

This SCA being on the east coast has been greatly influenced by Anglo-Normans in the later medieval period and it is unsurprising that there is a wealth of monuments dating to this period in the SCA. There is an earthen motte by the River Leitrim at the northern end of Wicklow town.[13] The iconic Black Castle at the water's edge in Wicklow harbour is an example of an Anglo-Norman stone castle, constructed on an earlier promontory fort. The earliest reference to the castle is in 1174 in a grant from Henry II to Earl Richard and it later formed part of the medieval borough (town) of Wicklow.[14] Several churches and graveyards date to this period and the historic towns of Wicklow already mentioned and Bray continued to grow as important regional port towns. Bray like Wicklow is situated on a river, in this case the Dargle, close to its confluence with the sea. It is divided into Little Bray to the north and Great Bray to the south. The manor of Bray was granted to Walter de Ridelesford before 1176 and was resigned to the Crown in 1280.[15] An excellent example of a medieval deserted settlement complex is located at Rathdown Upper. It includes Rathdown Castle, church, St Crispin's cell, remains of what was once an extensive settlement, a hollow way, a medieval midden, an a later post-medieval lime kiln. Recent geophysical survey and investigation there have revealed new interesting insights.[16] There is just one definite religious house in



Wicklow Head Cliff Walk (Ruth Minogue)

the SCA, the Franciscan Friary at Wicklow, now ruinous, first referred to in 1325. There is also a possibility that Benedictine nuns may have had a nunnery at Wicklow in the fifteenth century.[17] A portion of the SCA lies within the Pale around Dublin. The Pale was a strip of land, centred on Dublin, that stretched from Dundalk in Co. Louth to Bray in Co. Wicklow and became the base of English rule in Ireland. The 'English Pale' was a contemporary late fifteenth-century term that applied to the region around Dublin delimited by the physical feature within which language, culture and government remained closely aligned with England. The Pale was physically delimited on the ground first by a series of fortifications along its length and then in the fifteenth century it was enclosed with a bank and ditches, surmounted by a palisade.[18] Two stretches of this linear earthwork survive in the SCA in the townlands of Cork Great in Co. Dublin and Ravenswell in Co. Wicklow, now situated in a golf course at Bray.

In the post-medieval and early modern periods, both

10 Lynch, G. 1994 The holy wells of County Wicklow: traditions and legends. In Hannigan and Nolan (eds), Wicklow, pp. 625-648

11 radley, J. 1988 The interpretation of Scandinavian settlement in Ireland. In Bradley, J. (ed.) Settlement and Society in Medieval Ireland. Kilkenny: Boethius, pp. 49-78. See also Murphy, M. and Potterton, M. 2010 The Dublin Region in the Middle Ages: Settlement, Land-use and Economy. A Discovery Programme Monograph. Dublin: Four Courts Press

12 Lord Killanin and Duignan, M. V. 1967 The Shell Guide to Ireland Second Edition. London: Ebury Press, p. 461

13 Price, L. 1936 The Byrne's country in Co. Wicklow in the sixteenth century: and the manor of Arklow. Journal of the Royal Society of Antiquaries of Ireland 66, pp. 41-66

14 Clarke, Rev. M. 1944 The Black Castle, Wicklow. Journal of the Royal Society of Antiquaries of Ireland, 74, pp. 1-22. Simpson, L. 1994 Anglo-Norman settlement in Uí Briúin Cualann, 1169–1350. In Hannigan and Nolan (eds), Wicklow, pp. 191-235

15 Grogan and Kilfeather, 1997, p. 194

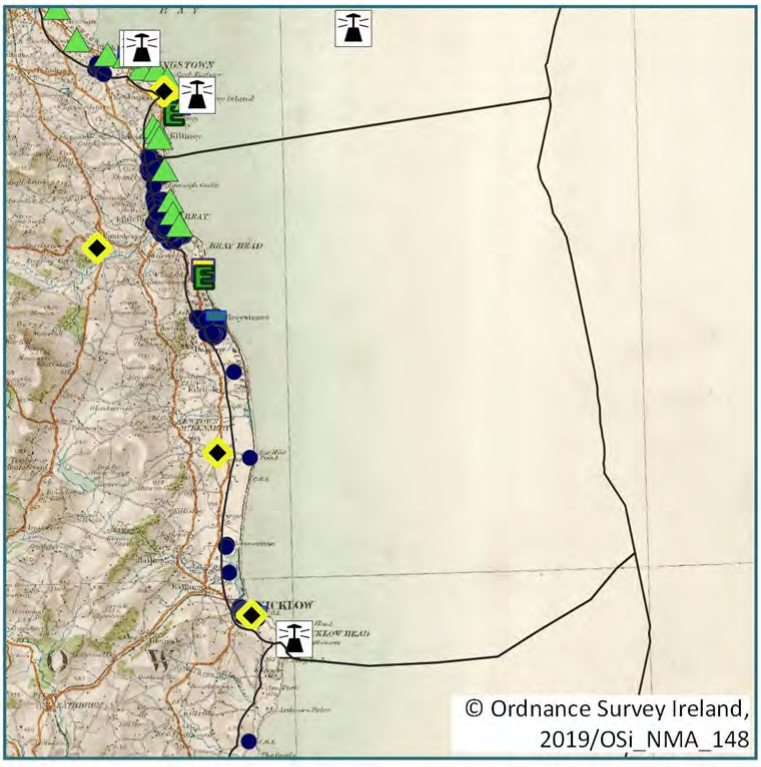
16 urbridge, M., Coyne, F., Harrington, J. Love, C. Mogensen, E. and Duffy, P. 2017 New insights into the church known as St. Crispin's Cell and the site of Rathdown Castle, Co. Wicklow

17 Gywnn and Hadcock, 1970, p. 325; Grogan and Kilfeather 1997, p. 194

18 See Murphy and Potterton 2010, pp. 264-283

historic towns of Wicklow and Bray continued, despite the conflicts of the seventeenth and eighteen centuries. There is a seventeenth century-barracks recorded at Bray marking a particular period of conflict. Bray also has a very fine example of a nineteenth century Martello Tower. There are lighthouses at the East Pier in Wicklow town and two fine examples at Wicklow Head. The East Pier itself is a fine nineteenth-century example, which was extended in the 1930s to further protect the harbour. There are historic coastguard stations at Dunbur Rd, Wicklow, Greystones and Bray. All three towns became seaside resorts for day trippers from Dublin from the nineteenth century as all three were easily accessible by train.

The eastern coast of Ireland has been intensely used from at least the historic period into present times and there is a particular density of wrecks near the harbours of Wicklow, Greystones and Bray. The off shore Codling bank and Kish bank further north coupled with strong seas and winds in this SCA are also responsible for vessels being wrecked. There are 44 wrecks recorded in this SCA and several types of vessels are represented, dating from the beginning of the nineteenth century to the present day. These represent just a fraction of the number of vessels wrecked in these waters.



Map 3: Built Heritage

Contemporary

- The connections between Dublin City and this SCA extend to the contemporary period. The area south of Greystones was, by 1967, recognised as being within the inner zone of influence of Dublin (Miles Wright, ca.1967)
- With the SCA popular for sailing and other sea based recreational activities, sailing and rowing clubs are present at Wicklow, Greystones and Bray. The urban form of these settlements include terraces and villas associated with 19th century expansion along the new railway line; with several seeking to take advantage of sea views. The Dundalk Port handles general cargo, pilotage and customs. Being located halfway between the capital cities of Dublin and Belfast, it facilitates easy transportation to both cities in about an hour/ The Drogheda Port handles over one million tonnes of cargo and about seven hundred vessels annually. The Clogherhead Fishermen's Co-op trade in prawns, monkfish, cod and hake.
- Fishing continues primarily from Wicklow harbour and boats can be chartered for angling/fishing trips from the harbour.
- The proximity to Dublin and the railway line means this area remains a popular place for a day trip and coastal walk with the Bray promenade and supporting ice creams huts, restaurants and arcades. The Wicklow part of this area is within Ireland's Ancient East.
- A recent tourism initiative, Celtic Routes, between Wicklow, Wexford, Waterford County Councils and Carmarthenshire, Ceredigion and Pembrokeshire in Wales (Interreg funded) aims to encourage visitors to stay rather than transiting through these areas.
- Wicklow Lighthouse can be rented for holiday accommodation via the Irish Landmark Trust and is one of the 12 Great Lighthouses of Ireland; it is extremely popular for accommodation, reflecting the attractiveness of such buildings for visitors.
- The Greystones Harbour Marina was established fairly recently, in 2013, and has since expanded from 100 berths to 200+. Co. Wicklow offers various tourism and recreational activities, both land- (e.g., walks, bird-watching, and golfing) and water-based (e.g., sailing, angling, and surfing).

Art and Folklore

- The Dalkey Archive (1954) by Flann O'Brien, a comic novel includes stories such as James Joyce darning socks for the Jesuits in an undersea grotto.
- Greystones Art Group held an exhibit at the Signal Arts Centre in Bray in 2019 themed 'Water'.

Perceptual Influences

Views and vistas

- Well known views particularly of Killiney Bay, or the Sugarloaf and views towards Bray Head from the elevated coast have been popular with artists, and frequently used in tourism promotion.
- Long views across the Irish Sea are possible from the elevated heads or points and viewpoints along the coastal road, or accessed via pathways for example at Killiney Hill or Wicklow Head.
- a views can vary and are not constant particularly where the coastal topography is lower.
- The shingle shores that extend for much of this area allow for sea level views and the sunrises can be spectacular from this SCA.
- Dalkey Island and the small islands that cluster around it are a key seascape feature in views from the shorelines and elevated parts of the northern area of this SCA.
- Views to the land are possible from the day trips to Dalkey Island, chartered boats and sightseeing tours from Wicklow Harbour and recreational boats. From the sea, close to shore the sea cliffs and caves around Wicklow and Bray Head are visible though the detail retreats further offshore.
- The distinctive cone shape of the Sugarloaf mountains and the coastal headlands provide a scenic backdrop to sea views towards the land.
- Lighting – the urbanised character of much of this SCA particularly around the main towns and northern part result in a density of lighting associated with housing and the railway line Where areas are more remote/or at headlands, lighting is less visible. The Wicklow Head Lighthouse, now automated, has a range of 23 nautical miles.

Sounds and smells

- As with other habours, the sounds of gulls year round and summer seabirds can be heard
- Rolling waves along the shingle beaches make a distinctive sound in this SCA
- The railway line with frequent trains introduces another element to the local soundscape.

Sense of Place

- A distinctive character area that reflects millennia in human activity common along the Irish Sea; although the archaeological record can be scant for earliest human settlement other than at Dalkey Island.
- This SCA has been significant strategically for a long time and the coastal towns strung along the railway line, though some have earlier origins, retain a strong engagement with the sea, evidenced through the recreational uses in and along this part of the coast.



Wicklow Harbour

4 Regional Seascape Character Areas

SCA15 - Dublin Bay



Dalkey Island (Ruth Minogue)

Summary Description

This area comprises the distinctive horseshoe bay of Dublin, framed by the elevated quartzite headland of Howth Head, to the north, and Killiney Hill, an elevated granite head to the south. These hard rocks have withstood erosive processes that have otherwise laid low the softer Carboniferous limestone and shales that floor the centre of the bay and underlie Dublin City. The River Liffey enters the Irish Sea at the mouth of Dublin Bay, an area roughly defined from Bailey Lighthouse, Howth over to the Muglins, the rocky islets northeast of Dalkey Island.

The character of this seascape is that of a busy and active area, with the busiest port in the country and the capital city. Day and night there is shipping activity in the bay.

Dublin Bay is relatively shallow. Historically due to its shifting sandbanks it had a reputation of being treacherous for shipping. Frequently ships sailed out of Dublin but, tides would push them back onto its inshore sandbanks, the North Bull and the South Bull.. North Bull Island today is a sandy spit which formed after the building of the Bull Wall and South Wall during the 18th and 19th centuries

The Dublin Bay has long been exploited as a coastal resource, and although city of Dublin considered as being of Viking origin, archaeological evidence, found particularly on the northern part of this SCA suggest earlier coastal communities. The liminal character of sky, land and sea and its importance for ritual is reflected in the portal tomb at Howth Demesne, in addition to cairns and mounds on the Head of Howth.

The coast of this area is largely urban in character and has been extensively modified to accommodate the growing city. The shifting sandbars and the ongoing silting of the bay and the sandbars have ensured regular interventions to keep the port open. The hinterland is primarily urban in character; however the Dublin Bay Biosphere designation reflects the importance of the bay for biodiversity. Originally Bull Island was designated as a Biosphere in 1981, an international designation by UNESCO due to its rare and internationally important habitats and species of wildlife. Since then the Biosphere has been expanded considerably to include

1 Accessed 16/07/2020https://www.dublinbaybiosphere.ie/about/

core, buffer and transition zones extending in total to over 300km^2. Over 300,000 people live within the newly enlarged Biosphere[1].

Whilst heavily urbanised, the bay itself is a popular recreational areas for pleasure boats, and for activities such as kayaking and windsurfing. Popular areas for walking include Howth Head, Bull Island, South Wall, Dun Laoghaire Piers and Killiney Hill. Popular bathing areas include the Forty Foot, the recently reopening Clontarf Baths and the south wall.

The bay includes both the city of Dublin and centres that expanded north and south along the railway line; these include settlements with more ancient origins such as Clontarf, Dun Laoghaire and Dalkey.

The presence of the sea on the land varies within the SCA; however the sight and sound of seagulls indicates the proximity to the sea throughout the area. Sea views are possible along the suburban coastal roads particularly from Clontarf to Howth, and from Ringsend, Dollymount to Dun Laoghaire. The view from Howth Head in particular allows for a full panoramic view of 360 degrees that provides a fascinating overview not only of the Bay but further north towards the mountains of Mourne. Views of Snowdonia in Wales are possible during clear weather.

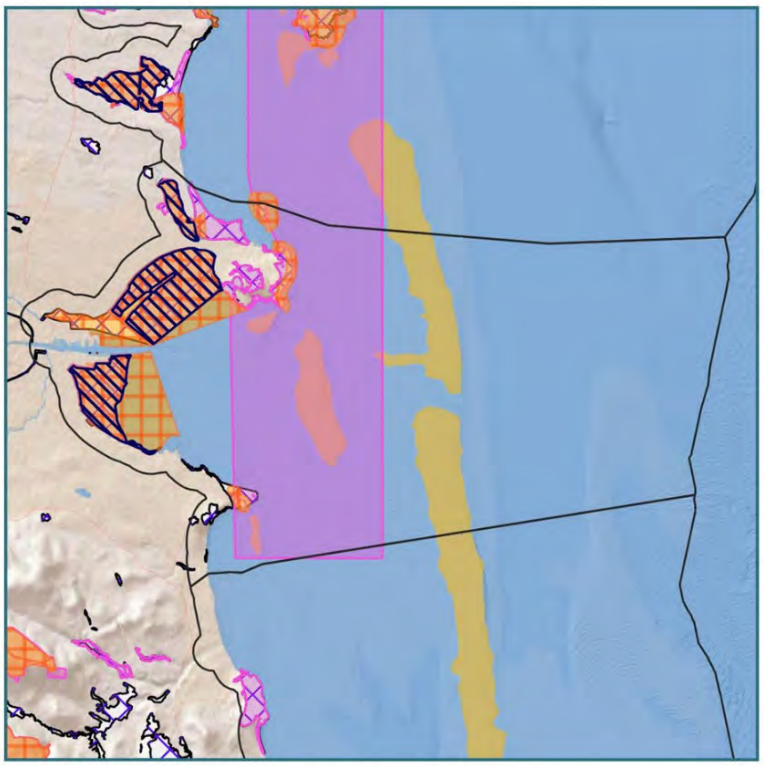
Boundaries and Location

This SCA is bounded by Dalkey Islands and Killiney Hill to the south, extending 12 nautical miles and encompassing Howth Head and Ireland's Eye to the north. It includes Dalkey Sound, Scotsmans Bay, Dublin Harbour and Dublin Bay. Merion Strand, Sandymount Strand and North Bull Island are included within this SCA and the Kish Bank and Lighthouse. The Burford banks can be considered the eastern boundary of the Bay to the Irish Sea. Offshore sandbanks, at shallow depths of 10-20m, are a feature of this SCA. These include Kish Bank and Bennet Bank.

Key Characteristics

- Distinctive and active bay framed by two resistant headlands that offer extensive views across the Bay, the Irish Sea and along the coast, north and southwards.
- Busy navigational area with commercial and recreational shipping and boats.
- Kish Lighthouse and Kish Bank a common sight for navigators in and out of the bay.
- Long and extensive coastal settlement and history has created a modified coastline and bay for much of this SCA.
- Both Howth Head and Killiney Hill, that frame the bay, are less developed and offer more tranquil space within this urbanised area. Recreational use of the coast and sea is popular.
- Significant ecological and biodiversity areas reflected in the UNESCO Biosphere and the importance of the estuarine and tidal habitats.
- The view across Dublin bay is a much painted vista, and described in writing, songs and poetry.

Natural Influences



Map 1: Natural Heritage



Howth (Ruth Minogue)

- Although one of the smaller SCAs, the Dublin Bay SCA exhibits a varied geological signature, comprising Cambrian, Ordovician, Silurian, and Carboniferous rocks. The transition to Devonian granite (Leinster Granite) occurs around the location of the Killiney Obelisk. Close to the transition zone is White Rock - so called because sailors noted a strong colour difference between the dark rocks (Ordovician) on the southern side, and the white coloured granite exposures. Granites are visible on Dalkey Hill and Dalkey Island. The granite piers at Dun Laoghaire Harbour were constructed with granite quarried on Dalkey Hill.
- Rock exposure along the shore is absent along the intertidal zone of sand and mudflats; the exception being a small area around Dun Laoghaire. Several small sandy beaches occur at Poolbeg, Irishtown and Booterstown.
- The Hill of Howth is a prominent landmark framing the side NE of Dublin Bay. Composed of Cambrian quartzite and mudstones, the bedrock is similar to that of Bray Head. Ireland's Eye, to the north of Howth Head shares a similar Cambrian geological character.

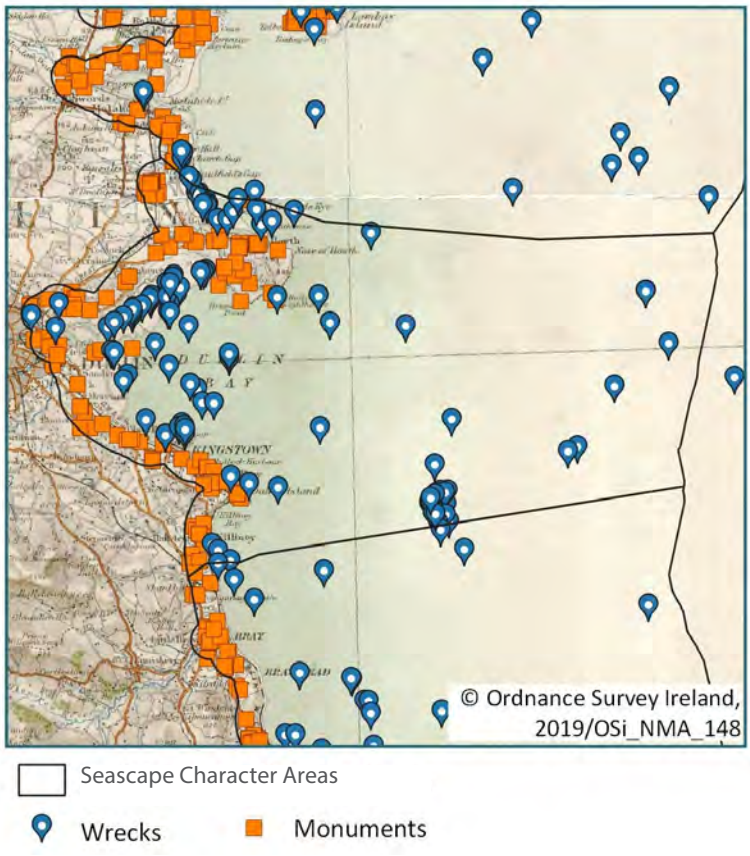


ESB Dolphin and CDL Dolphin

2 http://dublinbaybirds.blogspot.com/2017/07/terns-are-back-with-bang.html Accessed 16/07/2020

- Offshore geology along the inner regions of the SCA are consistent as extensions of the onshore geology. In the outer, eastern region, seafloor bedrock comprises Triassic lithologies. The offshore seafloor is predominantly sand and muddy sediment, with seafloor depths ranging to depths of ~40m below chart datum.
- Water Framework Directive (WFD): Dublin Bay and Irish Sea Dublin are the coastal waters and are both classified as being of good status. Dublin Bay is subject to meso-tidal ranges of >2m<4m
- Part of Dalkey Island SPA (outlined in SCA 13) is situated within this SCA in addition to two SPAs form the internationally significant Dublin Bay complex - South Dublin Bay and River Tolka Estuary, North Bull Island SPA.
- Birds such as terns have taken advantage of existing navigational infrastructure. For example, the ESB Dolphin site was the first breeding colony of common terns in the Liffey. Other structures used for breeding include Pontoon 2 and CDL Dolphin near Poolbeg. The South Dublin Bay and River Tolka Estuary SPA is of ornithological importance as it supports an internationally important population of light-bellied Brent Goose and nationally important populations of a further nine wintering species.

Cultural and Social Influences



Archaeological and historical overview

This SCA comprises Dublin Bay including approaches into Dublin City quays to Howth at north and Dalkey Island at south.[3] Dublin Port Company is a main commercial entity in the SCA and has produced a number of key documents including a Master Plan as part of ongoing and future management of the Port.[4] A key point to bear in mind when reviewing the archaeology and cultural heritage of the Dublin Bay SCA, is that unlike several others, its topography has changed radically since prehistory. The River Liffey, its tributaries and its estuary into Dublin Bay was originally much wider with sandspits, sandflats and mudflats. Over time land has been reclaimed from the water as the city grew, and in tandem with this, the harbour/port gradually moved eastwards towards the outer Bay. Dredging (the removal of material) has also occurred in places in the Bay since at least the eighteenth century and this has also changed the underwater topography.[5] Therefore, cultural heritage such as wrecks and archaeology that may have been once either underwater or in the intertidal zone are now on or under dry (reclaimed) land; or have been at worst destroyed or at best disturbed by past dredging activities.

With all the radical changes of this area it is somewhat surprising that archaeological evidence dating to the Mesolithic has been uncovered. This comprised the remains of fish traps and a brushwood deposit identified during the archaeological monitoring of a deep excavation at North Wall Quay at Spenser Dock. It has been interpreted as a fishing station which was used intermittently over a considerable period of time from the later Mesolithic.[6] Early prehistoric activity is also noted in two middens excavated; one in Sutton the other on Dalkey Island where animal bone, stone axes and lithics were recovered.[7] It is likely that the coastal zone around Dublin Bay was known since prehistoric times as a safe mooring place secure from the prevailing south westerly winds.[8]

The Neolithic period is represented in the SCA by for example, a single megalithic structure identified at Killiney, and two portal tombs, a relatively early type in the typology of megalithic tombs, at Howth, and Ballybrack which is locally known as the 'Shanganagh Dolmen'. Interestingly, there are no burnt mounds, spreads or fulachta fiadh noted in the SCA, though this may be a result of intense usage of the coastal landscape over time. The Bronze Age is represented by a feature thought to be a mound barrow at Howth, now located on a golf course. A cist was revealed to the south of Howth Harbour during the construction of house in the late 1860s, and it is possible that it was Bronze Age in date (or perhaps early medieval). There are four coastal promontory forts recorded; two along the stretch of coastline at Howth and Dun Laoghaire, and two on islands Ireland's Eye and an excavated example on Dalkey Island.[9] It is possible that these monuments were constructed or used in the enigmatic Iron Age.



River Liffey (Ruth Minogue)

[3] For an archaeological and historical background to the entire Dublin Bay region see Murphy, M. and Potterton, M. 2010 The Dublin Region in the Middle Ages: Settlement, Land-use and Economy. A Discovery Programme Monograph. Dublin: Four Courts Press. For an overview of shipwrecks of the area see Brady, K. 2008a Shipwreck Inventory of Ireland: Louth, Meath, Dublin and Wicklow. Dublin: Government of Ireland; 2008b Shipwrecks on the East Coast of Ireland. Archaeology Ireland Heritage Guide No. 42. Dublin: Wordwell

[4] There is as yet no published inventory of County Dublin, so the sites and monuments record has been relied on. See https://webgis.archaeology.ie/historicenvironment/. Accessed 30 June 2020. See recent documentation: https://www.dublinport.ie/wp-content/uploads/2018/07/DPC_Masterplan_2040_Reviewed_2018.pdf; https://dublinportmp2.ie/wp-content/uploads/2019/07/EIAR_Vol2_Part1.pdf; https://dublinportmp2.ie/wp-content/uploads/2019/07/EIAR_Vol2_Part2.pdf; https://dublinportmp2.ie/wp-content/uploads/2019/07/EIAR_Vol3_Part3.pdf [19-8 Draft Archaeology and Cultural Heritage Management Plan]. Accessed 1 July 2020. Archaeological and cultural heritage inputs were undertaken by ADCO Limited under the direction of Dr Niall Brady.

[5] Brady 2008a, Shipwreck Inventory. For a detailed analysis of the development of Dublin see: Clarke, H.B. 2002 Dublin Part I, to 1610. Irish Historic Towns Atlas (IHTA) No. 11. Dublin: Royal Irish Academy (RIA); Lennon, C. 2008 Dublin Part II, 1610 to 1756 IHTA No. 26. Dublin: RIA; Goodbody, R. 2014 Dublin Part III, 1756 to 1847 IHTA NO. 26. Dublin: RIA. There is a very large corpus of maps, archival sources, and scholarly publications on the archaeology and cultural heritage of Dublin

[6] McQuade, M. and O'Donnell, L. 2009 The excavation of Late Mesolithic fish trap remains from the Liffey estuary, Dublin, Ireland, in McCartan et al (eds) Mesolithic Horizons Volume II. Oxford: Oxbow, pp. 889-894

[7] Mitchell, G.F. 1972 Further excavations of the early kitchen-midden at Sutton, Co. Dublin. Journal of the Royal Society of Antiquaries of Ireland 102, pp. 151-159; Mitchell, G.F. 1956 An early kitchen midden at Sutton, Co. Dublin. Journal of the Royal Society of Antiquaries of Ireland 86, pp. 1-26; Liversage, G.D. 1968 Excavations at Dalkey Island, County Dublin 1956-1959. Proceedings of the Royal Irish Academy 66C, pp. 53-233.

[8] Brady in Murphy and Potterton 2010, Dublin Region, p. 36

[9] Liversage 1968, Excavations at Dalkey Island



Ireland's Eye (Catherine Dunne)

In the Iron Age, Dublin Bay, like the entire eastern coast of Ireland, was tantalising close to the Roman World. There are several places where their influence or contact can be identified both south and north of this SCA. While there is no influence or contact evident within this SCA, it can be reasonably postulated from Ptolemy's map and other evidence that people from the Roman Empire likely knew the bay that would eventually become known as Dublin Bay.[10] The early medieval period is represented by a single cashel at Howth. It is likely that some of the unclassified enclosures in the SCA may be ringforts, but this has yet to be proven. There are ecclesiastical enclosures known at Sutton (associated with a church and cross) and Killiney (possibly surrounding the upstanding church and font). There are several coastal holy wells and one recorded on Dalkey Island. The ecclesiastical settlement at Dubhlinn and the secular settlement of Áth Claith with their safe mooring along the River Liffey and its tributaries may have been what first attracted the Vikings to establish a town at Dublin, which was to become one of the premier trading and shipbuilding centres of the Viking World.[11] Their influence can be seen in many of the place names of the SCA, for example, Howth and Dalkey. One of the most pivotal events, The Battle of Clontarf, occurred in this SCA in the eleventh century. The Battle (Cath Chluain Tarbh) took place on 23 April 1014 between an army led by Brian Boru, High King of Ireland, and a Norse-Irish alliance comprising the forces of Sigtrygg Silkbeard, King of Dublin; Máel Mórda mac Murchada, King of Leinster; and a Viking army from abroad led by Sigurd of Orkney and Brodir of Mann. It lasted from sunrise to sunset, and ended in victory for Brian Boru. It is estimated that between 7,000 and 10,000 people were killed in the battle, including most of the leaders. Although Brian's forces were victorious, Brian was killed, as were his son Murchad and his grandson Toirdelbach. Leinster king Máel Mórda and Viking leaders Sigurd and Brodir were also slain. After the battle, the power of the Vikings and the Kingdom of Dublin was largely broken. Brian was hailed as a national hero and the event became a metaphor for Irish freedom from foreign domination throughout subsequent history.[12]

Due to its east coast location, the SCA has been greatly influenced by Anglo-Normans in the later medieval period. This is particularly the case for the Dublin Bay region as Dublin Castle became the centre of their administration in Ireland and came to be protected by first, a strip of land fortified along its edge, and later by a palisaded bank and ditch known as The Pale. The 'English Pale' was a contemporary late fifteenth-century term that applied to the region around Dublin delimited by the physical feature within which language, culture and government remained closely aligned with England.[13] A stretch of this linear earthwork was thought to have survived in the village of Dalkey into the late nineteenth century.[14]

Castles are well represented in the SCA. For example, the current Clontarf Castle incorporates or is built on an Anglo-Norman masonry castle; at Howth a motte is thought to have stood where the Martello Tower at the harbour now stands, and there are no fewer than nine tower houses known from the area. Throughout the later medieval period there were many religious houses of most orders established in Dublin and its hinterland, though none appear to be within the 1km boundary chosen for the SCAs.

In the medieval period the harbour or port of Dublin was adjacent to the original Hiberno-Norse settlement in the locality of Wood Quay (now Dublin City Council offices) and along the edges of the Liffey. But by the fourteenth century, this part of Dublin could not

[10] For a recent review of the evidence and new investigations see Cahill Wilson, J. (ed.) 2014 Late Iron Age and Roman Ireland (LIARI): Discovery Programme Reports 8. Dublin: Wordwell; Raftery, B. 1994 Pagan Celtic Ireland: The Enigma of the Irish Iron Age. London: Thames and Hudson, esp. Chapter 9, pp. 200-219. Condit, T. and Moore, F. 2003 Ireland in the Iron Age: Map of Ireland by Claudius Ptolemaeus c. AD 150. Archaeology Ireland Heritage Guide No. 21. Dublin: Wordwell.

[11] Wallace, P.F. 2016 Viking Dublin. The Wood Quay Excavations. Dublin: Irish Academic Press

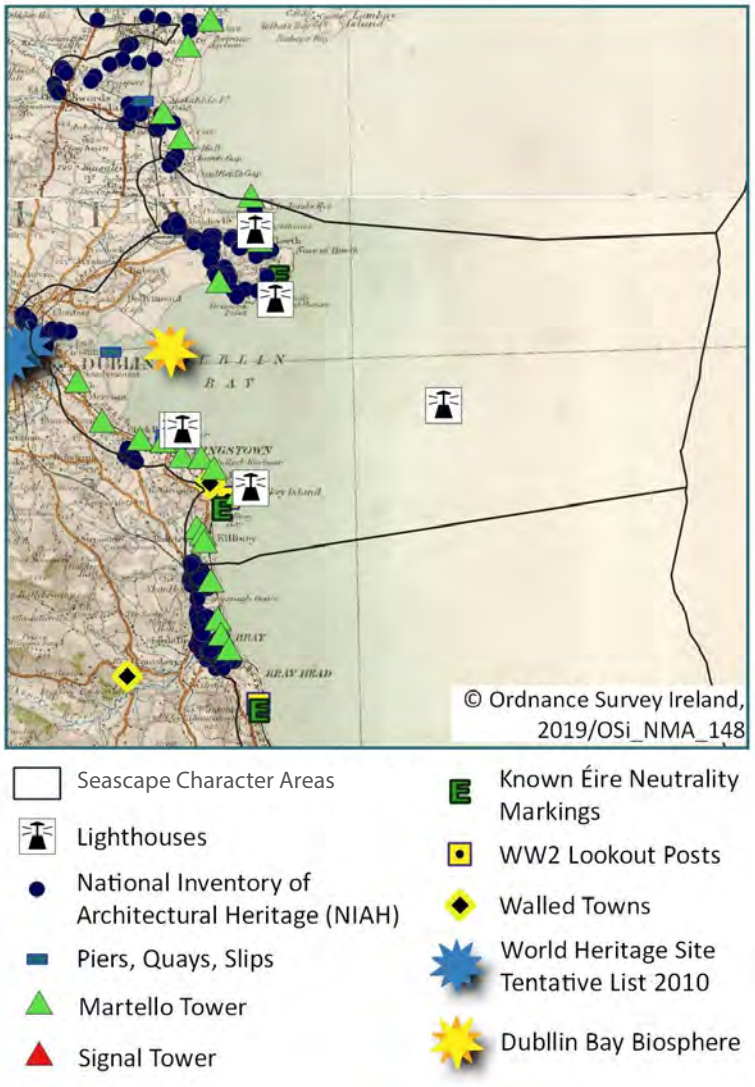
[12] Duffy, S. 2013 Brian Boru and the Battle of Clontarf. Gill & Macmillan. Dublin; McGettigan, D. 2013 The battle of Clontarf. Good Friday, 1014. Four Courts Press. Dublin; Clarke, H.B. and Johnson, R. (eds) 2015 The Vikings and Beyond: Before and After the Battle of Clontarf. Dublin: Four Court Press

[13] See Murphy and Potterton 2010, Dublin Region, pp. 264-283

[14] Ball and Hamilton 1895 The parish of Taney: a history of Dundrum, near Dublin and its neighbourhood. Dublin: self-published, pp. 8-9

accommodate larger vessels, and so the deeper waters of Dalkey, Dalkey Sound and Muglins Rock were used, and for a time the historic coastal town of Dalkey was the main port for Dublin. The Malahide estuary, Lambay Island and rocky inlets like Rush, Skerries and Balbriggan further north were also used.[15] Goods and people were then transported to Dublin centre in smaller vessels that could cope with the shallower waters. In the fifteenth and sixteenth centuries Ringsend (an unenclosed settlement or village perhaps in several clusters) took over as the deep water port for Dublin, with the deep pools at Clontarf and Poolbeg used for the berthing of vessels on the north and south sides of the estuary, respectively.[16] People were transported to Dublin centre from Ringsend in smaller boats or in horse drawn vehicles which could hold three passengers known as Ringsend Cars.[17] In the post-medieval period, from the seventeenth century onwards, larger scale works were initiated to create the Dublin Port that is known today.

The history and development of Dublin Bay is well-documented through the series of historic maps and sea charts. As Dublin city grew, the wide channel of the River Liffey's estuary was subject to several attempts to improve its navigation and access from the Bay into the city. The original port of Dublin, in use since medieval times and located in the Wood Quay area, was moved eastwards and down river towards the bay over time. The location of the modern Dublin port was open water for many centuries. De Gomme mapped this area in 1673 and showed a complex of sand flats, indicating that much of the estuary remained hazardous to shipping at that time. Various attempts to overcome these restrictions are also recorded and include the proposed, but never constructed, star-shaped fort at Ringsend. In 1707 the Ballast Office initiated large scale reclamation and dredging of the Liffey Mouth to improve navigation. The alignment of the spit at Ringsend explains the slight angle in what became the Great South Wall which was begun in 1715 and completed in 1795.



Dublin Bay and its Port

In 1757 Rocque created a map of the City Harbour and Environs. He illustrated both the vessels of the bay and the many sand flats which were hazardous to shipping, such as 'Brown's Patch'. He also recorded the navigation markers and buoys which highlighted the shallows on both sides of the channel as far as the eastern end of the Great South Wall completed in 1796, which replaced a timber pile construction. His map shows that the south side of the channel was being heavily developed at this time. The North Bull Light and Poolbeg Lighthouse were later to replace some of the buoys shown by Rocque. He also showed the oysterbeds at Clontarf. Reclamation works on the north and south side of the River Liffey are also in evidence on Rocque's map, for example, the North Lotts ending at the East Quay, which now corresponds with East Wall Road. Further east of this point was not yet reclaimed. The vessels shown by Roque were mainly deep-water types that would not have been able to travel into Dublin City. Smaller vessels were used for the task of transporting goods and people to the city from the port.

After Rocque, several surveyors in the late eighteenth, and into the nineteenth century in relation to the Ordnance Survey six-inch map series, created maps in an attempt to improve navigation in Dublin. The 1837 first edition six-inch map shows that reclamation works had begun on the seaward side of East Wall road, extending

[15] See Brady in Murphy and Potterton 2010, Dublin Region, p. 37

[16] O'Neill, T. 1987 Merchants and Mariners in Medieval Ireland. Dublin: Irish Academic Press, p. 152; De Courcy, J. 2000 Bluffs, bays and pools in the medieval Liffey at Dublin, Irish Geography, 33, 117-133; Brady in Murphy and Potterton 2010, Dublin Region, p. 37

[17] Lennon, 2008, Dublin Part II, pp. 6, 36

the port onto the mudflats. A Patent Slip is indicated which would in time accommodate a deepwater basin. Developments on the south side of the river were also shown such as the eastward extension of the Great South Wall terminating at the Poolbeg light house. Pigeon House Fort finished in 1800 and its harbour (1793) is also shown. By the 1907 OS map most of the deepwater port was established with maps indicating a shipbuilding yard, a graving dock and North Quay extension within the deepwater Alexandra Basin, while a breakwater with a lighthouse marked the eastern extent of the Basin and the port's entrance - The terminus. By the time of this map the south Pigeon House Harbour was infilled—yet another example of the reclamation of land from the water in this part of the SCA.

In the post-medieval and early modern periods, in addition to the augmentation of its port facilities through reclamation, quays, graving docks, and sea



Dublin Bay (Ruth Minogue)

walls, other features were added to the Dublin Bay area, such as a number of fortifications, such as batteries at Dalkey Island, Killiney, and along the South Wall near Poolbeg, which is now used as a swim club.[18] Dun Laoghaire saw some activity in the early medieval period, though its zenith was in the late eighteenth and nineteenth century when it had a popular Coffee House and its harbour was constructed for vessels that could not enter the port at Dublin. With the arrival of the railway it soon became a popular destination for day trippers and holiday makers.[19] The entire Dublin bay area was surrounded by Martello Towers in the nineteenth century in response to the French's military threat. Not all remain upstanding but they were positioned on Ireland's Eye, Howth, Sutton, Sandymount, Dalkey Island, Dun Laoghaire, and Killiney. There are also more everyday features of cultural heritage too, for example, the historic harbour, boathouses, boat turning station at Howth Harbour, and Dun Laoghaire, the coastguard station at Sutton, the dry docks of the Grand Canal and Dublin Port, Muglins, Bailey and Poolbeg Lighthouses.

As has been previously mentioned, the eastern coast of Ireland has been intensely used from at least the known historic period into present times and there is a very high density of wrecks in and around Dublin Bay, and near the harbours of Howth, Dun Laoghaire and Dalkey. North Bull Island and the off shore Maiden Rock, Baldoyle Spit, Bennet Bank, Burford Bank, Muglins Rocks, and Kish Bank have been hazards in the Bay from time immemorial. Kish has an iconic distinctive flat-topped lighthouse very familiar to sailors and ferry passengers leaving and entering Dublin Bay. Strong sea currents and winds in this SCA add to the risk of vessels being wrecked in and around Dublin Bay. There are 121 wrecks recorded with several types of vessels represented, dating from the beginning of the nineteenth century to the present day. As with the other SCAs these figures represent just a fraction of the number of vessels wrecked; shipwreck material and artefactual debris is regularly found in fishing nets and modern dredging activities in Dublin Bay.[20]

Contemporary

- Dublin Port is the busiest port in the country, accounting for almost 50% of the freight trade and is the busiest for passenger ferries - in 2019 it saw just under 2million passengers. It is used for freight, passenger and car ferries primarily, though recent years has seen an increase in cruise ships. Passenger ferries travel to the UK and France
- Sailing remains a popular activity, most notably associated with the National Yacht Club in Dun Laoghaire and the tradition of boats adapted from a Scottish Design – 'Water wags'. Clusters of sailing clubs and outdoor water based activities are present around Dun Laoghaire- Glasthule, and sailing clubs are located at Poolbeg, Clontarf, Sutton and Howth. Swimming in the bay has retained its popularity at traditional swimming locations.
- Howth harbour is the largest fishing port on the East Coast and is known for its fish, fish retailers, and fish restaurants including the well-known Wrights of Howth Fishmongers and Beshoffs Fish and Chips. At Dun Laoghaire, public realm works have enhanced the open space adjoining the East

[18] http://www.halfmoonscwaterpolo.com/history.html. Accessed 1 July 200
[19] Dun Laoghaire Harbour Company n.d. The Construction of Dun Laoghaire Harbour. Dublin: Dun Laoghaire Harbour Company. Available at: https://dlharbour.ie/wp content/uploads/2012/02/project_east_pier_construction.pdf. Accessed 1 July 2020
[20] Brady 2008a Inventory of Shipwrecks

pier which remains a very popular walking route. The restaurants and bars overlooking the harbour are well used; Teddys ice cream opposite the former baths (currently being renovated) has been selling ice cream overlooking Scotsman Bay since the 1950s. The National Maritime Museum is based in Dun Laoghaire.

- The bay area is the most densely populated part of Ireland, but the coast itself remains readily accessible for much of the urban population. The DART railway facilitates people's engagement to the coast and sea.

Art and Folklore

- A collection of Maritime Art is present in the National Maritime museum in Dun Laoghaire. Part of the historic art collection includes paintings both prior to, and after, the construction of the Refuge Harbour at Dun Laoghaire. Scenic paintings including the Baily at Howth Head and Killiney Bay, particularly watercolours are common.
- Una Sealy, RHA, is an artist based in Howth whose work frequently features the Dublin coast.
- James Joyce lived for a time in the Martello Tower in Sandycove, twentieth century writes such as James Stephens wrote about the Docks of Dublin.
- The contemporary response to the bay has included a campaign to prevent the proposed demolition of Poolbeg Towers and since then these have become a popular feature of art associated with and symbolising the bay.
- Dublin is one of 28 UNESCO cities of Literature

Perceptual Influences

Views and Vistas



River Liffey with Hapenny Bridge (Catherine Dunne)

- Key views are from the elevated heads that frame this SCA and allow long views along the coast north and south, into Dublin Bay and out to the Irish Sea.
- Long views northwards are possible under clear conditions from Howth Head and can extend to the Mourne Mountains at the horizon, a range of almost 70km as the crow flies.
- Equally panoramas from Killiney Hill are possible and considered in the design of such features as the Obelisk and Wishing stones atop Killiney Hill. Here again the eye is drawn south over Killiney Bay, northwards to Sorrento Terrace and Dalkey Island.
- Closer to the sea the promenades associated with places such as Clontarf and Sandymount, as well as the east and west pier at Dun Laoghaire and the South Wall offer closer views at sea level. The opening up of the East Pier Lighthouse during summer months allows for a contrast in views and experience between the more sheltered harbour proper and the seaward view from the eastern pier.
- The Dart (the Dublin Area Rapid Transit) trainline runs along the edge of the bay on the south side of the city from Booterstown to Killiney (and onto Greystones) offering commuters views across the water. From the headlands, notably Howth Head and Killiney Hill, panoramic views across the bay, along the coast and across the sea are dominant.
- Key vistas and landmarks associated with this SCA include the Poolbeg Chimneys, Howth Head, Killiney and Bray Head in the distance.
- Views from the sea to the land are possible via recreational and passenger boats; the Dublin Bay Cruise offers views across the bay from Dun Laoghaire to Howth. The Victorian frontage of Dun Laoghaire is eminent from the sea, with the newer Library referencing the Ferry in its structure. The views to and from the port are more industrial with the freight and container docks replaced the sea and the Kish Lighthouse further beyond the Port itself.
- Lighting: as the most densely populated and urbanised part of the country, lighting is considerable within this SCA associated with residential, transport, commercial buildings at the Docks and navigational tools.

Sounds and Smells

- Journalists[21] and James Joyce in Finnegans Wake discussed the smells of Dublin City though the opening line of Finnegans Wake refers to the coast also. The opening sentence states: "riverrun, past Eve and Adams, from swerve of shore to bend of

bay, brings us by a commodius vicus of recirculation back to Howth Castle and Environs."

- The tidal nature of the bay can result in iodine smells created by marine worms and algae; more recently there were complaints about odours associated with the wastewater treatment plant at Ringsend.
- Further up the Liffey, the smell of barley and hops at the Guinness Brewery is a very distinctive local feature.
- The gulls in and around the bay who can be heard screaming and swooping are a key characteristic of the area.
- Closer to the shore the waves can be heard, though from the elevated headlands they are usually too far away to hear the sound of waves.
- Fog horns, no longer active, were once an evocative sound for many Dubliners who associated it with the lighthouse of Dun Laoghaire.

Sense of Place

- Dublin Bay retains a strong sense of place although it includes several locally distinctive areas that contribute their own character.
- The capital city, seat of government, public administration and competing interests mean that a clear sense of place as defined by being coastal is likely contested.
- The SCA however has a clear physical boundary with the distinctive headlands that frame the bay and the close presence of the bay and sea to much of the coastline. The proximity of the urban areas to the seascape contributes to the sense of place.



Howth Harbour Dublin
(Image Courtesy of the National Library of Ireland)

[21] https://www.irishtimes.com/opinion/not-to-be-sniffed-at-frank-mcnally-on-the-disappearing-smells-of-dublin-1.3978808

4 Regional Seascape Character Areas

SCA16 - North Eastern Irish Sea Islands and Beaches



Portmarnock Beach (Catherine Dunne)



Summary Description

This SCA extends from Ireland's Eye and the coast north of Howth Head towards Carlingford Lough at Greenore, Co. Louth. It is a large SCA but the nature of the shallow coastline allows for good intervisibility between the southern and northern part of this SCA. This SCA comprises an interplay of SCT 8 (Low lying estuarine coastal plain with long narrow sandy beaches), SCT 7 (Broad estuarine bays and complex low plateau and cliff coastline) and SCT 12 (Shallow offshore waters) around the south.

Offshore seafloor depths drop gradually to 50m-70m below chart datum towards eastern limit of the SCA. East of Lambay Island the water deepens rapidly into the Irish Sea basin. Islands close to the shore are a characteristic of the southern part of the SCA, and include Irelands Eye, Lambay Island, Rockabill and Skerries.

In common with the other seascapes on the east coast of Ireland, considerable evidence remains of trading across the Irish Sea. The distribution of Roman material is particularly dense from the Liffey to the Boyne. It is suggested that the Roman cartographer Ptolemy named Howth and Lambay as Edros Hermos and Limnos[1]. Many of the coastal and sea names here reveal a Viking origin – such as Lambay (Ay = island in Norse) and Skerries. The proximity of this area to Dublin has meant it has functioned variously and in combination as a place of refuge (the islands in particular), source of food including fish, military defence and navigational importance.

Long narrow beaches are present within this SCA, including sandy beaches found at Velvet Strand, Portmarnock, Balcarrigh, Port Beach and Clogherhead and Gyles Quay . Where sandy beaches are present, these have historically been popular holiday locations and several include holiday homes/ mobile home parks. These include Blackrock with its promenade, beaches and watersports, Giles Quay and Bettystown. The coastal stretches extending north and south from the mouth of the River Boyne also host long, sandy beaches, backed by glacial outwash sediments and windblown sands. Raised beaches are a feature of the SCA.

The coast is also interspersed with much smaller scale sheltered harbours and bays, frequently sandy also –

[1] G Stout and M Stout. 1992. In Dublin: City and County, prehistory to present. Geography Publications



Skerries (Ruth Minogue)

these include Loughshinney, Skerries North Beach where the sandy beach extends into the fishing harbour. Other towns and villages retaining a fishing harbour include Skerries, Annagassan and Balbriggan. Clogherhead developed around the fishing industry and its harbour called Port Oriel was significantly expanded in recent years.

Coastal and inland topography is generally low in elevation in this SCA, except along the Cooley Peninsula, where elevations reach almost 600mOD. The coastal hinterland comprises several historic towns strung along the coast and estuaries, those closer to Dublin having expanded considerably in the past few decades. Coastal land use also includes agriculture including horticulture and tillage.

Main towns include Dundalk with its harbour and navigation points to guide boats int o the port through the north and south bull; other towns include Balbriggan, Skerries, Donabate, Malahide and Portmarnock. Drogheda is located some 4-5km further inland along the River Boyne.

Long views along the coastline and to the mountains of Mourne north and Howth Head, Bray Head to the south are a particular vista within this SCA. The islands close to shore such as the Skerries and Lambay draw the eye across the water and are distinctive shapes and form within the seascape. From the shorelines expansive open views are present. At the smaller harbours headlands can frame the view, comprising low cliffs these are a unifying feature in the view.

Boundaries and Location

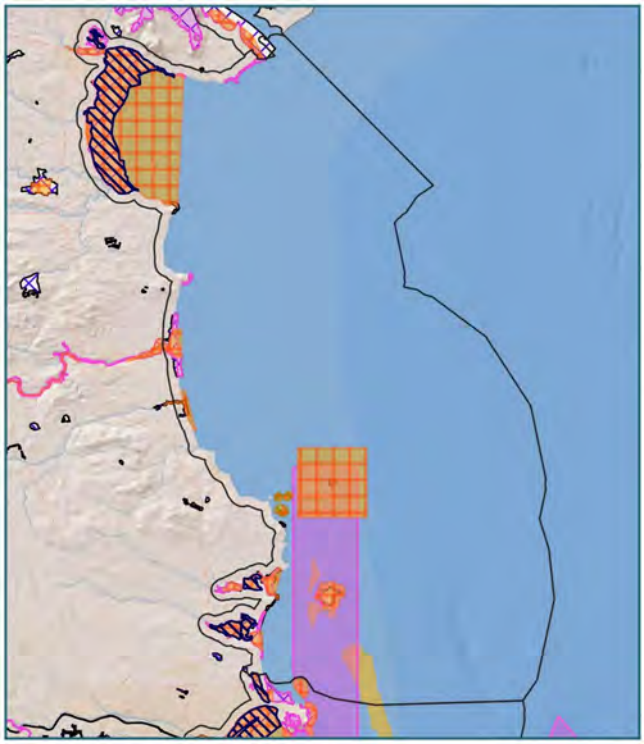
This SCA stretches from Ireland's Eye, north of Howth Head, towards Greenore at the mouth of Carlingford Lough; it extends 12 nautical miles. . This area includes a number of islands and rocks ncluding Skerries, Lambay, Rockall and Cardy Rocks. Dundalk Bay is the largest bay in the area; Heads and points include Clogherhead and Dunany Point, Cooley Point and Ballagan Point.

Key Characteristics

- Long, extensive coastline comprising gently indented bays and some large estuaries draining to the Irish Sea.
- Expansive character of seascape at height and at shoreline, with the long views to Mourne Mountains and Howth and Bray Head creating a sense of large scale seascape character.
- Where present islands concentrate the view to inshore and coast and include Lambay, Skerries, Irelands Eye and Rockabill.
- Extensive evidence of human activity and settlement within this SCA along the coast and across the Irish Sea.
- Strong influence of Viking and Norse within this SCA.
- Attractive series of medium/small scale harbours and fishing harbours with good examples of 18th and 19th century stonework at piers and harbours.
- Coastal fringe comprises small to medium sized towns, some within the commuter belt and historically developed as fishing villages.
- Dundalk Harbour, a wide and deep bay with an established port mainly dealing in bulk cargo. - Popular sandy beaches with supporting tourism accommodation and activities.



Malahide (Catherine Dunne)



Map 1:Natural Heritage

Natural Influences

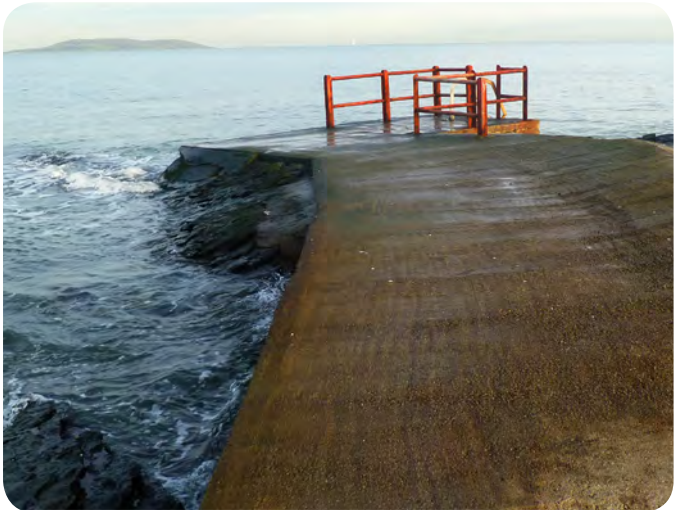
- This SCA comprises three main geological areas along its coastal fringe. Carboniferous limestone and shales occupy almost the entirety of the southern coastal stretch from Howth to Skerries. The Skerries to Laytown section is underlain almost entirely by Silurian age sedimentary rock, except for a central block of Ordovician volcanic rocks at Balbriggan. The Laytown to Termonfeckin section is Carboniferous limestone and shale, and is the site of the mouth of the River Boyne. North from Termonfeckin to Dundalk, the region is underlain by Silurian deep marine sedimentary rocks (mudstone, conglomerate, greywacke).
- The low-lying southern shore of the Cooley Peninsula sees more Carboniferous limestone and shale. However the montane topography of the Cooley Peninsula is Palaeogene-age granite, part of the Slieve Gullion Complex volcanic area that was active 60 million years ago.
- Offshore geology is consistent with the onshore rocky types, even for the isolated pockets of Ordocivan volcanics around Lambay Island and Balbriggan. Only the Carboniferous lithologies along the southern shore of the Cooley Peninsulas are limited to a distance of 2-4km offshore, thereafter Ordovician-Silurian geology predominates.
- Clogher Head is an important location owing to the spectacular folding structures, and the sites association with the closure of the Iapetus Ocean. Clogher Head lies south of the Tinure Fault, the local surface expression of the Iapetus suture, the line along which the Iapetus Ocean closed at the end of the Silurian.
- Dundalk Bay is wide coastal embayment, flanked on either side by bedrock headlands and incorporating wide expanses of coastal mudflats and intertidal sands. Freshwater feeds into the bay via the Glyde, Fane and Castletown rivers. The central portion of the bay comprises mud, silt and sand flats, which dry out at low tide. Shingle beaches are typical feature of the bay, occurring almost uninterrupted along the southern arcuate shore and along Cooley shore. The shingle is mostly stable, and is present on post-glacial raised beaches.
- Sand bar development has enclosed the north Co. Dublin shallow bays at Malahide, Donabate, and Portmarnock.
- Much of the SCA is subject to meso tidal ranges of >2m -<4m with Dundalk Bay the only bay along the Irish Sea that is subject to macro- tidal ranges of >4m. Water Framework Directive (WFD): Coastal waters are listed as Irish Sea (Dublin), North western Irish Sea, Rockabill, Boyne Estuary Plume Zone, Louth Coast, Outer Dundalk Bay, Mourne Coast. The following have an overall quality status – Irish Sea Dublin, good; North Western Irish, high; Boyne Estuary Plume, moderate; Outer Dundalk Bay, good.
- Lambay Island is internationally important for its breeding seabirds and is of particular note for the diversity of these, with 12 species breeding regularly: Fulmar, Cormorant, Shag, Greylag goose, lesser Black-backed gull, Herring gull, Kittiwake,



Giles Quay, Dundalk Bay (Ruth Minogue)

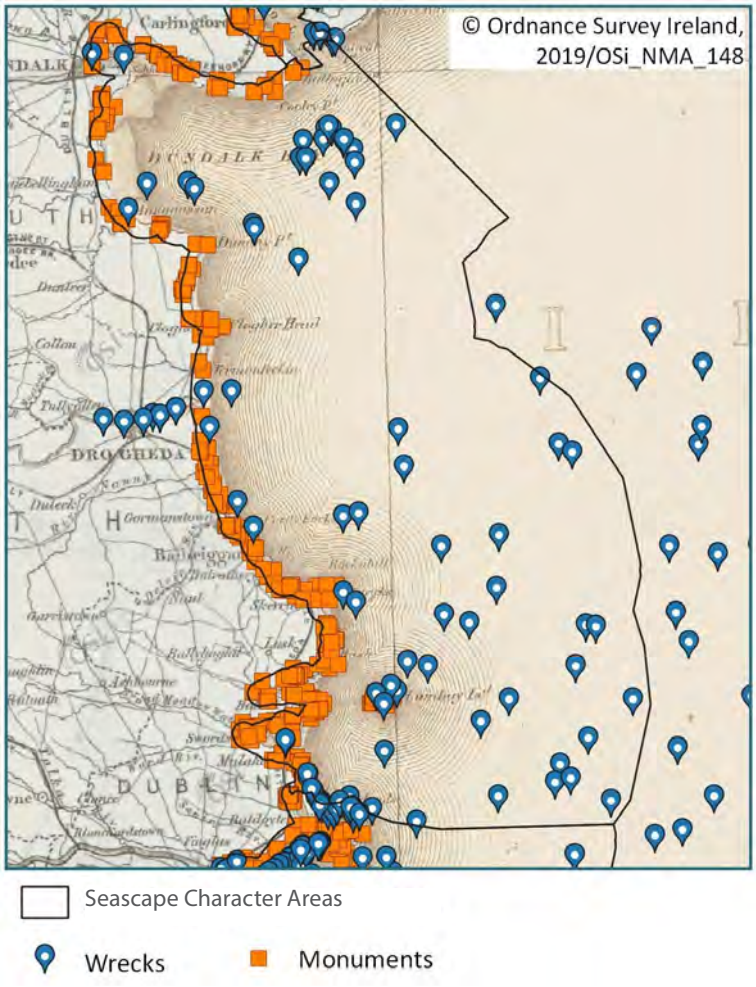
Guillemot, Razorbill and Puffin. Rockabill SPA is long known as an important site for terns. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: purple sandpiper, roseate tern, common tern and arctic tern.

- Rockabill has a long history of nesting by terns and it is now the most important roseate tern colony in Europe. Surveys of the foraging behaviour of the roseate tern population on Rockabill have recorded up to 73% of roseate terns foraging within 3.5 km of the islands. The seas surrounding the islands, to a distance of 3.5 km, are therefore included within the SPA to protect the foraging resource of this internationally important roseate tern population[2]. The Skerries Islands SPA is also of high ornithological importance for both breeding seabirds and wintering waterfowl. - Internationally important populations of breeding cormorant and nationally important populations of two other breeding seabirds occur on the islands.. Further north there is the River Nanny and Shore SPA, Boyne Estuary SPA and the extensive SPA associated with Dundalk Bay, one of the most important wintering waterfowl sites in the country and one of the few that regularly supports more than 20,000 waterbirds. Dundalk Bay is a Ramsar Convention site and parts of Dundalk Bay SPA are designated as Wildfowl Sanctuaries.
- The Rockabill to Dalkey SAC extends offshore to beyond the Skerries, designated due to presence of Reefs and Harbour porpoise. Similarly the estuarine habitats associated with the major rivers and Dundalk bay are designated as SACs.



High Rock and Lambay Island (Catherine Dunne)

Cultural and Social Influences



Archaeological and historical overview

This SCA comprises the stretch of coastline from Howth, Co. Dublin to Greenore, Co. Louth at the southern side of Carlingford Lough. It includes County Meath's coastline and Lambay Island, off Portrane and St Patrick's Island, off Skerries. It also encompasses historically important places such as the mouth of the Boyne River where it enters the sea at Bettystown to the east of Drogheda and, further north, the Cooley Peninsula.[3] This stretch of coast to the north of Dublin is notable for the preponderance of smaller harbours, sandy beaches and landing points, which have been used since at

[2] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004014.pdf

[3] Baker, C. 2010 Antiquities of Old Fingal: The Archaeology of North County Dublin. Dublin: Wordwell. There is as yet no published inventory of County Dublin, so the sites and monuments record has also been relied on. See https://webgis.archaeology.ie/historicenvironment/. Accessed 30 June 2020. Buckley, V. 1986 Archaeological Inventory of County Louth. Dublin: The Stationery Office. For an overview of shipwrecks of the area see Brady, K. 2008a Shipwreck Inventory of Ireland: Louth, Meath, Dublin and Wicklow. Dublin: Government of Ireland; 2008b Shipwrecks on the East Coast of Ireland. Archaeology Ireland Heritage Guide No. 42. Dublin: Wordwell

least early historic times. Archaeological evidence dating to the Mesolithic has been found on Lambay Island, at Skerries, in Barnageeragh townland through field walking, and at the middens at Rockmarshall and Dowdallshall, Co. Louth, which produced lithics dating to this period.[4] The Neolithic period is represented in the SCA by for example, a large lithic scatter which was recovered from Robswalls townland near Portmarnock which included lithics dated to the Neolithic and Bronze Age along with a stone axe. An axe factory site has been located on Lambay Island which dates to the Neolithic at least, and this activity represents just one period of this island's use over a long period of time. A house dated to the Neolithic period was excavated during works at the Rush and Lusk Waste Water Treatment Scheme overlooking the Rogerstown estuary.[5] There are also a number of megalithic tombs in the SCA. There is a court tomb at Rockmarshall, Co. Louth, and passage tombs recorded at Gormanston, Co. Louth, Rush and Knocknagin, Co. Dublin. There is an important passage tomb cemetery at Bremore, Co. Dublin where there are no less than five tombs and other associated later monuments.[6] Concerns were raised in 2009 regarding Bremore, as it lies immediately adjacent to a possible proposed site of a new deepwater port proposed at Balbriggan.[7] Many of the field systems recorded in the SCA may be prehistoric in date, particularly those in the vicinity of datable monuments, such as the passage tombs at Bremore.

The Bronze Age is represented by several fulachta fiadh all along the coast and four burnt mounds confined to the Dublin coastline. Funerary monuments dated to this period include the various types of barrows represented, which include ring barrows, for example on Lambay Island, and a number that are as yet unclassified, which may be of Bronze Age date.[8] There are eight coastal promontory forts recorded along this stretch of coastline; no fewer than three are on the relatively small island of Lambay. These have not been excavated but geophysical survey carried out by the LIARI project has indicated archaeological features lie within them. It is possible that these monuments were constructed or used in the Iron Age,[9] as is the case with the promontory fort at Drumanagh (see below). A mound barrow at Ninch, which was partially excavated was found to date to the Iron Age.[10] In the Iron Age, this SCA and its stretch of coastline was likely to be well-known to seafarers in at least the later prehistoric period well into early modern times. This part of Ireland was also close to the edge of the Roman World, indeed the Irish sea has been likened to the Mediterranean on several occasions.[11] Roman activity can be clearly identified at Drumanagh, one of the promontory forts along this coastline in county Dublin situated between Loughshinny and Rush. Eighteen Roman bronze coins among other roman-type artefacts have been discovered there. Recent work has suggested that it is a multi-period site; re-used over time due to its strategic position, which continued into the early modern period. It is possible that in the Iron Age Drumanagh was a trading post on the Irish Sea.[12] In Irish mythology, the Cooley peninsula was the site of the epic tale Táin Bó Cúailnge or the Cattle Raid of Cooley.[13] The early medieval period is represented by several earthen ringforts. Souterrains are particularly plentiful and there are no less than 33 within 1km of the sea. There are no cashels recorded which highlights the topography of the region. It is likely that some of the unclassified enclosures in the SCA may be ringforts, but this has yet to be proven. The famous Tara Brooch, an internationally important artefact dating to this period (seventh to eight century) was found on the beach at Bettystown in 1850. There is an ecclesiastical enclosure on St Patrick's Island surrounding the church there,[14] and another two ecclesiastical sites are recorded. Some of

[4] A radiocarbon date of 3520 ± 110 BC (I-5323) obtained from a charcoal sample from one of the middens at Rockmarshall. For references see Woodman, P.C. 1978 The Mesolithic in Ireland. British Archaeological reports (British series) 58. Oxford: Archaeopress

[5] Sherds of Neolithic carinated bowl pottery were recovered and charcoal returned a date of 3640-3520 cal. BC. The site was excavated by M. McQuade. Information from the ASI

[6] Rynne, E. 1960 Survey of a probable passage grave cemetery at Bremore, Co. Dublin. Journal of the Royal Society of Antiquaries of Ireland 90, pp. 79-81. Cooney, G. 2007 The Bremore Promontory—A Prominent and Persistent Headland in Fingal. Heritage Guide No. 39. Dublin: Wordwell

[7] Anon. 2009 News Item, Archaeology Ireland, 23(3), p. 4. See also Cooney, G. Making Choices, Taking Decisions. Archaeology Ireland, 22(2), pp. 8-9

[8] Cooney, G. 1993 Lambay: an island on the horizon. Archaeology Ireland 7(4), pp. 24-8; 2009, The prehistory of Lambay, a long view. In Baker, C. (ed.) Axes, Warriors and Windmills: Recent Archaeological Discoveries in North Fingal. Dublin: Fingal County Council, pp. 9-22

[9] Cooney 2009, The prehistory of Lambay; Cahill Wilson, J. (ed.) 2014 Late Iron Age and Roman Ireland (LIARI): Discovery Programme Reports 8. Dublin: Wordwell

[10] Sweetman, P.D. 1982-1983 Reconstruction and partial excavation of an Iron Age burial mound at Ninch, Co. Meath, Ríocht na Midhe: Journal of the Meath Archaeological and Historical Society, VII, pp. 58–68

[11] Condit, T. and Moore, F. 2003 Ireland in the Iron Age: Map of Ireland by Claudius Ptolemaeus c. AD 150. Archaeology Ireland Heritage Guide No. 21. Dublin: Wordwell. Squatriti, P. 2001 How the Irish Sea (May Have) Saved Irish Civilisation, A Review Article, Comparative Studies in Society and History, 43 (3), pp. 615-630. For perceptions on the Irish Sea, see Brett, D. 2009 A Book Around the Irish Sea. Dublin: Wordwell

[12] Baker, C. 2018 Conservation Study and Management Plan 2018–2023 Drumanagh Promontory Fort, Co. Dublin. Dublin: Fingal County Council. Available at: https://www.fingal.ie/sites/default/files/2019-03/Drumanagh%20Promontory%20Fort%20-%20Conservation%20Study%20and%20Management%20Plan%202018_2023r.pdf. Accessed 30 June 2020; 2019 Digging Drumanagh, Archaeology Ireland, 33(1), 26-29

[13] Gosling, P. 2019 The Route of Táin Bó Cúailnge in Counties Westmeath and Meath. Archaeology Ireland Heritage Guide No. 86. Dublin: Wordwell; 2015 The Route of the Táin Bó Cúailnge in County Louth. Archaeology Heritage Guide No. 69. Dublin: Wordwell

[14] Ryan, M., Mooney, K., Prendergast, F and Masterson, B. 2004 Church Island: a description. In Ailbhe Mac Shamhráin (ed.) The Island of St Patrick: Church and ruling dynasties in Fingal and Meath 400-1148, Dublin: Four Courts Press, pp. 106-24



Malahide Marina (Catherine Dunne)

the churches listed originate in this period; St Patrick's Island is dedicated to St Mochonna and the church on Lambay is thought to have been founded by a seventh-century abbot from Iona. St Patrick's Island is reputed to have been the location of St Patrick's landing in Ireland in about 432, where he remained for three weeks crossing to the mainland each day.[15] There are a number of coastal holy wells in this SCA and many of these may have originated in this period. Some of the twenty ring-ditches from the SCA may be funerary monuments of this period, or the Iron Age.

Like the Dublin Bay SCA, the Northeast Irish Sea has evidence of Viking activity and it is likely that this part of the coast was very familiar to the Norse seafarers. While material culture relating to the Viking is relatively sparse, there is evidence of influence, in placenames for example. The place name Fingal derives its name from 'fair stranger'. Skerries and Lambay are also thought to have a Scandinavian origin. Viking raids on St Patrick's Island have been recorded. In fact, the earliest Viking raid in Ireland in 795 AD was on a site called Rechru—some think this is Rathlin Island, Co. Antrim but others suggest than it refers to Lambay Island. Much of this part of the coastline, perhaps as far as the River Boyne was part of Norse Dublin's hinterland known as Dyflinarskiri.[16]

This SCA, like the others on the east coast, has been influenced by Anglo-Normans in the later medieval period. In this case, the historic walled towns of Drogheda and Dundalk lie outside the SCA as they are further than the 1km from the sea. Nevertheless, the sea's proximity to these towns would have helped their prosperity over time. For a time Drogheda even rivalled Dublin.[17] Early earthen castles in the form of mottes are known from the townlands of Ballymadrough, Castlecarragh and Mayne; and there are nine tower houses within the SCA. Malahide Castle is a good example, its tower house now largely masked by its eighteenth-century structure. There is one religious house recorded. In 1120, a priory of Augustinian canons was established on Inispatrick (St Patrick's Island), perhaps by a Hiberno-Norseman Sitric, before the coming of the Anglo-Normans. In 1148 a church synod was held on the island indicating the high status of this religious house.[18] In 1220 the community was moved to the mainland to a site at Holmpatrick, Co. Dublin. Gwynn and Hadcock note interestingly that its older name of Island of St Patrick was retained for a time despite being on the mainland.[19] A number of the unclassified enclosures likely represent some of the other habitations dating to the medieval period, as does the moated site on Lambay Island. The smaller harbours and bays along this coastline such as Clogherhead, Skerries, Balbriggan and the mouth of the Boyne River, for example, must have been very busy between fishing and trading vessels throughout the medieval period and into the post-medieval/early modern period.

Mornington, Co. Meath, which derives from the Irish 'Town of the Mariners', is a typical example of a historic fishing community and coastal village in this SCA. Located at the mouth of the Boyne River there are a number of cultural heritage features there which highlight Mornington's strong maritime connections. Its fisheries were based on salmon and mussel dredging. There are several historic beacons in the river between Baltray and Mornington but the most iconic of the monuments are the Maiden Tower and the Lady's Finger, which aided mariners entering the mouth of the River Boyne prior to the construction of seawalls in 1765. When the sailors on board had visually lined up both towers and the Lady's Finger was hidden from view by the Tower, they knew they were on a safe course to enter the mouth of the river. The Maiden Tower is known from at least the sixteenth century and is thought to have been named after Elizabeth I. The Lady's Finger appears to be later in date according to early mapping of the area. The town of Drogheda was granted control the Boyne and its fisheries in 1609. Traditional boat types are associated with this SCA. For example, Mornington was associated with mussel boats and smaller similar types were used for salmon fishing. Draft-nets were also used from the shore. Further north, Dundalk Bay Yawls were once common in Dundalk Bay along with 'salmon

15 Gwynn, A and Hadcock, R.N. 1970 Medieval Religious Houses Ireland. Dublin: Irish Academic Press, p. 193

16 Bradley, J. 1988 The interpretation of Scandinavian settlement in Ireland. In Bradley, J. (ed.) Settlement and Society in Medieval Ireland. Kilkenny: Boethius, pp. 49-78. Murphy, M. and Potterton, M. 2010 The Dublin Region in the Middle Ages: Settlement, Land-use and Economy. A Discovery Programme Monograph. Dublin: Four Courts Press

17 Thomas, A. 1992 The Walled Towns of Ireland. Volume 2. Dublin: Irish Academic Press, pp. 72-79; 93-98

18 Gwynn, A and Hadcock, R.N. 1970 Medieval Religious Houses Ireland. Dublin: Irish Academic Press, p. 193; Scantlebury, Rev. C.S. 1960 A tale of two islands (Dalkey Island and Inis Padraig). Dublin Historical Record, 15, pp. 122-128

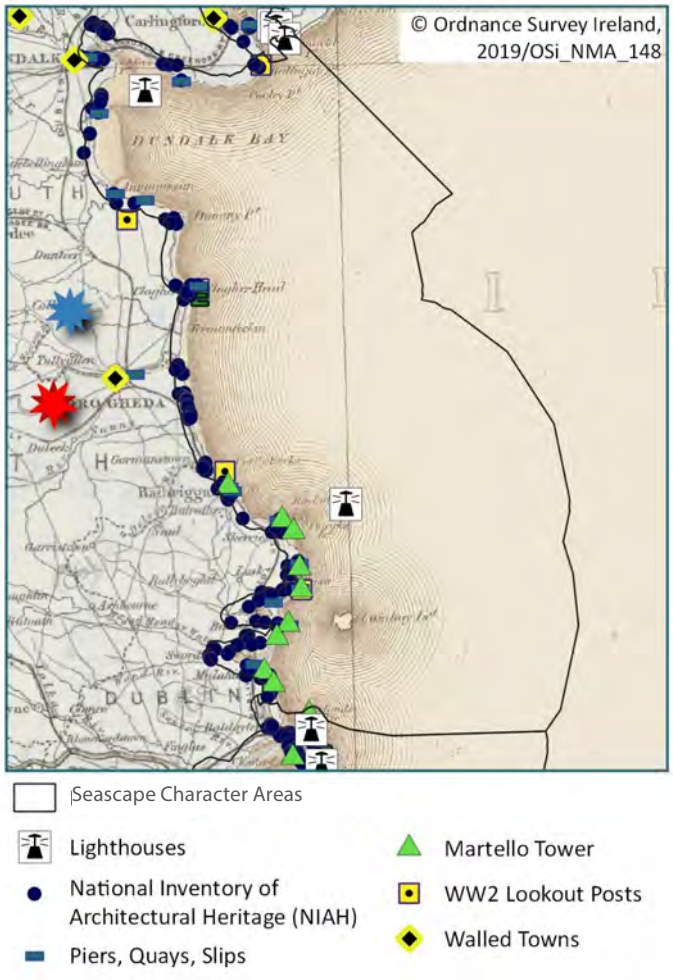
19 Gwynn and Hadcock, 1970 Medieval Religious Houses, p. 178

flats'—a flat-bottomed clinker-built boat. A type of currach was used in the Boyne River, particularly for the catching of salmon.[20]

Another very interesting small inlet in this SCA is Newhaven Bay near Bremore Head and the Cardy Rocks, which was identified in 2007 as being of archaeological significance that now has the remains of a pier and mooring stones. It is marked on the seventeenth-century Down Survey map. It is thought that Newhaven may be one of the oldest humanly-made harbours in the country that is still upstanding.[21] A settlement associated with Newhaven Bay is mentioned in the Civil Survey. The Cardy Rocks, which are just offshore near Newhaven Bay, are well-known navigation hazards, which have claimed numerous wrecks over the years, vessels that may have been trying to access Newhaven Bay. It is likely that at one time there were hundreds of these small harbours and settlements all around the coastline in the medieval to early modern periods.

Other historic monuments directly related to the sea in this SCA include no fewer than eight nineteenth-century Martello Towers of which seven have been rated as being nationally significant, for example, the tower on Shenick's Island. There are historic lifeboat stations and several lighthouses, one at Balbriggan and four clustered around the mouth of the Boyne at Mornington, illustrating the importance of the port at Drogheda. Rogerstown Pier, Rush, Giles Quay and Port Oriel, both Co. Louth are good examples of historic piers in the SCA. Five mills are recorded, one water and four windmills, showing the importance of wind power in this region in the post medieval and early modern periods.

As the coastline and sea has been used time immemorial, there is a high density of wrecks in and around this SCA. There are 73 wrecks recorded with several types of vessels represented, most dating from the beginning of the nineteenth century to the present day. Several were destroyed by submarines in world war conflict. The earliest wreck located is the prehistoric logboat known as the Gormonston Boat, after the strand on which it was found. It was recovered during the archaeological monitoring of dredging activity. It is a substantial seven-metre long sea-going craft and likely to be of Neolithic date.[22] As with the other SCAs these figures represent the minimum number of vessels wrecked; shipwreck material and artefactual debris is regularly found in fishing nets and modern dredging activities in this SCA.[23]



Contemporary

- This southern parts of this SCA is influenced by Dublin City and region, with several of the originally small towns seeing significant expansion in recent years. The town of Dundalk is influenced by its proximity to the border with Northern Ireland and experiences considerable cross border travel.
- The port of Dundalk remains under control of Dublin Port and fishing harbours are present at Clogherhead – seine fishing being undertaken and sold by a family run business at Clogherhead[24]. Dublin Bay prawns are also fished further offshore.

20 Mac Phibib, S. 2008 Traditional Fishing Boats of the River Boyne Estuary in Mac Cárthaigh C. (ed.) Traditional Boats of Ireland: History, Folklore and Construction. Cork: The Collins Press, pp. 411-414; McCarthy, C. 2008 Traditional Boats of Dundalk Bay in Mac Cárthaigh C. (ed.) Traditional Boats of Ireland, pp. 415-416; Hogan, J. 2008 The Boyne River Curach in Mac Cárthaigh C. (ed.) Traditional Boats of Ireland, pp. 439-447

21 Brady, K., Moore, F. and Condit, T. 2007. Newhaven—A Forgotten Harbour in Fingal. Archaeology Ireland, 21(4), pp. 8-11

22 O'Sullivan, A. and Breen, C. 2007 Maritime Ireland. An Archaeology of Coastal Communities. Stroud: Tempus, pp. 76-78

23 Brady 2008a Inventory of Shipwrecks

24 http://fishermanscatch.ie/

- Sea Angling with main fishing stations are Carlingford, Greenore, Ballaghan, Templetown, Cooley, - Gyles Quay, Blackrock, Annagassan, Dunany and Port Oriel. This area offers shore, rock and boat fishing and there are numerous species to be found.
- Sailing clubs are present at Malahide, Skerries, Rush and Carlingford. A new marina for yachts has been constructed west of Drogheda called Fiddle Case Pier.
- The coastal fringe and sandy beaches remain popular locations for day trippers, particularly from Dublin and Northern Ireland.

Art and Folklore

- Louth Craft mark Designers Network is a group of visual artists and makers based in County Louth. Members include chalk paint artist Patricia O'Kane who has painted shorelines, beaches and boats[25]. Mel Bradley, silk artist is also inspired by the sea[26].
- The sea off County Louth is called Muirtheimhne (the darkness of the sea).
- Skerries fisherman Anthony Fanning 2005
- 'if you mentioned the word 'pig' on a boat, or in the harbour, well, I was told years ago, the old lads wouldn't go out. If you mentioned it, the boat just stayed in for the day. Because it was supposed to be bad luck. Why, I don't know. That used to happen in Skerries, Loughshinny '
- This area is part of Ireland's Ancient East and is particularly associated with the Boyne Valley and the Táin Bó Cúailnge , the cattle raid of Cooley, an Irish epic tale.

Perceptual Influences

Views and vistas

- As the only significant headland between Howth to the Cooley peninsula, views from Clogherhead are expansive and long.
- Sunrises are a key view given virtually all beaches and heads front the east coast. The exception to this is Giles quay and views possible from southern shores of Cooley Peninsula west across Dundalk Bay that allows sunset views.
- Views for much of the coast are drawn to the distant hills and mountains north and south; this increases the sense of scale for this area.
- Key views of the nearshore islands (the Skerries Islands: Rockabill Island, St Patricks Island, Colt Island, Shenick Island) frame the vistas from towns such as Skerries and Rush.
- Lambay island (4 km off the coast at Portrane) provides a dominant focal point on the coast between Rush and Loughshinny. This island forms the most easternmost point of the Province of Leinster.
- Ireland's Eye, an island at the southern end of this SCA is a prominent coastal feature when viewed from the beaches of Portmarnock and Malahide.
- Where land is at, or close to, sea level such as southern area of the SCA, views across are drawn to the distinctive profile of islands; for example around Portmarnock.
- Views from the sea are possible from recreational and fishing craft. The Dublin Bay cruises offer trips from Howth to Irelands Eye

Sounds and Smells

- In the smaller bays and sheltered harbours, the smell of seaweed and mudflats create the distinctive iodine smell.
- These bays also commonly experience more lapping sounds of waves as the micro tidal range of waves ebb and flow.
- This contrasts with the more choppy waters that are present in and around the islands and east of Lambay where the sea floor drops quite quickly
- From elevated positions such as the upper wall of Giles Quay or Clogherhead the sound of the waves is stronger and more exposed.

Sense of Place

- This is an extensive SCA but the character is consistent at regional scale. Key to this is the gently indented coastline, framed by low cliffs that create localised headland views.
- The larger enclosure of this SCA is provided by the Mourne Mountains to the north, the head of Howth and Bray Head to south
- Consistency and sense of place is also created by the small to moderate sized harbours and bays and the many settlements that have historic origins and a clear relationship to the sea.
- The outward character of this SCA is consistent with the other Irish Sea SCAs, reflecting the long human activity and trade across the Irish Sea.
- Whilst urbanisation and changing working patterns have altered the functionality of the coast; this area remains highly engaged with the seascape with fishing, seaside towns and sailing all popular.

[25] https://www.pokane.com/

[26] http://www.melbradleysilks.com/Mel%20Site/Home.html



Harbour at Skerries
(Image Courtesy of the National Library of Ireland)

4 Regional Seascape Character Areas

SCA17 - Border SCA -Carlingford Lough



Carlingford Lough (Ruth Minogue)



Summary Description

The key characteristic of this SCA is created by the long sea lough of Carlingford. This local SCA extends across the international border towards the eastern shore of Carlingford in Northern Ireland.

The principal settlement is Carlingford town, an important medieval historic settlement; The placename Carlingford is clearly of Scandinavian in origin as the 'Fjord of Carlinn', and it is possible that the Vikings may have used the sheltered natural harbour of Carlingford as a temporary base.

As with the other border SCA, the close proximity to Northern Ireland ensures an interweaving of activities and close interactions. The shelter offered by the sea lough along the east coast of Ireland and adjacent to the busy Irish sea has resulted in a rich archaeological record.

Shellfish harvesting and cultivation is well established and given its proximity to the larger urban settlements of Dublin, Dundalk and Newry, Belfast, the SCA is a popular recreational and tourism area.

There are extensive mudflats and areas of saltmarsh supporting large numbers of wintering water birds.

Long views are possible from the headlands at the lough mouth, south and east across the Irish Sea. Land views are dominated by the Mourne Mountains further north with the summit of Slieve Donard in the distance. The Cooley Mountains present above the southern side of this SCA combine with the sea lough to create an attractive, highly scenic seascape.

Cross Border Consideration: County Louth shares its northern landwards boundary with Northern Ireland. The County also shares a large area of Seascape with Northern Ireland along the sea lough of Carlingford, that contains part of the international border. This SCA corresponds to SCA 20 Carlingford Lough in the Northern Ireland Regional Seascape Character Assessment.

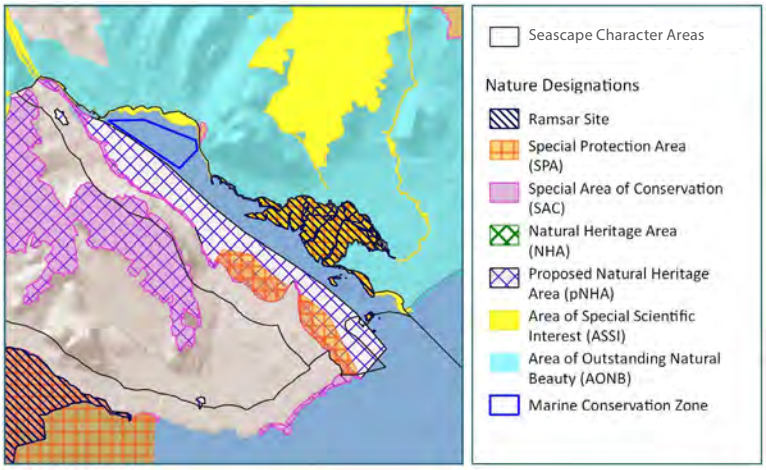
Boundaries and location

This SCA is relatively small comprising the stretch of coastline from Ballagan Point, Co. Louth to Cranford Point, Northern Ireland. This Border SCA encompasses Carlingford Lough, and includes settlements of Greenore, Carlingford, Omeath in Co. Louth. Settlements along the lough in Northern Ireland include Warrenpoint and Rosstrevor. A number of rocks front the entry to Carlingford Lough and include Cooley Long Rock, Goose Rock, Block House Island, and Haulbowline Rocks.

Key Characteristics

- A very distinctive and fine example of a glacial fjord (sea lough) that has long offered a haven from the choppier waters of the Irish Sea, where the changeable weather particularly in the northern part of the sea is well known.
- Where sheltered inlets are present, these are frequently wooded which contribute to an attractive and diverse landscape and seascape interface.
- A busy and active SCA, the Newry River/Newry Canal empties into the lough at the head of Carlingford Lough and links the lough to Newry, in Co. Armagh.
- Shellfish beds are numerous close to the shoreline of the lough with oysters, mussels and razor clams cultivated.
- Greenore and Warrenpoint are principal ports, in addition to freight and bulk cargo, a scenic ferry runs from Greenore, Co. Louth to Greencastle, Co. Down.
- The presence of marinas, jetties and water based infrastructure reflect popularity of the SCA
- The undeveloped headlands provide a more tranquil character.

Natural Influences

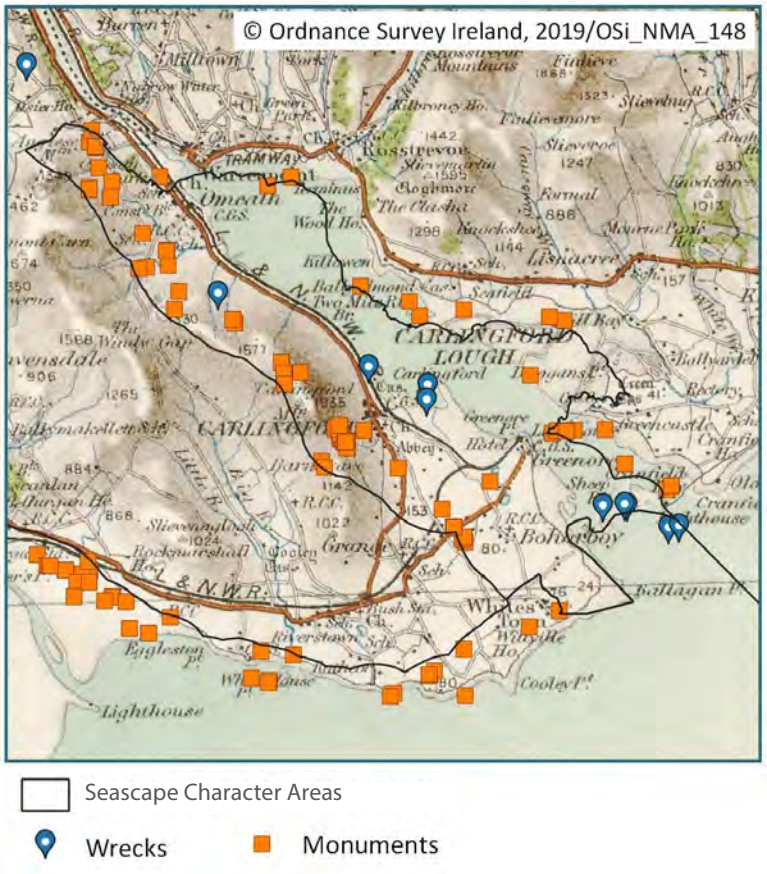


Map 1: Natural Heritage

- Carlingford Lough is approximately 15km long and is 2km-5km wide. Throughout repeated glaciations, ice sheet bedrock erosion sculpted the NW-SE valley along pre-existing geological structural weaknesses (faults) and between the igneous topographical highs of Slieve Gullion Co. Armagh/Cooley Mountains Co. Louth and Mourne Mountains Co. Down. When ice sheets retreated and sea-levels rose the valley flooded, creating the glacial fjord, or sea lough we see today.
- This SCA comprises three main types of bedrock geology along the coastal fringe of Carlingford Lough.
- Carboniferous limestone and shale occupies low-lying terrain at the end of the Cooley peninsula, roughly from Carlingford to Ballagan Point, and around to Dundalk Bay. These rocks are also found on the opposite side of the lough, SE of Greencastle.
- The coastal section from Carlingford, northwest to Omeath and the Northern Ireland border is Silurian deep marine metasediments (Longford – Down Inlier).
- The montane topography of the Cooley Peninsula is Palaeogene-age granite (Carlingford Igneous Complex) part of the region's Slieve Gullion Complex volcanic area that was active 60 million years ago. The complex makes up the central part of the Cooley Peninsula, forming the mountains of Slieve Foye, Barnavave, Slievenaglogh, and Slievestuckan.
- Seafloor geology is consistent with the onshore rocky types, with the Silurian lithologies dominant along the floor of the lough. Carboniferous lithologies occur around Greenore Point and Ballagan Point.
- Water depth varies between 2 m and 10 m, with narrow channels of 25 m depth running along the central axis of the sea lough. Shallow limestone reefs occur at the mouth of the sea lough near Haulbowline Rocks.
- On the south shore, intertidal sand and mud flats occur in the shallow nearshore areas from Carlingford to Greenore Point to Ballagan point, and along the inner lough from Omeath to the Newry Canal. Along the northern shore, more extensive areas of intertidal sand and mud flats and salt marshes occur around Rostrevor and Mill Bay.
- These habitats are important grounds for Light-bellied Brent Goose, as well as other waterfowl including Wigeon, Oystercatcher, Dunlin, Bar-tailed Godwit and Redshank with the intertidal flats important feeding grounds for these wintering birds. Carlingford Lough is designated as an Ramsar Site, SPA and Area of Special Scientific Interest. The relatively extensive expanse of eelgrass that grows on intertidal flats, particularly concentrated between Greenore and Carlingford Harbour are the main food source of the Light Bellied Brent Goose; Carlingford Shore has a wide diversity of habitats including very good examples of perennial vegetation of stony banks and drift lines. Grey seals also haul out on reefs between Greenore and Carlingford and a dolphin has become a permanent resident in the lough in recent years.

- Topography bordering the outer SE part of the SCA, and the area around Omeath is generally low in elevation. However the SCA is characterised by the montane topography framing the north and south shores. Along the Cooley Peninsula, elevations reach almost 600 mOD, whilst the Mourne Mountains to the north reach above 600 mOD.
- Water Framework Directive: This SCA comprises two coastal waters, Carlingford Lough and Mourne Coast, both unassigned currently. The SCA also experiences macro tidal waves of >4m.

Cultural and Social Influences



Map 2: Archaeological record including wrecks

Archaeological and historical overview

The earliest archaeological evidence in this SCA was found at Greenore where a lithic scatter comprising very water-rolled material was dated to the later Mesolithic and Neolithic by Woodman. The Bronze Age is represented by a single inland promontory fort at Ballinteskin recorded along this stretch. This site has not been excavated so it is possible that this monument was constructed or used in the Iron Age.[1] The early medieval period is represented by eleven earthen ringforts and a single unclassified ringfort. A number of enclosures may also date to sometime in the medieval period. Two souterrains are also present. There are no cashels recorded which highlights the general topography of the region. There is one ecclesiastical site at Cornamucklagh, close to the Newry River. It is recorded that this site was used as a killeen (children's burial ground) in the nineteenth century. There are two holy wells in this SCA; one in the Liberties of Carlingford, indicated on early mapping, and the other upstanding at the church and graveyard at Muchgrange, which is dedicated to St James. Vikings may have been in the area in the ninth to tenth centuries as there is a reference to Viking raids in the ninth century in the Carlingford area, but the site of any Viking settlement remains unknown. Thomas suggests that it was a base for Viking fleets.[2]

This SCA like the others on the east coast has been influenced by Anglo-Normans in the later medieval period and their focus lay at Carlingford. It is located at the foot of Slieve Foy along a narrow ledge of land where the mountain slopes meet the sea. By 1184 the Anglo-Normans were as far north as Carlingford and John de Courcy, claimed this part of Louth. In this year he gave the rights of the ferry at Carlingford to the Abbot of Downpatrick, indicating that the harbour or close by was already in use as a crossing point. First the stone castle was constructed by 1200 at a strategic location on the lough's shore to the north of the harbour, and the town sprung up around it. The port town's layout has a linear pattern forming a H-plan with a centrally placed market and to the east the harbour. It began to be enclosed with a town wall in the early thirteenth century and eventually enclosed an area estimated at almost 8 hectares,[3] though whether this extensive area was ever fully built up is unclear. It flourished as a medieval town and in the fifteenth and sixteenth centuries some of the wealthier townspeople constructed tower houses and decorated them in the architectural fashions of the time, for example, Taaffe's Castle and the Mint. Other medieval houses are also recorded in the town. The town had a parish church and a tholsel. It had a single religious house of the Dominicans in its southwest corner within the walls. This priory is thought to have been founded by Richard de Burgh in about 1305. Its remains consist of a nave and chancel church divided by a tower with possible parts of the domestic range. Interestingly, the two middens within the SCA are associated with later medieval and post medieval pottery and included limpet and periwinkle shells.

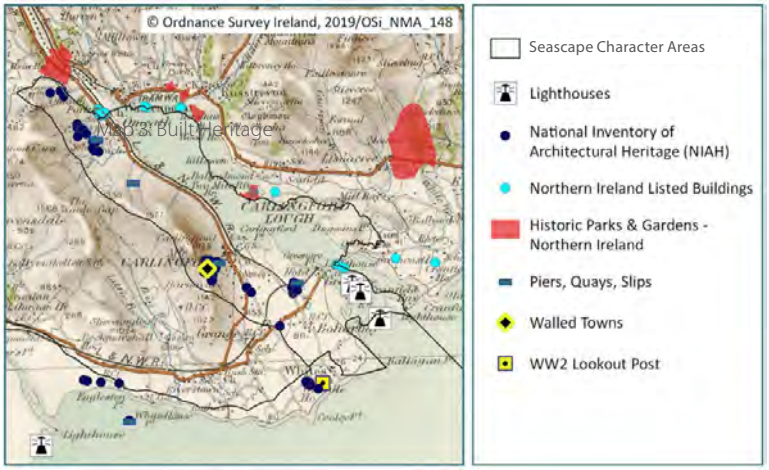
[1] Cahill Wilson, J. (ed.) 2014 Late Iron Age and Roman Ireland (LIARI): Discovery Programme Reports 8. Dublin: Wordwell

[2] Thomas, A. 1992 The Walled Towns of Ireland, Volume 2. Dublin: Irish Academic Press, p. 32

[3] Thomas 1992, pp. 32-34.

Carlingford's decline began in the post-medieval seventeenth century when in-land routes northwards through the Moyry Pass were opened; negating the previous coastal route via Carlingford. During the 1640s the town remained loyal to the Dublin administration but was taken by the Royalists in 1649; they surrendered to the Parliamentary forces some months later. It seems likely that as a result of Cromwellian confiscations many of the town's old families were dispossessed. The port was again used during the war of the two Kings (James II and William of Orange). In 1689 it was burned by the Jacobites in their retreating before the Williamite army and the harbour provided safe anchorage for supply ships for the Williamites. It also served as an intermediary hospital station for transfer of the sick and wounded Williamite soldiers to Carrickfergus. In the early modern period, the port of Carlingford continued with reduced trade in the eighteenth century and was mainly dependent on fishing and a new pier was erected. This saw an increase in trade in the nineteenth century when the produce of newly-opened local quarries on the south side of the town were exploited. A new pier—the present one—was constructed in the 1880s.

Other historic monuments directly related to the sea in this SCA include a pair of freestanding beacons, in the form of round towers, built in the 1880s, to assist navigation of the Newry River, which is tidal at this point, as it enters Carlingford Lough. There is also a boathouse in the harbour and two coastguard stations; one now Carlingford garda station and the other at Omeath. The lighthouse and lighthouse keeper's house at Greenore, although now disused for their original purpose are excellent examples of their type. Greenore also has an upstanding coastguard house. The two nineteenth-century piers at Carlingford harbour are also excellent examples of harbour infrastructure of the period, and like many are still in use. There are 7 wrecks recorded in the SCA with 2 of the 7 identified as a schooner and a steamship vessel. The northern shore of the SCA is within the Mourne Area of Outstanding Natural Beauty.





Carlingford Lough (Tourism Ireland, Chris Hill)

Contemporary

- Recreation and tourism play a significant role within the SCA with a number of marinas including Carlingford marina. Sailing clubs, jetties and slipways provide an important resource for water-based recreation.
- The Táin Trail walking route and longer cycling route extend around the Cooley Mountains and a Greenway utilises the former railway line between Omeath and Carlingford along the shoreline.
- Oyster and mussel harvesting are well established within this SCA.
- Two ports are present, a deep water port at Greenore, Co.Louth and Warrenpoint, Co. Down. The central channel is dredged to facilitate shipping access up the lough.
- A year round ferry for passengers and vehicles also operates from Greenore to Greencastle.

Art and Folklore

- In Irish mythology, the Cooley peninsula was the site of the epic tale Táin Bó Cúailnge or the Cattle Raid of Cooley.4
- Carlingford Lough was the location for another epic the fight between giants Fionn MacCuohall and Ruscaire.
- The Mournes and the adjacent Carlingford Lough were the inspiration for the mythic world of C S Lewis' Chronicles of Narnia.

Perceptual Influences

Views and vistas

- An active and busy seascape area, the long history of settlement and interaction of intertidal, sea and sloping mountains create a diverse seascape

- Although a relatively small SCA, the scale of the lough helps to create a more expansive scale and the backdrop of mountains and frequently wooded shorelines and slopes creates a highly scenic SCA.

- Long views across the Irish Sea particularly pronounced at the headlands of the lough are a key visual characteristic.
- Similarly from the elevated slopes of the Cooley and Mourne Mountains long views over the lough are key characteristics.
- At local level the interplay of smaller headlands and shoreline infrastructure adds visual interest and can shorten views along the shoreline
- Notable sea and landmark features include the Haulbowline Lighthouse separating Counties Louth and Down, Robert Ross Monument (Northern Ireland), King John's Castle at the shoreline of Carlingford Town and
- Lighting 5–. A necklace of settlements and the shoreline road present as glowing light along the shoreline.

Sense of Place

- The predominant character is expansive, but the area retains a very distinctive lough character, being framed by land on three sides.

Sounds and Smells

- At low tide, summer smells of seaweed and mudflats occur particularly around the exposed mudflats.



Carlingford Lough
(Image Courtesy of the National Library of Ireland)

[4] Gosling, P. 2019 The Route of Táin Bó Cúailnge in Counties Westmeath and Meath. Archaeology Ireland Heritage Guide No. 86. Dublin: Wordwell; 2015 The Route of the Táin Bó Cúailnge in County Louth. Archaeology Heritage Guide No. 69. Dublin: Wordwell

[5] lighting includes private houses, businesses, public lighting, road traffic, telecommunications infrastructure and the lighthouses

Geological term	Definition
Anticline	a structural geological term meaning an upfold of sedimentary strata in a linear arch shape.
Batholith	A large igneous intrusion (100 km^2 or more)
Bedrock	a general term for the rock, usually solid, that underlies soil or other unconsolidated, superficial material.
Blanket Bog	bog covering a large, fairly horizontal area, which depends on high rainfall or high humidity, rather than local water sources for its supply of moisture.
Bronze Age	This is a time period of later prehistory. It dates to c. 2,500–500 BC in Ireland. It is the period during which metals are first introduced; copper and then Bronze (alloy of copper and tin). It post-dates the Neolithic and predates the Iron Age.
Channel	a landform consisting of the outline of a path of relatively shallow and narrow body of fluid, most commonly the confine of a river, river delta or strait.
Dalradian	the Dalradian Supergroup in northwest Ireland and Scotland represents a variably deformed and metamorphosed late Neoproterozoic (~750–600 Ma) succession of marine shelf sediments, tillites, volcanics and turbidites.
Drumlin	a streamlined mound of glacial drift, rounded or elongated in the direction of the original flow of ice.
Dyke	a sub-vertical sheet-like igneous intrusion, typically in-filling a fracture in the earth's crust
Early Medieval	This is a time period of the Middle Ages. It dates to c. AD 400–1100 in Ireland. It is the period during which Christianity is introduced. The end of this period is called the Viking Age (c. AD8 800–1100). It post-dates the Irons Age and predates the Later Medieval Period.
Early Modern	This is a time period dates to c. AD 1800–1900. It is a period where industrialisation, globalisation and the wide-ranging effects of modernity were felt. It post-dates the post-medieval period and predates or continued into modern times.
Fault	planar fracture in rocks across which there has been some displacement or movement.
Fjord	a drowned glaciated U-shaped valley.
Fold(ing)	flexure in layered rocks caused by compression.
Formation	a formal term for a sequence of related rock types differing significantly from adjacent sequences.
Fluvial	pertaining to a river or stream.
Glacial	of or relating to the presence and activities of ice or glaciers.

Glaciofluvial	pertaining to the meltwater streams flowing from wasting glacier ice and especially to the deposits and landforms produced by such streams.
Glaciomarine	sediment, which originated in glaciated land areas and has been transported to the oceans by glaciers or icebergs.
Gneiss	a medium- to coarse-grained metamorphic rock, characterized by alternating light and dark bands differing in mineral composition.
Granite	a coarsely crystalline intrusive igneous rock composed mostly of quartz and feldspar.
Group	a geological unit, or succession, consisting of two or more formations.
Habitats	area in which an organism or group of organisms live.
Holocene	geological epoch dating from 11,700 years ago to the present day.
Iapetus Ocean	ancient ocean that separated NW Ireland (Laurentia) from SE Ireland (Avalonia). Ocean closed 480-430 million years ago, and closure zone in Ireland is marked by the Iapetus Suture).
Igneous	a rock or mineral that solidified from molten or partially molten material i.e. from a magma.
Interglacial	the time interval between glacial stages, or pertaining to this time.
Iron Age	This is a time period of later prehistory. It dates to c. 500 BC–AD 400 in Ireland. It is the period during which Iron is first introduced. It post-dates the Bronze Age and predates the Early Medieval period.
Karst	general term used for landscapes formed by weathering of soluble rocks, usually limestone, by surface water and/or groundwater.
Landscape Character Assessment	Landscape Character Assessment (LCA) is the process of identifying and describing variation in the character of the landscape.
Late Medieval	This is a time period of the later Middle Ages. It dates to c. AD 1100–1600 in Ireland. It is the period during which the Anglo-Normans arrived in Ireland in 1169. It post-dates the Early Medieval period and predates the Post-medieval period.
Limestone	a sedimentary rock consisting chiefly of calcium carbonate ($CaCO_3$), primarily in the form of the mineral calcite.
Lithology	the description of rocks on the basis of such characteristics as colour, composition and grain size.
Machair	a sandy grassland habitat, characteristic of the exposed coasts of the western seaboard of Ireland and Scotland.
Marine Spatial Planning	Marine spatial planning is a process that brings together multiple users of the ocean to make informed and coordinated decisions about how to use marine resources sustainably. It is a process by which the relevant public authorities analyse and organise human activities in marine areas to achieve ecological, economic and social objectives. A marine spatial plan – in Ireland known as the NMPF – is the outcome of that process.
Marram	a keystone plant species of sand dunes, with many other species dependent on its presence to stabilise the dune ecosystem.

Meltwater channel	a channel cut by glacial meltwater, either under, along or in front of an ice margin.
Mesolithic	This is a time period of early prehistory and the earliest evidence for Ireland's occupation dates to this time. People at this time are thought to have been nomadic. It dates to c. 8,000–4,000 BC in Ireland. It is a period when stone tools were used. It post-dates the Palaeolithic and predates the Neolithic.
Metamorphic	referring to the process of metamorphism or to the resulting metamorphic rock, transformed by heat and pressure from an originally igneous or sedimentary rock.
Mesoproterozoic	geological era that occurred from 1,600 to 1,000 Ma.
Metasedimentary	sedimentary rocks that have been subjected to alteration by metamorphism.
Neolithic	This is a time period of early prehistory. It dates to c. 4,000–2,500 BC in Ireland. It is the period when people first settled down and agricultural and megalithic tombs were introduced. Stone tools were used. It post-dates the Mesolithic and predates the Bronze Age.
Neoproterozoic	a geological era dating from 1,000 to 541 Ma.
Orogeny	the creation of a mountain belt as a result of tectonic activity.
Orthogneiss	a metamorphic rock that was originally an igneous rock (the protolith)
Outcrop	part of a geologic formation or structure that appears at the surface of the Earth.
Palaeoproterozoic	a geological era dating from 2,500 to 1,600 Ma.
Post medieval	This is a time period dates to c. AD 1600–1800 in Ireland. Its beginning is traditionally marked by the end of the Nine Years' War and The Flight of the Earls in the early 1600s. It post-dates the Medieval and predates the Early Modern period.
Pleistocene	*geological epoch dating from 2.588 Ma to 11,700 years ago.*
Psammite	*a term applied to metamorphic rocks derived from a sandstone (an arenaceous sedimentary) protolith. A quartzite, for example, is a quartz-dominated psammite.*
Quartzite	*a hard, metamorphosed sandstone, composed mostly of recrystallised quartz grains that are tightly interlocking. Quartzite is formed through heat and pressure usually related to tectonic compression.*
Ramsar Site	Ramsar wetland is a wetland placed under protection due to its international and ecological significance. The classifications of wetlands fall into three main classes, which include marine wetlands, artificial wetlands, and inland wetlands. These groups can be classified further according to the type of water such as the fresh, alkaline, saline, and brackish water.
Ria	partially submerged coastal valley, or drowned estuary
Sandstone	a fine to coarse sedimentary rock, deposited by water or wind, and composed of fragments of sand (quartz grains), cemented together by quartz or other minerals.
Schist	a medium to coarse grained rock, formed by the metamorphism of a sedimentary mudstone by heat and pressure. The minerals are aligned in parallel layers.

Seascape	A 'seascape' is 'an area of sea, coastline and land, as perceived by people, whose character results from the actions and interactions of land and sea, by natural and/or human factors.'
Seascape Character Assessment	Seascape Character Assessment is similar process to landscape character assessment that follows a methodology to identify, classify and describe seascape character at different scales.
Seascape character type	These are distinct types of seascape that are relatively homogeneous in character. They are generic in nature in that they may occur in different locations but wherever they occur they share broadly similar combinations of geology, bathymetry, ecology, human influences and perceptual and aesthetic attributes. For example, large bays, sea lough or broad estuarine bays are examples of seascape character types.
Seascape character area	These are single unique areas which are the discrete geographical areas comprising one or more component Seascape Character Types. Each has its own individual character and identity, even though it can share the same generic characteristics with other SCAs that are formed of the same SCT(s). Whilst sharing the same generic characteristics, each SCA has its own identity
Sea-stack	an erosional landform occurring on the coast; a vertical column of rock becomes isolated from the adjacent coastline.
Sedimentary	a rock formed by the deposition of sediment, or pertaining to the process of sedimentation.
Shale	A fine-grained sedimentary rock, formed by the compaction and lithification of clay, silt, or mud. It has a finely laminated (composed of layers) structure that gives it a fissility, or tendency to split along bedding planes.
Special Area of Conservation	The main aim of the Habitats Directive is to conserve the best examples of natural and semi natural habitats and species of flora and fauna throughout the EU. Each member state is required to designate Special Areas of Conservation to protect those habitats and species which are listed in the annexes of the Directive.
Special Protection Area	Special Protection Area under Birds Directive (79/409/EEC), designated for bird species listed in Annex I of the Directive, in particular internationally important concentrations of migratory and wetland birds. Designation is focused on habitats of these species.
Stratigraphy	the study of stratified (layered) sedimentary and volcanic rocks, especially their sequence in time and correlation between localities.
Sub-glacial bedform	term used for a range of longitudinal and transverse landforms formed at the base of an ice sheet as a result of ice movement across a sediment base.
Supergroup	a geological unit comprising two or more groups (a group comprises two or more formations).
Till	unconsolidated, unsorted glacial deposits consisting of boulders and cobbles mixed with very finely ground-up rock as sand, silt or clay.
Volcanic Rock	any rock produced from volcanic material, e.g. ash, lava.
Water Framework Directive	The EU Water Framework Directive (2000/60/EC) requires all Member States to protect and improve water quality in all waters so that we achieve good ecological status by 2015 or, at the latest, by 2027. It applies to rivers, lakes, groundwater, and transitional coastal waters. The Directive requires that management plans be prepared on a river basin basis and specifies a structured method for developing these plans.

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www.mariner.ie
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www.irishlights.ie
www.heritagemaps.ie

Managing Authority EMFF 2014-2020	Specified Public Beneficiary Body
Department of Agriculture Food & the Marine Clogheen, Clonakilty, Co. Cork, P85 TX47 Tel: (+)353 (0)23 885 9500 www.agriculture.gov.ie/emff	Marine Institute Rinville, Oranmore, Co. Galway, H91 R673 Tel: (+)353 (0)91 38 7200 www.marine.ie

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ANNEX A: EVOLUTION OF THE IRISH SEASCAPES

1.1 Introduction

This chapter describes the evolution of Ireland's seascapes in order to provide a context and historical narrative to today's seascape character. It provides an overview of the key natural and historical processes and activities that have created the seascapes and their character that we experience.

The chapter commences with the 'building blocks' of seascape and landscape – the geology and the geological processes that created the form and resources upon which nature and wildlife evolved and much later humans inhabited. The second part of this chapter provides a description of human activity and habitations in and around our seas and coasts. This presents the archaeological evidence in relation to the earliest human settlers in coastal locations and brings the story up to the latter part of the 20th century.

This chapter concludes with a short discussion on the more intangible cultural heritage associated with seascapes such as folklore, place names and creative response that imbue our perceptions and engagement with the seascapes that surround our island.

1.2 Overview

Ireland is a maritime island lying off the north-western European seaboard with a diverse coastline of almost 7,500km in length[1], and well over three hundred islands and rocks off its shores. It forms part of the Atlantic façade which stretches from Ireland to Portugal, Spain and northern Africa (Cunliffe 2001). The physical character of Ireland's coastal areas (onshore and inshore) exhibits a richly varied geology and geomorphology that is reflected in the topography, landforms, habitats, and settlements.

The influence and effects of the oceanic systems, coupled with the prevailing south-westerly weather systems, have had a significant effect on the development of the coast, as is evident on the map of Ireland. The long, incised bays and jagged promontories occupying the northwest, west and southwest coastal fringe of the Atlantic contrast sharply with the almost uninterrupted bow-shape of the Irish Sea coast. Ireland's southern coast, facing out to the Celtic Sea, shares elements of both of the aforementioned coastlines, hosting continuous shorelines, broken by intermittent estuaries and sea loughs.

Geological, geomorphological, ecological, climatic and oceanographic factors have all influenced the character of coastal areas and the environmental and economic resources they possessed. Both animals and people were drawn to the coast and sea to exploit these resources (for global context see Paine 2013). The uses of the sea and coast over time has helped form the country's incredible maritime cultural heritage (archaeology; architecture; and intangible heritage such as folklore) that gives it a uniqueness to the island of Ireland (Cooney 2003).

[1] This includes the Republic of Ireland and Northern Ireland.

1.3 Ireland: Physical Characteristics and Influences

1.3.1 Geology and Landform

Throughout the Holocene (11,650 years ago to present), the Irish coastline was subjected to transformation as a result of post-glacial rebound [2] and sea-level change, and prevailing marine and climate conditions. Throughout the glaciations and interglaciations of the Pleistocene (2.58 million years ago to 11,650 years ago), the present-day coastline was variably below sea-level or above sea-level, and for long time periods subjected to Arctic environmental conditions. Whilst the effects of sea-level change and glacial processes throughout the Pleistocene contributed to the development of the landforms and topography of the present-day coast, much of the evidence of the earlier (and older) environmental changes was obliterated and lost in later glaciations.

The coastline of Ireland is irregular in form, characterised by a bay-headland type configuration. Coastal settings include open rocky coast, bays and estuaries, drowned valleys, and raised shorelines. Coastal systems within these include those of cliffs, beaches and barriers (sand and gravel types), lagoons, dunes, machair (sand 'plains'), salt marshes, wetlands and mudflats. Bedrock geology (rock-type and geological structure) is a dominant control factor on much of the coastline. Several large bays and sea loughs occupy broad limestone areas (Clew Bay; Sligo/Donegal Bay) or the troughs of regional folds (Bantry Bay, Kenmare River). Landforms of harder and more resistant lithologies[3] protrude seawards, forming headlands (Howth Head, Dalkey Head, Carnsore Point, Southwestern peninsulas, Kerry Head, Hag's Head, Ceantair na nÓilean (Galway) to Iorras/Erris (Mayo), Ceann Ros Eoghain/Rossan Point to Inishowen). In low-lying coastal areas where bedrock elevation is near sea-level, geomorphology is characterised by Quaternary deposits (e.g. Clew Bay drowned moraine field, south Wexford lagoon coast, Irish Sea sand/shingle coastline from Wexford to north Dublin).

1.3.2 The Geological Character and Chronology of Ireland's Coastal Areas

Precambrian (before 541 million years ago)

The making of the island of Ireland and its coastal seascapes is a story that spans almost 2 billion years (Holland and Saunders 2009; Mitchell 2007). Ireland's oldest rocks on Inishtrahull, off Malin Head, formed originally as igneous rocks around ~1,800 million years ago. These Palaeoproterozoic rocks were subjected to a series of episodes of deformation and metamorphism, forming gneisses (coarse crystalline banded metamorphic rocks). The oldest rocks on the mainland (~1,750 million years) are the Palaeoproterozoic and Mesoproterozoic Annagh Gneiss Complex orthogneiss[4] rocks of the Mullet Peninsula and nearby Tullaghan Bay. A band of Neoproterozoic metamorphic rocks (Rosslare Complex) also occur in the extreme southeast, running from Kilmore Quay to Rosslare. Palaeoproterozoic, Mesoproterozoic and Neoporterozoic are commonly referred to as Precambrian. Across much of the northwest is a belt of metamorphic rocks called the Dalradian Supergroup. Dalradian rocks make up much of the coastal and inland areas of Inishowen to Bloody Foreland (with some exceptions), Gwebarra Bay to north Donegal Bay, northwest Erris (Mayo), Achill, and northwest Connemara. These rocks are also found in Antrim and Scotland, the name originating in the Dál Riada Gaelic kingdom of northeast Ireland and southwest Scotland in the Early Medieval Period.

[2] When the weight of ice on the underlying Earth's crust dissipates after glacial-retreat, land masses rise.
[3] Rock types
[4] metamorphosed igneous rock

During late Precambrian times, a wide ocean called the Iapetus[5] Ocean separated the continent of Laurentia (which included northwest Ireland) from the small continent of Avalonia (which included southeast Ireland). Avalonia itself was a volcanic arc that eventually rifted off the northern margin of Gondwana, a far larger continent.

As we shall see, the Iapetus Ocean plays a pivotal role in the geological story of Ireland. Sands, muds, limey-muds, igneous rocks and glacial sediments deposited off the Laurentian continent, between 800 and 600 million years ago, formed the Dalradian rocks. These rocks were subsequently metamorphosed and deformed (475-385 million years ago) by the Caledonian orogeny[6], an event that created metamorphic rocks from the sedimentary rocks, referred to as metasedimentary rocks. It is these rocks that now form some of the more dramatic sea cliffs, sea stacks and spectacular coastline features as found at outer Sligo Bay -the Stags of Broadhaven, cliffs of Sliabh League (Co. Donegal) and Loop Head peninsular.

Palaeozoic (541 to 252 million years ago)

During the Cambrian Period (545 – 495 million years ago), the Iapetus Ocean continued to open, reaching a width of ~5000km, similar to today's Atlantic Ocean. Sedimentary rocks from this period, deposited on a continental shelf off the Gondwana continent are found on the east and south east coasts for example at Howth Head, and Tramore Bay northeast to Cahore Point. These rocks include greywackes (Howth, Bray Head, Greystones, Cahore Point) and quartzites (Great and Little Sugarloaf, Co. Wicklow; Forth Mountain, Co. Wexford). Mudstones and siltstones formed at this time can be seen on the east side of Waterford Harbour at Booley Bay. Of international palaeontological significance, the Booley Bay rocks host Ediacaran fauna fossils, and are the youngest example of Edicarian fauna in the world, aged about 515 million years old (MacGabhainn, *et al.*2007). See Figure below.

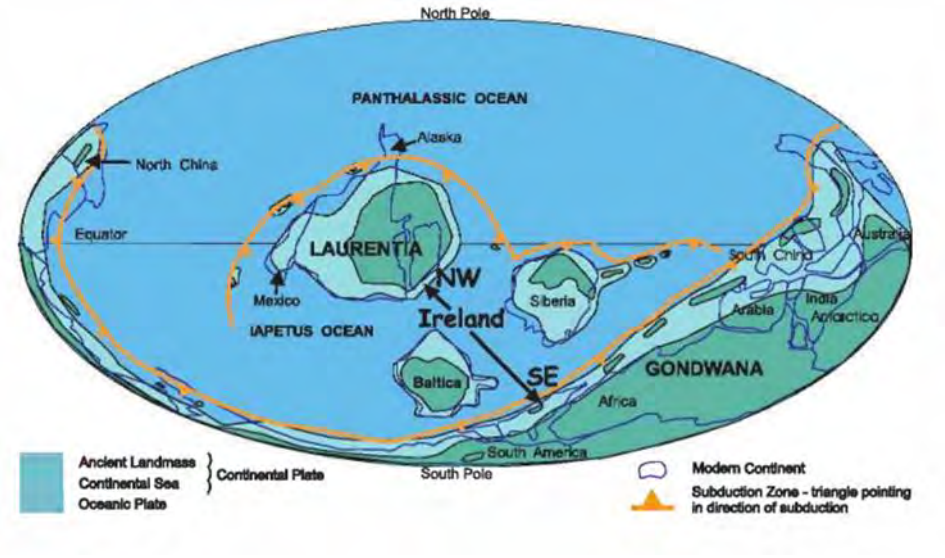


Figure1 Plate reconstruction for late Cambrian (Source: Sleeman at al. 2004)

The Iapetus Ocean began to close in Ordovican times, and the axis of the ocean ran northeast to southwest through what today is central Ireland. Remnants of the two opposing continents occupy the northeast and southwest of the present day island, with rocks of the Iapetus Ocean floor sandwiched between. The oldest Ordovician rocks (siltstones, mudstone, volcanics) on the Avalonian side are found along coasts of Waterford (Copper Coast, Stradbally to Tramore Bay), and

[5] father of Atlas in Greek mythology
[6] mountain-building event

Wexford/Wicklow (Cahore Point to Five Mile Point; Bray Head to Killiney). Mid-oceanic pocket of volcanics at found at Lambay Island, Donabate and Balbriggan. These volcanics record the volcanic activity associated with oceanic crust (Iapetus) sinking under continental crust (Avalonia) as ocean closed.

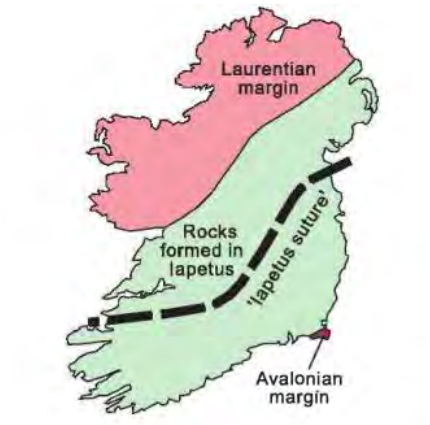


Figure -2 Location of the Iapetus Ocean 'suture' and the remnant blocks of the Laurentian and Avalonian continents (Source: Sleeman at al. 2004)

Continued deposition in the Iapetus Ocean in Ordovician and Silurian (443-419 million years ago) times formed the rocks found along the coastal stretch from Termonfeckin north to Dundalk Harbour, and on the southwest shore of Carlingford Lough. Termed the Longford-Down Inlier, these greywacke and mudstone rocks were deposited by deep marine currents and accumulated along the crustal plate margin where the Iapetus ocean crust sank beneath the Laurentian continental crust. A region of Ordovician-Silurian rocks comprise southwest Mayo seaboard (South Mayo Trough) from the southern Killary shore to Westport Bay. This complex assemblage of rocks formed in a variety of environments: on the seabed along a mid-oceanic chain of volcanic islands; a deep marine basin; shallow marine waters; and an arid playa-lake terrestrial environment.

Ordovician and Silurian rocks in Ireland are rich in fossilised marine fauna. On the Dingle Peninsula, a northeast - southwest oriented band of Ordovician rocks are found stretching from Annascaul offshore into Dingle Bay. Further west, an isolated inlier of fossil-bearing Silurian rocks occurs at the end of the Dingle Peninsula (Dunquin to Ferriter's Cove, and three Blasket Islands).

The collision of Iapetus Ocean island chains with continental margins, followed by contintental collision as the ocean closed is called the Caledonian Orogeny (mountain creation). This orogeny also saw the emplacement of the Caledonian granites (Galway Granites, Mayo Corvock, Mayo-Sligo Ox Mountains; Donegal Granites, Newry Igneous Complex, Leinster Granites, Carnsore Point) around 400 million years ago. Many of these 'granite' regions are comprised of igneous intrusive bodies (plutons) that were emplaced into the crust at separate episodes – and are collectively called batholiths (e.g. Galway Granite Batholith).

By the end of the Caledonian Orogeny, the basement terrane of Ireland had been assembled from the various crustal blocks that collided throughout the closure of the Iapetus. On a unified block of crust, well away from plate margins, the foundation was now laid for the deposition of terrestrial sediments of the Devonian Old Red Sandstones, the marine and terrestrial deposits of the Carboniferous, and the subsequent isolated areas of Permian bedrock and Palaeogene (Tertiary) igneous rocks

During the Devonian, Ireland was situated on the southern margin of a semi-arid landmass that experienced seasonal rainfall and flooding events. Erosion of the Caledonian mountain belt in the

northwest of Ireland provided sediment that was transported via rivers onto alluvial plains and wide deserts. The oxidised red and purple colour of the sediments attests to the arid climate that prevailed.

These Old Red Sandstone rocks are characteristic of the coastal landscapes of the southwest: the Mizen, Sheep's Head, Beara, Iveragh, Dingle peninsulas and Kerry Head. Across the south coast, from Baltimore to Dunmore East, belts of Old Red Sandstone shape the coastal geomorphology of most prominent headlands (Toe Head, Gallery Head, Seven Heads, Old Head, Robert's Head, Ballycotton, Knockadoon Head, Ardmore Head, Helvick Head, Ballyvoyle Head, Brownstown Head, and Creedan Head). In Donegal, an isolated patch of Devonian Old Red Sandstone is found on the south side of Ballymastocker Bay, Lough Swilly. During Silurian-Devonian times, plants and animals began to colonise land environments for the first time. In later Devonian times, tetrapod amphibians began to walk on land. Valentia Island, Co. Kerry hosts some of the best preserved and earliest known examples of amphibious tetrapod footprint in the world. The 200+ footprints were left by the creature as it made its way across a fluvial plain.

A terrestrial environment prevailed throughout the Devonian and into the Carboniferous in the northern half of Ireland, whilst in the south, marine waters began to flood onto land in late Devonian times. This northward inundation of land by the sea brought with it the deposition of the Carboniferous sedimentary rocks (sandstones, shales, limestones) that cover over 50% of the Irish landmass, as well as coal deposits from which the Carboniferous derives its name. Carboniferous rocks occur on various coastal sections around Ireland from Toe Head, Co. Cork, to Muff, Co. Donegal. There are few places along the Irish coast where one is more than 50km from a Carboniferous coastal section.

In early Carboniferous times, termed the Mississippian[7], as the sea encroached onto the land, sands and muds eroded from the Old Red Sandstone continent were deposited in environments ranging from estuarine and beach deposits to tidally influenced shallow marine settings. Hook Head (Co. Wexford) is one of the best coastal locations to see the transition of these environments in the coastal rock exposures.

As the sea transgressed northwards over Ireland, limestone formed in shallow seas, and shales were deposited in deep-water basins. The climate and setting during this period was similar to that of the Bahamas today. The warm seas teamed with marine life, with invertebrate animals in abundance. The calcium carbonate shells of these creatures supplied the source of the biogenic sediments that formed the lime-muds. These invertebrates included crinoids, sea-urchins, brachiopods, bivalves, coral and trilobites. Carboniferous coastlines, such as in Co. Wexford, Co. Clare and Co. Sligo, are excellent places to observe well-preserved fossils that lived over 300 million years ago.

Later Carboniferous times, termed the Pennsylvanian, are best represented on the west Clare coast and the western half of the Shannon Estuary. Bedrock along these coastal areas comprises black shale deposited in deep open waters. Repeated global changes in sea level during these times resulted in a varying environment of sediment deposition. Around Loop Head, thick sandstones formed in unstable deep water marine conditions, where currents were influenced by earthquakes. As sea-level began to rise, deltaic sandstones and mudstones were deposited into the sea by rivers flowing from the west. The rocks at the Cliffs of Moher and Bridges of Ross are the

[7] Early Carboniferous is termed Mississippian. Later Carboniferous is termed the Pennsylvanian.

best examples of these deltaic deposits. Carboniferous deltaic-sandstones are also found along the southwest shores of Lough Foyle (Muff and Quigley's Point).

During the late Carboniferous and early Permian, Ireland was subjected to another orogenic period known as the Variscan Orogeny. Whilst Ireland was not at the plate boundary, the effects of the crustal collision are evident in the topography across southern Ireland. Northward buckling and crustal folding formed the corrugated east-west trending Old Red Sandstone upland promontories and the drowned valleys (bays) of the southwest. The fold crest ridges (anticlines) are now mostly Devonian Old Red Sandstone. The valley floors (synclines) are mostly Carboniferous rocks. This topographical pattern is also mirrored, albeit less-dramatically along the east Cork coast, from Cork Harbour to Dungarvan. By the end of the Carboniferous, almost all the pieces of Ireland's[8] coastal geological jigsaw puzzle had been assembled.

Mesozoic (252 to 66 million years ago)

In Co. Wexford, an isolated section of Triassic (though possibly Permian) sandstone occurs on the coast, between Kilmore Quay, Bridgetown and Ballyteigue Burrow (bedrock can only be seen in borehole cores). Similar rocks of Triassic age are found offshore in the Celtic Sea Basin.

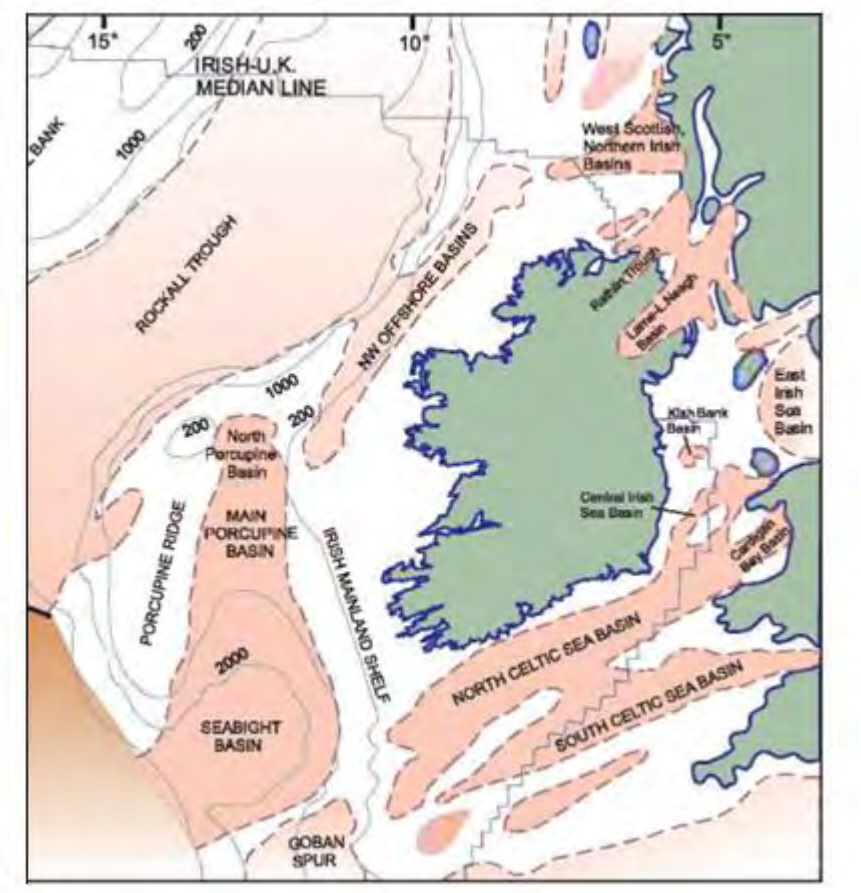


Figure 3 Mesozoic basins off the coast of Ireland (Sleeman ET AL. 2004)

Much of the island of Ireland throughout Triassic, Jurassic and early Cretaceous times (collectively termed the Mesozoic) was land, before marine deposition resumed again in late Cretaceous times, when warm shallow sea conditions prevailed. During late Cretaceous times, a warm shallow sea covered the Irish landmass. Chalk and white limestone (found today in the northeast) was

[8] The geological history of Northern Ireland continues throughout the Mesozoic and Cenozoic.

deposited in this shallow sea. This was the last major episode of marine environmental conditions covering Ireland's landmass.

Offshore seismic surveys have revealed sedimentary accumulations of Mesozoic rocks ranging from 3km to 9 km thick. There are around 2 km of Triassic beds in the Porcupine, northern Irish and Irish Sea basins, with thinner accumulations in the Celtic Sea basins. The offshore Mesozoic sediments host oil and gas reservoirs, the source material of which originated in the organic material in Jurassic shales.



FIGURE 4 OIL AND GAS FIELDS AND OFFSHORE BASINS (SLEEMAN ET AL. 2004)

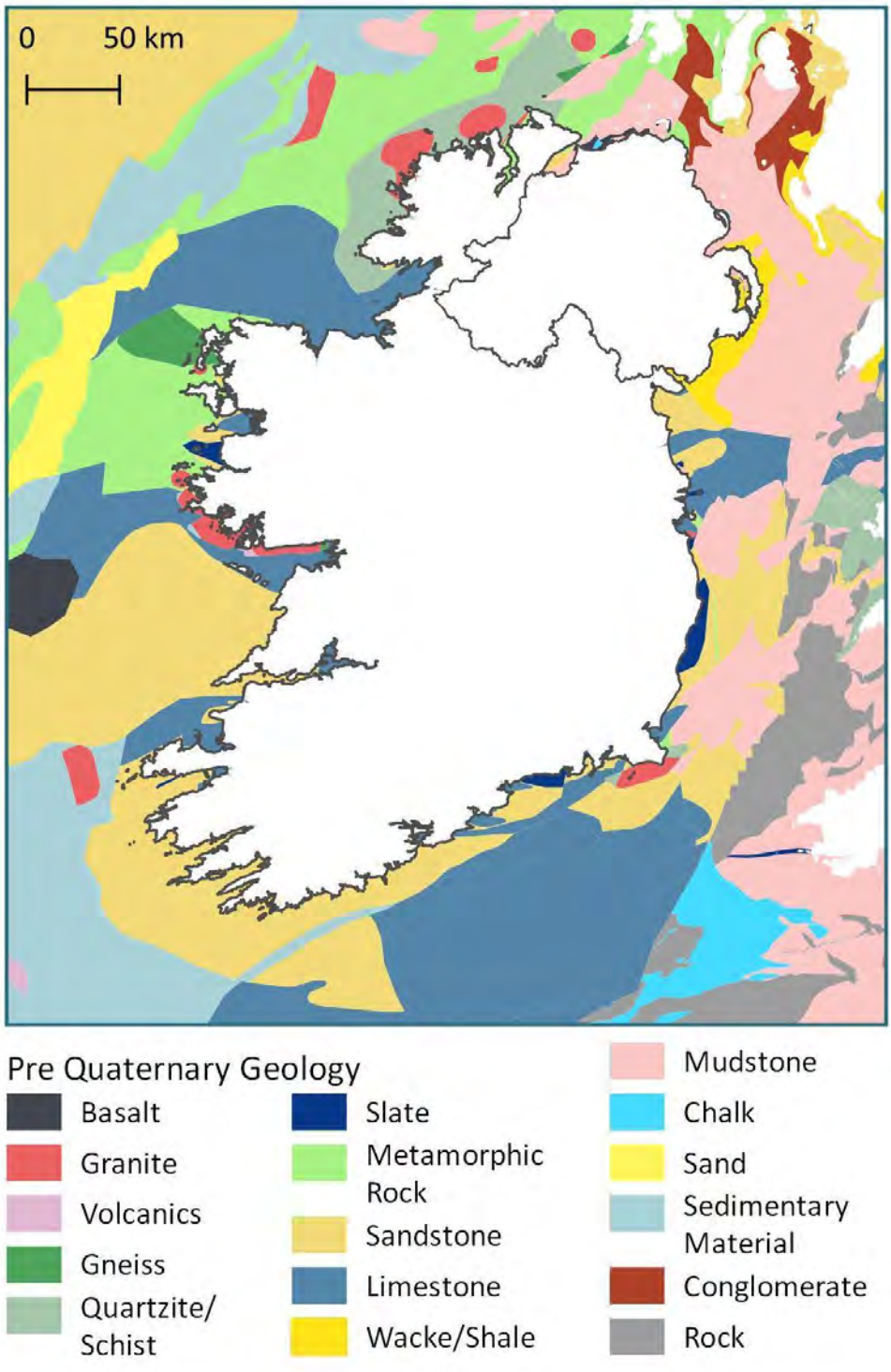
Cenozoic (66 million years ago to present day)

Around 60 million years ago, the North Atlantic Ocean began to open, causing Europe and North America to begin the divergence that continues to this day. Episodes of crustal rifting were accompanied by significant episodes of volcanic activity. This activity is best represented by the Antrim basalts of Antrim (e.g. Giant's Causeway). Minor intrusions of magma are also visible as dykes on coastal sections around Killala Bay; northwest Donegal; and the Cooley Peninsula. Hot magma rose up along fractures and cracks in the crust, and when the magma cooled and hardened as vertical sheets or dykes of dolerite baking the adjacent bedrock as it cooled.

The present landmass of Ireland was land during Paleogene and Neogene times (traditionally referred to as the Tertiary). There are no significant Paleogene deposits recorded along coastal areas of the Republic of Ireland.

During the 63 million years of a terrestrial, temperate climate that followed the Cretaceous marine conditions, weathering and erosion dominated the development of the landscape. This is the landscape upon which the Quaternary glaciations left their mark.

FIGURE 5 PRE QUATERNARY GEOLOGY



Quaternary (2.58 million years ago to present day)
Ireland has experienced repeated glaciations over the past 1.6 million years, when ice has extended across much, or all of the country, and further offshore. Ireland's coastal landscape

topography inherits a form shaped most recently by the glacial-interglacial episodes of the Pleistocene (pre-11,650 years ago), and subsequent relative and eustatic[9] sea-level change during the Holocene (last 11,650 years), each of which is occupant on a landscape that was largely established during the millions of years of pre-Quaternary times.

During the last great advance of ice, the last Irish Ice Sheet (IIS) extended offshore around the entire coast between 27,000 and 24,000 years ago. In the west and northwest, shelf-edge moraines and moraines such as the Donegal Bay Moraine (dated to 18,000 years ago) mark the extent of the ice margin. On the east, the IIS coalesced with ice from Britain in the Irish Sea, from where the Irish Ice Sea Stream extend southwards to the Celtic Sea shelf. The ice margin receded to present coastline by ~20,000 year ago, though later re-advances did occur. (Ballantyne and Cofaigh 2017). Coastal regions were eventually deglaciated by ~ 15,000 years ago, and were left with subglacial bedforms such as drumlins and ribbed moraines, many of which were drowned or partially eroded as sea levels rose. Deglacial features such as glaciofluvial terraces, hummocky moraines, hummocky sands and gravels, and moraine ridges are found within a 5 km distance of the coast (Meehan 2017).

Relative sea-level change was a persistent phenomenon throughout the Quaternary, and relict shorelines are a characteristic feature around the coast. Erosional features such as terraces, platforms and scarps cut into the rock or glacial sediments. Depositional features include elevated sand and gravels with marine shelly material occurring on raised beaches. The Courtmacsherry raised beach section in Co. Cork is a well-known example of a pre-glacial shoreline. Edwards and Craven (2017) provide an overview of the pre-glacial, late-glacial and post-glacial (Holocene) shorelines of Ireland.

The legacy of the Pleistocene glaciations is evident in the surface cover around coastline, where till or boulder clay blankets much of the bedrock and makes up the much of subsoil, surface soil and sediments.

1.4 Soils

The surface cover in Ireland is dependent upon bedrock geology, glacial deposits, climate, vegetation, altitude, landform shape and human management over time. Soils in coastal regions are a result of changing climatic conditions dating from the glacial-interglacial and post-glacial periods of the last 100,000 years and the management of land by people. The original An Foras Talúntais soil survey took place between 1950s and 1990s and covered almost half of Ireland. More recently, the Irish Soil Information System (ISIS) project produced a national soils map at the 1:250,000 scale (http://gis.teagasc.ie/soils/). Soils types around the coast vary from highly fertile soils such as in the southeast, to thin poorly fertile soils such as those found on the western seaboard.

[9] worldwide changes in sea level caused by the melting of ice

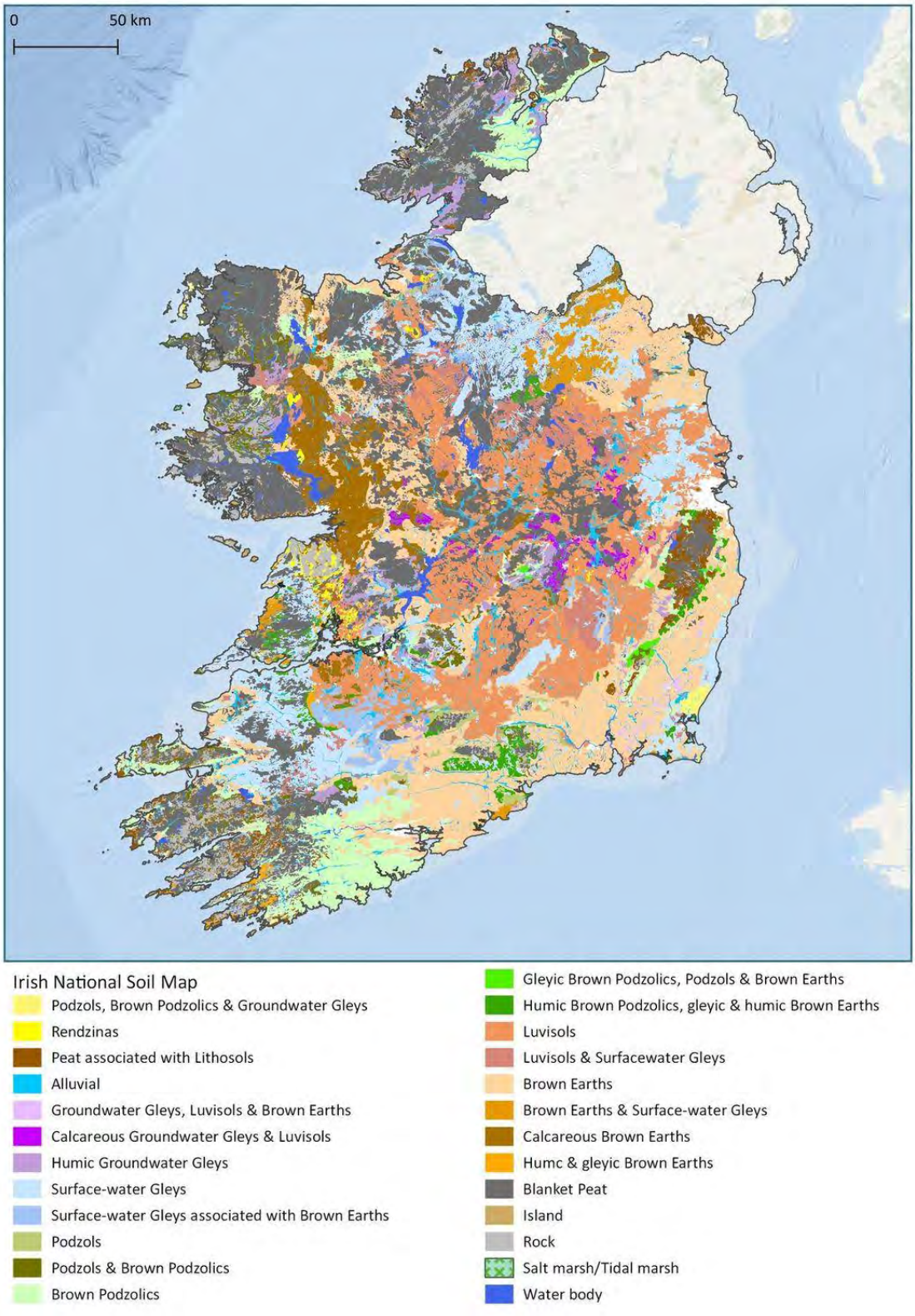


Figure -6National Soil Map of Ireland (Source: EPA-Teagasc)

1.5 Bathymetry

Ireland's marine territory extends far beyond the coastline, with much of it far beyond the extent of our vision. At approximately 880,000km^2, Ireland's seabed territory is more than 10 times the size of the island landmass. Until the early 2000s, an understanding of the physical and geochemical character of Ireland's offshore seabed relied on isolated pockets of data gathered from lead line surveys (mid-1800s onwards), and specific surveys (seismic work and well drilling) conducted for petroleum exploration from the 1960 and 1970s onwards (Robinson and Riddihough 1975, Naylor et al. 1975, Shannon, Corcoran and Haughton 2001).

Data gathered in the past 20 years on marine surveys such as the INFOMAR programme have provided a detailed insight into the physical, chemical and biotic nature of the inshore zone[10] . Surveys and studies of coastal habitats, landforms, and processes carried out over a more extensive time-period, have produced a wealth of reports and academic literature are available. Reports are available from NPWS relating to sea cliffs (Barron 2011, Browne 2005), coastal monitoring (Ryle 2009), sand dune habitats (Delaney 2013), and saltmarsh habitats (McCorry and Ryle 2009), in addition to a series of reports on coastal, inshore, and offshore Natura 2000 sites. The *Atlas of the Deep-Water Seabed: Ireland* (Dorschel, B. 2010) presents the major features revealed by the Irish National Seabed Survey (INSS) deep-sea mapping surveys along the continental margin of the North-East Atlantic.

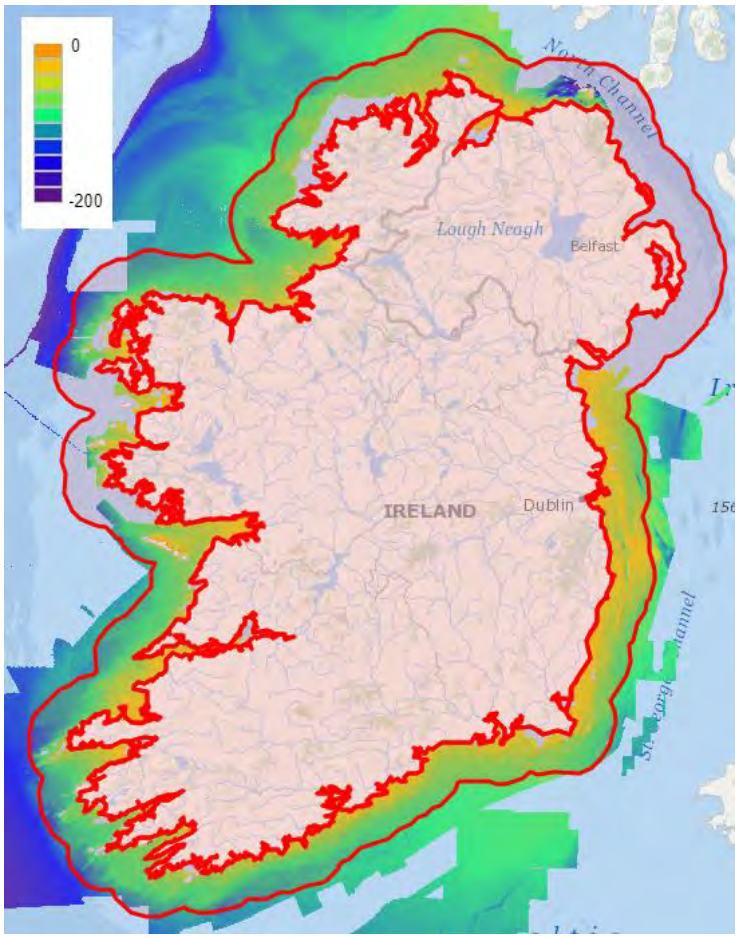


Figure 7 **INFOMAR Bathymetry map showing offshore depth to 200 m and 22km buffer zone.**

[10] (www.infomar.ie/rd-and-education/publications).

1.6 Seabed Sediments

Offshore seabed substrate is classified as mud-muddy sand; sand; coarse substrate; mixed sediment and rock/boulders (EMODnet Folk 5 class classification). Seabed sampling surveys reveal rock/boulders, coarse sediment and sand are prevalent in western waters; rock/boulders, sand, and mud in southern waters; and a mud/sand/coarse substrate sediment in the Irish Sea floor. Extensive sand aggregate deposits occur on beaches and in waters of the northwest, southwest, southeast and east coasts (Fig 8). Aggregate deposits comprise near-shore deposits of non-metallic detrital minerals and calcium carbonate. The deposits are concentrated into their present occurrences by hydrodynamic processes. Offshore seabed sediment deposits most likely originated from glacial and glacio-fluvial processes, when ice sheets extended offshore in all sectors around the island. Nearshore solid rock areas generally reflect proximal coastal bedrock characteristics.

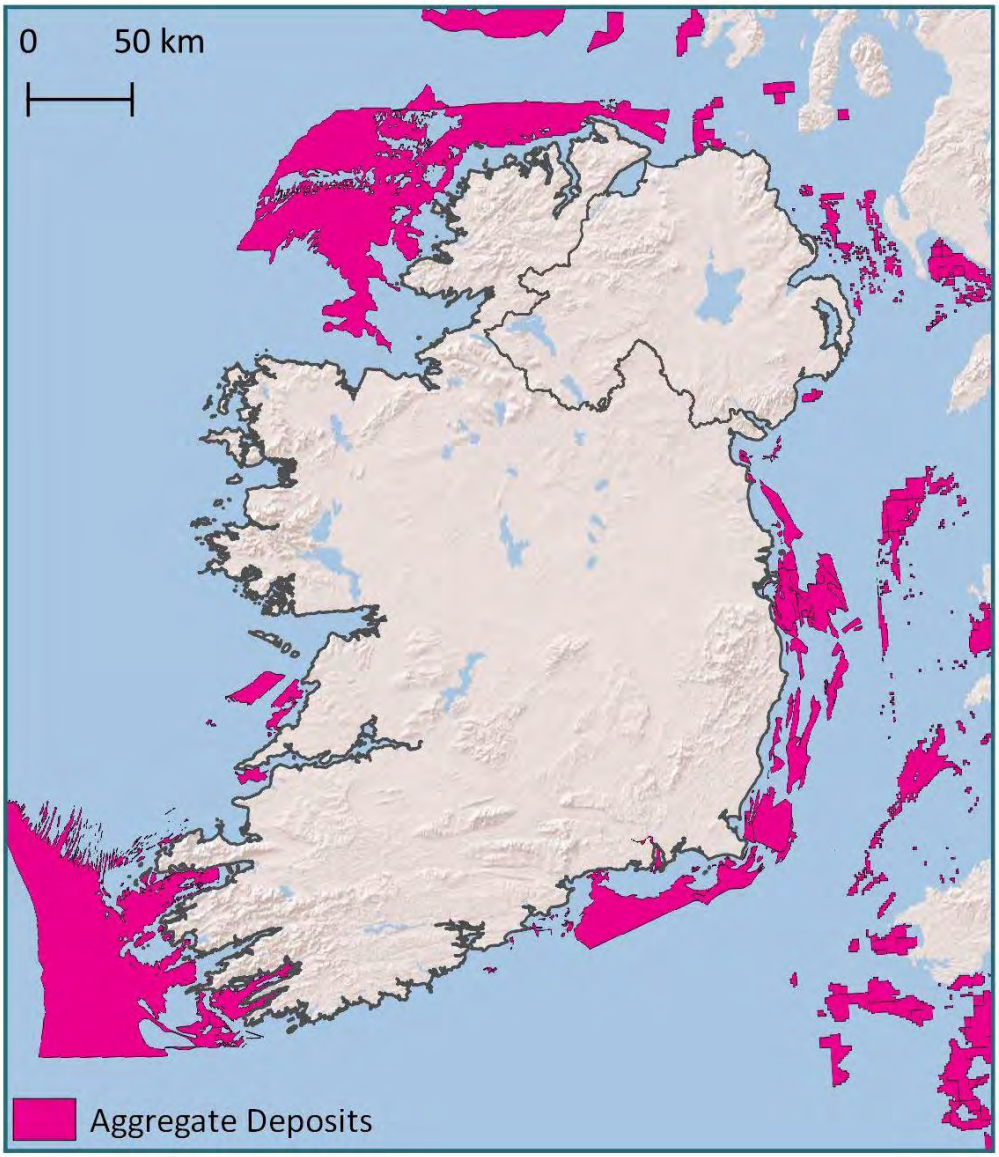


FIGURE 8 AGGREGATE DEPOSITS

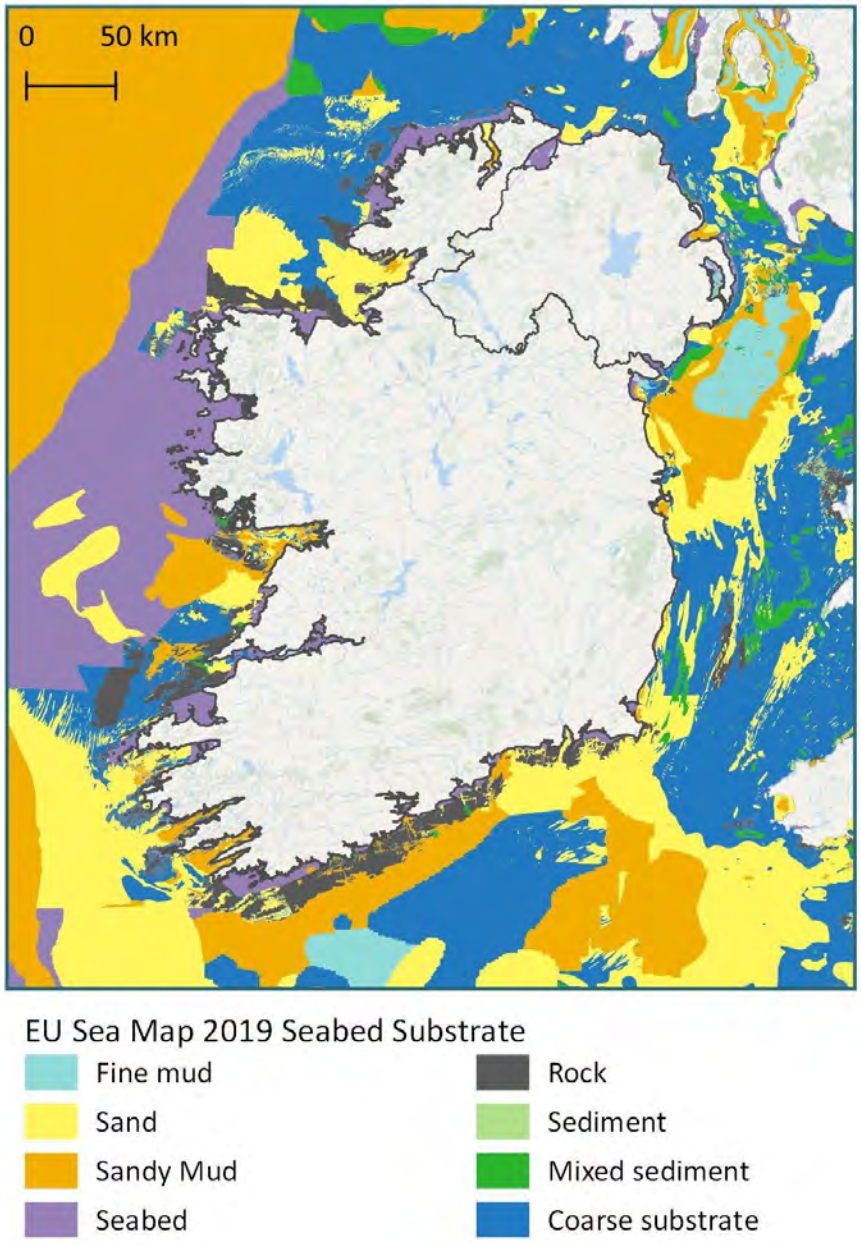


FIGURE 9 SEABED SUBSTRATE

1.7 Wave Regime and Sediment transport

Situated in the Northeast Atlantic, Ireland is surrounded by ocean conditions that boast some of the highest wave energy levels in the world. When low pressure systems form in the North Atlantic, winds blow across the sea surface generating waves or swell. The dominant wave direction is northwest ~50%) creating a wave climate characterised by a long distance swell with a medium significant wave height ranging from 2-3 m with a wave period of 8-12s. Local winds also influence the coastal wave climate, particularly in the Irish Sea. Locally generated sea waves tend to have a shorter wavelength while their angle of approach to the shoreline is determined by wind direction. The overall wave climate around the Irish coast is quite heterogeneous

An understanding of the wave climate and wave regime in Irish waters relies on data gathered wave buoy observations, such as the Irish Weather M-Buoy Network, the Commissioner of Irish lights MetOcean bouy network, and satellite imagery wave data. The temporal range of this data

records only a few decades, so an understanding of long-term wave climate variability is limited. The variable geomorphology of the Irish coast is such that there can be a significant variation in both the wave and wind climate (Gallagher, Tiron and Diaz, 2014).

In general, the high-energy Atlantic coast is exposed to annual mean sea-wave heights (SWH) of 3m-4m (5m in winter). In contrast, annual mean sea-wave heights (SWH) in the Irish Sea vary from 1m -2m. Gallagher, Tiron and Diaz (2014) published studies into a hindcast model of nearshore wave energy from 1979 to 2012. The Irish Sea coast only receives about 20% of the wave energy levels of the Atlantic coast. Nevertheless, erosion rates reach values of 1-2 m annually. Please see Figure 10 below.

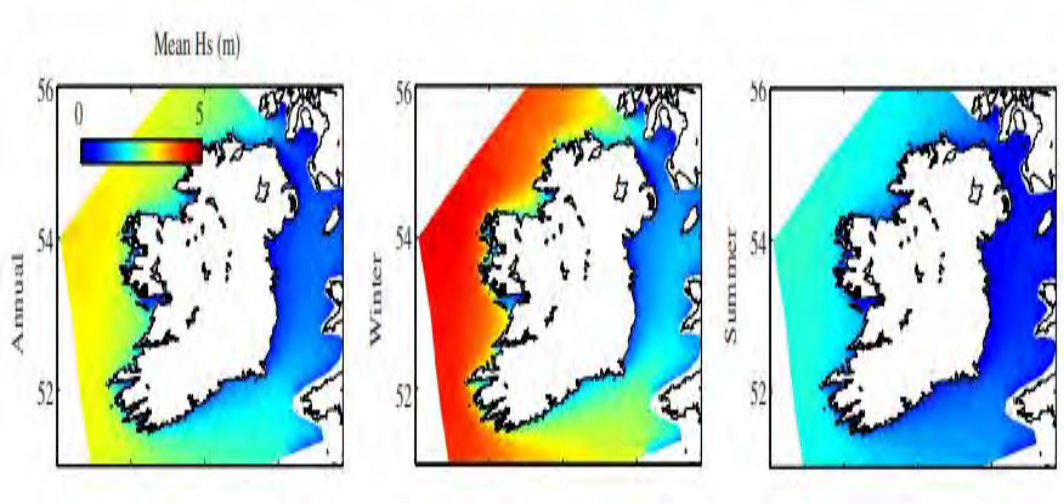


FIGURE 10MEAN SEA WAVE HEIGHT AROUND IRELAND: ANNUAL, WINTER AND SUMMER (GALLAGHER, TIRON AND DIAZ, 2014).

1.7.1 Sediment Transport

The circulation of coastal seawater, and the associated erosive processes, sediment transport and distribution processes contribute to the shaping the morphology of beaches, bays, estuaries, and exposed coastlines. Sediment transport and distribution also has a major influence on water quality, navigation and recreation. In transitional and coastal waters, sediment transport is influenced by:

- dynamic processes (tides, currents, waves, winds, turbulence)
- seafloor topography
- seafloor morphology, and
- fluid dynamics of sediment in motion.

Environmental factors such as the geology and shape of the coast; sediment size in bays, estuaries and beaches; and coastal protections and infrastructure, all have an impact on coastal morphodynamics and hydrodynamics, which evolve along varying spatial and temporal scales.

Transport of suspended sediment in the Irish Sea is in a net northerly direction, where regions of highly mobile sediment occur off the Wicklow coast (Sutton 2008). Longshore currents are important in transporting sediments and occur all along the east coast of Ireland. During storms and high seas, high-energy waves contribute to large amounts of sediment movement. Erosion of upper shore sediments and structurally weak bedrock can occur, with sediments washed offshore and later reworked onshore with tidal currents in calmer conditions. Tidal transport is dominant in the estuaries, inlets and channels. Wind driven sediment transport plays a significant role in dune morphology and movement in many of Ireland's coastal regions (European Commission, 2004)

1.8.6 Tides

1.8.1Tidal Regime

Tidal ranges around Ireland's coast vary from macro tidal (> 4m), to meso tidal (> 2m – 4m) to micro tidal (2m). Macro tidal ranges occur at Blacksod Bay/Clew Bay, Galway Bay to Tralee Bay, Dingle Bay and Dundalk Bay. Micro tidal ranges to limited to Carnsore to Arklow, and the northeast coast. The remaining majority of the coast experiences a meso-tidal range.

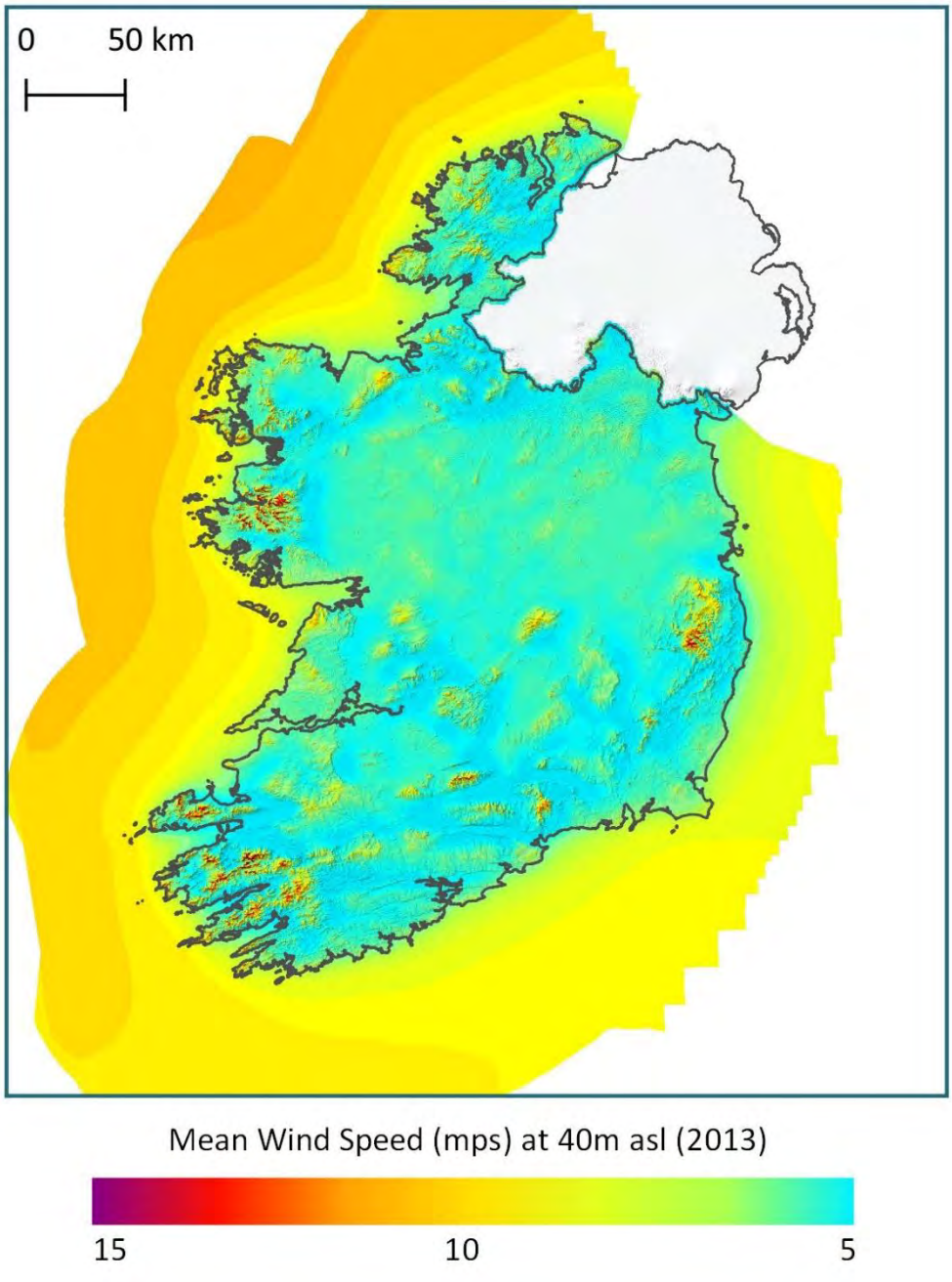


FIGURE 11 MEAN WIND SPEED

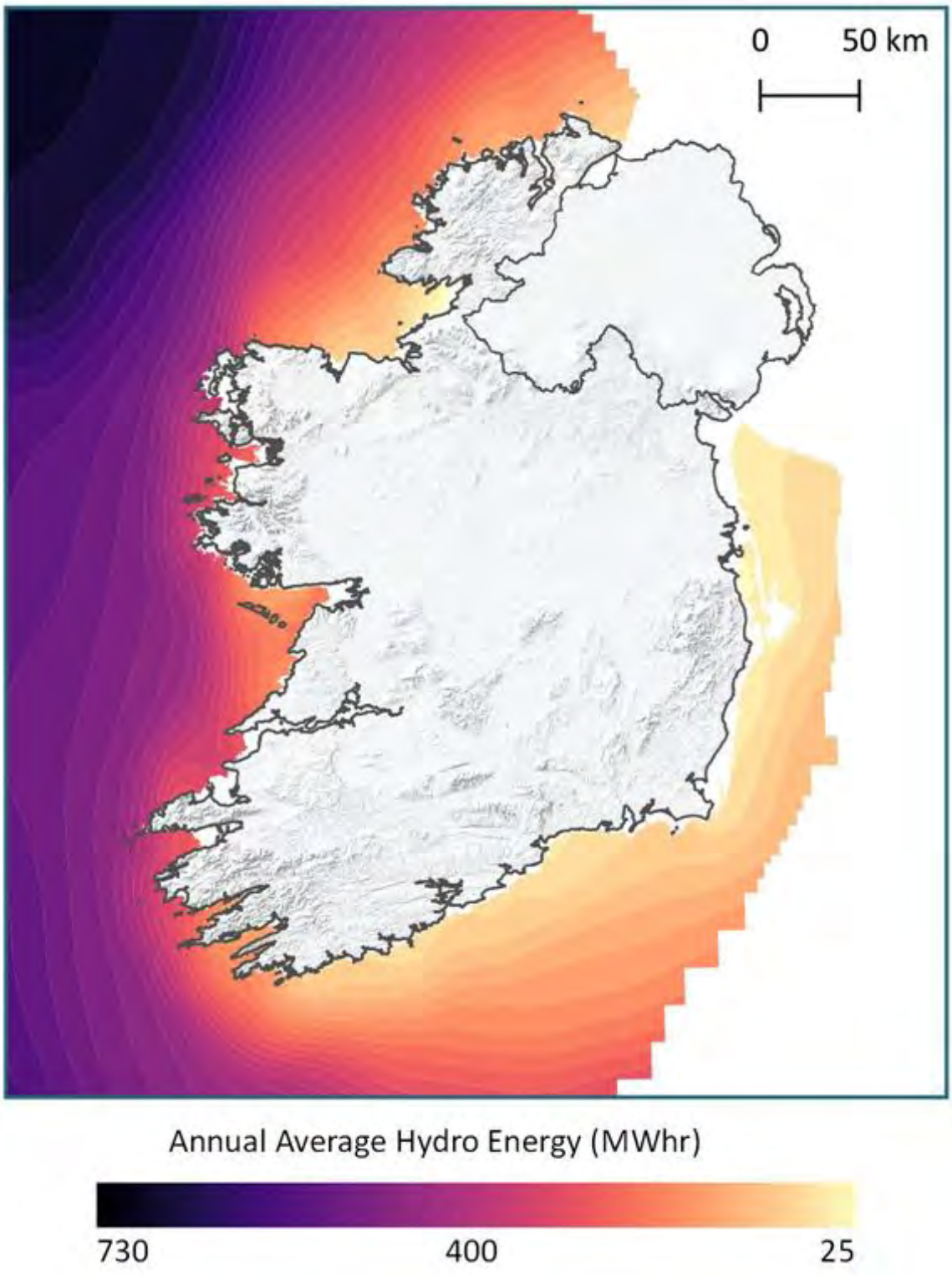


FIGURE 12 ANNUAL AVERAGE HYDRO ENERGY

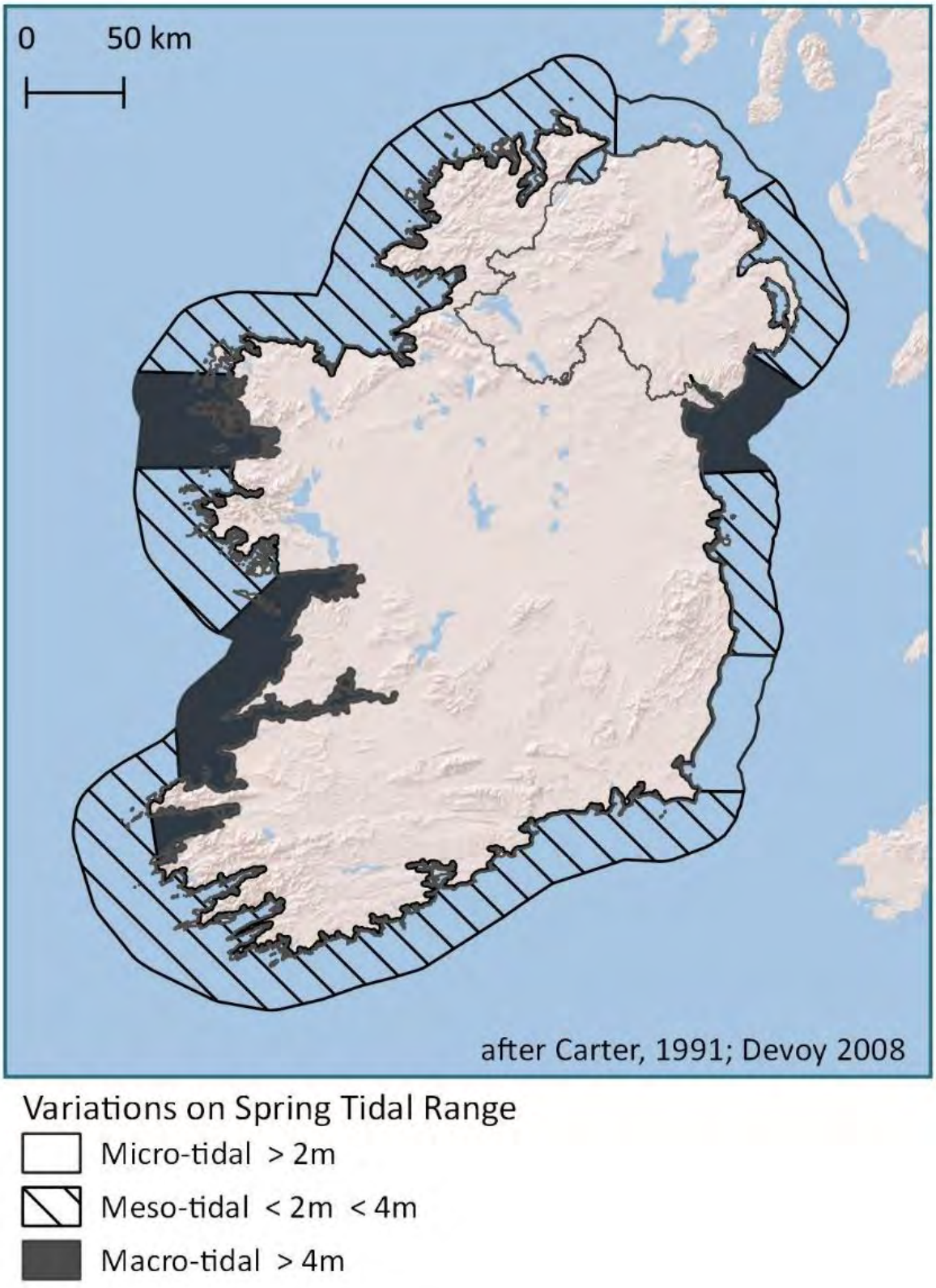


FIGURE 13 VARIATIONS ON SPRING TIDAL RANGE

Tidal currents are generally low in western and southern coastal waters, moderate along the east coast, and relatively strong in the St. George's Channel and to the north of the Inishowen peninsula. Tidal current strength tends to be influenced by local bathymetry. The east and west coast tidal currents propagate in a northerly direction, meeting just south-west of the Isle of Man

at an amphidromic point (a point at which there is no variability in depth due to tidal activity). The differences is high and low water times around the coast are a result of the different varying tidal regime.

Tidal waves in the open Atlantic are generally small, increasing as they move eastwards across the shelf towards Ireland's west coast. The waves are further enhanced by the funnelling effect of bays and estuaries. A significant proportion of the tidal and marine current energy resource is to be found on the east coast of Ireland. The resource on the west coast is concentrated in the Shannon Estuary where the average tide is 4.5 m halfway up the estuary but is 1m higher at the head of the estuary[11]. In the Irish Sea, maximum tidal ranges occur along the NE coast of England where mean spring tides have a range of 8 m. This contrasts with a range is 1.75 m at Carnsore Point to the southwest.

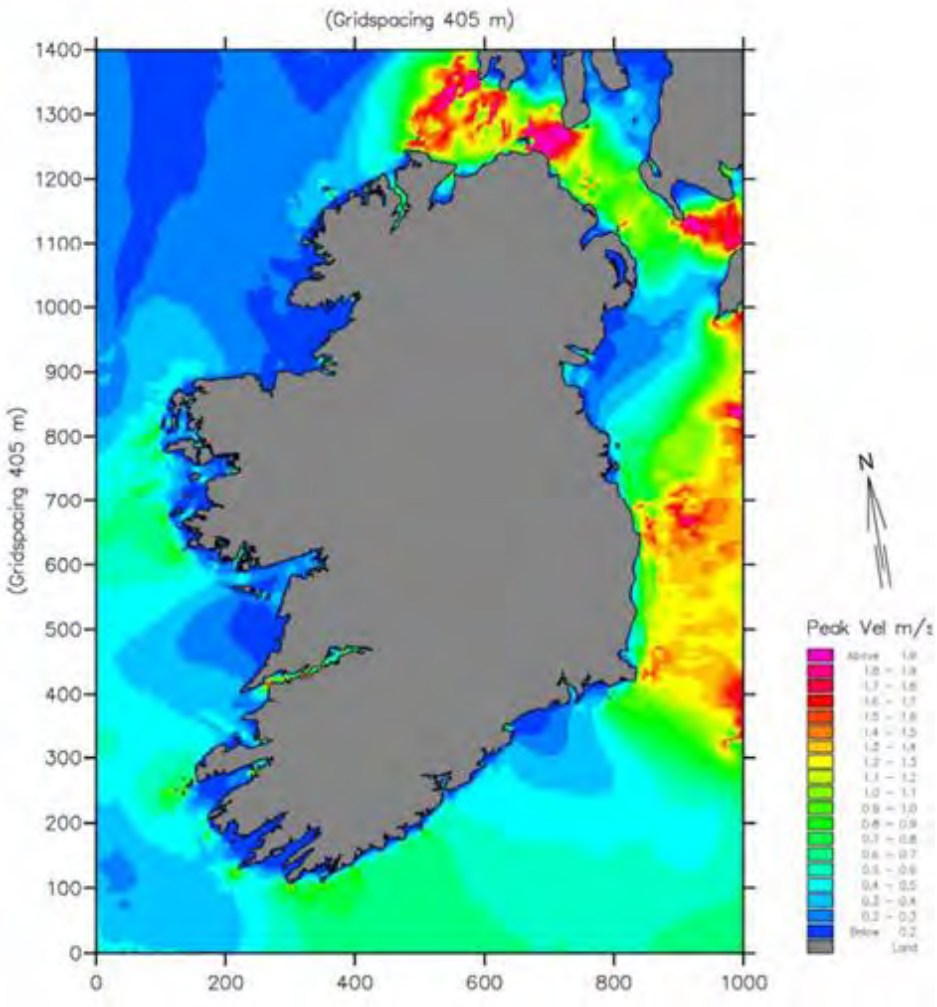


FIGURE 14 DEPTH OF AVERAGE PEAK SPRING TIDAL CURRENTS (SEAI)

1.9 Coastal Erosion Vulnerability

The coastline is what defines Ireland as a geographical identity (Simms and Coxon 2017). The topography of Ireland's western Atlantic coast is characterised by exposed rocky outcrops and cliffs interspersed with bays. The coast is also characterised by high wave energy generated by winds coming from the Atlantic Ocean which cause it to be more susceptible to erosion than other

[11] http://www.marine.ie/Home/site-area/data-services/real-time-observations/tidal-flows-around-ireland

coastal regions. The west also bears the brunt of North-Atlantic storms. Erosion can occur on exposed rocky shorelines that are structurally vulnerable due to their geological nature, and may collapse or be plucked and shifted about (Williams and Hall 2004). The combination of geology, topography, high wave energy and force of Atlantic storms all contribute to this complex indented coastline and dramatic seascape character.

The coast is predominantly erosional, and there is abundant evidence from headlands, islands and drowned terrestrial shorelines of many kilometres of coastal retreat during the Quaternary. The pre-Quaternary coastline varied significantly during the Cenozoic, sometimes extending hundreds of kilometres westward, and later throughout the glacial-interglacial sea-level change cycles of the Quaternary.

The broad outline of the island and its offshore areas is defined by the presence of Mesozoic and Cenozoic offshore basins, in which non-marine sedimentary rocks are found (suggestive of low coastal plain environments during Cenozoic times). The present-day coastline is a result of the interplay between geology, topography and erosion during glacial and interglacial times. The large Carboniferous limestone floored bays on the western seaboard demonstrate this interplay, as too does the ria coast on the southwest. The drumlins fields of the large western limestone bays may suggest that they were susceptible to glacial erosion and ice streaming, and were thus formed during Quaternary times. It is likely that the dominant elements of the coastal topography was established tens of millions of years ago, and was modified to a much lesser extent during the glacial episodes of the Quaternary (Simms and Coxon 2017).

Wind energy along the Atlantic coast is predictably highest on exposed promontories and coasts, and on higher ground. The SEAI Wind Atlas data presents onshore wind speeds (ms^{-1}) at varying heights above ground level.

1.10 Biodiversity

Ireland's marine waters (offshore, inshore and coastline) are home to a rich and diverse range of species and habitats. Warm southern waters mix with cold northern waters, resulting in high levels of productivity and a food-rich environment. These seas are home to a diverse range of animals and plants, including plankton, cold water corals, fish, seabirds and marine mammals.

1.10.1Designated Areas

The Habitats Directive is currently the only legislative instrument providing protection to habitats in the marine environment. There are a total of six offshore marine Special Areas of Conservation designated within Ireland's Exclusive Economic Zone (EEZ). The sites are shown on Figure XX below, Each of these SACs are designated for their role in protecting cold water reef habitats. Under the OSPAR Convention to Protect the Marine Environment of the North East Atlantic, Ireland committed to establishing marine protected areas to protect biodiversity (i.e., OSPAR MPAs). Currently there is no legislation enacted in Ireland to underpin the protection of MPAs, and in the absence of such legislation the offshore SACs occurring within the Irish EEZ have been established as MPAs.

In addition to the SACs classed as Offshore Marine SACs, many coastal and inshore areas around the Irish coast have been designated as SACs. Of the total number of 439 SACs designated in Ireland, 116 have been designated for their role in protecting coastal/inshore habitats or species. The location of the coastal and inshore SACs of Ireland are shown on Figure 3-18. The qualifying

habitats of these SACs include a broad range of coastal and inshore habitats such as reefs, tidal mudflats and sandflats, estuaries, large sea bays and inlets, coastal cliffs, saltmarshes and coastal lagoons. These SACs are also designated for their role in supporting species listed on Annex II of the EU Habitats Diective (i.e. Annex 2 species). Such species include bottlenosed dolphin, harbour porpoise, grey seal, harbour seal, otter, and estuarine fish species such as twaite shad. A number of other cetacean species (14 listed by the NPWS in their latest Article 17 Report from 2019) that are known to occur occur regularly in Irish marine and coastal waters are also listed as Annex 2 species and occur in Irish coastal and marine waters. However none of these species are listed as specific qualifying features of interest for the SACs designated in Ireland. Furthermore in addition to the above regularly occurring cetaceans, a further six species are listed as vagrants in Irish waters.

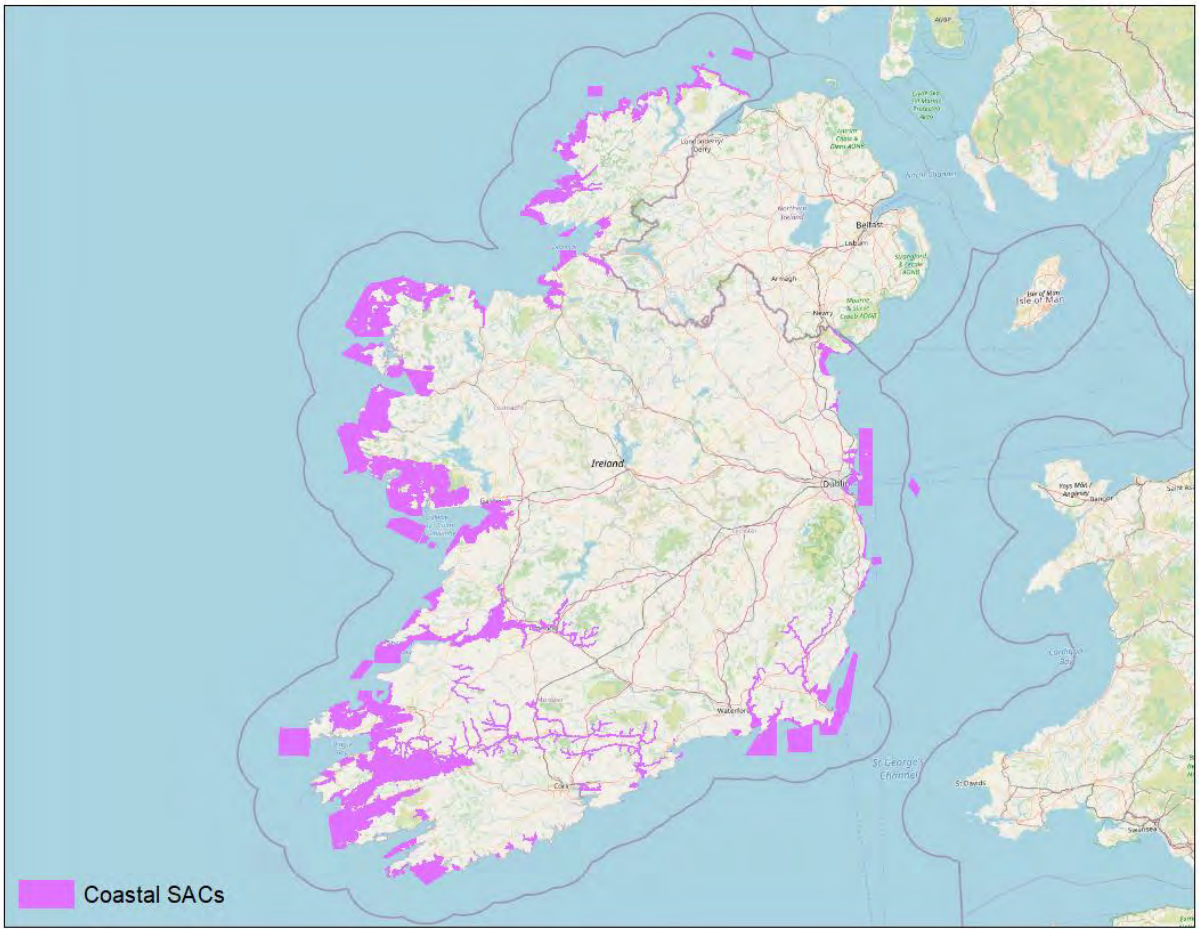


FIGURE 15 COASTAL SPECIAL AREAS OF CONSERVATION

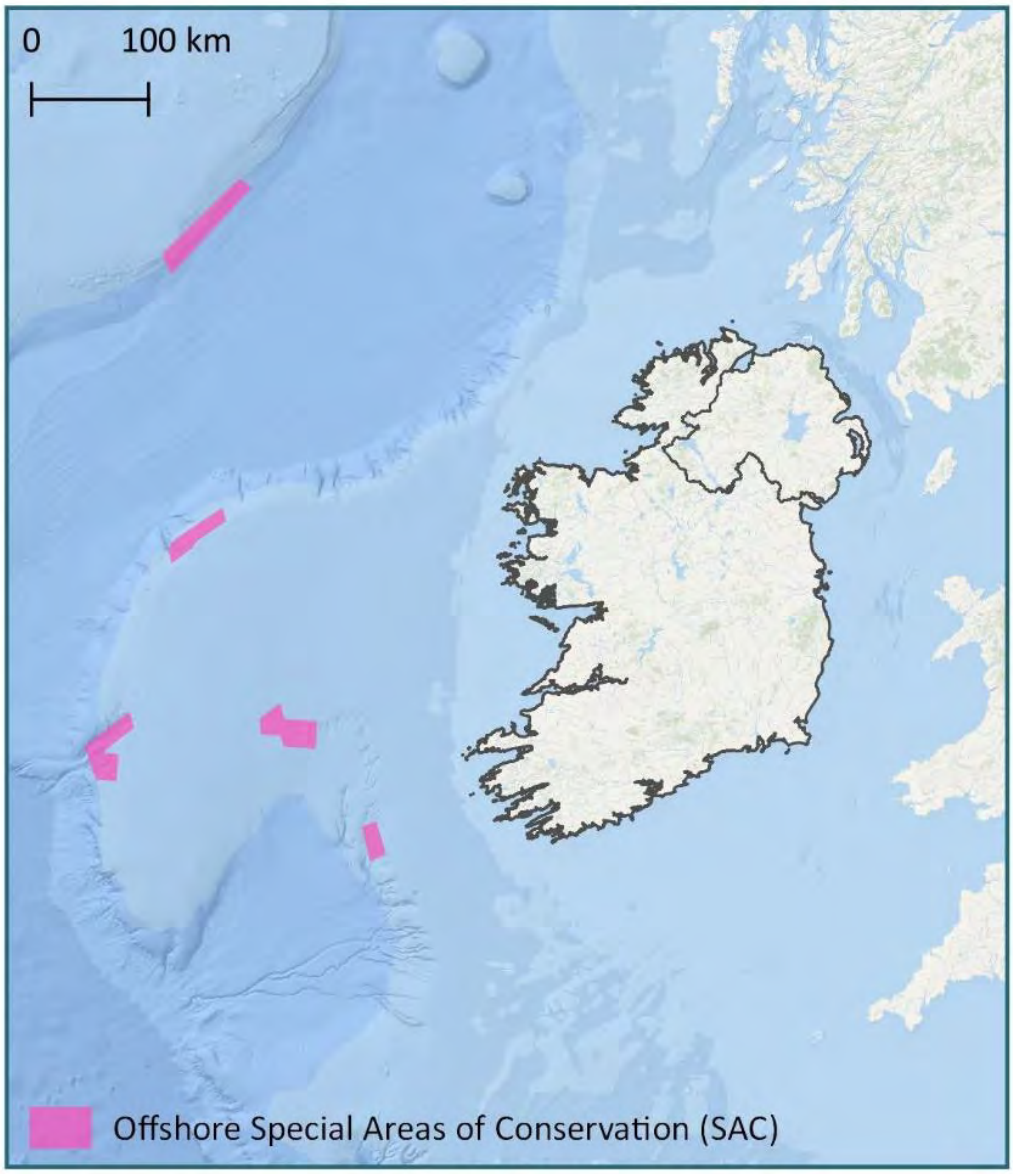


FIGURE 16 OFFSHORE SPECIAL AREAS OF CONSERVATION

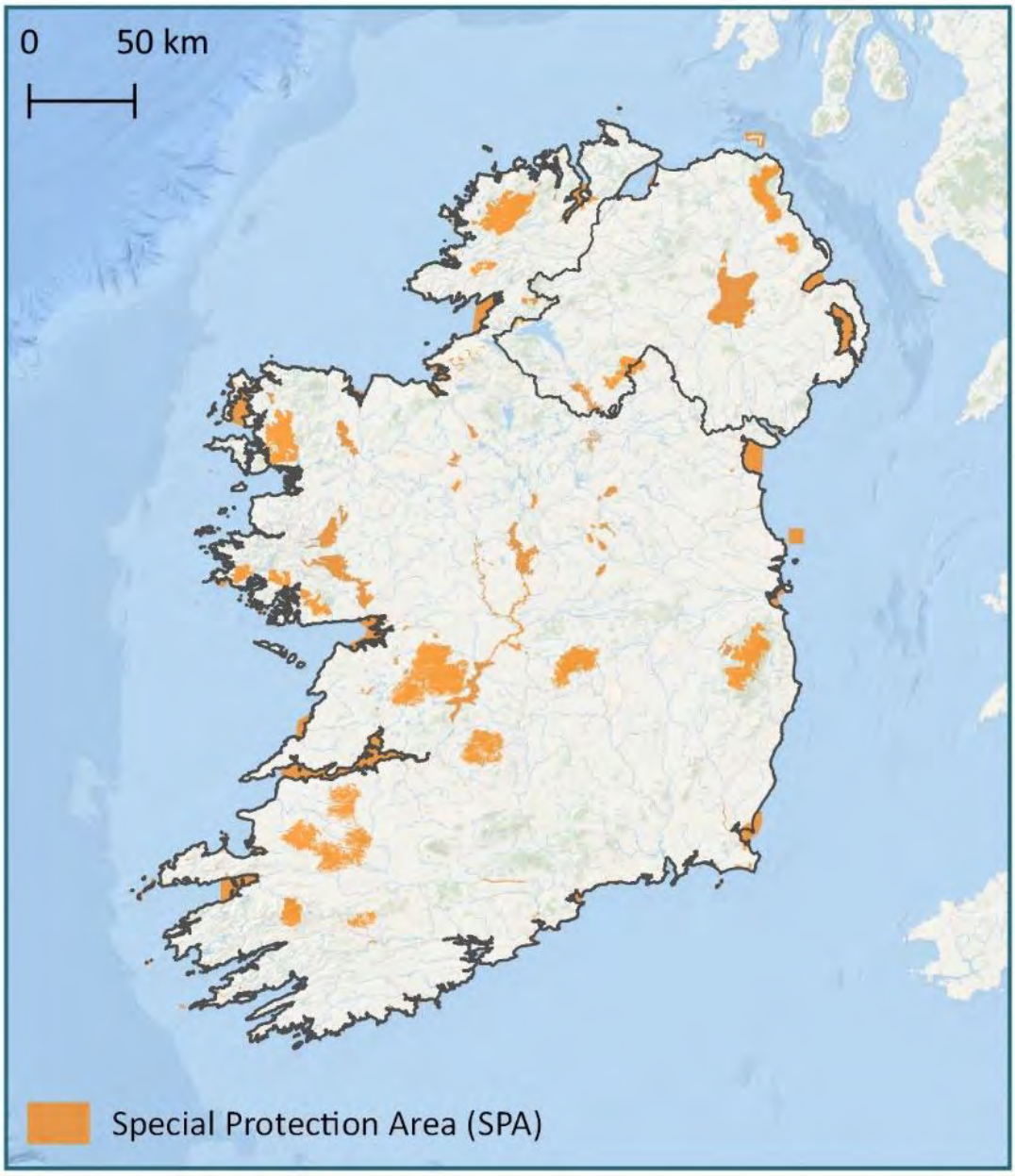


FIGURE 17 SPECIAL PROTECTION AREAS

1.10.2 Fisheries

Our marine waters support over 400 fish and cephalopod (e.g. octopuses, squid, and cuttlefish) species and contain some very important spawning and nursery areas for commercial fish species. The waters around Ireland contain some of the most productive fishing grounds and biological sensitive areas in the EU. From a commercial fisheries perspective the main fish species that are fished as part of Ireland's Total Allowable Catches (TACs) under the Common Fisheries Plan (CFP) are mackerel, horse mackerel, boarfish, blue whiting, herring, cod, whiting, haddock, saithe, pollack, hake, megrim, anglerfish, plaice, sole and Nephrops.

The Biological Sensitive Area (BSA) within Irish marine waters is shown on Figure 17. This area has been designed as a biological sensitive area under the EU Council Regulation (EC) No 1954/2003. The biological sensitive area shown on Figure 3-19was intially identified as an important nursery area for hake but is also recognised as an important nursery area for herring, cod, mackeral, horse

mackeral, haddock and Nephrops. The BSA is also an important spawning area for many of the above species as well as megrim.

The cold coral reef habitats of the Porcupine Bank Sac have also been recently identified as important nursery sites for sharks, including the blackmouth catshark and the rarer sailfin shark.

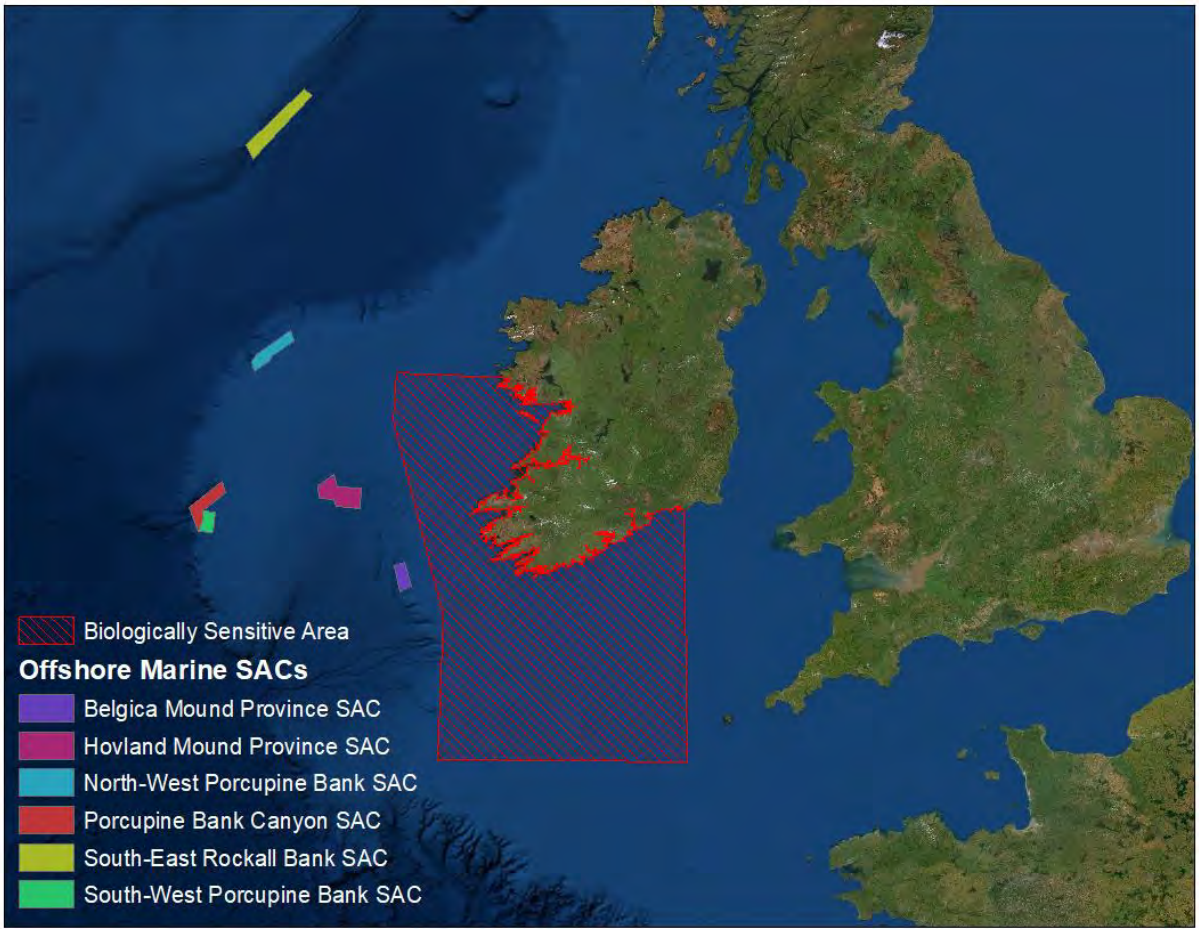


FIGURE 18 OFFSHORE MARINE SACS AND BIOLOGICALLY SENSITIVE AREAS.

1.10.3 Marine Mammals

As noted above a range of protected coastal and marine mammals occur in Irish Waters. The latest NPWS Article 17 Report (NPWS, 2019) lists a total of 18 cetacean species as regularly occurring and/or resident in Irish Waters as well as 6 vagrant whale species that have been recorded in Irish Waters. These cetacean species are listed in Table 1 below. In addition to these the cetaceans occurring in Irish Waters two species of seal, the grey seal and harbour seal, are resident in Ireland and the otter occurs throughout the coastal waters of Ireland.

TABLE 1 CETACEAN SPECIES RECORDED IN IRISH WATERS

Species	Distribution
1345 Humpback whale (Megaptera novaeangliae) 627	Mainly recorded in marine waters off the northwest of Ireland
1349 Common bottlenose dolphin (Tursiops truncatus) 643	Mainly recorded in the inshore and marine waters off the south, southwest, west and northwest seaboard from Wexford to Donegal. Main concentration of records are of the seaboard stretching from West Cork to Donegal. Resident populations are supported by the Shannon Estuary, the inshore waters of the West Connemara coastline and Slyne Head and the waters surrounding Duvillaun Islands. These areas have been designated as five distinct SACs for which this species has been listed as qualifying species.
1350 Common dolphin (Delphinus delphis) 662	Mainly recorded in the inshore and marine waters off the south, southwest, west and northwest seaboard from Wexford to Donegal.
1351 Harbour porpoise (Phocoena phocoena) 679	Recorded in inshore and marine waters around the Irish seaboard.
2027 Killer whale (Orcinus orca) 698	Recorded in isolated locations off the northwester, western and southwestern seaboard.
2029 Long-finned pilot whale (Globicephala melas) 715	Recorded in marine waters surrounding the western seaboard. Also recorded in inshore waters of Kerry and Clare
2030 Risso's dolphin (Grampus griseus) 731	Recorded most frequently in marine and inshore waters off Kerry. Recorded in inshore waters of northwest Mayo and also recorded in marine waters off Donegal.
2031 White-sided dolphin (Lagenorhynchus acutus) 748	Recorded in marine waters off the northwest coast of Mayo and Donegal. Recorded in inshore waters off Mayo. Also recorded in marine waters to the west in the vicinity of the Porcupine Bank
2032 White-beaked dolphin (Lagenorhynchus albirostris) 763	Recorded in inshore waters off Cork and Galway. Recorded in marine waters off the western seaboard.
2034 Striped dolphin (Stenella coeruleoalba) 778	Recorded in marine waters mainly off the southwest seaboard.
2035 Cuvier's beaked whale (Ziphius cavirostris) 794	Recorded in marine waters mainly off the southwest and west seaboard.
2038 Sowerby's beaked whale (Mesoplodon bidens) 811	Recorded in marine waters mainly off the west and northwest seaboard.

2618 Minke whale (Balaenoptera acutorostrata) 828	Recorded in inshore and marine waters off and along the western seaboard. Also recorded in inshore waters off the eastern seaboard along the coastal waters of Dublin and Wicklow.
2621 Fin whale (Balaenoptera physalus) 845	Recorded in marine waters off the southwest, west and northwest seaboard. Recorded in inshore waters off Cork and Waterford coast.
5020 Blue whale (Balaenoptera musculus) 862	Recorded in marine waters off the west and southwest seaboard.
2624 Sperm whale (Physeter macrocephalus) 877	Recorded in marine waters off the southwest, west and northwest seaboard with a concentration of records to the northwest.
5033 Northern bottlenose whale (Hyperoodon ampullatus) 893	Recorded in isolated locations in marine waters off the southwest, west and northwest seaboard
2619 Sei whale (Balaenoptera borealis) 910	Recorded in isolated locations in marine waters off the west and northwest seaboards.
VAGRANTS	
1348 Northern right whale (Eubalaena glacialis) 926	The distribution of this species in Irish Waters is not mapped. This species has been recorded as isolated sightings.
2028 False killer whale (Pseudorca crassidens) 935	The distribution of this species in Irish Waters is not mapped. This species has been recorded as isolated sightings.
2037 True's beaked whale (Mesoplodon mirus) 944	The distribution of this species in Irish Waters is not mapped. This species has been recorded as isolated sightings.
2622 Pygmy sperm whale (Kogia breviceps) 953	The distribution of this species in Irish Waters is not mapped. This species has been recorded as isolated sightings.
5029 Beluga/White whale (Delphinapterus leucas) 962	The distribution of this species in Irish Waters is not mapped. This species has been recorded as isolated sightings.
5034 Gervais' beaked whale (Mesoplodon europaeus) 971	The distribution of this species in Irish Waters is not mapped. This species has been recorded as isolated sightings.

The grey seal has been recorded throughout all inshore and marine waters surrounding Ireland. There are 10 SACs in Ireland that have been designated for the protection of this species. These SACs are mainly occurring along the western coastline with the exception of Lambay Island and the Saltee Islands occurring off the east and southeast coast.

The harbour seal has been recorded throughout all inshore and marine waters surrounding Ireland. There are 13 SACs in Ireland that have been designated for the protection of this species. These SACs are restricted to the west stretching from Glengarrif in Cork to Donegal Bay. Lambay Island in the east is the only SAC along the eastern coastline that has been designated for the protection of this species.

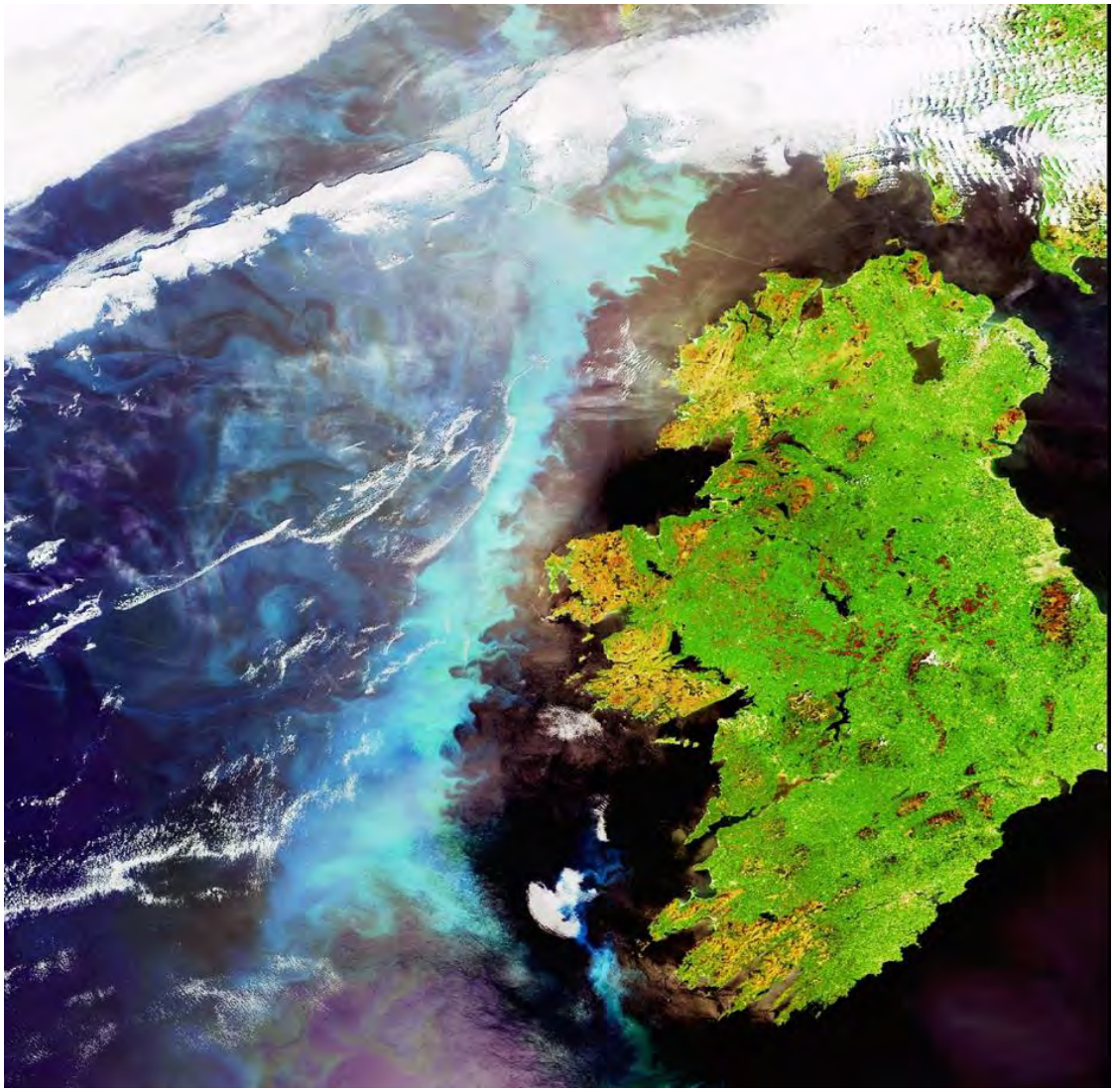


FIGURE 19 PLANKTON BLOOM RECORDED OFF THE WEST COAST OF IRELAND, EUROPEAN SPACE AGENCY. 6TH JUNE 2006.

1.10.4 Sea Birds

The seas surrounding Ireland are used by roughly 60 species of resident and visiting birds of which 24 are considered "seabirds" (e.g. terns, puffins, guillemots, sea gulls and gannets) while the remainder include waders and sea ducks. The 24 species of seabirds occurring in Ireland are listed in Table 2 below.

TABLE 2 SEABIRDS COMMONLY OCCCURING IN IRELAND.

Species	Distribution
Fulmar	Along Dublin and Wicklow Coast, from Wexford to Loop Head; Cliffs of Moher and Aran Islands and nortwest Galway coast to Malin Head.
Gannet	Lambay Island, Irelands Eye, Saltee Islands, Bull Island, Skellig Islands, Clare Island
Cormorant	Islands off Dublin coast, Wexford to Kerry and disparate sites between Kerry and Donegal.
Shag	Islands off Dublin coast, Wexford to Kerry and disparate sites between Kerry and Donegal.
Great Skua	Islands and cliffs of the northwest Galway coast, Mayo coast, Sligo and Donegal coast.
Mediterranean Gull	Lady's Island, Wexford
Black-headed Gull	Lady's Island, Wexford, Kenmare Bay, Galway coast, Belmullet, Tory Island and Malin Head
Common Gull	West Cork/Kerry coast; Galway/Mayo coast; Donegal coast
Lesser Black-beacked Gull	Coastal site betweent Wexford and Donegal. Also breeds at coastal sites in Dublin.
Herring Gull	Coastal site betweent Wexford and Donegal. Also breeds at coastal sites in Dublin.
Great Black-backed Gull	Coastal site betweent Wexford and Donegal. Also breeds at coastal sites in Dublin and Wicklow.
Kittiwake	Coastal site betweent Wexford and Donegal. Also breeds at coastal sites in Dublin and Wicklow.
Sandwich Tern	Lady's Island, Wexford, Kenmare Bay, Galway coast, Belmullet, Tory Island and Malin Head
Roseate Tern	Rockabill Island, Dalkey Island and Lady's Island
Common Tern	Rockabill Island, Dalkey Island Lady's Island, West Cork Kerry coast; Galway coast, Mayo and Donegal coast

Species	Distribution
Arctic Tern	Rockabill, Dalkey Island; Lay'slsland; West Cordk and Kerry coast; Galway, Mayo nad Donegal coast
Little Tern	Louth, Dublin, Wicklow and Wexford coast; Kerry, Aran Islands, Galway, Mayo and Donegal coast in the west.
Guillemot	Dublin, Wicklow, Wexford, Waterford, Cork, Kerry, Clare, Galway, Mayo, Sligo and Donegal coast
Razorbill	Dublin, Wicklow, Wexford, Waterford, Cork, Kerry, Clare, Galway, Mayo, Sligo and Donegal coast
Black Guillemot	Louth, Dublin, Wicklow, Wexford, Waterford, Cork, Kerry, Clare, Galway, Mayo, Sligo and Donegal coast
Puffin	Cork to Donegal coastline
Manx Shearwater	Kerry and Galway coast
Storm Petrel	Cork to Donegal coastline
Leach's Petrel	Northwest Mayo coast

Many of the bigger colonies are confined to offshore islands or sheer cliffs, reducing the chance of predation by rats, etc. Species such as Manx shearwaters and European storm petrol rear their chicks under rocks or end of long burrows but also return from fishing to feed them after dark when predatory great black backed gulls and peregrine falcons are at rest. The Birds that nest on the Stags of Broadhaven have been found to feed at the distant edge of the Rockall Trough. The largest Storm Petrel colony surveyed in the world to date is on Inishtooskert, in the Blasket Islands.

2 The Cultural Heritage of Ireland's Seascapes

2.1 Overview

The shoreline and sea have been used (exploited) by people in the past for food source, for raw materials, a source of livelihood, for travel and communication, and as places of settlement. While the sea is often thought of as a barrier or frontier, in past times it provided the only route to the wider world and was considered a connecting force (Waddell 1992). Ethnic diversity and material culture in coastal communities was enhanced by these connections to foreign places, such as England, Scotland and Wales, the Mediterranean region, Scandinavia, Northern Europe such as Holland, and later the 'new worlds' of America and Australia. Having said this, working and living in a sea and coastal environment was challenging and even dangerous and it is important to be conscious of this lest '*we over-romanticise coastal life in the past*' (O'Sullivan and Breen 2007).



FIGURE 20 IRELAND AND THE ATLANTIC FRINGE (AFTER CUNLIFFE, 2001)

The cultural heritage of Ireland's seascapes encompasses three distinct areas and can be considered in three separate locations:

- the sea/seabed,
- the foreshore/intertidal zone and
- the land/coast.

Each zone contributes to a particular seascape character. When following a maritime cultural landscape approach to the study of wider seascape, O'Sullivan and Breen have suggested that the approach, '*emphasises the importance of integrating various disciplines in the investigation of past perception, understanding and use of coastal regions from the seabed, across the foreshore and inland. It is certainly true that we need to think about entire coastal landscapes as texts wherein are written narratives of human activity on this island […] we need to think about the human shaping of these spaces*' (O'Sullivan and Breen 2007).

The sea and coast of Ireland has been known of since early times; for example, Pliny the Elder described Ireland (Hibernia) in about AD77 and later Tacitus noted that the seas and harbours of Hibernia were familiar to merchants. Boats from the Roman world likely travelled from the Mediterranean to the shores of Ireland and perhaps beyond. For example, a Roman amphora (large pottery jar) fragment was found in a trawler net on the Porcupine Bank some 200km of the west coast of Ireland. One of the earliest maps that shows Ireland is that created by the Greek geographer Strabo (63BC- AD24); in his map of the known world, Ierne (Ireland) is located on the northwest -see Figure 3-19.

Ptolemy, an influential Greek astronomer and geographer (born 100 AD) provided an extensive account of the coast of Ireland that was, in the medieval period (c. 1447), produced as map showing the coast of Ireland, which is thought to have been created from information gathered from seafarers who travelled to Ireland from the Mediterranean region (Condit and Moore 2003), see Figure 3-19. Thus, the sea and coastline have been used since the earliest times.

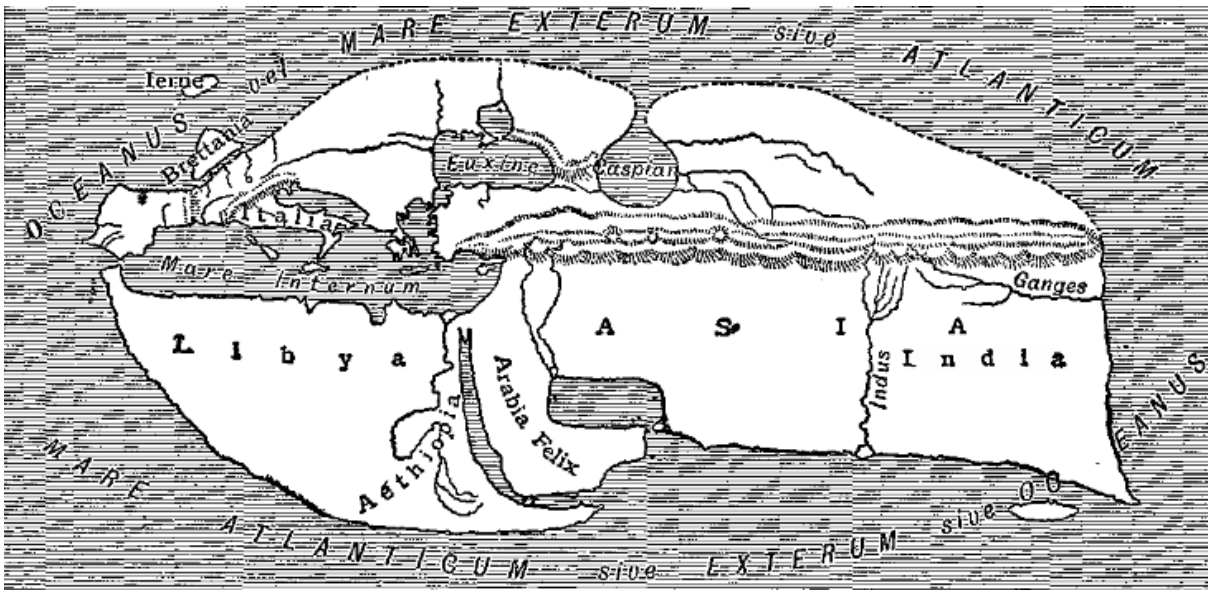


FIGURE 21STRABO'S MAP SHOWING IRELAND AS 'IERNE' PLACED NORTHWEST ABOVE BRETTANIA.

Table 3 outlines the archaeological periods discussed in the text.

TABLE 3 TIMELINE AND ARCHAEOLOGICAL PERIODS DISCUSSED IN TEXT.

Timeline	Archaeological periods	Timespan (approx.)
Early prehistory	Mesolithic	8,000-4,000 BC
	Neolithic	4,000-2,500 BC
Later prehistory	Bronze Age	2,500-500 BC
	Iron Age	500 BC- AD 400
Medieval ('the Middle Ages')	Early Medieval	AD 400-1100
	Viking Age	AD 800-1100

	Later Medieval	AD 1100-1600
	Norman invasion	AD 1169
Post-medieval to modern	Post-Medieval	AD 1600- 1800
	Early Modern	AD 1800-1900

2.2 Early prehistory

The early prehistory of Ireland comprises the Mesolithic and Neolithic periods of human activity. There has been some tentative evidence for human activity in Ireland in the earlier Palaeolithic period, in the form of a possible human-created cut mark on a bear bone (patella or knee cap) from a cave near Ennis Co. Clare (Dowd and Carden 2016); though currently no settlements have been dated to this early period (see Woodman 2015). Current thought suggests that if such settlements did exist they would be expected to be found in the southern portion of the country's coastline, which is not thought to have been covered in ice during the last glaciation, but the identification of sites of human occupation is complicated (Woodman 2015). Unfortunately, due to sea level change much of this part of the original coastline has been flooded, and so if sites dating to the Palaeolithic did exist, they are now likely inundated (see for example, Sinnot and Devoy 1992). Conversely, the land in the north of the country was weighed down by the ice sheets and as they retreated the land has 're-bounded' to form terraces of ancient beaches, known as raised beaches, which were once next to the sea but now are located in modern farmland (O'Sullivan and Breen 2007). There remains a concentration of early prehistoric, particularly dating to the Mesolithic period in the north of Ireland. This particular concentration has been explained due to the presence of active collectors and antiquarians in the region during the nineteenth and early twentieth century (Woodman 2015).

There is evidence that humans first appeared on the island of Ireland in the **Mesolithic** period, *c.*10,000 years ago. They would have arrived by boat but the only evidence that may date to this period is a dug-out boat from the shore of Lough Neagh at Brookend, Co. Tyrone. From parallels in ethnographic evidence, it is likely that a number of types of water craft were used in the period. During the Mesolithic period people hunted, foraged and gathered food and appear to have had a mobile or nomadic seasonal lifestyle. They would have used the seashore in various ways, for food with seabirds, fish, shellfish, and probably seaweeds. Larger sea mammals such as dolphin and seals may have also been used for clothing, or for shelters or boats. Feathers may have been used for personal ornament or small hand tools. Dyes, for cloth or tattoos could be made from dog whelks. Workable stone, such as flint or chert found as pebbles on the shore or in cliff faces, was worked as tools. Settlement evidence comprises hearths, working surfaces, pits and postholes, usually showing many phases of occupation as the place was returned to many times, probably on a seasonal basis. The most common evidence indicative of Mesolithic activity at a site comprises scatters of worked stone material (flint or chert usually); a by-product from the production of implements, and rubbish middens consisting largely of shells (Woodman 2005; Warren 2017). Shell middens are commonly discovered in coastal regions or at the edge of lakes. An analysis of the shells and fish bones contained in these middens and at archaeological sites can reveal if they were used on a seasonal basis, as different fish/shell fish species represent different time of the year (see Woodman *et al.* 1999). Fish traps are known from this period, the earliest five examples to

date being found near the North Wall Quay/Spenser Dock on the River Liffey, which in the Mesolithic period would have been the silty foreshore of the river's tidal estuary (McQuade and O'Donnell 2009).

It was previously thought that humans first entered the island of Ireland along the north-eastern coast as the earliest dated occupation currently known is at Mount Sandel Co. Derry adjacent to the River Bann and *c.*5km from the sea (Woodman 2015). While Mount Sandel remains the earliest and most important settlement site dating to the Early Mesolithic period there are other sites around the coast and inland particularly along rivers and lakes that suggest that early peoples may have used several routes of access (Woodman 2015). Coastal sites dating to this period, most of which show evidence for the exploitation of marine resources in the form of shell middens, include Belderrig, Co. Mayo, settlement (O'Sullivan and Breen 2007; Warren 2019); Baylet, Co. Donegal, a shell midden (Milner and Woodman 2007); Dalkey Island, Co. Dublin shell middens (Liversage 1968); Fanore, Co. Clare shell middens and occupation evidence (Lynch 2017); Ferriter's Cove, Co. Kerry coastal settlement (Woodman *et al.* 1999); Rockmarshall, Co. Louth shell middens (Mitchell 1949); Spenser Docks, Dublin fish traps previously mentioned (McQuade and O'Donnell 2009); and Sutton, Co. Dublin shell midden (Mitchell 1972).

Finlay has suggested that fruitful approaches for understanding the gatherer—hunter—fisher experience of 'scapes' (landscape, seascape, taskscape) should be considered along with the conceptual spaces that archaeologists create to understand past environments and the places and routines of gatherer-hunter lifeways (Finlay 2004). Furthermore, the presence of human bone in shell middens dating to the Mesolithic have led to suggestions that the sea was important in death rituals and cosmologies of Mesolithic peoples, and may be a similar response to the Mesolithic coastal cemeteries of mainland Europe (see O'Sullivan and Breen 2007).

The **Neolithic** period is considered to have been a revolutionary period as for the first time, there is evidence of the emergence of farming societies in Ireland (Cooney 2000). There was profound change as people moved from a peripatetic lifestyle to one organised around animal husbandry and cereal cultivation; they may have still moved around on a seasonal basis, though less so than their Mesolithic ancestors. It is likely that small immigrant populations, along with acculturation, i.e. the spread of new ideas and material culture through travel and trade, brought the new Neolithic ways of living to Ireland. The sea facilitated this movement of ideas.. Rectangular houses were built and, to date, over 50 examples are known from Ireland, largely from excavation (Smyth 2013). Animal bones representing wild animals, and domesticated species of cow, pig and sheep have also been recovered (Cooney and Grogan 1994; Cooney 2000). Understandably, the transition to the Neolithic was marked by major social transformation; communities expanded, continued to use coastal places and moved further inland to create more permanent settlements.. An example of Neolithic coastal habitation and a field system has been excavated at Céide, Co. Mayo, which incorporated megalithic structures (court tombs) also by *c.*3,500 BC (Caulfield 1983; but see Whitefield 2017). The Antrim coast has a particular concentration of Neolithic settlement and lithic sites (O'Sullivan and Breen 2007). Like the previous Mesolithic period, tools in the Neolithic were produced in stone and a number of stone quarries have been identified for the production of high-quality stone axes. One such example is the porphyry quarry on Lambay Island, Co. Dublin (Cooney 2015).

Middens continued to be created and used in this period. For example, there are large prehistoric shell middens at the sand dunes at Culleenamore, Co. Sligo that are likely associated with the Neolithic seascape/landscape around Knocknarea, topped by Maeve's Cairn (Bergh 2002). These middens are predominantly of oyster shell, which may have been eaten or used as bait for fishing or sealing (O'Sullivan and Breen 2007, 66). It has been demonstrated in human skeletal material through stable isotope analyses that Mesolithic peoples may have been more dependent on coastal resources and had a predominantly marine diet, while in the Neolithic it is evident that there is a clear shift in diet towards a 'terrestrial' or land-based diet. This shift is noted throughout north-west Europe (Kador *et al.* 2014; Schulting *et al.* 2019; 2020).

With the advent of the Neolithic period the emergence of the megalithic tomb occurs. There are four distinct types, which are generally chronological from earliest to latest; court, portal, passage and wedge, which marked a shift to communal burial, though perhaps only for the elite of Neolithic society (see Eogan and Cleary 2017). This 'megalithic culture' package, including megalithic art, is considered part of wider one found along the Atlantic coastline of Europe, and again one of the important research questions of this period is the precise method and route of transmission of these ideas across the sea (e.g. Shee Twohig 1981). See Figure 22.



FIGURE 22MEGALITHIC ART ALONG THE ATLANTIC COASTLINE OF EUROPE (COUNCIL OF EUROPE)

Court tombs have a distinctive north-western coastal distribution in the counties of Donegal, Sligo, Mayo and Galway and are also located in Co. Louth overlooking Carlingford Lough. Portal tombs in Co. Donegal also have a clear coastal distribution. Nationally, passage tombs have a less obvious

coastal focus, though significant tombs can be interpreted as showing that the seascape was important, for example, Carrowmore Co. Sligo and Maeve's Cairn on Knocknarea (Bergh 2002), or those at Gormonston Co. Meath. In the southeast of the country, smaller passage tombs can be found on the coast at Tramore, Co. Waterford. Wedge tombs, the chronology of which extends into the Bronze Age are found on or near the coast in the northwest and south west of the country for example, at Altar, Co. Cork situated by the sea near Schull in west Cork (O'Brien 1993).

O'Sullivan and Breen note that it is striking that many of these tombs face the sea, or are located in coastal landscapes that offer striking vistas of bays, inlets and the open sea itself, suggesting that the seascapes were of significance when the locations were first chosen. (O'Sullivan and Breen 2007).

There is more archaeological evidence in the Neolithic period for boats than in the Mesolithic period. Several examples of dugout boats are known from a variety of watery locations, for example that found at Ballylig, Co. Antrim from the sea lough at Larne; another from Strangford Lough (McErlean *et al.* 2003) and a third from Gormonston Co. Meath, recovered from the Irish sea during archaeological work for the gas connector pipeline in 2002 (cited in O'Sullivan and Breen 2007).

2.3 Later prehistory

The **Bronze Age** marked further change within society in regard to material culture and social practices as well as the nature of the construction of houses and the use of sites and monuments. Coastal excavated settlement dating to this period includes Carrigillihy Co. Cork in Glandore harbour, Aughinish Island Co. Limerick, and the Shannon Estuary (O'Sullivan 2001). Although this period is characterised by new architecture and artefacts including metallurgy—first copper and later Bronze—there is also evidence of continuity as stone continued to be used. New material culture was adopted and the 'new' and 'old' assemblages were being treated in the same manner (Carlin 2011; 2018). Shell middens continued to be created in this period and the subsequent Iron Age, and dated shell middens to these periods were found at Omey island, Co. Galway (O'Keeffe 1994); Beginish Co. Kerry (see Sheehan *et al.* 2001); and False Bay, Connemara, Co. Galway (McCormick *et al.* 1996).

Another common feature of the Bronze Age landscape is the standing stone, usually a single upright orthostat[12]. They are known by various names including gallán, dallán, leacht and long stone. Although it is thought that the standing stones were erected across a wide time span and had multiple functions, they are most often associated with the Bronze Age. They are generally unworked stones and often have 'packing stones' around their base providing additional support. A large number of standing stones are orientated on a north-east–south-west axis corresponding with those of other megalithic architecture, such as stone rows or circles. A wide variety of functions have been attributed to these stones, such as burial, route, or territorial boundary markers. More recent stones have been erected as scratching posts for cattle. Monuments dating to the Bronze Age are particularly numerous in Ireland and as a result many are located in coastal locations. This likely shows the wide exploitation of resources, that would have included the sea and coastal environments, by people in this period.

[12] Orthostat means an upright stone or slab forming part of a structure or set in the ground.

There is increasing evidence for **Iron Age** (*c.* 500 BC–AD 400) settlement and activity in recent years as a result of development-led excavations as well as projects such as LIARI (Late Iron Age and Roman Ireland undertaken by The Discovery Programme).

The Shannon was known as a routeway in the second century AD as it was depicted on a map drawn by Ptolemy, (O'Sullivan 2001, 4; Condit and Moore 2003). Yet, this period is distinguished from the rather richer remains of preceding Bronze Age and subsequent early medieval period by a relative paucity of evidence in Ireland.

Up until relatively recently, large defensive structures and earthworks known as promontory or hillforts were thought to be characteristic of the Iron Age period. The former is a banked and ditched structure located above a steep cliff or bluff and often found in coastal areas. The hill fort or hill top enclosures are very interesting and when excavated are frequently multi-period, presenting difficulties in dating their chronology.

Coastal promontory forts are usually dated to the Bronze and Iron Ages; although without excavation it can be difficult to be more precise about chronology. Some were used in the medieval period (see below). There are currently 508 coastal promontory forts recorded by the Archaeological Survey of Ireland (ASI). Perhaps the most impressive and well known of these sites is Dun Aonghusa, Co. Galway, on the Aran islands. This site was intensively excavated by The Discovery Programme (Cotter 2012) and found to have been first used in the Middle Bronze Age. Environmental evidence gathered during the excavation showed that the full range of sea resources from different fish types to seaweed were exploited (McCarthy in Cotter 2012). Its location on a cliff edge in the Atlantic also illustrates the long-term negative effects of erosion on coastal monuments. O'Sullivan and Breen have noted that on many coastal headlands where promontories are situated, burnt mounds, barrows and standings stones are also present. This suggests to them that these headlands were considered liminal spaces perhaps of supernatural importance (O'Sullivan and Breen 2007, 83). This association of monuments was identified particularly in west Clare around Kilkee, by archaeologist Tom Condit. The coastal promontory at Drumanagh, Co. Dublin (not far from Lambay Island) is dated to the later Iron Age and has strong archaeological evidence that suggests trade with the Roman world (Baker 2019).



FIGURE 23 COASTAL PROMONTORY FORT DRUMANAGH, CO. DUBLIN (FINGAL COUNTY COUNCIL)

Interestingly, the archaeological evidence from Ireland for boats and sea navigation from later prehistory is sparse and there are few boats dating to this period.

2.4 Medieval Period 'The Middle Ages'

During the **early medieval period**, Ireland was depicted in the surviving historical sources as being entirely rural (Edwards 1990). Secular habitation sites in the early medieval period include crannógs, cashels and ringforts;these enclosures functioned as the protected farmsteads of wealthy extended families (Stout 1997; 2017. See also FitzPatrick 2009). In addition to these, there is some evidence for unenclosed settlements, which are more difficult to identify in the archaeological record, for example Inishkea North Co. Mayo excavated by Henry (Henry 1952) where quantities of dog whelk were found, likely used for dye production rather than food, as they are toxic.

The sea figured in this period as a routeway to Britain, Europe and Scandinavia and also as a motif in literature and poetry (see Hudson 2006). Mediterranean pottery and other exotic materials found in excavations in Ireland is archaeological evidence of a wide trading network which was well established by the early medieval period (see Arthur and Sindbaek 2007; Doyle 2009; 2014).

The ringfort or ráth is considered to be the most common indicator of settlement during the early medieval period. In ringforts that have been excavated there is some evidence to show that coastal resources were used, perhaps on an intermittent basis, and remains of sea birds and shellfish have been found, sometimes at ringforts far from the sea (Murray 1999). Many promontory forts were used in this period, for example, Dalkey Island, Co. Dublin and Dunbeg, Co. Kerry (Barry 1981) and these may also have exploited coastal resources, although archaeological evidence for this is relatively sparse. Shell middens continue to be used in this period—evidence of shell fish exploitation—which may have been for food consumption, bait for fishing or perhaps dye production. On occasion middens also are places of burial and industrial activity, as at Dooey Co. Donegal (Ó Floinn 1995).

The rules of use of resources provided by the sea, such as including flotsam and jetsam brought in on the tides, driftwood, fishing and seaweed was set out in early Irish law tracts (Kelly 2000) as belonging to the landowner, suggesting that this was a fairly common event. No doubt there were also rules around the use of fish traps, for which there is archaeological evidence in estuaries and loughs around the coast. Tidal mills were also used for the grinding of corn, the most well-known excavated at Nendrum Co. Down (McErlean and Crothers 2007).

The early medieval period is characterised by the large-scale conversion to Christianity that occurred throughout Ireland, traditionally thought to have been brought to Ireland by St Patrick in the 430s (Ó Carragáin 2010; O'Sullivan *et al.* 2014). Monasticism was known in St Patrick's era but it was not until the sixth and seventh centuries that the larger monastic houses (or ecclesiastical complexes) were established. Many of these were founded along the coast or at island locations, and have an excellent survival rate along the western seaboard (where agricultural practices are less intensive relative to the eastern coast), for example those on the Aran Islands, Co. Galway, Inishglora, Co. Mayo, High Island, Co. Galway (White Marshal and Rourke 2000); Inishmurray, Co. Sligo (O'Sullivan and Ó Carragáin 2008), and Scattery Island, Co. Clare.

The most famous is Skellig Michael, Co. Kerry, one of two World Heritage Sites in Ireland. These island hermitages were likely associated with a coastal base for provisioning. For example, the island hermitage of Illaunloughan, Co. Kerry (White Marshall and Walsh 2005) situated between Portmagee and the larger island of Valentia may have been provisioned from an early medieval settlement at Bray Head on Valentia (Hayden 1998). Skellig Michael may also have been associated with mainland sites, such as Killabuonia situated in the Glen, near Ballinskelligs, Co. Kerry; and later the monks moved entirely from Skellig to the mainland establishing an Augustinian priory at Ballinskelligs on St Finnan's Bay (Bourke *et al.* 2011). These island hermitages and early monasteries used the sea and coastal resources, perhaps to complement other sources of food (Murray *et al.* 2004). Religious men and women who lived at these locations must have had various perceptions of the sea (O'Loughlin 1997), particularly those along the Atlantic seaboard which was thought at the time to be the edge of the known world.

The new religion was a catalyst for many changes, one of the most important being literacy. Emphasis was placed on the construction and manufacture of illuminated manuscripts, essentially highly-decorative religious books containing the four gospels of Christianity. These were written in Latin, the official language of the church. Examples of these include the Book of Kells and the Book of Durrow. Other works collectively referred to as The Irish Annals were created in this period, which were chronicles or accounts of the history of the church and other significant events (McCarthy 2008); including maritime events until the 1600s (Flanagan 1988).

Holy wells were a feature of the sacred landscape of Ireland and some are thought to have pre-Christian origins. During the conversion period it is thought that these sites were often repurposed as Christian places and ascribed to a locally venerated saint. In some cases, holy wells lost their significance and were re-invigorated in the eighteenth and nineteenth centuries, particularly when the influence of the Penal laws waned. The holy wells may have functioned as a place of baptism (Whitfield 2007), or may have been originally secular medieval becoming sacred at a much later date. Several wells are located on the coast or at the sea's edge becoming inundated at high tides, for example, St Finnan's well, Kenmare Bay, Co. Kerry. This can be seen as part of a broader belief in the spiritual and curative links to the sea; a common theme of coastal Western Europe that

identified particular healing powers with the month of August's tidal waters. Both sick people and horses were recorded as participating in this practice (Foley,2016)



FIGURE 24 ST DEIRBHE'S WELL, BELMULLET (RUTH MINOGUE)

The **Vikings** are renowned sea goers and boat builders (Larsen 2001) and used the sea as their preferred method of travel and transport (Bill and Roesdahl 2007). Their first raids in Ireland are recorded in AD 795 and continued until about 830. They then settled in Ireland after this date, first establishing longphorts, for example, at Woodstown upstream from Waterford (Russell and Hurley 2014) and by 914, founding mainly coastal towns to facilitate their trading lifestyle as for example, Cork (Thomas 1992, 60–67), Youghal (Thomas 1992, 215–220; Kelly and O'Keeffe 2015), Dublin (Wallace 2016), Limerick (O'Flaherty 2010), Wexford (Colfer 2008), Wicklow and Arklow (Tomas 1992, 221–222, 241); which continued as port towns and all of which continue as urban centres today. See Figure 25 below.



FIGURE 25 TOWNS OF VIKING ORIGIN

Furthermore, the Vikings left a legacy of loanwords which are still used in the Irish language, many of which relate to fish, fishing, boating and the placenames along the coast, for example, haven (Fellows-Jensen 2001).

Archaeological evidence for boats in the early medieval period is sparse; some images are known from eight-century cross inscribed pillars (such as the Bantry boat, Kilnarurane, Co. Cork); the annals occasionally mention the use of ships; a small number of model ships or toys have been found in excavations, and images of incised ships, many interpreted as graffiti, are known from artefacts and trial pieces. The largest corpus of boat related evidence is from the Viking world and ships timbers have been recovered from excavations of Viking Age Dublin (McGrail 1993), as well as one of the five Skuldelev ships found in Roskilde fjord, Denmark, which has been proven by dendrochronology to have been manufactured in Ireland and probably Dublin. These ships provide a small glimpse into the Viking trading routes that extended from Scandinavia, eastern Europe, Russia westwards to Ireland's coast (Graham-Campbell 1994; 2001).

The beginning of the **later medieval period** in Ireland was characterised by political unrest that originated from the death of Brian Borumha, (Boru) the high king of Ireland, in 1014. Diarmait MacMurchadha, (MacMurrough) deposed King of Leinster, sought the support of mercenaries from England, Wales and Flanders to assist him in his challenge for kingship. Norman involvement in Ireland began in 1169, when Richard de Clare and his followers landed at Bannow Bay in Wexford to support MacMurchadha. By the end of the twelfth century the Normans had succeeded in conquering much but certainly not all of the country (see Duffy 1997 for overview). A notable feature of the church in the later medieval period was the proliferation of foundations for European religious orders (Bhreathnach *et al.* 2019). A small but significant number of religious houses had been established in Ireland prior to the coming of the Anglo-Normans, but the new administration facilitated the rapid introduction of Carmelites, Benedictines, Dominicans, Franciscans and Crutched Friars (Gwynn and Hadcock 1970). Several of these religious houses were located in coastal areas and exploited the resources of the locality, for example Tintern Co. Wexford (Lynch 2010). Fishing and the use of boats was a major industry in later medieval Ireland, but one which is often overlooked (O'Sullivan and Breen 2007,; O'Sullivan and Downey 2009; 2018). Ireland continued to be part of the sea trade routes established in the earlier period (see Bill *et al.* 2011).

Earthen and stone castles of the Anglo-Normans and Gaelic communities were erected on or near the coast, for both defence and the exploitation of marine resources. For example, the ringwork at Ferrycarrig Co. Wexford was built at the arrival of the Anglo-Normans as first foothold in the country. Coastal mottes were also constructed for the same reasons, for example, the motte at Inch, Co. Wexford, near Blackwater harbour. Later, stone castles were built around the coast, for control and defence and most of the Hiberno-Norse port towns that the Anglo-Normans took over or those they established had a stone castle, for example, Limerick Castle (King John's Castle) at the head of the Shannon Estuary (Wiggins 2016); Cork, Dublin, Drogheda and Waterford (Thomas 1992) and Galway town (FitzPatrick *et al.* 2008; Prunty and Walsh 2016). Smaller port towns may have had a stone castle or may have been walled; for example, Dingle and Tralee, Co. Kerry, Kinsale Co. Cork, Dungarvan Co. Waterford or Dalkey, Co. Dublin (Thomas 1992). These towns functioned as harbours and ports and there is archaeological evidence for trade with Britain and the continent. A customs system was introduced to Ireland in about 1275, labelled the 'great custom' when eleven ports were listed (O'Sullivan and Breen 2007). Navigational structures are known

from this period, for example, the lighthouse at Hook Head, thought to have been tended by monks (Colfer 2004), or the Maiden's Tower at Mornington, near Drogheda Co. Meath, which is classified as a watchtower perhaps for vessels entering the Boyne.



FIGURE 26 MAIDENS' TOWER. MORNINGTON, NEAR DROGHEDA (DROGHEDA MUSEUM)

In Gaelic areas, particularly along the west coast in counties Donegal, Mayo, Galway, south Kerry and west Cork, the coast was also exploited by the controlling Gaelic Irish families but was not invested in to the same extent as in Anglo-Normans areas (Duffy *et al.* 2001). In these Gaelic areas, no large port infrastructure has been recorded, but rather smaller landing places, piers and harbours were used, frequently associated with tower houses of the fifteenth century (Naessens 2018). A number of tower houses along the Mayo coast are associated with the O'Malley famiy. Their most famous family member, Granuaile (Grace O'Malley), is reputed to have been a pirate, Their tower houses at Klidawnet, Clare Island and Clew Bay controlled harbours and natural anchorages. Some of these tower houses are constructed so as to allow boats to moor alongside. Smaller coastal villages were also in use around the entire coast in this period and there is archaeological evidence for some; though in many cases they are difficult to identify as they were unenclosed, and did not possess large stone structures such as tower houses.

2.5 Post-Medieval to Early Modern

The transition from the medieval to the post-medieval and early modern periods is best explained as processes of change to what has been termed 'modernity' which occurred over a period of time and at different paces in different locations (McNeill 2007). In Ireland there are many examples of where the sea played a pivotal role in this transition (Kelleher 2009). Traditionally, the Spanish Armada of 1588 or the Nine Years War of the 1590s have been used as watersheds marking the transition, but recognising that a single event did not cause the transition, there is definitely an expansion of cultural heritage in this period on the island of Ireland. O'Sullivan and Breen sum it up succinctly:

Change can be seen in new economic practices, changing settlement patterns and in the processes of industrial and resource exploitation. Gaelic Irish power and influence

collapses, a wave of new settlers and planters arrive, new towns and villages are established, new industries emerge and the cultural character of the landscape begins a process of rapid alteration and change (O'Sullivan and Breen 2007).

The wider European background to this period is the Spanish Armada of 1588 (Martin and Parker 1988; Kerrigan 1995). **Fortifications and castles** were subsequently constructed around the Irish Coast as a result, such as at Galway, Dún an Óir (Smerick), Co. Kerry, Dunboy, Kinsale, and Cork Harbour, Co. Cork and at Passage and Duncannon, Co. Waterford (Kerrigan 1995).

The Armada was a Spanish plan to invade Ireland's nearest neighbour, England. A large fleet intended to sail from Spain first to Flanders and then to an invasion of England. In May 1588 a 130 strong fleet left Lisbon for Flanders, but the expedition failed due to lack of preparation, superior English tactics and poor weather. After six days of battle, the Spanish left for home, choosing to sail a much longer route around Scotland and the west coast of Ireland rather than risk being attacked in the English Channel. This was disastrous for the Spanish fleet with at least 30 ships lost; 26 of those along the Irish coast. A number of these have been located and archaeologically investigated, for example the *Santa Maria de la Rosa* near the Blasket Sound, Co. Kerry, *La Girona* of the coast of Co. Antrim, the *Trinidad Valencera* of the Derry coast, and the *Juliana,* the *Lavia* and the *Santa Maria de Vision*, three Armada wrecks off Streedagh Strand, Co. Sligo (Kelleher *et al.* 2012). -Spanish Point, Co. Clare was renamed as such to reflect the connections to the shipwrecks of the Co Clare coastline.

Following the failure of the Armada to invade England, further tensions grew between the English crown and the Ulster Irish lords, culminating in the Nine Years War of 1594 (O'Neill 2017). After protracted conflict the English were successful, forcing Irish lords to flee to Spain in 1607; an event which became known as the 'Flight of the Earls' (FitzPatrick 2007; 2017; Finnegan *et al.* 2010).



FIGURE 27 FLIGHT OF THE EARLS STATUE, RATHMULLAN, LOUGH SWILLY (R.MINOGUE)

This allowed England to pursue **plantation** settlements, predominantly in Ulster and Munster, granting large portions of land to British settlers, and many of the **port towns** present today have connections to this period, for example, Derry/Londonderry and Coleraine (Canny 2001; Power 2007; Donnelly 2007; Horning 2007; 2013). This period continued to see the construction of numerous forts around the country, both by the Irish and settler populations and many were near the coast (see Kerrigan 1995). Indeed, the conflict led many richer towns and householders to fortify their houses and lands throughout the period 1603–1691 (Kerrigan 1995).

Nevertheless, people continued to exploit and live by the sea. Archaeological excavation near Killybegs Co. Donegal at Rough Point uncovered a small settlement of five stone structures thought to be the settlement established in 1615 in the then plantation district of Boyagh, granted to Scottish undertakers (persons who undertook to establish a plantation settlement). Several port towns that had been established in early times, were re-developed at this time, with the construction of stone quays and modifications to harbours/ports, as at Galway (Prunty and Walsh 2016), Limerick (O'Flaherty 2010), Cork (Crowley *et al.* 2005) Waterford, Dublin (Lennon 2008; Goodbody 2014) and Drogheda, for example. And many of the seventeenth-century maps of these towns show busy harbours (e.g. Limerick; O'Flaherty 2010). Relatively smaller harbours/ports such as Kinsale, Baltimore, and Dingle were also modified at this time to facilitate trade. Youghal, Co. Cork for example, specifically benefited from improvements made by planters, where an enclosed harbour was constructed to provide a port to facilitate the export trade of pig iron, charcoal, cattle and wool (Kelly and O'Keeffe 2015).

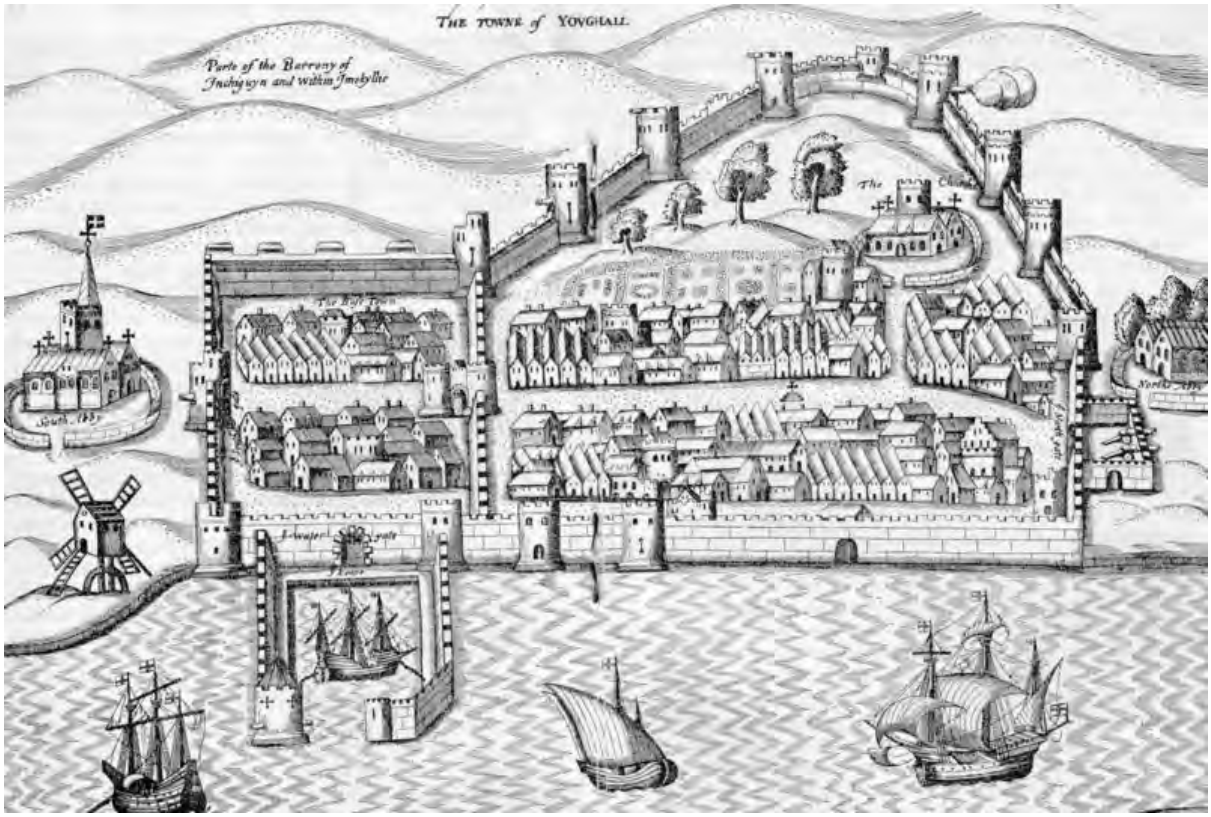


FIGURE 28 PACATA HIBERNIA:, OR A HISTORY OF THE WARS IN IRELAND DURING THE REIGN OF QUEEN ELIZABETH 1633 MAP OF YOUGHAL

Further conflict in the mid-1600s (c. **1641—1660**) through the confederate wars and the Cromwellian confiscation of land subsequently led to the loss of power of the Gaelic lords, particularly along the western and northern seaboard. Archaeologically, this is seen in the record through the refurbishment of existing forts and the construction of new **fortifications**, including castles, fortified houses, 'star-shaped' forts and citadels throughout the country (Kerrigan 1995). Walled towns across the country were used defensively through the period (see Thomas 1992).

One of the country's most impressive twin forts, James and Charles Fort at the mouth of Kinsale Harbour, Co. Cork were constructed in 1602 and 1677, respectively. A third was also constructed around this time on Haulbowline Island in Cork Harbour. Duncannon Fort in Waterford Harbour

was strengthened in 1641–1660 to also provide protection to the coastline. Other examples of these coastal forts are Inishbofin Island (Kuijt 2015), Mutton Island (Walsh 2019), Arkin, on the Aran Islands, Co. Galway; Massy's Hill at Tarbert, Cromwell's Point, Valentia Island, Co. Kerry (now the location of the lighthouse there); Castletownshend, Charles Fort and James Fort (Kinsale), Corkbeg (Cork Harbour), Co. Cork; Passage, Co. Waterford; Duncannon and Rosslare, Co. Wexford; and, Ringsend Co. Dublin (Kerrigan 1995).



FIGURE 29 AERIAL PHOTO OF STAR SHAPED FORT, KINSALE. (WWW.KINSALE.IE)

Despite the conflicts, **new planter towns** (Harkness and Dowd 1981) and **new industries** (Rynne 2006) were developed at strategic locations, many along the coast and there was a large sea trade with vessels coming and going from England and the Continent (see Kelleher *et al.* 2012). For example, the wreck of the *Great Lewis*, was found in the shipping channel near Duncannon, Co. Wexford which was a Parliamentarian vessel sent to relive the garrison at Duncannon Fort. The partial timber structure of the ship contained a number of cannon and other artefacts were recorded on the seabed (Kelleher *et al.* 2012). The forts located in Bantry Bay at Dunboy and Newtown, Co. Cork were constructed in this period in response to the Anglo-Dutch war of 1651–52 to protect the shipping routes into the Bay and its safe anchorage (Forsythe 2007).

Throughout the remainder of the seventeenth century, c. 1660-1691 conflict continued with the restoration of Charles II as King in Dublin and the subsequent Jacobite War. John Paine was then appointed as Director General in Ireland, which included duties as overseer of the king's fortifications in Ireland. Many of the **fortifications** listed above were refurbished with new artillery and structures and some of those which had not been completed in the Cromwellian period were demolished (Kerrigan 1995). At this time, coastal defence was paramount. In 1666, Orrery reported forts at Valentia, Bantry, Sherkin, Crookhaven, Dunboy and Kinsale were all in a poor state and required refurbishment. After the Dutch attack on the Medway at Chatham, England in 1667, all the forts around Cork Harbour and Kinsale were strengthened. The Catholic James II became king in 1685, fleeing to France in 1688 when the Protestant William of Orange landed in England. James returned in 1689 to Kinsale in an attempt to retrieve his position as king. The war between them raged in Ireland between **1689—1691** culminating in the Battle of the Boyne and the Treaty at Limerick (Kerrigan 1995; Lenihan 2003).

In the early years of the eighteenth century, **barracks** of various designs were constructed across the country, several re-using the coastal forts of previous eras, for example, Mutton Island, Co Galway, and the forts around Kinsale Harbour. New coastal barracks were also developed, such as at Leam and Carn on the Belmullet peninsula, Co. Mayo; Tralee, Dingle, and Kenmare, Co. Kerry;

Youghal, Co. Cork; Dungarvan, Co. Waterford; Wexford; Arklow, Wicklow and Bray, Co. Wicklow; Dublin; and Drogheda, Co. Louth (Kerrigan 1995).

The French were perceived as the main threat to Britain at this time, after the French Revolution and the newly declared Republic, which was an impetus for fortifications and features to be constructed around the coast. In **1796** Wolfe Tone, a leader of the United Irishmen, went to France to campaign for a French invasion of Ireland (Elliott 2019). A plan was developed. Bantry Bay would be the entry point with the French and a group of local insurgents marching on Cork. In December of 1796, 48 ships and 13,000 troops left Brest in France for Bantry Bay. Due to poor planning and bad weather the ships never landed and several were wrecked along the Irish coast. One of the **ships**, *La Surveillante*, arrived in Bantry but was so badly damaged that it was scuttled in the bay and its remains lie off the shore of Whiddy Island (Breen 2001; Forsythe and Breen 2007). Another in the fleet, *L'Impatient*, was wrecked near Mizen Head, Co. Cork. Despite the failure of this venture, three more ships left France for Ireland in 1798 with 1,000 soldiers and landed at Killala, Co. Mayo/Co. Sligo. They joined local forces, but after some initial success, the group surrendered to the British. A further ten vessels sailed from Brest to Donegal, where they engaged with British naval forces but were defeated and their vessels captured.

As a result of these 1790s incursions in the following early years of the 1800s new fortifications were constructed to thwart any further incursions. A circuit of defences were created around the coast including signal towers, forts, batteries, Martello towers, bridgeheads and barracks of various types. These have been mapped in detail by Kerrigan (Kerrigan 1995). The central spine of the country, the River Shannon was also fortified. The **signal towers** and Martello towers were new innovations in this period and worthy of some discussion. From the last 1790s, both France and England had several ways of signalling to ships from the coast and from headland to headland. In 1804, signal stations were introduced in Ireland and used the ball-and-flag signalling system, which had been established in England in 1795. Most had a tower erected, though a few used existing forts, lighthouses or Martello towers. The towers were typically two-storeys, square in plan with the entrance on the seaward side of the first floor, accessed via a step ladder Eighty-one such signal towers were built between 1804–1806 to improve communication on the island from Dublin around the coast southwards to Donegal. Most were abandoned by 1809 (Kerrigan 1995).

From 1801 to 1922 Great Britain and Ireland were united as a single political entity, the United Kingdom of Great Britain and Ireland. The signal towers and the **Martello towers** on the island of Ireland could be considered to have been part of a single defensive system, designed to protect the coastlines of the two main islands of the geographical British Isles as a whole (Kerrigan 1995). This is most clearly illustrated on the south and east coasts of England and the east coast of Ireland, where chains of Martello towers were built. Elsewhere individual towers were erected to provide point defence of strategic locations such as at important harbours like Cork, Bantry and Lough Swilly. Martello towers were inspired by a round fortress, part of a larger Genoese defence system, at Mortella (Myrtle) Point in Corsica. This tower was completed in 1565. About fifty Martello towers were constructed in Ireland (Enoch 1975; Bolton *et al.* 2012).

In 1809 the British Water Guard was created and later in 1822 the (Preventive) Coast Guard extended to Ireland as part of the United Kingdom of Great Britain and Ireland. During this period the Coast Guard played revenue protection and coastal defence roles, as well as forming part of the Royal Naval Reserve. In the 1850s, the Admiralty took over the Coast Guard and officers

stationed in Ireland complained that their naval career was retarded relative to those in England. When the Irish Free State was formed in 1922, Tom Casement tried unsuccessfully to establish a new Irish coast guard and in late 1923 he instead became the first Inspector of a new Coast Life Saving Service. In 1822 the **Coast Guard** first used bases comprising a cottage, boathouse and watch area. A flag system of communication was employed between stations; and some coastguard stations later became associated with lighthouses (Department of Transport, Tourism and Sport 2019). The Coast Guard was an armed force. Between 1858 and 1867 the Coast Guard had about 200 stations organised into three districts with a divisional headquarters. Many by this time were long and narrow accommodation blocks of one or two storeys, with a tower (square or rectangular in plan) at one end. This housed the look-out post and after 1867 usually had defensive features such as loop holes to allow flanking fire to protect the main structure. Kerrigan suggests that the Fenian Rising of 1867 may have led to the requirement for tighter defence at coast guard stations, when the station of Knockadoon in east Cork was captured (Kerrigan 1995).

Lighthouses themselves have been in use since the medieval period in Ireland, Hook Lighthouse Co. Wexford is Ireland's oldest and the oldest still in use in Ireland or Britain. It was originally tended by monks (Coulter 1998; Hague and Christie 1975; Colfer 2004). Lighthouses guide shipping, and serve as a reference point for mariners (Millington 2006). The zenith of lighthouse construction came in the nineteenth-century and several continue in use today. Ninety-one lighthouses once operated around the coast of Ireland and most were built between the period 1810 to 1867 (O'Reilly 2018). All lighthouses—excepting the Ballycurran lighthouse on upper Lough Corrib—are coastal (Rynne 2006) and are iconic structures in the seascape.

Lighthouses were constructed usually in stone, though there is a timber example known that could be moved on rails in a shifting channel at Drogheda Co. Louth (Rynne 2006). Each one is distinguished by its colour scheme and pattern, known as its 'day mark', and by its light signature (Taylor 2004). While lighthouses were usually tower-shaped, there were a number of single storey brazier or cottage lighthouses in use in the eighteenth century, which were vaulted in stone to prevent fire damage (Rynne 2006). Up until the eighteenth century, lighthouse ownership was private and their operation was poorly regulated (Montague 2015; O'Reilly 2018). Tapering glazed lanterns were introduced at this time (Rynne 2006). These were fired first by candle power, later oil, gas, and electricity. By 1810, all lighthouses (fourteen in number) were vested in the Dublin Ballast Board and its engineer George Halpin was responsible for all lighthouse construction from 1810 to his death in 1852 (Montague 2015). In 1867 the Commissioners of Irish Lights was established to manage the then seventy-two lighthouses funded through the collection of light dues levied of different types of shipping and collected by the Customs Authority (O'Reilly 2018). In the early 1860s innovation in gas-fired lamps by the engineer Wigham revolutionised lighthouse lights. He also introduced the concept of flashing lights (Rynne 2006). By the 1990s, all lighthouses in Ireland were automated (Montague 2015; Rynne 2006).

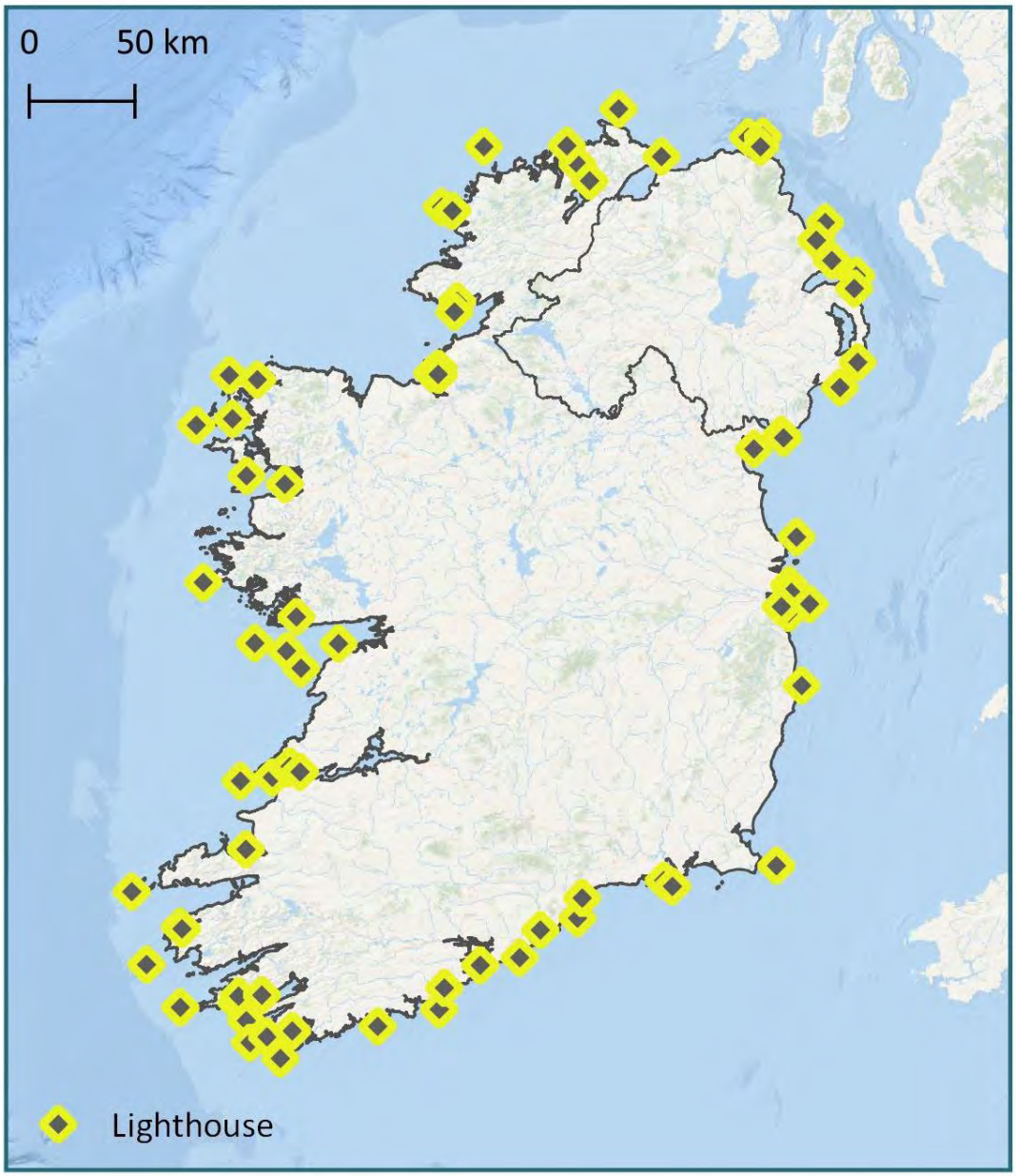


FIGURE 30 LIGHTHOUSES OF IRELAND

Along with lighthouses, there are a large number of navigational aids in the sea close to shore, and along the coast itself. Some of these many have been in use since medieval times, although this is difficult to now prove. For example, buoys, lights, navigational pointers into harbours, such as the one at Dingle, Co. Kerry, or 'the Metal Man' at Rosses Point, Co. Sligo, a navigational beacon in the sea in the form of a cast-iron statue of a pointing naval officer atop a stone podium, dated to 1821. A similar metal man is located at Tramore, Co. Waterford, but this time it is located on the land and stands on one of three pillars near Newtown Cove. These maritime beacons were constructed through Lloyds of London at the behest of the Admiralty after the tragic loss of 360 lives after HMS Seahorse sank after becoming grounded at Brownstown Head in bad weather, in 1816.



FIGURE 31 METAL MAN, ROSSES POINT, CO. SLIGO (IRISHLIGHTS.IE)

2.6 Boats, ships and shipbuilding

Throughout the course of Irish history **boats, ships and shipbuilding** have been important, but sometimes difficult to identify in the archaeological record[13] (Small vernacular boats have already been mentioned and these continued in use in the post-medieval period—some traditional boats are in use right up to the present day (MacCarthaigh 2008). The currach or naomhóg is probably the best-known vernacular boat. They were multi-functional craft, used for passengers, goods, fishing and seaweed gathering. Other well-known native boats include the Hooker, very popular around Galway and its fishing settlement of the Claddagh, which had over 100 vessels recorded in 1836 (in O'Sullivan and Breen 2007). Hookers were used for fishing, being very sturdy against the Atlantis weather, and also used in the transportation of turf, seaweed and goods.

Infrastructure was constructed throughout the period to facilitate the use of all types of water-going craft, such as improved port facilities as hundreds of smaller **quays and piers**, many of which were the work of Alexander Nimmo—an engineer extraordinaire (Villiers-Tuthill 2006; Wilkins 2016; 2017).

Larger boat and shipbuilding emerged in Ireland after the more peaceful eighteenth century and the technological advances of the industrial revolution in shipbuilding (Rynne 2006). The Hennessys of Passage Co. Cork constructed the hull of the first Irish paddle steamer in 1815 and in 1816 constructed another which was completed with an engine made at the Hive Iron Works in Cork City—the first marine engine to be manufactured in Ireland (Rynne 2006). By 1820 the Lagan foundry in Belfast had manufactured a complete steamer (O'Sullivan and Breen 2007). Shipbuilding was carried on in Belfast since the mid-seventeenth century and significantly expanded in the eighteenth century.

2.7 Wrecks

Globalisation was but one of the effects of the Industrial Revolution and this created a huge increase in the numbers of vessels coming to Ireland and consequently, an increase in the number of shipwrecks over time.. O'Sullivan and Breen note that the vast majority of ships wrecked were due to bad weather in the winter months, with nearly 50% lost between October to March and of those 75% lost during storms of force 7 or stronger (O'Sullivan and Breen 2007). The majority of

[13] for an overview of shipwrecks of the modern historic period see Kelleher *et al*. 2012, 18-25; Brady *et al*. 2012, 26-41

those lost in summer months were due to circumstances beyond their control, such as war losses, submarine action or due to collisions (Lyttleton *et al.* 2012a, 44-51). Interestingly, a number of vessels were also lost due to piracy throughout the post-medieval period (Kelleher 2020). The numbers of wrecks known around the coast of Ireland must be considered a minimum number as many smaller vessels lost, such as smaller fishing vessels from small fishing communities, would not have been recorded (Brady and Moore 2012; Kelleher *et al.* 2012).

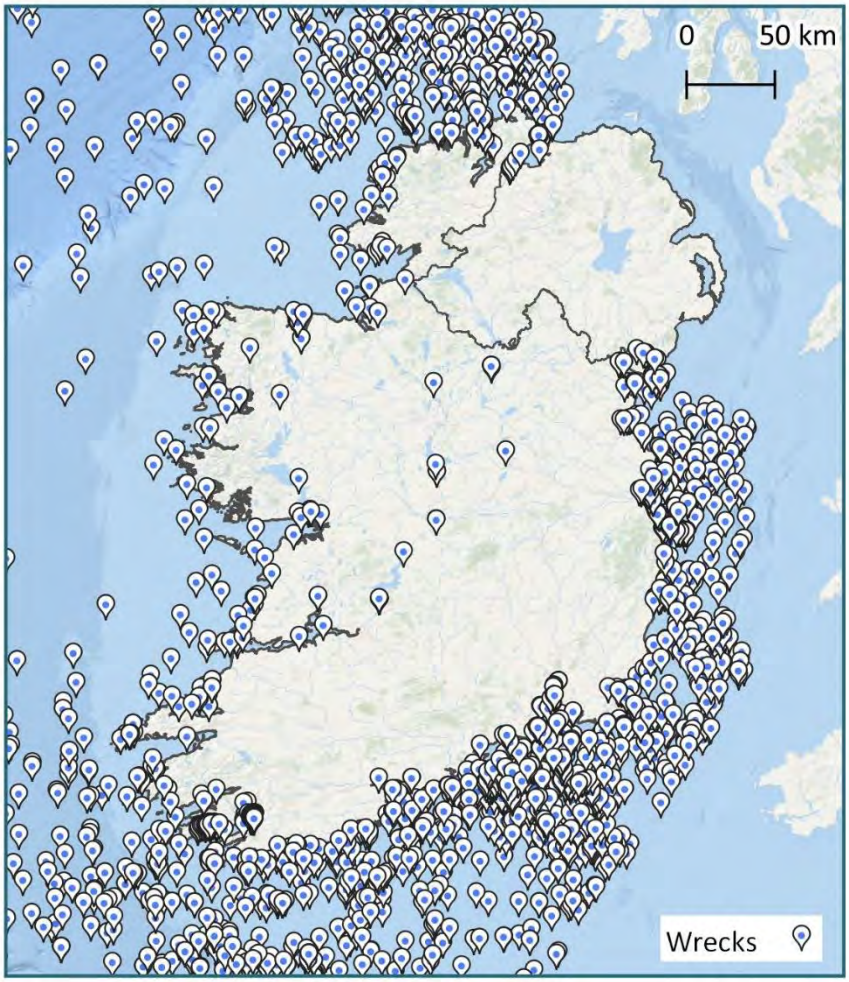


FIGURE 32RECORDED WRECKS

2.8 Fishing

In addition to the international sea trade, smaller coastal and island communities continued with their livelihoods associated with the sea and fishing (Rynne 2006; De Courcy Ireland 1981; MacLaughlin 2010). O'Sullivan and Breen note importantly that there has been a tendency to generalise and romanticise fishing and boats of the coast, when it was actually '*a complex and multi-layered industry with extensive physical operations and social relationships. It was an industry that transcended the land and sea interface, reaching far inland. It was also an industry that operated on many levels from the local to the international and incorporated many nationalities and social levels*' (O'Sullivan and Breen 2007).

Island communities, such as that recorded on the Blasket Islands, Co. Kerry, depended largely on fishing with boats that were family-owned and the fishermen operated within a loose cooperative environment (Stagles and Stagles 1984). Communities on the Aran Islands (Pochin Mould 1972;

O'Sullivan 1977; Robinson 1986) and Inishkea Islands were similar (Dornan 2000; Marquardt 2012). Ireland's islands have a distinctive way-of-life and several cultural studies have been completed on islands and islanders (for example, O'Sullivan 1977; Collins *et al.* 1999; Laheen 2010; for an overview see Ferriter 2020). There is also a body of literature by Islanders themselves for example, the Blasket Islanders (for example, O'Sullivan 1951).

More commercial fishing was undertaken at larger settlements such as Dingle, Co. Kerry (Roney 2019), Rutland Island, Co. Donegal (Forsythe 2012), the Claddagh, adjacent to the city of Galway. Here, almost the entire village population was involved in **the fishing trade** either on the boats, making and mending nets or selling fish at market (O'Dowd 1987). Herring was the most common and profitable type of fish exploited (O'Sullivan and Breen 207, 218). Larger scale commercial whaling took place in Ireland until the 1930s and a station was first established at Inver Co. Donegal in the 1760s, and later two more were founded both in 1908 on the Inishkea Islands and at Blacksod Bay, Co. Mayo (Went 1968; Dornan 2000, 138-142). Shark fishing—mostly for Basking shark— was undertaken by local communities but also on a more organised basis from Donegal, Achill and the Claddagh (MacDonald 1997; McNeary 2007; O'Sullivan and Breen 2007).

Boats used for seine net fishing is one of the oldest forms of fishing recorded in Ireland. This involved the use of two boats, one larger than the other, the larger leading under the direction of an experienced boat person, and the dropping of a net between the two to entrap shoals of fish. This type of boat and fishing technique was mostly used in the southwest of the country.



FIGURE 33 ONE OF THE LAST WORKING SEINE BOATS OF PORTMAGEE, JOHNNY MAHONY IN ONE OFTHIS BOATS AT PETER ST, KINGSTOWN (PORTMAGEEWHISKEY.IE)

In addition to net fishing from boats, fish traps continued to be used along the coast, estuaries and rivers and numerous examples have been recorded right around the country (O'Sullivan 2001; Montgomery *et al.* 2015). Fish palaces were used in this period, traditionally known as 'pallices'. They are coastal stone-built curing stations for processing (smoking, pickling and pressing) fish such as herring and pilchard, where barrels of fish are placed under weights to extract oil. Stone walls, such as those of castles and cliffs were also used as fish palaces. There are 20 recorded in Ireland, concentrated in the southwest in counties Kerry and Cork. A few coastal fish ponds, already a site-type in use in the medieval period continued to be used to furnish estates with a regular supply of fish, as that known near Dunboy, Co. Cork or at Kilkee Upper, Co. Clare.

Shellfish continued to be exploited in this period (Wilkins 2004) and urban archaeological excavations regularly uncover remains of shellfish middens, such as periwinkles and particularly oysters which were common the medieval and post-medieval periods, as at for example the excavations in Galway (FitzPatrick *et al.* 2004) and excavations at North and South Main St Cork (Hurley 1997; Hurley and Brett 2014). By the nineteenth century such was the demand in oyster consumption that legislation was introduced to protect natural oyster beds and by the 1840s oyster cultivation was recognised as a nascent industry with artificial tanks built at Derreen, and Sneem Harbour, Co. Kerry. By the 1880s mussel beds were also in operation expanding these forms of early aquaculture (Wilkins 1989; O'Sullivan and Breen 2007).

2.9 Other sea and coast resources

The **sea** is bountiful and all its **resources** were exploited to differing degrees. For example, seaweed and kelp was likely exploited as fodder, fertilizer and some varieties for food since earliest times (O'Sullivan and Downey 2010), but it became a major industry in the eighteenth and nineteenth century and was used in industries such as glass, soap, washing soda for linen finishing and in the production of iodine, which continued until the 1950s (Rynne 2006; McErlean 2007). Ireland's climate was not suitable for large scale commercial production of salt by salt panning, though commercial salt pans were established in Ballycastle, Co. Antrim and Slade, Co. Wexford (Colfer 2004; McConkey and Breen 2017; Forsythe *et al.* 2018). Other post-medieval industries were located near the coast coincidentally as this is where the natural resources they exploited were located. For example, the eighteenth-and nineteenth-century copper mines at Bunmahon, Co. Waterford, Allihies, Co. Cork and Kenmare, Co. Kerry (Rynne 2006).

2.10 19th and 20th century – defence and modernisation

Kerrigan has suggested that between 1815 to the Crimean War of 1854–1856 not much changed in the material culture associated with defence (Kerrigan 1995). But after this time, because of the developments in artillery, the earlier fortifications were no longer up to their task of the **modern defence** of the seas and coast and the use of new materials in structures associated with defence was required. In 1844 the defences of the Shannon Estuary, such as the fortifications at Kilcreduan, Kilkerin Point and Scattery Island, Co. Clare, Carrigisland, and Tarbert, Co. Kerry were all manned but not upgraded. But, in 1857 a new pier-head battery with nine guns was built at Kingstown (Dún Laoghaire) on the East Pier, which incorporated a lighthouse. Many of the Dublin Martello towers were refurbished with larger guns at this time. In 1860 Duncannon Fort, Co. Wexford was also refurbished and a report was made that all the defences around Cork and Kinsale Harbours required consolidation. The battery at Queenstown (Cobh) that had been previously dismantled was recommended for remodelling (Kerrigan 1995). In the late 1870s other batteries had been established, as at Wicklow, Rosslare, Co. Wexford and Rosses Point, Co. Sligo. In the 1890s the defences around Lough Swilly, Co. Donegal were substantially refurbished with new earthworks, buildings and gun emplacements (Kerrigan 1995).

The 1900s brought about yet further changes. In 1904, for instance Pigeon House Fort, South Wall in Dublin Harbour became an electricity generating works (Kerrigan 1995). The later chimneys associated with this power station have now become iconic structures in the Dublin seascape (see #savepoolbeg campaign) and considerable opposition was aired to their proposed demolition in the 2000s; these are now on the Record of protected structures and have become iconic parts of the Dublin seascape.

Cork Harbour, Berehaven and Lough Swilly became very important during **World War I** (1914–1918) as towards the end, the US navy made use of the anchorages and facilities were provided for naval air stations and seaplane bases (Kerrigan 1995). Probably the most famous shipwreck off the Irish coast dating to this period is the *Lusitania*, a passenger liner sunk by a submarine off the south coast on 7 May 1915 (Moore *et al.* 2019; for an overview of wrecks in Irish waters associated with WWI see Lyttleton *et al.* 2012b; Brady *et al.* 2012c). The three defended harbours again became important in 1921 when The Anglo-Irish Treaty was made, when the British retained them along with Belfast Lough Harbour defences as '**the Treaty Ports'**. The ports and facilities remained available to the Royal Navy, with fortifications under British control until the Anglo-Irish Agreement of 1938, when three of the four were handed back to the Irish state (Kerrigan 1995).

In 1942, the Irish Corps of Engineers of the army constructed Fort Shannon, west of Tarbert Island at Ardmore Point, Co. Kerry. It comprised gun-emplacements, with reinforced concrete foundations some six-feet deep, magazines, search-light positions, engine room, electricity supply station and living accommodation. Duncannon Fort, Co. Wexford overlooking Waterford Harbour was also occupied between 1939–1945 and additions were made to it at this time. Smaller machine gun posts or '**pillboxes**' were also constructed in concrete around the country and several of these are upstanding (Kerrigan 1995).

Similar concrete structures (but not the same as the pillboxes) called **lookout posts (LOPs)** were used by the Coast Watching Service from 1939 until 1945 (Kennedy 2008; Schmelzer 2014). The Irish Defence Forces established the Coast Watching Service in the run up to **World War II or 'The Emergency'**, as the State remained neutral during the conflict. Between 1939 and 1942 the construction of 83 LOPs, took place at strategic points, about every 5–15 miles, along the Irish coastline and local volunteers, called Coast watchers served at these posts. They were responsible for monitoring activity around the Irish coastline. The LOPs were designed by Howard Cooke RIBA of the Irish Office of Public Works in 1939. Each LOP kept a log of any activity at sea or in the air.



FIGURE 34 VIEW FROM INTERIOR OF LOP MALIN HEAD, AND EXTERIOR OF LOP BROMORE CLIFFS. (RUTH MINOGUE)

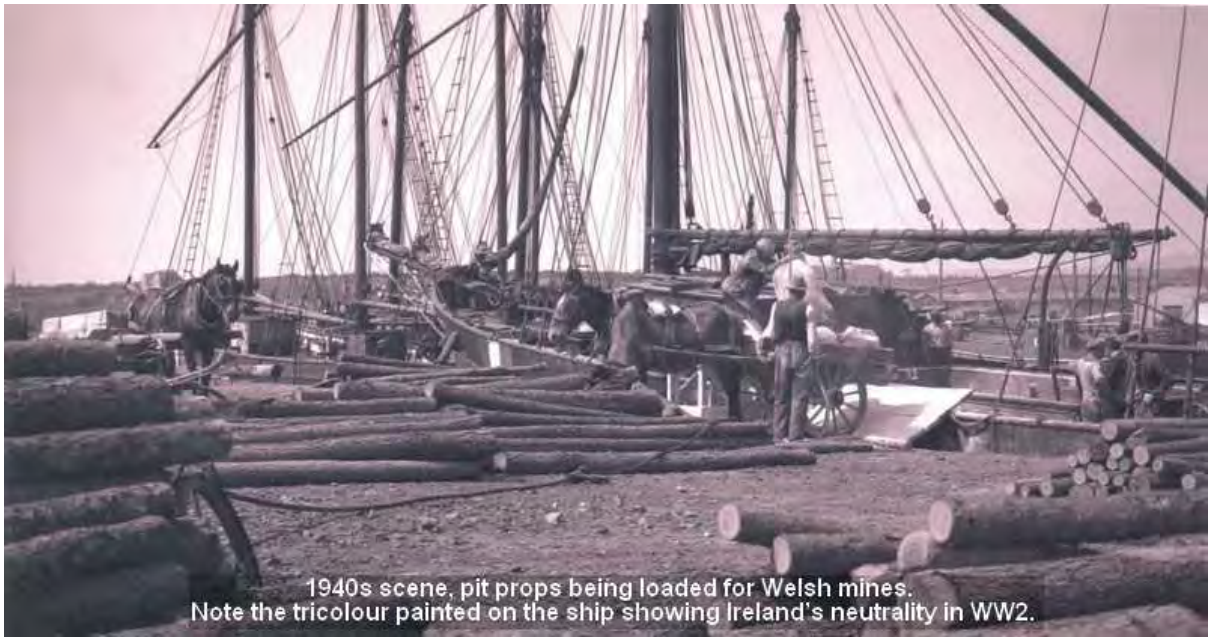


FIGURE 35 ARKLOW DOCKS (SOURCE: ARKLOW MARITIME MUSEUM WWW.ARKLOWMARITIMEHERITAGE.IE)

The **EIRE or neutrality signs** which mark the coast of Ireland are another remnant of the Coast Watching Service. Kennedy has cited an army report of c. 1944 which suggested the signs were put in place to, 'reduce the number of aircraft landing because their crews had lost their bearings', although his research suggested that signs were placed at the behest of the US authorities (Kennedy 2008). Most LOPs had their own EIRE sign, although many are now no longer visible or are very faint. They have been described as the 'GPS of the past' (Lynch 2020). They are officially numbered after their respective LOP.[14] Recently, there has been increasing interest in these cultural heritage features and several have been restored by local community groups. The Eire sign at Bray Head Co. Wicklow (EIRE_08) was re-discovered in 2018 when a gorse fire revealed its outline (Lynch 2020, http://eiremarkings.org/eire8-bray-head/. Accessed 12 June 2020). There are a number of known wrecks of ships and submarines in Irish waters associated with WWII (for an overview of wrecks in Irish waters associated with WWI see Lyttleton *et al.* 2012c; Brady *et al.* 2012d).

2.11 Leisure, tourism and the Sea

In the eighteenth-and nineteenth-century, attitudes to the coast, its beaches and the water itself began to shift and the coast slowly but surely began to be viewed with leisure in mind (Corbin 1994). **Seaside resorts, sea-bathing, spa towns**, along with leisure travel and modern tourism sprang up as an indirect effect of the Industrial Revolution in Britain, and eventually became in the 1840s accessible to day trippers through the extensive rail network (Walton 1983). The Romantic movement had a profound influence on the perceptions of the sea, particularly amongst an urbanised population. This can be seen in the visual representation of the sea and coast, with the

[14] For an entire list of LOPs and Eire signs in Ireland see https://en.wikipedia.org/wiki/Coast_Watching_Service#:~:text=EIRE%20markings,-EIRE%20Sign%20at&text=According%20to%20Michael%20Kennedy's%20book,behest%20of%20the%20American%20authorities. Accessed 12 June 2020.

Romantic Gaze' along with the purported health benefits increasing the attractiveness of the sea and coast for visitors.

However, whilst many seaside resorts in Ireland did expand in the nineteenth century and benefited from the expansion of the railway network, earlier records exist of drinking seawater as a medicinal practice (this continues from the association of holy wells and curative practices) – noted in the coast north of Dublin as early as 1709 and the Clare coast in 1740s (Foley 2016).



FIGURE 36 VIEW OF KILLINEY BAY 1802 THOMAS SAUTELL ROBERTS – BRITISH LIBRARY

Sea-bathing and proximity to the sea was perceived as bringing positive health benefits; this continues to this day with recognition of the value and importance of blue space.

Most Ireland seaside resorts date to the nineteenth century and so are a modern phenomenon (Brannigan *et al.* 2018), for example, Kilkee Co. Clare and Bundoran Co. Donegal and they all have a distinctive but not uniform layout and architecture; adding to the variety of more recent cultural heritage associated with the coast.

Whilst urban coastal towns did reflect the British trend, most clearly in Bray, Co. Wicklow; there were some quite distinctive local flavours and activities. Seaweed baths appears to be a relatively unique feature of the Irish seascape, with over 300 baths around the coast in the early twentieth century. Again, the positive beneficial properties of seaweed are enjoying a resurgence, both for immersion in sea baths, cosmetic products such as Voya skincare and also as a part of our culinary heritage.

Despite Ireland's relative absence of industrial activity and accompanying 'worker's weeks holidays; there are records of poorer rural labourers visiting the Irish seaside, particularly at the end of harvest. Sligo in particular had 'Sea-Pikes' who would travel en masse for several weeks holidays. A contemporary account (1834) by Inglis expresses his surprise at frequent encounters of carts piled up with country people, with the necessary provisions and intentions to rent cheap cabins at the lower end of Sligo Bay for a number of weeks[15]

'*A few weeks passed at the seaside is looked upon to be absolutely necessary for the preservation of health; and persons of all classes migrate thither with their families'*.

Whilst seaside resorts suffered considerably with the advent of package holidays to Mediterranean countries, they have retained a constant popularity. Certain coastal villages along the east coast would have several generations of families continuing to holiday for several weeks at caravan parks or holiday homes such as Courtown Co. Wexford. Those longer associations between larger towns and a near coastal resort with the all important beach continue with Ballybunnion Co Kerry and Kilkee Co. Clare being established holiday or weekend locations for Limerick. The advent and increasing popularity of outdoor activities in particular surfing and year round swimming has provided an important continuity and engagement with many of these older seaside towns.

2.11 Myth and Folklore

Myth is an important aspect of the intangible cultural heritage of Ireland and the sea and coast are prominent motifs in this corpus. For example, it was commonly thought in Irish myth that the dead went to Tech Donn, Donn being a personage associated with death. His house was thought to be an island off the south west coast, now identified as Bull Rock off Dursey Island, Co. Cork. The motif of the sea voyage or Immram[16] was also popular, particularly into the Early medieval period. The sea continued to feature prominently in the subsequent period in Saints' lives and stories, most famously in St Brendan's voyage the *Navigatio*. These later tales used the sea as a metaphor of religious quest, getting closer to God, and ultimately receiving spiritual enlightenment (Ó Riain 2011, 115–117).

The wave of Tóim is an old tradition and may be derived from the irish for bank or tumulus – túaim. The seabed mound or tumulus would be known to people using the sea and the breaker that would be associated with it. The mound could also be imagined as a burial site of a mythical person. This can be seen at the drowing of Clíodhna at Glandore[17].

2.12 Intangible Cultural Heritage

Navigating, explaining, marking, and understanding the seascape on an island has contributed to a particular and localised language of the sea. Living in and on the coast and relying on the sea to a greater extent that many do today can be seen in research by Logaimn.ie or examples such as marcanna na talamh, from Arain Mhor. https://nationalinventoryich.chg.gov.ie/marcanna-na-talamh/

[15] See R.Foley. 2014 Healing Waters, Chapter 5 for further. Quotation from same pg125.

[16] The **IMMRAM** is a literary genre in medieval Irish literature, specifically referring to supernatural sea voyages

[17] Ó hÓgáin,2000.

FIGURE 37 WATER AND LIGHT (RUTH MINOGUE)



3 Forces for Change

3.1 Introduction

The Irish seascape has changed over the millennia and will continue to change into the future. Ireland has a varied and dynamic coastline which has been shaped by natural forces and has altered over time in response to changing environmental conditions. The coast is an interface between the land, the ocean and the atmosphere, so any change in these realms can impact on the character of the coast. Terrestrial change includes erosion, deposition and rising or falling of the land itself due to geological forces. Ocean wave and water currents transport and redistribute sediments while extreme weather events and storm surges can dramatically alter the coastline in a matter of hours. Human activity has also modified the coast through settlement, cultivation of the coast, and the excavation of raw material.

Changing socioeconomic and political factors as well as technical innovations can all potentially change the coast and its associated seascape character. For example, advances in transportation and new infrastructure have changed the coast. Bull Island, one of the most designated sites in Ireland and an iconic feature in Dublin Bay, evolved as a result of the construction of the North Bull Wall. This engineering feature was constructed in the early 19th century to deepen the entry to the River Liffey and aid safe passage into Dublin

Port. In the intervening years, tidal processes subsequently deposited much of the sand and silt scoured from the river bed north of the wall, creating Bull Island. On the other side of Dublin Bay is Booterstown Marsh. This nature reserve resulted from the construction of the embankment for the (then) Dublin and Kingstown (now Dún Laoghaire) railway line in 1834-35. This created an artificial tidal lagoon.

There are many structures along the coast whose primary function is now redundant and are now being repurposed. Features like Martello towers and lighthouses command prominent locations along the coast by virtue of their original role (defence, navigation aids). While their primary function is no longer necessary, they contribute to the "sense of place" and seascape character of the area and can be valuable coastal tourism assets.

Approach to summarising forces for change.

Given the regional scale and scope of this work, the identification of forces for change relevant to the seascape character assessment has been informed by observations in the field, a review of relevant documents, consultation over July 2020 and feedback on the draft report. Where forces for change have been noted, these are significant in extent and have been identified as altering seascape character at this regional scale, based on the likelihood of change taking place, the scale/extent of change, the frequency of change and the extent and nature of impact.

Many of the forces for change are relevant to most, if not all of the Seascape Character Areas (SCA). There may however be some forces for change that are more spatially pronounced, a reflection of the physical characteristics of the seascapes that attracts different development activities for example. Therefore, Table X below identifies general drivers of change and examples of their potential impact on seascape character. The subsequent section reviews each of the seascape character areas and includes those specific changes that were identified in those areas in the consultation process.

Table 4 below outlines the main drivers of coastal change and the potential impact on seascape character.

TABLE 4 MAIN DRIVERS OF COASTAL CHANGE AND POTENTIAL IMPACT ON SEASCAPE CHARACTER

Driver of change	Change	Examples of potential change to seascape character
NATURAL PROCESSES:	Climate change: • Increased frequency of extreme weather • Sea level rise and coastal flooding	Increased flooding of low-lying coastal areas and associated potential damage of coastal habitats, settlements, archaeological features and recreational facilities. Changing the shape/form of the coast, damaging coastal structures, coastal habitats and archaeological resources.
	Coastal erosion	Altering the character of the coastline via extreme weather events (eg; sand movement, boulders, stones) Damage to vernacular and archaeological features Loss of coastal heritage and older coastal defences Highly engineered approach/ preference for 'hard engineering' above 'soft engineering' options for new marine and coastal infrastructure and coastal defences. This can affect the vernacular setting of villages/towns/harbours along the coast and loss of vernacular architectural features.
	Coastal sedimentation	Damaging coastal habitats and impacting on the use of harbours and navigation. Coastal erosion can lead to habitat fragmentation, or erosion/alteration of habitats and physical features that contribute to seascape character (eg: sand dunes, cliff tops, estuarine ecosystems) Coastal sedimentation can alter habitats such as estuaries or affect harbours and ports.

Driver of change	Change	Examples of potential change to seascape character
		Increasing extreme weather events an affect access to the coast or increase the costs of maintaining coastal infrastructure. Rising sea levels will contribute to and exacerbate the above trends.
CULTURAL PROCESSES AND ECONOMIC FACTORS	Population change	Coastal land take and an increased "soil sealing" or "hardening up" of the coast. Increased recreational activity including coastal sports leading to damage/fragmentation of habitats and impacts on the setting of heritage features. Demand for new developments Gaeltacht coast and Islands - challenges around demographic change in offshore islands, Irish Language, coastal defences and infrastructure Viability of inshore fishing, vernacular fishing techniques, agricultural management
	Changing fishing and agricultural practices (traditional	Increased recreational activity including coastal sports leading to damage/fragmentation of habitats and impacts on the setting of heritage features. Demand for new developments

Driver of change	Change	Examples of potential change to seascape character
		Gaeltacht coast and Islands - challenges around demographic change in offshore islands, Irish Language, coastal defences and infrastructure Viability of inshore fishing, vernacular fishing techniques, agricultural management
	Marine use –Increasing transport routes and associated development	Commercial shipping movements (including Dublin/ Dun Laoghaire ferries) and anchorages (including anchorage of commercial vessels in the Bay awaiting the Pilot) impacting on the character and tranquillity of coastal waters.
	Increasing commercial and fishing	Dredging of channels/ harbours and the associated impacts on the seabed environment and natural coastal processes. Increased pressure on fish populations. Impact of aquaculture on water quality and marine environments. Impact of boat fishing (e.g. trawls and dredging) on the seabed and associated habitats. Impacts of oil spills, marine rubbish, etc. from commercial vessels on wildlife, habitats and the appearance of the coastal environment.

Driver of change	Change	Examples of potential change to seascape character
	Offshore wind, tidal and/ or wave energy installations	New infrastructure affecting the character of the seascape, with associate impacts on tranquillity and visual amenity. Impact on marine environments and habitats Onshore impacts from offshore energy infrastructure such as substations and power lines
	New transportation routes Road/rail improvements	Increased traffic and increased accessibility with consequential impacts on tranquillity, and air, noise and light pollution
	Tourism and recreation	Seasonal pressures and concentration of visitors particularly at popular locations along the Wild Atlantic Way. Increased visitor numbers with accompanying pressures on coastal and seascapes. This can relate to increased litter, infrastructural pressures (increased car parking, toilet, visitor facilities etc). Increased recreational boating with loss of tranquillity, potential disturbance to waterbirds, estuarine habitats. Trampling and damage to coastal paths. Increased signage and signposting with visual clutter and impact on setting of key features that confer character.

Driver of change	Change	Examples of potential change to seascape character
		New build over renovation of coastal settlements – expansion of urban sprawl, change in character of coastal settlement
POLITICAL/ INSTITUTIONAL	European Policy • EU 2030 climate and energy policy and targets for 2030 requiring increased share of renewable energy • Nature conservation (such designations cover many parts of our coast and may impact on, or prevent, new coastal infrastructure) • Marine Planning including MSP Directive 2014/89/EU2 and Marine Strategy Framework Directive, Water Framework Directive.	Offshore wind, tidal and/ or wave energy installations affecting marine environments and habitats, the character of the seascape, and with associated impacts on tranquillity and visual amenity Associated onshore impacts from offshore energy infrastructure such as substations and power lines Restriction in activities on the coast and challenges to new coastal infrastructure Coastal Flood defence Other

Driver of change	Change	Examples of potential change to seascape character
	National Policy Project Ireland 2040 National Planning Framework • National Policy objectives • Programme for Government 2020 Marine Spatial Plan 2021 Maritime Area and Foreshore (Amendment) Bill	Sectoral policies that will provide policy statements on a range of development activities ranging from aquaculture, energy, aggregates, ports and harbours, fishing amongst others. Each of these sectors, depending on the scale, location and proximity to coast may have different effects on the experience of the seascape character.
	Brexit New EU border forming the edge of two of our regional SCAs	There may be an increase in physical infrastructure relating to borders and passage of goods across these waters. Different spatial and marine planning approaches may affect perceptions of seascape character within each Seascape Character Area. Potential new security infrastructure and activity impacting on existing seascape character of Lough Foyle and Carlingford
TECHNOLOGICAL	New developments e.g. in wave energy converters	New infrastructure – change in visual character
	Advances in marine navigation technology leading to	Change aural seascape character – loss of sound of fog horns

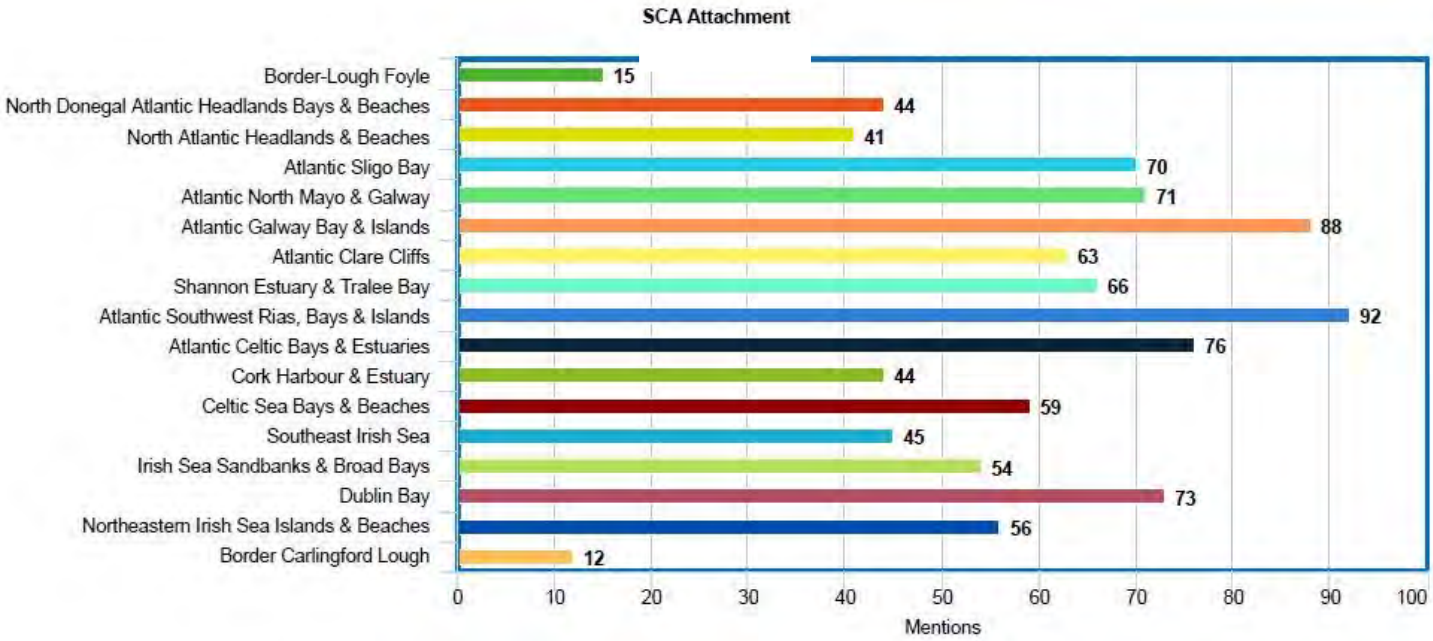
Driver of change	Change	Examples of potential change to seascape character
	abandonment/redundancy of former coastal activities e.g. the removal of fog signals	

Forces for Change identified through public consultation.

Consultation was undertaken in July 2020. This was an online mapping consultation process whereby participants were asked to plot their seascape area of interest and respond to a series of questions. The final question specifically asked respondents about changes to the seascape and it is the answers to this question that has informed the summary below.
For more information on the mapping online consultation please see Annex B to this report.

Table 5 below presents the number of respondents per SCA.

TABLE 5 NUMBER OF RESPONDANTS PER SEASCAPE CHARACTER AREA



Analysis from the consultation process shows that five of these forces of change were identified nationally, i.e. with no particular spatial concentration with regard to the seascape character areas.

- Coastal erosion and extreme weather events;
- Marine plastic litter;
- Coastal Infrastructure, recreational pressures.
- Changing water quality;
- Changing fish stocks and type of catch;

Respondents in the majority of the SCAs identified change in seascape character related to coastal erosion, marine coastal litter and new development/ infrastructure. Increased visitor numbers to the coast and marine ecosystem decline were mentioned as forces for change in over half of the SCAs. Change in water quality was raised in many of the SCAs, both as a negative and a positive change.

Two additional forces for change were identified in geographically specific locations:

- Demographic change (SCA 9: Atlantic South West Rias, Bays and Islands; SCA 10: Atlantic Celtic Bays and Estuaries);
- Offshore renewable energy (SCA 10: Atlantic Celtic Bays and Estuaries; SCA 12 Celtic Sea bays and beaches; SCA13 South East Irish Sea).

The following section presents a summary of the identified forces for change at SCA level.

Figure 38 below presents the 2020 Coastwatch Ireland litter survey of single use plastics.



FIGURE 38 COASTWATCH IRELAND 2020 SURVEY SINGLE USE PLASTIC

SCA 1: Border Lough Foyle

Survey respondents identified an improvement in the services and amenities around the coast and Lough Foyle. This is regarded as a positive change as it encouraged greater use of the beaches – a low-cost resource that contributes to the community's wellbeing. The major changes noticed over the last two decades are erosion of sand dunes and marine litter. The water quality is perceived to have degraded since the 1990s. People have noticed the absence of fish, crustaceans and algae from popular snorkelling spots. It was noted that housing and tourism projects and related development have expanded within this SCA.

SCA 2: North Donegal, Atlantic Headlands, Loughs and Beaches

Survey respondents reported an increase in tourism as a force for change over the past number of years. Respondents expressed concern about *ad hoc* planning applications,

increasing urbanisation and development leading to a rise in traffic and noise. It was noted that new developments around the beaches include tourism and amenity services i.e. cafes and restaurants encourage people to use the coast for recreation. However, this has also contributed to erosion (notably around Marble Hill in Donegal) and displacement of sand as residents and visitors can park their vehicles on the beach. Respondents have also reported increased plastic pollution (over the last two years), mentioning trapped litter in sand and seaweeds. The lack of bins in and around the beaches was also identified as an issue, which participants identified as contributing to local littering.

Respondents have also expressed concern about the declining populations of the freshwater mussel (*Margaritifera margaritifera*), the common lobster (*Homarus vulgaris*), and oysters, which has resulted from the rise in aquaculture and shellfish farming in Lough Swilly. The last two years have seen a shrinkage in the population of the banded wedge shell (*Donax vittatus*) from Buncrana beaches. There have been sightings of marine animals, including dolphins, seals, and whales.

SCA 3: North Atlantic Islands, Headlands and Beaches

The COVID-19 lockdown in the spring/summer of 2020 was cited by participants as the main reason for increased use of the beaches in SCA 3. As travel restrictions prohibited non-essential travel, residents across Ireland chose to holiday around the coasts. Participants highlighted increased engagement with this sea and coast in this area but downsides to this include significant increase in incidents of littering around the beaches. This was perceived as further adding to the previous accumulation of litter over the last two decades. It was noted that the Slieve League Mountain requires better protection, as increased tourism activity along the Wild Atlantic Way has accelerated erosion.

SCA 4: Atlantic Sligo Bay

Respondents around the Atlantic Sligo Bay expressed dissatisfaction at commercial developments around the area over the last twenty-five years, terming them inappropriate for the coast in addition to diminishing the visual appeal of the seascape. The exploitation of land by developers has been criticised and thought to be a consequence of reduced community engagement and apathy.

Significant coastal erosion has been observed over the last two decades in this SCA notably the sand dunes in Fintra Beach, where sections along the boardwalk are now completely exposed. Rosses Point has seen erosion and displacement of sand, which has started to build up in Inner Sligo Bay and around Drumcliffe Bay. The use of the coast needs to be regulated, one respondent emphasises, as the COVID-19 lockdowns has led to more people visiting the beaches and engaging in water sports, contributing to erosion, and littering. Increased traffic stemming from tourism has led to congestion and compaction of the smaller country roads.

Although there have been reports of degraded water quality with increased turbidity and odour, another respondent contradicts this by remarking that the water in the area is “still

glistening and gorgeous". Participants considered the impact of Covid 19 lockdowns as effecting agricultural activities and this was attributed to cleaner water quality.. Nonetheless, the condition of sewage treatment plans continue to pose a problem as, after heavy showers, flooding can contaminate the sea with polluted water.

SCA 5: Atlantic North Mayo and Galway

Planning decisions were identified as a force for change by respondents in this SCA. In particular, developments along the coast and seascapes of Achill, Mulranny and Westport were identified as areas that had been subject to poor planning decisions and that the resulting development is now contributing to the declining quality of seascape and landscape character. Aligned to this, tourism and recreation were identified by respondents as a force for change, with concerns about promotion of tourism not being matched with infrastructure and facilities. Congested country roads and unchecked littering were the most frequent issues raised by respondents in this SCA with a proposal that that coastal access should be exclusive to pedestrian-and cycle only paths.

Declining water quality, evidenced by increased algal blooms were a force for change, and these were attributed to agricultural run-off. Conversely, other respondents reported an increase in water quality in recent years.

As with all SCAs, coastal erosion with increasing extreme weather events were identified by respondents. Beartra Beach in particular was identified as being subject to extensive erosion arising from extreme weather events in the past five years.



FIGURE 39 COASTAL DEFENSES INIS BOFFIN, CO GALWAY

SCA 6: Atlantic Galway Bay and Islands

Respondents from the Atlantic Galway Bay and Islands cited increased tourism associated with the Cliffs of Moher as a key reason for littering and erosion along this SCA in the past twenty years. Changing fish stocks were also identified as a force for change with respondents noting lower catches of mackerel in recent year, and in increase in jellyfish and seaweed. Water quality and in particular wastewater treatment was also identified as a force for change by respondents, with concern being raised about raw sewage being pumped out at this SCA.

SCA 7: Atlantic Clare Cliffs

Respondents identified extreme weather events over the last five years as a force for change. Effects identified included significant erosion of sand dune systems. Respondents identified the beaches at Kilkee and Carrigaholt as being transformed from sandy to increasingly rocky shores as a result of such weather events.

Recreation and tourism, in particular an expansion in holiday homes and rentals, were identified as a force for change resulting in restricting access for locals to home ownership. Other forces for change also related to tourism and recreation with a lack of visitor facilities at beaches cited.

Increased interest and engagement with the sea and coast was identified as a force for change by respondents, along with the phasing out and loss of foghorns which were identified as a nostalgic sound for some participants in this SCA.

SCA 8: Shannon Estuary and Tralee Bay

One respondent, resident in the area for thirty five years, identified plastic pollution as a major concern. Anglers have reported that the catch rate of fish has declined, especially as trawlers with cray nets restrict movement of fish. Although shellfish populations are thought to be at a healthy level, accessing them was perceived to be difficult and requiring too much effort. Erosion and landslides on Dingle Peninsula were identified as a force for change. The investment in the marina at Kilrush was identified as a force for change with positive effects associated with improved facilities and local economic activity.

SCA 9: Atlantic Southwest Rias, Bays and Islands

Respondent identified demographic change in this location with younger people moving away from the area to seek more affordable housing. This was identified as impacting adversely on coastal communities and services.

Intense storms over the last five years has exacerbated erosion of dunes and coastal fields in Kerry, although attempts have been made to mitigate this by constructing sea walls and other hard structures. Measures to address coastal erosion was identified as adversely affecting ecology and landscapes by changing runoff flows, contributing to stagnation and waterlogged lands close to such structures.

Water quality around bays was perceived as improving, enabling people to spot marine life more easily. There was a recommendation that Bantry Bay should be protected against disruptions as it serves as a habitat to choughs, white-tailed sea eagles, buzzards and peregrines. Orca and humpback whale sightings were also reported over the COVID-19 lockdown. Sustainable fishing was recommended as fish populations were observed to decline and then recover with the introduction of protection measures.



FIGURE 40 INFRASTRUCTURE AT INCH STRAND, CO. KERRY

SCA 10: Atlantic Celtic Bays and Estuaries

Visible coastal erosion was identified for this SCA as well as movement and displacement of stones and boulders along the beaches. Associated with this is the loss of clay soil near this coast. Respondents have noticed a decline in sea life since the 1980s, as rock pools are now devoid of any marine animals. As with SCA 9, respondents identified demographic changes and the issue of younger people moving elsewhere as a force for change. Other respondents identified onshore wind turbines as a force for change, perceiving them to contribute to the industrialisation of the landscape and reducing its overall scenic and visual appeal.

SCA 11: Cork Harbour and Estuary

Respondents identified an improvement to water quality around the harbour over the past twenty years. The coast of Cork was identified as important for water based activities and respondents noted an increase in engagement with the coast for swimming and other water sports. Respondents raised concern about commercial fishing with trawlers and gillnets that were identified as unsustainable and poorly regulated.

As mentioned in SCA 10, residents in SCA 11 also raised the issue of less marine wildlife with a reduction in activity in rock pools raised for this SCA also. Pressure on the SCA arising from tourism and associated infrastructure, combined with poor spatial planning and loss of hedgerows/trees were identified as forces for change in this SCA by respondents.

SCA 12: Celtic Sea Bays and Beaches

Offshore renewable energy development and associated concerns about their visual impact and disruption were identified as a force for change in this SCA. The expansion of cycle lanes along the coast and its impediment to beach access were also identified as an issue by respondents.

Ongoing coastal erosion has resulted in habitat loss of fauna around the beaches with expansion of the invasive seaweed species Wireweed (*Sargassum muticum*) also reported as a force for change by respondents.

SCA 13: South East Irish Sea

As with many of the SCAs, the coast of County Wicklow was identified as being subject to erosion over the past fifteen years, associated with extreme weather events and climate change. The temperature of the sea in this SCA was noted as having increased in recent years. Physical development and land-use activities were identified by some respondents as contributory factors to erosion, namely industrial and tourism development. The presence of the offshore wind turbines on the Arklow banks was identified as a noticeable force for change. The absence of litter bins were identified as contributing to local littering along the coast.



FIGURE 41COASTAL EROSION AT CO. WEXFORD

SCA 14: Irish Sea Sandbanks and Broad Bays

Specific coastal locations within this SCA were identified by respondents as being subject to coastal erosion over the past thirty years. These include the cliffs of Killiney Bay (Killiney, Shankill, Bray) and further south at Greystones, Co. Wicklow. Respondents also noted the coastal defences such as rock walls as a further force for change.

The increase of visitors and recreational use of the beaches in this SCA were noted, with accompanying issues raised in relation to littering and damage to wild plants and grasses from trampling.

Although there has been an increase in recreational activities at the beach, activism has also become visible as beach cleaning drives have been conducted multiple times over the year. A local force for change was identified associated with the rapid development to Greystones Harbour including residential development. Water quality is perceived to have improved in this SCA.

SCA 15: Dublin Bay

Declining water quality associated with the Ringsend Wastewater Treatment plant was identified as a key force for change for respondents in this SCA. Occasional algal blooms were identified and associated with the declining water quality.

Extreme weather events associated with climate change were identified as a key driver of loss and erosion of dune systems in this SCA.

Respondents also noted the significant increase in participation and use of the coast and sea, with an increase in sea swimmers and other activities including jet skis.

As with other SCAs, an increase in litter, particularly plastics has been identified.

Respondents also noted an increase in jellyfish populations and seals over the last thirty years. The extraction of shellfish was identified as an issue with an intensification of same and concern about its lack of regulation.

SCA 16: Northeastern Irish Sea Islands and Beaches

With increased visitors and recreational use during the summer months, respondents identified an accompanying increase in litter. It was noted that, in the past, glass litter had been the main issue, now plastic litter is the primary source of litter noted along this SCA.

Erosion of the coast and changing dynamics of the beaches and sand systems were identified as the two main forces for change.

SCA 17: Border SCA Carlingford Lough

Coastal infrastructure around the Carlingford Lough has expanded. However it was perceived as moving away from community based activities such as fishing, towards more commercialised tourism activities.

As with other SCAs, litter (plastic marine litter) was identified as a concern, though respondents noted a greater awareness and more proactive engagement about this issue for example through beach cleaning activities.

Review of drivers of change on the Irish coast

The significant changes in seascape character identified in the consultation process arise from natural processes (climate change and coastal erosion) and cultural and economic factors (new development, new infrastructure, increased population pressure. Erosion, the most commonly identified change, is driven by both natural processes, as well as increasing extreme weather events associated with climate change, and factors arising from cultural and economic processes (economic growth, increased tourism, growing interest in sea based activities).

It can be speculated that the other drivers of change identified in Table 4, i.e. political, institutional and technological will become significant in the near future. Already the impact of European and national energy and climate policy is leading to an increase in off shore wind turbines, as noted in several of the SCAs.

ANNEX B: CONSULTATION REPORT

Consultation Report of Seascape Character Assessment for Ireland (2020):

1.1 Introduction:

In preparing the Regional Seascape Character Assessment (SCA) for Ireland, the project team undertook two online surveys as well as a series of online workshops.

This report presents the results and feedback from the online consultation survey process, and the online workshops on the draft SCA report in October 2020. The analysis from the two online surveys aims to reveal the interactions between participants and seascape character by analysing the responses.

Both surveys used a mixed methods approach by collecting qualitative information in the form of textual comments, as well quantitative information extracted from frequency analysis of activities, opinions, associatory terms and SCAs mentioned in the survey responses.

1.2 Methodology:

Two survey tools were used as follows:

1. Mapme. This is an online mapping survey tool. Areas of the seascape were identified using the Spraycan tool on google maps. Participants were then asked to respond to a series of question. After performing data entry and compiling into Excel spreadsheets, responses to the survey sub-questions were tagged to the respondent IDs which were categorised according to respectively identified SCAs. The dataset was then analysed using Microsoft Excel and open-source text analyser Voyant-tools to answer the following questions:

   Question 1: Do you have an area of the sea (or coast) around Ireland that you use or engage with ?

   Question2:Can you let us know what activity you do in relation to the sea and coast? Such as fishing, swimming, walking, sailing/kayaking or work related (tourism, transport, fishing, administration)?

   Question 3:What 3 words come to mind when you think of your stretch of the sea and coast?

Question 4 Have you noticed any activities or changes to the sea/coast in recent years?

Question 5: is there any particular feature that you would like highlight in relation to your seascape? Examples could be a favourite fishing area, sandy beach, historical feature, folklore, favourite view, art, wildlife.

Survey Monkey. This used the well known online survey with links to the draft SCA report and a short series of questions as follows:

1. Do you feel that the Regional Seascape Character Areas adequately reflect areas of distinct seascape character at strategic (regional) scale?

RESPONSE OPTIONS: Yes / No / Partially

2. Do you have any comments on the names of any of the Seascape Character Areas?

RESPONSE OPTION: Yes / Yes with changes (please describe in comments box) / No

OPEN TEXT BOX: If you have any comments on the names of any of the Seascape Character Areas, please add these below.

3. Do you agree with the Seascape Area Boundaries set out?

RESPONSE OPTIONS: Yes / Yes with changes (please describe in comments box) / No

OPEN TEXT BOX: If you would like to suggest any changes to the Seascape Character Areas boundaries described, please set these out below including reasons for these suggested changes.

4. Do the key characteristics for the Seascape Character Areas provide a good overall summary of their character?

RESPONSE OPTIONS: Yes / No

5. Can you suggest additional or more relevant key characteristics?

OPEN TEXT BOX: If you would like to suggest additional or more relevant Seascape Character Area key characteristics, please provide these below.

2 Findings of Mapme Survey:

2.1 Areas of seascape identified by participants

Out of the 249 survey respondents queried on the stretches of the Irish coast they are most connected to, SCA 9 (Atlantic Southwest Rias, Bays and Islands) is the most mentioned with 92 frequencies. The least mentioned are SCAs 1 (Border-Lough Foyle) and 17 (Border Carlingford Lough) (See Figure 1). This disparity is thought to be due to the differences in the scale and capacity of the survey engagement across the SCAs.

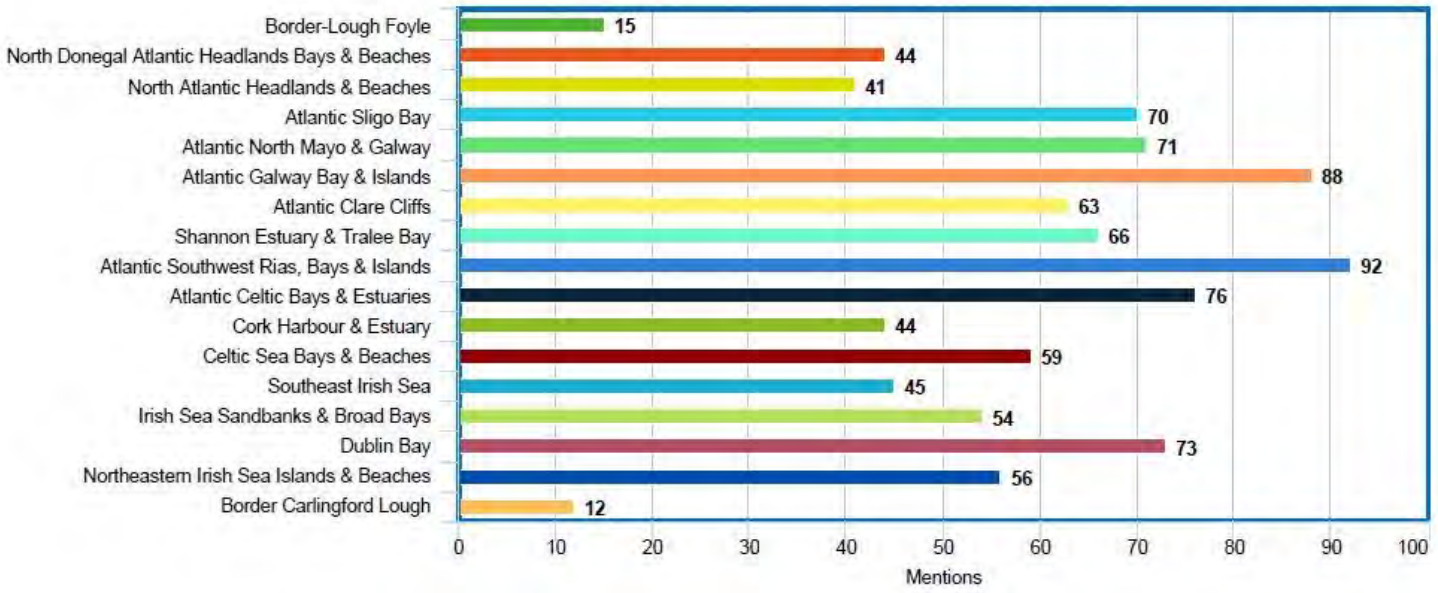


Figure 1 Breakdown of locations mentioned by participants, per Seascape Character Area

2.2 Activities associated with the seascapes of Ireland

The most popular activities (see Figure 2) undertaken in relation to the Irish coast are as follows:

- walking and
- water related activities, including swimming, kayaking, sailing, surfing, snorkelling and diving.

The coast is also used for educational purposes (fieldwork for research, school day trips) and livelihoods (aquaculture, tourism, shipping). Other leisure activites include birdwatching, wildlife watching, and photography.



Figure 2 Activities identified by participants in relation to the seascape

2.3 Perceptions and changes over time (per seacape area):

Respondents were asked to use three words to describe their SCAs (see Figure 3). The terms used in their three-word descriptions held largely positive connotations, with many choosing adjectives synonymous with aesthetic /scenic quality and tranquility.

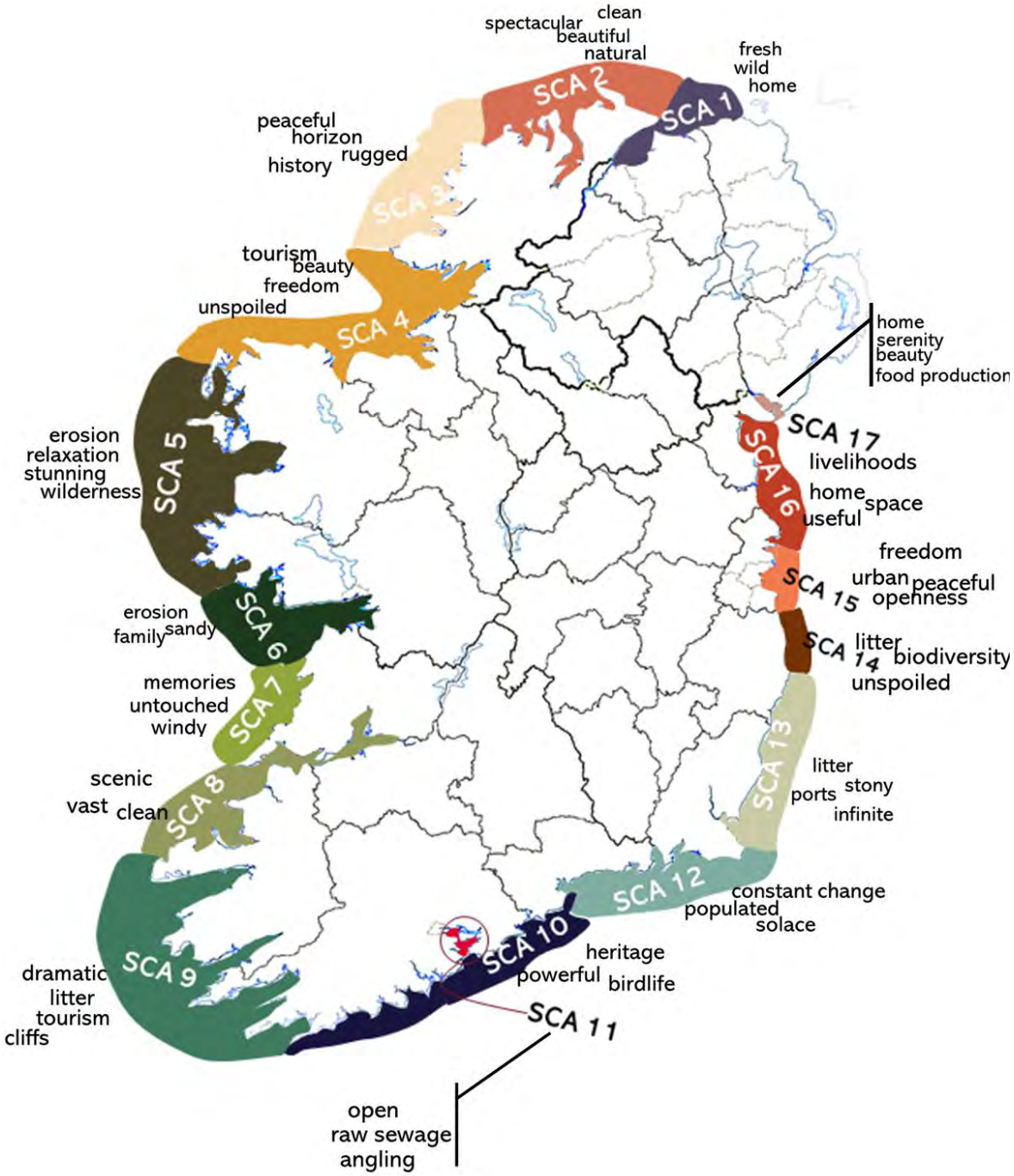


Figure 3: Word associations and seascape, presented per SCA

2.4 Changes over time (per Seascape Character Area)

This question aimed to assess perceptions of change and the seascape character. This has been used in the discussion of Forces for Change in Annex A to this report.

3 Findings of Survey Monkey survey:

3.1 Perceptions of the Draft Consultation Report on Seascape Character Assessment for Ireland (2020)

The feedback (29 individual responses) collected via this survey broadly showed a consensus regarding seascape character at regional scale. The few open-ended answers include a suggestion to incorporate a more user-friendly naming scheme (based on land), such as the following: *Kerry and Cork Rias, Bays and Islands*, and *South Coast Headlands, Bays and Islands*.

The response put forth by an individual affiliated with the Irish Wind Energy Association (IWEA) commends the boundaries set out as following Natural English best practice, in line with the Northern Ireland and U.K. character assessments. Furthermore, they point out that an SCA might contain several seascape character types, and it will be useful to highlight these differences. They also add that although the zone beneath the sea is considered, it does not influence the boundaries of seascape character area.

See Figure 3 below for pie charts presenting the responses to Question 1:

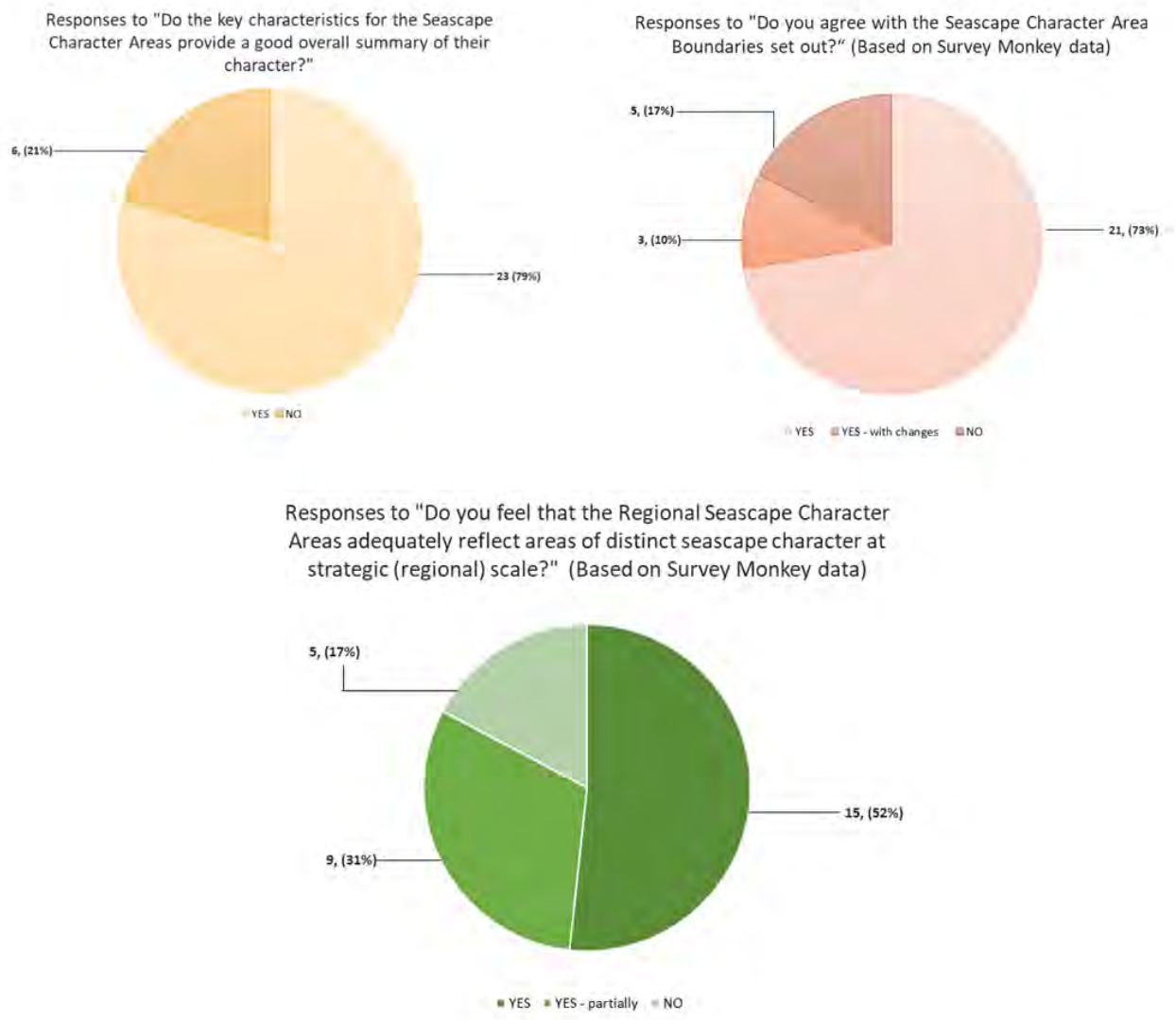


Figure 3: Reflections on the draft consultation report

3.2 Open ended responses to additional or more relevant Seascape Character Area key characteristics:

Responses highlight that SCA 10 (Atlantic Celtic Bays and Estuaries) fails to account for the part which is nestled within Co. Waterford, and should have expanded upon the impacts of and on the Waterford fishing ports, and oyster farms around the Helvick Harbour area. The history of smuggling in the Galley Head area is also thought to be under-represented, and the number of coastguard stations listed in SCA 10 is approximately fifty, not five as has been suggested. Sherkin Island's TUB BA in Visual Art Degree Programme should be included, as it is oriented around the island's characteristic land- and seascape.

Killala's (Sligo Bay SCA 4) maritime history is suggested to be included for cultural significance. Coastal areas around St. Patrick (Foghil, Ross, and Killala) have a high density of ring forts, as well as several souterrains adjacent to the coast, and should not be overlooked.

The importance of marine recreation and tourism is not to be undermined, as coastal regions and communities hold cultural significance and the impacts of high levels of human use of certain SCAs (such as Ardmore in SCA 12) can be consequential.

The IWEA provided an extensive response. Although supportive of the current approach undertaken by the Marine Institute, they issue the following caveat: Offshore wind turbines and associated infrastructure need to be characterised within existing seascapes, as they are considered to be the next step in the evolution of maritime areas due to societal addressing of climate change. Key characteristics explored in baseline studies need to include operational, consented and Relevant Status offshore wind projects and associated infrastructure. They recommend that the existing wind turbines at Arklow Bank as an example, which is acknowledged in SCA 13, to be emphasised as a 'Key Characteristic' and/or within 'Views and Vistas'. They highlight that these offshore wind farms have been excluded from *Seascape Character Type 12: Shallow Offshore Waters* (in the current draft) and suggest that the same should be rectified.
The Principal Drivers and Key Characteristics should also acknowledge that the existing geological and bathymetric conditions in SCA 12 necessitate the siting of fixed-bottom offshore wind infrastructure to be closer to the shoreline. Therefore, this needs to be characterised accordingly, mindful of the fact that these Seascape Character Type areas off the east coast of Ireland are the primary location for existing wind farm leases.
With the publication of the *Transition Protocol* by the Irish Government (early 2020), offshore wind projects qualifying as 'Relevant Projects' will now be entitled to a 'Planning Interest' under the new Marine Planning and Development Management Bill. The 'Planning Interest' is aimed at specific geographic areas of the sea, and is considered the first 'gate' in the proposed new marine planning process, acting as a pre-requisite for all offshore renewable energy planning applications to An Bord Pleanála.

Table 1. List of offshore wind projects suggested for inclusion as key characteristics in SCAs

Project	Capacity	Developers	Location
Oriel Windfarms	330-420 MW	Parkwind NV	East Coast (Irish Sea)
ESB Dublin Array	600-900 MW	Bray and Kish Banks Projects	East Coast (Irish Sea)
RWE Codling Bank Wind Park (Codling Phase I and II Projects)	2,100 MW	Fred Olsen Renewables	East Coast (Irish Sea)
EDF Skerd Rocks	392 MW	Fuinneamh Sceirde Teoranta	West Coast (Atlantic Sea)
North Irish Sea Array	500 MW	Statkraft	East Coast (Irish Sea)

With the anticipation that the Irish offshore wind projects will be operational in the Irish Sea (by 2025-2026) and the Celtic sea (in the period up to 2030), the outcome of the same will be critical for delivering upon the government's targets. Therefore, the IWEA believe

that SCAs 13, 14, 15, 16, and 17 should reference the operational and planned east coast (Irish Sea) projects under the *Key Characteristics* subsection and ideally also within the subsection *Views and Vistas* to address the visibility of these projects.

4 October Workshops on draft report of Seascape Character Assessment:

Discussions held with representative residents across Ireland on 12th, 13th, and 14th October 2020 raised the following points:

Salinity differences in the seas was suggested as a tool (if feasible) for establishing boundaries for different SCAs. Counties were also thought to be too nuanced to be marked within arbitrary boundaries. The examples cited here were Atlantic North Mayo and Galway (SCA 5) and Galway Bay and Islands (SCA 6), which are thought to possess vastly different views and characters within counties. Suggestion to include the mapping of seabed and ferry routes were also made.

The conversation on stakeholder engagement raised the recommendation that residents be involved during the nomenclature process of SCAs, especially in the case of islands. Treatment of islands in the SCA generally was raised by a consultee from Sherkin Island who felt our proposed approach to select out a case study of an island within each SCA may be perceived as unfair.

Governmental inefficiency in stakeholder engagement and public consultations was also highlighted. Stakeholder engagement also has the potential of generating significant datasets from citizen science projects, focused on the assessment of areas on a micro-organisational scale.

Jurisdictional concerns were voiced, as coordination efforts between the Republic of Ireland and Northern Ireland were especially difficult. Lough Foyle was termed 'geopolitically sensitive'. One resident living opposite of Warrenpoint Harbour mentioned Lower Shore Road being overlooked by the county in a visual impact assessment. The soft border between NI and ROI also sees many vehicles going off the motorways and using smaller roads in an unsustainable manner.

Miscellaneous mentions include that the present policy on sea walls is negligent, and given the extreme weather events of late, it should be addressed to control coastal erosion. Dublin Bay Biosphere was thought to be deserving of extra attention, as one resident mentioned the sightings of marine life were likely driven by intensified trawler and fishing activities. Public interest in the seascape could also be stimulated by dispersing information from a historical perspective, such as shipwrecks across Ireland.

ANNEX C: DATA SHEETS FOR REGIONAL SEASCAPE CHARACTER AREAS AND MAP DATA CREDITS

SCA No.	SCA NAME	Key Characteristics	SAC	SPA	Water Framework Directive Name of Coastal and transitional waters	Cultural heritage	Corresponding LCA
SCA 1	Border - Lough Foyle	• A well defined distinctive sea lough heavily influenced by numerous glaciations and comprising one of the largest catchments of all Irish sealoughs. • Whilst the city of Derry at the confluence of the River Foyle is a key urban influence within the SCA, more dispersed and rural settlement patterns dominate much of the remainder of the SCA • As the lough widens and narrows, the sense of scale can alter. This combines with the more lowlying topography closer to the head of the sea lough, and the wider and more exposed character associated north of Greencastle along the Inishowen peninsula. • Expansive in parts, this SCA is quite an active and busy area with shipping, recreational and aquaculture all taking place in and around the lough waters and shorelines		Lough Foyle (004087)	COASTAL Lough Foyle TRANSITIONAL Foyle & Faughan Estuaries	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	N.I SCA SCA 1 Foyle Estuary SCA 2: Lough Foyle Regional Scale LCA: Lough Foyle Coast and Dunes C. Donegal Local Seascape Unit 1 Lough Foyle Local Seascape Unit 2 Kinnagoe Bay Local Seascape Unit 3 North Inishowen LCA 3: North Inishowen Farmland LCA 10:South Inishowen Farmland LCA7 Lough Foyle Coast
SCA 2	North Donegal Atlantic Headlands, Loughs and Beaches	• This SCA is very exposed to the force and influence of the North Atlantic and this defines its seascape character. The full power and fetch of waves are most apparent from elevated locations over cliffs where large swells and rollers travelling over great distances are visible and waves crash dramatically against coast and islets.	Ballyhoorisky Point To Fanad Head (001975) Ballyness Bay (001090) Cloghernagore Bog And Glenveagh National Park	Falcarragh to Meenlaragh (004149) Fanad Head (004148) Greers Isle (004082) Horn Head to Fanad Head (004194) Inishtrahull (004100)	COASTAL Port Stewart Bay Northern Atlantic Seaboard Northwestern Atlantic Seaboard Lough Swilly Trawbreaga Bay Sheephaven Bay	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	Local Seascape Unit 1 Lough Foyle Local Seascape Unit 2 Kinnagoe Bay Local Seascape Unit 3 North Inishowen Local Seascape Unit 4 Banba's Crown Local Seascape Unit 5

		• When winds are high, long and high rolling waves can be immensely powerful with high sea spray at cliffs. The offshore islands, sea stacks and rocky islets provide a sense of scale to the action of waves on landfall and additional drama to the character of the sea. • By contrast, the wave dynamic along loughs and bays is much gentler, with long shallower waves lapping on the shoreline in these areas. The most inland parts of the loughs resemble large lakes. This is a dramatic coastline and associated hinterland with an epic scaled interplay of mountain bog and coastal pastural agriculture on headlands extending into the North Atlantic, a coastal edge of sloping partly vegetated cliffs with exposed rock bases or steeper rock cliffs dramatically falling to the sea. This seascape contrasts with the lower lying and more fertile coastal agricultural lands and mudflats around shallow bays, and beaches of varying scales, some with extensive sand dune systems. • This extensive interplay of coastal landform between headland and inlet/beach is a defining characteristic of this region and can be experienced in views from elevated positions on headlands looking across the full length of regional coastline. • The effect of the sea on the landscape varies within this region. In areas with cliffs the inland seascape aspect is narrow, while at shallow sandy loughs with broad tidal ranges, the viewshed extends further	(002047) Hempton's Turbot Bank (002999) Horn Head And Rinclevan (000147) Inishtrahull (000154) Kindrum Lough (001151) Lough Nagreany Dunes (000164) Leannan River (002176) Lough Swilly (002287) Mulroy Bay (002159) North Inishowen Coast (002012) Sessiagh Lough (000185) Sheephaven (001190) Tranarossan And Melmore Lough (000194)	Lough Swilly (004075) Malin Head (004146) Trawbreaga Bay (004034)	Mulroy Bay Broadwater Mulroy Bay Northwater Ballyness Bay Tory Island Waters TRANSITIONAL Swilly Estuary Lackagh Estuary Blanket Nook Lough Inch Lough Crana Estuary Carrick Beg Lough		Trawbreaga Bay Local Seascape Unit 6 Lough Swilly Local Seascape Unit 7 Fanad Gaeltacht Local Seascape Unit 8 Sheephaven Bay Gaeltacht Local Seascape Unit 9 Tory Sound Gaeltacht LCA1 Malin Coast LCA2 Dunaff Coast LCA3 North Inishowen Farmland and Coast LCA4 Urris LCA6 East Inishowen Mountains and Valley LCA7 Lough Foyle Coast LCA8 Buncrana Coast LCA10 South Inishowen Farmland LCA11 Grianan Slopes and Lowlands LCA12 Laggan Valley LCA15 Letterkenny Estuary & Farmland LCA18 Lough Fern LCA19 Ramelton Swilly Coast LCA20 South Fanad Uplands and Coast LCA21 Fanad Coast Lakes and Gaeltacht LCA22 Rosguill Gaeltacht LCA23 Ards Coast LCA24 Glen Lough & Uplands Gaeltacht LCA26 Tory Sound Gaeltacht

		inland.					
SCA 3	**North Atlantic Islands, Headlands and Beaches**	Varied seascape character reflecting the geological history and the influence of glacial processes. • Largest population of Irish speakers in the country. • Force of the Atlantic particularly pronounced at northern part of this SCA with a remote, wild oceanic character associated with Horn Head and Bloody Foreland. • Whilst the presence and power of the Atlantic remains a key influence, the western part of much of this SCA is more sheltered owing to the islands, beaches and estuaries, this is particularly noticeable at the seascape associated with the Rosses. • Tory and Arainn Mhór, the largest and most populous islands with numerous other islands a defining characteristic. Some of these, whilst no longer inhabited full time, do support seasonal habitation and livestock grazing. The history of these islands provide a historical narrative and insight to human history and activity within this SCA. • Seasonal migration to Scotland from Tory and along the Donegal coast. • Fierce storms and rogue waves are a feature of this SCA and the numerous islands offered refuge for crews. • The sea is so storm prone that lifeboat crews discovered stranded sailors often floated barrels of provision their way rather than attempt a rescue'	Aran Island (Donegal) Cliffs (000111) Ballyness Bay (001090) Gannivegil Bog (000142) Gweedore Bay & Islands (001141) Rathlin O'Birne Island (00181) Rutland Island & Sound (2283) Slieve League (000189) Slieve Tooey/Tormore Island/Loughros Beg Bay (000190) Termon Strand (0001195) Tory Island Coast (002259) West Of Ardara/Maas Road (000197)	Falcarragh to Meenlaragh (004149) Inishbofin, Inishdooey and Inishbeg (004083) Inishkeel (004116) Illancrone and Inishkeeragh (004132) Rathlin O'Birne Island (004120) Roaninish (004121) Sheskinmore Lough (004090) Tory Island (004073) West Donegal Coast (004150) West Donegal Islands (004230)	COASTAL Northwestern Atlantic Seaboard Gweedore Bay Rutland Sound Dungloe Bay Trawena Bay Gweebarra Bay Loughros Bay Sally's Lough Donegal Bay Northern Tory Island Waters TRANSITIONAL Gweedore Estuary Maghery Lough Loch Chionn Caslach Maghery Lough Gweebarra Estuary Owenea Estuary Loch O Dheas – Tory Island Meenaclady	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	Seascape Unit 10 Gweedore Bay Gaeltacht Local Seascape Unit 11 Dungloe Island and An Gaeltacht Seascape Unit 12 Gweebarra Bay Gaeltacht Seascape Unit 13 Loughros Gaeltacht Seascape Unit 14 Glencolmcille Gaeltacht Seascape Unit 15 Malin Beg LCA 27Bloody Foreland Uplands, Coast & Gaeltacht LCA 28 The Rosses Knock & Lochan, Islands & Coast An Gaeltacht LCA 30 Ardara Bays & Coast An Gaeltacht LCA 31 Slievetooey Coast An Gaeltacht LCA 32Glencolmcille m mountains, Bogs, Valleys and An Gaeltacht

		• Extensive panoramas of the ocean with island views at horizon present from elevated parts of the coast. More intimate views and inter-visibility between sandy beaches and islands particularly associated with the Rosses. • The coastal hinterland comprises rough pasture, blanket bog, dispersed housing with older clachans visible also.					
SCA 4	Sligo Bay	• Massive Atlantic Bay associated with series smaller bays and harbours including Killybegs, Sligo, Enniscrone, and bays of Moy, Killala, Donegal Bay and Malin Bay. Whilst much of the limestone bay is characterised by sweeping, open, gently sloping, low-lying bays; this contrasts with headlands and offshore features such as sea stacks most notably at Slieve League, Downpatrick, Benorthwestee and Erris Heads. • These resistant crystalline rock cliff fronts at Slieve League and northwest Erris frame the entrance to the extensive bay, which once navigated safely, offers haven. • Variety of sheltered bays with rich estuaries offer evidence of millennia of human activity and habitation. Principal urban centres all located at harbours or estuaries are Sligo town, Donegal town, Killybegs town and Ballina. Popular recreational resorts at Enniscrone, Strandhill and Mullaghmore offering surfing, seaweed baths as well as other coastal recreational activities. Largest fishing port (per landing) at Killybegs, Co. Donegal	Ballysadare Bay (000622) Broadhaven Bay (000472) Bunduff Lough And Machair/Trawalua/ Mullaghmore (000625) Cummeen Strand/Drumcliff Bay (Sligo Bay) (000627) Donegal Bay (Murvagh) (000133) Dunmuckrum Turloughs (002303) Durnesh Lough (000138) Erris Head (001501) Glenamoy Bog Complex (000500) Killala Bay/Moy Estuary (000458)	Ardboline Island and Horse Island (004135) Aughris Head (004133) Ballintemple and Ballygilgan (004234) Ballysadare Bay (004129) Blacksod Bay/Broad Haven (004037) Cummeen Strand (004035) Donegal Bay (004151) Drumcliff Bay (004013) Durnesh Lough (004145) Illanmaster (004074) Inishduff (004115) Inishmurray (004068) Killala Bay/Moy Estuary (004036) Stags of Broad Haven (004072)	COASTAL Northwestern Atlantic Seaboard Donegal Bay Northern Killybegs Harbour McSwines Bay Inver Bay Donegal Bay (Erne) Bundoran Bay Donegal Bay Southern Sligo Bay Killala Bay Western Atlantic Seaboard Broadhaven Belmullet Bay Portavaud East – Ballysadare Bay Cartoon Lough TRANSITIONAL Teelin Bay Eany Water Estuary		Local Seascape Unit 15: Malin Beg SCA LCA 31: Donegal Bay Drumlins LCA 33: Slieve League Coast LCA 34: Tawney Beg Coastal Farmland LCA 35: Ardara Bogland LCA 36: South Donegal Lowlands LCA 44: River Erne Lowlands No LCA or SCA available for Co. Sligo. Policy LCA areas designate much of the coastline as Visually Vulnerable.

		• The coastal hinterland varies from expansive blanket bog landscapes, to remote plateaus comprising peaty soils and cliff faces, to more sheltered, fertile agricultural land. • Islands – numerous islands and islets are present, ranging from Coney Island associated with Coney Island of New York and immortalised by WB and Jack Yeats; the diversity of islands range from sandbars such as Bartragh Island, to Inis Murray and Rathlin O'Beirne Island. • Abundance of folklore and history associated with coastal and offshore elements such as Stags of Broadhaven • Long panoramas to the headlands are a feature along the southern coastline and long views also afforded across the bay both north and south. • Frequently long sea views are framed by islands and headlands, whilst the Ox Mountains and the distinctive profile of Ben Bulben are dominant features of views landward.	Lackan Saltmarsh and Kilcummin Head (000516) Lough Eske and Ardnamona Wood (000163) Lough Melvin (000428) Rathlin O'Birne Island (000181) Slieve League (000189) St. John's Point (000191) Streedagh Point Dunes (001680) Unshin River (001898) West Connacht Coast (002998)	Rathlin O'Birne Island (004120) West Donegal Coast (004150)	Inner Donegal Bay Durnesh Lough Erne Estuary Drowes Estuary Drumcliff Estuary Garavoge Estuary Ballysadare Estuary Portavaud West – Ballysadare Bay Easky Estuary Moy Estuary Cloonaghmore Estuary Bunatrahir Bay Sruwaddacon Bay Duff Estuary Tanrego Intake		
SCA 5	**Atlantic North Mayo and Galway**	• Atlantic facing coasts comprising a mix of elevated land, with cliffs and occasional sea stacks visible. - The mountains that frame much of this SCA create a series of well-known and iconic seascape vistas. • Numerous offshore and nearshore Atlantic islands, notably Clare, Achill, Inisturk and Inishbofin; many of the other islands within this SCA have become uninhabited within the past 80-90 years such as Iniskea islands.	Achill Head (002268) Aughrusbeg Machair And Lake (001228) Barnahallia Lough (002118) Bellacragher Saltmarsh (002005) Clare Island Cliffs	Blacksod Bay/Broad Haven (004037) Bills Rocks (004177) Clare Island (004136) Connemara Bog Complex (004181) Cross Lough (Killadoon) (004212) Cruagh Island (004170) Duvillaun Islands	COASTAL Western Atlantic Seaboard Belmullet Bay Blacksod Bay Blacksod Bay SW/ Achill Sound Clew Bay Inner Clew Bay Ballynakill Bay Killary Harbour	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	No Seascape Character Assessments are available for Counties Mayo or Galway. The following lists the constituent Landscape Character areas The Co. Mayo Landscape Appraisal identifies the following : Area A: Achill, Clare, Inishturk and related Coastal Complex Area B: North West Coastal

		Cultural and linguistic ties to the sea remain strong for example placenames at Achill, Belmullet. • Highly dramatic coastal landscape interacting with the weather systems and force of Atlantic waves. This is particularly pronounced at the northern and western parts of this SCA • The eastern and south-eastern inlets, bays and sandy beaches are indented and complex. • Sea is consistently present; even when not visible, the sound of the Atlantic is constant through waves or wind. Salt laden winds and rain can result in salt being deposited on windows and "burned" foliage at inland locations. • The effect of glaciation of topography is quite pronounced in this SCA particularly around Clew Bay, and the glaciated montane topographies of the Nephin Range, Corraun, Achill, Doo Lough Valley, Killary Harbour and the Twelve Bens. • -Principle towns include Belmullet, Westport and Clifden; all situated within sheltered bays or harbours. • Ferries run to and from Clare Island and Inisturk islands from Roonagh Pier, boat and fishing trips are variously offers within Clew Bay and Killary Fjord; chartered boats and angling trips also available from Achill and Belmullet. Surfing has become a popular activity off Achill and this area generally has a good reputation for outdoor and sea based	(002243) Clew Bay Complex (001482) Connemara Bog Complex (002034) Corraun Plateau (000485) Croaghaun/Slievemore (001955) Cross Lough (Killadoon) (000484) Doogort Machair/Lough Doo (001497) Duvillaun Islands (000495) Erris Head (001501) Inishbofin And Inishshark (000278) Inishkea Islands (000507) Keel Machair/Menaun Cliffs (001513) Lough Cahasy, Lough Baun And Roonah Lough (001529) Lough Gall Bog (000522) Kingstown Bay (002265) Maumturk Mountains	(004111) High Island, Inishshark and Davillaun (004144) Doogort Machair (004235) Illaunnanoon (004221) Inishbofin, Omey Island and Turbot Island (004231) Inishkea Islands (004004) Inishglora and Inishkeeragh (004084) Mullet Peninsula (004227) Owenduff/Nephin Complex (004098) Slyne Head To Ardmore Point Islands (004159) Termoncarragh Lake and Annagh Machair (004093)	Mannin Bay Bellacragher Bay Aran Islands, Galway Bay, Connemara TRANSITIONAL Tullaghan Bay Dooniver Loughs Newport Bay Furnace Lough Westport Bay Roonagh Lough Corragaun Lough Erriff Estuary Lough Anillaun-Cleggan Bay Clifden Bay Loch an tSaile Ballyconneely Lough Lough Bó Finne		Moorland Area J: Clew Bay Coastal Drumlins Area O: Croagh Patrick Association Area P: South West Coastal Association Galway Landscape Character Assessment Area 20: West Coast (Clifden To Mouth Of Killary Harbour) Area 19-West Coast (Gorteen bay to Clifden). Area 21-Killary Harbour and southern banks.)

		activities. • The coastal hinterland varies from remote plateaus such as Slyne Head, to more blanket peatlands both at elevated and close to sea level. Pasture comprising peaty soils and cliff faces, to more sheltered, fertile agricultural land. Key coastal points are identified that present as a juncture between the wilder, exposed Atlantic and the relatively sheltered eastern/southern bays for example at Blacksod Pier, and Keem Head.	(002008) Mweelrea/Sheeffry /Erriff Complex (001932) Mullet/Blacksod Bay Complex (000470) Murvey Machair (002129) Newport River (002144) Oldhead Wood (000532) Omey Island Machair (001309) Owenduff/Nephin Complex (000534) Rusheenduff Lough (001311) Slyne Head Islands (000328) Slyne Head Peninsula (002074) The Twelve Bens/Garraun Complex (002031) Tully Mountain (000330) Tully Lough (002130) West Connacht Coast (002998)				
SCA 6	**Atlantic Galway Bay and**	•Broad sweeping bay with diverse and iconic coastline. • Aran Islands are the most westerly islands associated with this SCA, with a number of	Ballyvaughan Turlough (000996) Black Head-Poulsallagh	Cliffs of Moher (004005) Connemara Bog Complex (004181)	COASTAL Aran Islands, Galway Bay, Connemara	www.heritagemaps.ie Historic	No Seascape Character Assessments are available for County Galway but County LCA is available.

	Islands	inshore islands particularly associated with Connemara coastline, connected with many of the causeways and bridges joining the islands of Lettermullan built between 1886 -1891. • Aughinish Island, uniquely for Ireland, is joined by road to Co. Galway but is part of Co. Clare; this island was temporarily isolated for five decades following tidal waves originated in the earthquake of Lisbon in 1755 . • Tourism and particularly strong associations with art and folk music and seafood are identified for this SCA. • - Distinctive boating tradition of the Galway hookers as well as particular fishing communities associated with this area, notably at Claddagh. • The density of islands, islets and skerries/carraigs provides a particular character concentrated on the northern part of this SCA but also present around Blackhead Bay. The naming and descriptors given to all these features, from large to small, demonstrate the importance of navigating in and around this SCA. • Research into the naming and understanding of places, such as the work done by Tim Robinson, gives valuable insights into the sense of place. Oilean Imill (Illaunamid) the island at the tip of Slyne Head with two lighthouses has been interpreted as Edge/Margin island by Tim Robinson; which reflects its remote character before the expanse of ocean. • Influence of the sea on land is generally	Complex (000020) Cregduff Lough (001251) Connemara Bog Complex (002034) Dog's Bay (001257) East Burren Complex (001926) Galway Bay Complex (000268) Inishmore Island (000213) Inishmaan Island (000212) Inisheer Island (001275) Kilkieran Bay And Islands (002111) Lough Corrib (000297) Lough Nageeron (002119) Moneen Mountain (000054) Murvey Machair (002129) Rosroe Bog (00324)	Cregganna Marsh (004142) Inner Galway Bay (004031) Inishmore (004152) Slyne Head To Ardmore Point Islands (004159)	Bertraghboy Bay Casla Bay Kilkieran Bay Outer Galway Bay Inner Galway Bay North Inner Galway Bay South Aughinish Bay Ballyvaughan Bay Shannon Plume Liscannor Bay Rincarna Pools North Rincarna Pools South Lettermullan Pool TRANSITIONAL Roundstone Bay Lough an Mhuilinn Loch an Chaorain Loch Conaortha Camus Bay Loch an tSaile-North Camus Bay Loch an Aibhinn Loch Cara Fionnla Loch Tanai Lough Faddacrussan Loch Fhada Loch Fhada Upper Pools Loch an Ghadai Casla Estuary	Environment Viewer (archaeology.ie)	Co Clare has LCA and SCA. LCA 8:Lower Burren (Galway portion) LCA 9: Inverin to Galway City coastline LCA 12: South foothills of East Connemara Mountains LCA 13: East Galway Bay LCA 14: West Connemara LCA 15: Lettermore and Goruma Islands LCA 17:Carraroe LCA 18: Bertraghboy Bay LCA 24: Aran Islands SCA 1: Blackhead Bay SCA 2: Burren SCA 3: Cliffs of Moher (part) LCA 1 BURREN UPLANDS LCA 2 LOW BURREN LCA 3 CLIFFS OF MOHER & LEHINCH (part)

		consistent due to low-lying topography, indented coast and more exposed elevated areas. • Principal towns include Roundstone, Carna, Carraroe, Galway, Ornamore, Kinvara and Ballvaughan, sited to take advantage and provide haven from the Atlantic. • Ferries run to and from Galway and Clare to the Aran Islands and between the islands themselves. Galway Bay is renowned for deep fishing further out in the bay. • The coastal hinterland varies from the exposed peninsula around Slyne Head, to rocky indented shorelines with small harbours, urban and industrial landuse around Galway City and Docks and the limestone coastal shelf and pavement of the Burren. • Slyne Head, at Illinamaud, and Blackhead provide the key boundaries between the more open, exposed Atlantic Ocean and sheltered Bay.			Spiddal Estuary Corrib Estuary Oranmore Bay Turreen Lough (Rinville West) Loughaunascalia-Ardfry Point Ardfry Oyster Pool Mweeloon Pool North Mweeloon Pool South Dunbulcaun Bay Kinvarra Bay Aughinish Lagoon Murree Lough Rossalia Lagoon Muckinish Lough Aille Clare Estuary Loch na gCadhan – Inis Meain Port na Cora Lochs – Inish Meain Baile an Duin Lagoon Loch an tSaile – Arainn Bridge Lough – Knocknakilleen Carrownahallia Lagoon – Aughinish Lough Amurvy-Arrainn		

					Lough an Chara – Arrainn Lough Dearg – Arrainn Lough Doire Bhanbh Loch Mor – Inis Oirr Loch Port Chorruch – Arrainn Loch Namona Lough Sallagh Loughaungreena Renmore Lough		
SCA 7	Atlantic Clare Cliffs	• The indented coastline is interspersed with some sandy beaches and provide for long established coastal resorts with golf courses, surfing, and mobile homes present. • The rocky and indented coastline has a number of shipwrecks including those of the Spanish Armada (commemorated at Spanish Point). San Esteban (246 men) foundered off White Strand and San Marcos (409 men) on the reef off Lurga Point. • Promontory forts are a feature including one on Mutton Island. Towerhouses near promontories provide a similar visual focus to the landscape. • The coastline alters further south becoming increasingly dramatic as the striking cliffs, arches, stacks and inlets increase along the Loop Head Peninsula.	Carrowmore Dunes (002250) Carrowmore Point To Spanish Point And Islands (001021) Inagh River Estuary (000036) Kilkee Reefs (002264) Lower River Shannon (002165)	Illaunonearaun (004114) Loop Head (004119) Mid-Clare Coast (004182)	COASTAL Shannon Plume Liscannor Bay Doonbeg Bay Mouth of the Shannon Southwestern Atlantic Seaboard TRANSITIONAL Inagh Estuary Lough Donnell Doonbeg Estuary	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	SCA 4 Liscannor Bay SCA 5 Malbay SCA 6 Mutton Island and White Strand SCA 7 Donegal Point SCA 8 North Loop Head Peninsula LCA 3 Cliffs of Moher and Lahinch LCA 10 Malbay Coastal Farmland LCA 21 Loop Head

		This peninsula has an isolated, remote and increasing wild character. • Tourism is long established in this area; Sea bathing was recorded in Kilkee in the 1780s though the nineteenth century saw its transformation into a seaside town proper.. More recently Loop Head has won European Ecotoursim awards in relation to the tourism practices undertaken within this area. • The sea is a constant presence and influence on the coast within this SCA which has quite an exposed coastal character, and limited tree cover. Where trees do grow, they lean distinctively away from the prevailing winds. • The western facing bays and heads allow for wide ocean views across the sea and waves at sunset					
SCA 8	Shannon Estuary and Tralee Bay	• Profoundly influenced by the River Shannon and estuary, this SCA alters considerably with a stronger maritime influence from the Mouth of Shannon westwards. • The scale of this SCA varies from the more medium scale estuarine habitat, expanding to vast Atlantic Ocean. • This SCA has long been the focus of human activity and habitation, the limestone bay and rich sheltered estuarine environment offering navigational routes, and rich estuarine resources. • Major settlements at Limerick City, Tralee and seaside towns of Kilrush and Ballybunnion. • The rich estuarine habitats are important	Akeragh, Banna and Barrow Harbour (00332) Barrigone (00432) Kerry Head Shoal (002263) Lower River Shannon (002165) Magharee Islands (002261) Mount Brandon (00375) Slieve Mish Mountains (002185) Tralee Bay And Magharees	Dingle Peninsula (004153) Kerry Head (004189) Loop Head (004119) Magharee Islands (004125) River Shannon and River Fergus Estuaries (004077) Tralee Bay Complex (004188)	COASTAL Mouth of the Shannon Southwestern Atlantic Seaboard Outer Tralee Bay Inner Tralee Bay Brandon Bay Scattery Island Lagoon Cloncooneen Pool TRANSITIONAL Lower Shannon Estuary	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	SCA 9 South Loop Head and Shannon Mouth SCA 10 Lower Shannon LCA 21 Loop Head Peninsula No Seascape Character Assessment available for Co Limerick. Shannon ICMZ (Co. Limerick) No seascape character assessment for Co Kerry. Co. Kerry LCAs 1. Ballylongford Creek 2. Tarbert Pastures 3. Cashen River 5 Listowel Plain

		for shellfish production but are also key foraging habitats for a number of bird species and this area supports a distinct population of bottlenose dolphins. Dramatic seascapes associated with the cliffs and sea stacks for example at Bromore Cliffs, Loop Head and Kerry Head; • Long sandy beaches are present particularly along the Kerry coastline with popular resorts at Ballybunnion and Castlegregory. • Foynes a significant deep harbour extending to Limerick Docks; whilst Ferry to Scattery Island from Kilrush town. • Views vary from panoramas across the Mouth of Shannon and over the Atlantic to more intimate, moderate scale views across the Shannon Estuary.	Peninsula, West To Cloghane (002070)		Upper Shannon Estuary Fergus Estuary Maigue Estuary Limerick Dock Deel Estuary Foynes Harbour Clonderalaw Bay Cashen Poulaweala Lough/Quayfield Lough Lee K Estuary Lough Gill Blennerville Lake East Blennerville Lake West Shannon Airport Lagoon		23 Kerry Head and Causeway Coast 27. Tralee Bay and North Slieve Mish Mountains
SCA 9	**Atlantic South West Rias, Bays and Islands**	•Expansive SCA that encompasses dramatic headlands, numerous large and small islands, rugged indented coastline and iconic seascapes. • Rich in historical and archaeological seascapes with extensive and deep relationship between the sea, shore and coast. • Key seascape features include the Skelligs, Blaskets, Fastnet and Mizen head lighthouses. • Islands confer a particular character to this SCA - inhabited islands include Clear, Sherkin, Durrus, and Valentia. • Massive sky and sea with long views and changing light and weather; this can result	Ballinskelligs Bay and Inny Estuary (000335) Barley Cove to Ballyrisode Point (001040) Blackwater River (Kerry) (002173) Blasket Islands (002172) Caha Mountains (000093) Castlemaine Harbour (000343) Cleanderry Wood (001043)	Beara Peninsula (004155) Blasket Islands (004008) Castlemaine Harbour (004029) Deenish Island and Scariff Island (004175) Dingle Peninsula (004153) Iveragh Peninsula (004154) Puffin Island (004003) Sheep's Head to Toe	COASTAL Southwestern Atlantic Seaboard Smerwick Harbour Dingle Harbour Outer Dingle Bay Valencia Harbour Portmagee Channel Ballinskelligs Bay Outer Kenmare River Berehaven Outer Bantry Bay Dunmanus Bay	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	LCA 28 Brandon Bay LCA 32 Smerwick Harbour and Brandon islands LCA 31 Mount Eagle and Blasket Islands LCA 29. Gartinny Valley LCA30. Ventry and Dingle Harbours LCA 33. Owenascaul Valley LCA 10. Southern Slieve Mish Mountains and Milltown Pastures LCA 12. Rosbehy Creek and Cromane LCA 16. Cahersiveen Valley LCA 17. Coomacarrea Valley

		in the ephemeral appearance and disappearance of the offshore islands. Such "shape-shifting" is accompanied by folklore and myths. • Castlemaine Harbour, sandwiched between the Dingle and Iveragh Peninsula is protected from the ferocity of the Atlantic by Inch and Rossbeigh spits. Kenmare, Bantry and Dunmanus Bays are narrower in scale, and extend inwards to land over 50km (Dursey Island to Kenmare). • The smaller quays, beaches and harbours function as havens and contrast with the dramatic headlands and marine seascape. • Sailing, fishing, tourism, walking and colaiste summer schools, and Wild Atlantic Way make this area popular for visitors.	Cloonee And Inchiquin Loughs, Uragh Wood (001342) Drongawn Lough (002187) Dunbeacon Shingle 002280) Farranamanagh Lough (002189) Glanmore Bog(001879) Glengarriff Harbour and Woodland (000090) Kenmare River (002158) Killarney National Park, Macgillycuddy's Reeks And Caragh River Catchment (000365) Lough Yganavan And Lough Nambrackdarrig (000370) Mount Brandon (000375) Mucksna Wood (001371) Old Domestic Building, Askive Wood (002098) Old Domestic Building, Dromore	Head (004156) Skelligs (004007) The Bull and The Cow Rocks (004066)	Roaring Water Bay Western Celtic Sea Ballysirode Bridge Lagoon Fastnet Waters TRANSITIONAL Castlemaine Harbour Ferta Inner Kenmare River Sneem Harbour Drongawn Lough Blackwater K Estuary Kilmakilloge Harbour Ardgroom Adrigole Harbour Glengarriff Harbour Inner Bantry Bay Kilmore Lake - Whiddy Island Reenydonagan Lough Farranamagh Lough Reen Point Pool Lissagriffin Lake Ilen Estuary		LCA 45. Cahernageeha and Derrynane Bay LCA 46. River Blackwater Valley LCA 19. Sneem River Valley and Ardsheelhane River Valley LCA40. Kenmare River Valley LCA 42. Glanmore River Valley and Lough Inchiquin

			Wood (000353) Reen Point Shingle (002281) Roaringwater Bay And Islands (000101) Sheep's Head (000102) Slieve Mish Mountains (002185) Three Castle Head to Mizen Head (000109) Valencia Harbour/Portmage e Channel (002262)				
SCA 10	Atlantic Celtic Bays and Estuaries	•A complex and extensive SCA; that is subject to influence of both Atlantic Ocean and Celtic Seas. • Series of estuaries, bays, headlands, low cliffs and beaches with a broadly consistent coastal form. • Key seascape features relate to the series of headlands including Seven Head, Old Head of Kinsale, Ardmore and Helvick Head. • Protruding Old Red Sandstone Peninsulas more pronounced in the western part of this SCA are accompanied by cliffs usually between 40 -60m OD • Three important historic towns are located in this SCA: Rosscarbery, Kinsale and Youghal. Kinsale and Youghal were both enclosed with towns walls and defences and Rosscarbery may have been	Ardmore Head (002123) Ballymacoda (Clonpriest and Pillmore) (000077) Blackwater River (Cork/Waterford) (002170) Castletownshend (001547) Clonakilty Bay (000091) Courtmacsherry Estuary (001230) Kilkeran Lake and Castlefreke Dunes (001061) Lough Hyne	Blackwater Estuary (004028) Ballycotton Bay (004022) Ballymacoda Bay (004023) Clonakilty Bay (004081) Courtmacsherry Bay (004229) Galley Head to Duneen Point (004190) Helvick Head to Ballyquin (004192) Seven Heads(004191) Old Head of Kinsale	COASTAL Western Celtic Sea Rosscarbery Bay Clonakilty Bay Courtmacsherry Bay Kinsale Harbour Ballycotton Bay Youghal Bay Eastern Celtic Sea Clogheen Strand White's March Roaringwater Bay Kinsale Marsh Incheydoney Fastnet Waters	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	45 - Crosshaven (Incised Patchwork and Wooded Estuary with Mudflats and Islands) 44 - Robert's Head (Fertile Undulating Patchwork coastline) 67 - Kinsale Harbour (Incised Patchwork and Wooded Estuary with Mudflats and Islands) 50 - Garrettstown Strand (Fertile Rolling Patchwork Coastline) 51 - Old Head Of Kinsale (Indented Fertile Patchwork Peninsula) 21 - Courtmacsherry (Incised

		walled. All three towns have a long association with the sea throughout their histories. • The vertical scale of the cliffs and headlands create a more dramatic character and present closer dramatic views to the sea and along the series of headlands in good visibility. • Popular for recreation, tourism, sailing, fishing, arts and food production, this is an active and busy SCA, contrasting with a more remote character associated with the headlands. • - Strong connections to the sea remain with clear maritime character; the estuaries offer a sense of shelter and haven; the presence and influence of the Atlantic Ocean and Celtic Sea is constant. An Rinn is the most southerly Gaeltacht area in Ireland.	Nature Reserve And Environs (000097) Myross Wood (001070) Roaringwater Bay And Islands (000101)	(004021) Sheep's Head to Toe Head (004156) Sovereign Islands (004124)	TRANSITIONAL Glandore Harbour Rosscarbery Harbour Kilkeran Lake Clonakilty Harbour Argideen Estuary Lower Bandon Estuary Oysterhaven Oysterhaven Lake-Clashroe Womanagh Estuary Lower Blackwater M Estuary/ Youghal Harbour		Patchwork and Wooded Estuaries with Mudflats) 47 - Seven Heads (Fertile Rolling Patchwork Coastline) 46 - Inchydoney (Incised Patchwork and Wooded Estuary with Mudflats and Islands) 13 - Galley Head (Fertile Rolling Patchwork Coastline) 48 - Glandore (Incised Patchwork and Wooded Estuary with Mudflats and Islands) 14 - Toe Head/Lough Hyne (Indented Rugged Coastline of Marginal Farmland)
SCA 11	Cork Harbour and Estuary	• A deep estuarine form with the River Lee estuary with several rivers and inlets draining into the estuary proper. • Extensive, deep harbour with long established maritime character. • Flow of goods and people continue with passenger, freight and fishing activities. • Maritime importance reflected in location of Irish Naval Service at Haulbowline. • Significant influence of Cork city and environs on the wider character area. • Cluster of islands with diverse landuse and connectivity across the harbour. • Industrial and power generating uses along the harbour. • Increasingly rural character as the estuary	Great Island Channel (001058)	Cork Harbour (004030)	COASTAL Outer Cork Harbour Cork Harbour Raffeen Lake - Shanbally TRANSITIONAL Owenboy Estuary Lough Beg/ Curraghbinny Lough Mahon Lough Mahon (Harper's Island) North Channel Great Island	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	Type 1 City Harbour and Estuary, no seascape character assessment

		opens out with rolling farmland overlooking the estuary. • Large sheltered character, protected from full force of Celtic Sea and Atlantic Influences. • Considerable navigational markers in the estuary to guide ships and boats • In addition to Cork City, Cobh, Carrigaline, Passage West main settlements plus smaller settlements overlooking the harbour such as Roches Point. • SCA retains an active character with busy navigation associated with shipping, ferries, sailing and fishing boats			Owenacurra Estuary Rostellan Lake Lee (Cork) Estuary Lower Lee (Cork) Estuary Upper Glashaboy Estuary Cuskinny Lake Slatty Bridge – Fota Island		
SCA 12	**Celtic Sea Bays and Beaches**	This SCA encompasses the comparatively shallow Celtic Sea, enclosed by the western edge of Wales and Southwest England with St George's Channel and the English Channel to the east and the Atlantic Ocean to the west. • While the relatively straight coastline means that a wide area of water is visible along most of the coastline, a gentler character of "sea" is perceptible, rather than the wilder characteristics of "ocean" associated with the west of Ireland. These expansive vistas mean that the broad interplay of light, cloud formations and the surface of the water is readily available to viewers along the coast • Historic settlements include Waterford City is the county town; other settlements include Dungarvan, Dunmore East and Fethard. Tramore a popular coastal resort. • The significant amount of named smaller	Ballyteige Burrow (00696) Bannow Bay (00697) Carnsore Point (002269) Glendine Wood (002324) Helvick Head (000665) Hook Head (000764) Lady's Island Lake (000704) River Barrow And River Nore (002162) Saltee Islands (000707) Tacumshin Lake (000709)	Ballyteigue Burrow (004020) Bannow Bay (004033) Dungarvan Harbour (004032) Helvick Head to Ballyquin (004192) Keeragh Islands (004118) Lady's Island Lake (004009) Mid-Waterford Coast (004193) Saltee Islands (004002) Tacumshin Lake (004092) Tramore Back Strand (004027)	COASTAL Eastern Celtic Sea Dungarvan Harbour Tramore Bay Tramore Back Strand Waterford Harbour Bannow Bay TRANSITIONAL Colligan Estuary Brickey Estuary Mahon Estuary Barrow Suir Nore Estuary Corock Estuary Bridgetown Estuary Ballyteige	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	While there is no local landscape character assessment in place for Counties Wexford or Waterford, Co. Wexford recognises four types of landscape within the county • Uplands • Lowlands • River valleys • Coastal LCA for Co Waterford in preparation. No seascape character assessment available for either county

		headlands, sometimes just slight protrusions, demonstrate their historic importance in providing definition and historic navigation especially around the key estuaries where shifting sands could be a danger. These include: Ballyvoyle Head, Dunabrattin Head, Great Newtown Head (with the Metal Man navigation aids), Brazen Head, Beenlea Head, • The prevailing south-westerly winds, strong tides, sand banks and offshore islands and rocks mean that the waters are often dangerous as exemplified by the number of historic and more recent tragedies at sea. These prevailing winds also support surfing along some of the region's beaches, particularly at Tramore. • The offshore islands and rocky islets provide a sense of scale where these are visible. The main offshore islands, the Saltee Islands, are uninhabited bird	Tramore Dunes and Backstrand (000671)		Channels Tacumshin Lake Lady's Island Lake		
SCA 13	**South East Irish Sea**	•This SCA includes the most southeasterly point in Ireland at Carnsore Point and forms the juncture between the Celtic and Irish Sea. • Ireland's most southeasterly island Tuskar Rock is within this SCA. • Coastal form comprises broad, medium scale bays and estuaries • The SCA is renowned for its long sandy beaches and is well established coastal resorts such as Courtown. • Long established historical towns that retain a fishing function including Arklow and Wexford. These are active, busy settlements with strong connections to	Blackwater Bank (002953) Buckroney-Brittas Dunes And Fen (000729) Cahore Polders and Dunes (000700) Carnsore Point (002269) Kilmuckridge-Tinnaberna Sandhills (001741) Kilpatrick Sandhills (001742)	Cahore Marshes (004143) Lady's Island Lake (004009) The Raven (004019) Wexford Harbour and Slobs (004076)	COASTAL Eastern Celtic Sea Southwestern Irish Sea Wexford Harbour Southwestern Irish Sea - Brittas Bay Southwestern Irish Sea - Killiney Bay Rosslare Harbour TRANSITIONAL South Slob	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	Policy area 3 - Coastal - East coast (Co. Wexford) Coastal Area (AONB) Co. Wicklow Urban Area, Co. Wicklow

		the sea. • Dynamic coastline that has seen considerable effects of erosion and deposition associated with Wexford Harbour as at Rosslare Island. • Views vary from south to north, with low headlands framing those in the south, as the land rises further north, the mountains provide a montane setting to the coastal areas from Arklow onwards.	Long Bank (002161) Magherabeg Dunes (001766) Raven Point Nature Reserve (000710) Screen Hills (000708) Slaney River Valley (000781)		Channel Lower Slaney Estuary North Slob Channels Owenavorragh Estuary Avoca Estuary		
SCA 14	Irish Sea, Sandbanks and Broad Bays	• A busy and active SCA with long history and navigation and human settlement • The busy towns of Wicklow, Greystones and Bray nowadays within the commuter zone but retain a strong link to the sea with the former the most significant fishing port in the SCA. • Bray, well established seaside resort. The railway has afforded easy access to the town. • The increasing presence of the Wicklow Mountains and rising topography creates a highly scenic landscape in parts with long views and panoramas afforded from Bray to Greystowns and Wicklow Head Cliff Walks. • Longest coastal wetlands at the Murroughs created due to the construction of the shingle bar to facilitate the railway line. • Increasingly urbanised towards the north, the hinterland comprises primarily agriculture and forestry.	Bray Head (000714) Rockabill to Dalkey Island (003000) The Murrough Wetlands (002249) Wicklow Reef (002274)	The Murrough (004186) Wicklow Head (004127)	COASTAL Southwestern Irish Sea - Killiney Bay TRANSITIONAL Broad Lough Kilcoole Marsh Dargle Estuary	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	Coastal Area (AONB) Co. Wicklow Urban Area, Co. Wicklow Dun Laoghaire Rathdown LCA addresses rural and inland areas only
SCA 15	Dublin Bay	Distinctive and active bay framed by two resistant headlands that offer extensive views across the Bay, the Irish Sea and	Baldoyle Bay (000199) Howth Head	Baldoyle Bay (004016) Dalkey Islands	COASTAL Southwestern Irish Sea - Killiney	www.heritagemaps.ie	No LCA for Dublin City Fingal: Coastal Character Type, Estuary Character Type.

		along the coast, north and southwards. Busy navigational area with commercial and recreational shipping and boats. Kish Lighthouse and Kish Bank a common sight for navigators in and out of the bay. Long and extensive coastal settlement and history has created a modified coastline and bay for much of this SCA. Both Howth Head and Killiney Hill, that frame the bay, are less developed and offer more tranquil space within this urbanised area. Recreational use of the coast and sea is popular. Significant ecological and biodiversity areas reflected in the UNESCO Biosphere and the importance of the estuarine and tidal habitats. The view across Dublin bay is a much painted vista, and described in writing, songs and poetry	(000202) Ireland's Eye (002193) North Dublin Bay (000206) Rockabill to Dalkey Island (003000) South Dublin Bay (000210)	(004172) Howth Head Coast (004113) Ireland's Eye (004117) North Bull Island (004006) South Dublin Bay and River Tolka Estuary (004024)	Bay Irish Sea Dublin; Dublin Bay TRANSITIONAL Liffey Estuary Lower Tolka Estuary North Bull Island Mayne Estuary	Historic Environment Viewer (archaeology.ie)	
SCA 16	Northeastern Irish Sea Islands and beaches	• Long, extensive coastline comprising gently indented bays and some large estuaries draining to the Irish Sea. • Expansive character of seascape at height and at shoreline, with the long views to Mourne Mountains and Howth and Bray Head creating a sense of large scale seascape character. • Where present islands concentrate the view to inshore and coast and include Lambay, Skerries, Irelands Eye and Rockabill. • Extensive evidence of human activity and settlement within this SCA along the coast and across the Irish Sea. • Strong influence of Viking and Norse within this SCA. • Attractive series of medium/small scale	Baldoyle Bay (000199) Boyne Coast And Estuary (001957) Carlingford Shore (002306) Clogher Head (001459) Dundalk Bay (000455) Lambay Island (000204) Malahide Estuary (000205) Rockabill to Dalkey Island (003000) Rogerstown Estuary (000208)	Boyne Estuary (004080) Carlingford Lough (004078) Dundalk Bay (004026) Lambay Island (004069) Malahide Estuary (004025) River Nanny Estuary and Shore (004158) Rockabill (004014) Rogerstown Estuary (004015) Skerries Islands (004122)	COASTAL Irish Sea Dublin Malahide Bay Northwestern Irish Sea Rockabill Boyne Estuary Plume Zone Louth Coast Outer Dundalk Bay Mourne Coast Carlingford Lough TRANSITIONAL Broadmeadow Water	www.heritagemaps.ie Historic Environment Viewer (archaeology.ie)	Meath: LCA 7 Coastal Plains LCA 8 Nanny Valley Louth: Cooley Lowlands and Coastal Area Dundalk Bay Coast Dunany, Boyne Estuary Coast

		harbours and fishing harbours with good examples of 18th and 19th century stonework at piers and harbours. • Coastal fringe comprises small to medium sized towns, some within the commuter belt and historically developed as fishing villages. • Dundalk Harbour, a wide and deep bay with an established port mainly dealing in bulk cargo. - Popular sandy beaches with supporting tourism accommodation and activities.			Rogerstown Estuary Nanny Estuary Boyne Estuary Corstown Lagoon Inner Dundalk Bay Glyde Estuary Castletown Estuary Ballymascanlan Estuary Fane Estuary		
SCA 17	Border - Carlingford Lough	A very distinctive and fine example of a glacial fjord (sea lough) that has long offered a haven from the choppier waters of the Irish Sea, where the changeable weather particularly in the northern part of the sea is well known. • Where sheltered inlets are present, these are frequently wooded which contribute to an attractive and diverse landscape and seascape interface. • A busy and active SCA, the Newry River/Newry Canal empties into the lough at the head of Carlingford Lough and links the lough to Newry, in Co. Armagh . • -Shellfish beds are numerous close to the shoreline of the lough with oysters, mussels and razor clams cultivated. • Greenore and Warrenpoint are principal ports, in addition to freight and bulk cargo, a scenic ferry runs from Greenore, Co. Louth to Greencastle, Co. Down. • The presence of marinas, jetties and	Carlingford Mountain (000453) Carlingford Shore (001191)	Carlingford Lough (004078)	COASTAL Mourne Coast Carlingford Lough TRANSITIONAL Newry Estuary Carlingford Lagoons Shilties Lough		Co. Louth Carlingford Lough and Mountains, including West Feede uplands N.I. SCA: SCA 20 Carlingford Lough Regional LCA: Mourne and Slieve Croob,

		water based infrastructure reflect popularity of the SCA • The undeveloped headlands provide a more tranquil character.					

MAP DATA CREDITS

BASE MAPS

Ordnance Survey Ireland
Maps throughout this report use Ordnance Survey Ireland base mapping. This is indicated where applicable.
Maps used are Discovery 1:50,000 series, Historic 25 inch and OSi Hillshade data
Vector dataset of 1:250,000 Coastline is also used

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Copernicus Land Monitoring Program
EU-DEM v1.0 - is a digital surface model (DSM) of EEA member and cooperating countries representing the first surface as illuminated by the sensors. It is a hybrid product based on SRTM and ASTER GDEM data fused by a weighted averaging approach.
It is available for download at https://www.eea.europa.eu/data-and-maps

DESIGNATED SITES

Special Areas of Conservation (SAC) Onshore & Offshore - Dataset owned & provided by National Parks & Wildlife Service, of the Department of Culture, Heritage and the Gaeltacht. Data is licenced under Creative Commons Attribution 4.0 Licence
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Data is available to download at data.gov.ie

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Ramsar Sites – Data supplied by Marine Institute. More information on each site can be found at https://wetland.maps.arcgis.com/apps/MapTour/index.html?appid=cd6e1a247bdc4179b9dfc0461e950f1e

Northern Ireland Designated Sites
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GEOLOGY

EMODnet Data
EU Sea Map 2019 – Seabed Habitats
Information contained here has been derived from data that is made available under the European Marine Observation Data Network (EMODnet) Seabed Habitats initiative (www.emodnet-seabedhabitats.eu), financed by the European Union under Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund

EU Sea Map 2019 – Seabed Substrates
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Pre Quaternary Geology
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Coastline Migration
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or via the Irish Spatial Data exchange *http://www.isde.ie/*
Gaeltacht Language Planning Area Boundaries Ungeneralised - OSi National Administrative Boundaries – 2015 is owned by Ordnance Survey Ireland and made available under the Creative Commons Attribution 4.0 Licence

Data is available to download at data.gov.ie or via

https://data-osi.opendata.arcgis.com/datasets/2a2072b38dd64da69702b0249fc9284b_3

Lighthouses data was compiled from the Lighthouse List published by the Commissioners of Irish Lights
Additional editing was required.

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Known Éire Neutrality markings are available to download as KML from *http://eiremarkings.org/*
Dataset created by Treasa Lynch

World War 2 Lookout Posts available to download as KML from *https://bit.ly/2NtR3hA* via *http://www.lookoutpost.com/geo/lop1/*

Northern Ireland Archaeology and Heritage Data

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FISHERIES

Inshore Fisheries datasets – Pot Fishing, Net Fishing, Line Fishing, Dredge Fishing, Bottom Trawl and Mid-Water Trawl Fishing – are published by the Marine Institute and made available under the Creative Commons Attribution 4.0 Licence
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Fishing Ports - are published by the Marine Institute and made available under the Creative Commons Attribution 4.0 Licence
Data is available via atlas.marine.ie WMS service

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ENERGY

Annual Average Hydro Energy - from The Irish Wave Power Atlas published in 2005 by Marine Institute is made available under Creative Commons Attribution 4.0
Data was provided by Marine Institute

Mean Wind Speed 40m above sea level – Data is from the SEAI Wind Atlas 2013 and made available by Marine Institute atlas.marine.ie WMS service.

MARINE LITTER

Single Use Plastics data was compiled from Coastwatch Europe Shore Survey 2020 and is distributed under Creative Commons Attribution- NonCommercial-Share-Alike 4.0 International (CC-BY-SA-4.0)

ANNEX D: VISUAL RESOURCE MAPPING

Annex D: Visual Resource Mapping

Introduction

The Visual Resource Mapping component of the Seascapes Character Assessment was conducted using methodology outlined in the National Seascape Assessment for Wales LUC Report (Natural Resources Wales 2015), following the approach taken to Visual Resource Mapping developed by the MMO in England for the Seascape Assessment for the South Marine Plan Areas (MMO 2014). A full technical explanation of the methods used to generate the Visual Resource Mapping is available on pages 20-47, Chapter 3 of the MMO report. Whilst the SCA for Ireland considers a greater area of coast and inland, the same parameters were applied to Ireland as were used in the Wales SCA assessment.

Visual Resource Mapping helps to illustrate the extent to which (a) locations on land have views of the sea (Land with Sea Views) and (b) locations at sea can be viewed from land (Sea Surface Visibility from Land). Visual Resource Mapping was carried out at a national scale at 500 m resolution, and the resultant maps are presented at the end of this report.

Methodology for Visual Resource Mapping

Two EU-DEM tiles (https://land.copernicus.eu/) were merged in ArcGIS 10.6. The resultant DEM mosaic preserved the resolution (~25 m) and pixel range of the two parent tiles (E20N30; E30N30). The DEM mosaic was clipped to coastal mainland boundary of the island of Ireland. The DEM was resampled to 500 m X 500 m resolution.

Baseline Data: EUDEM v1.1 Tile	**Resolution**	**Source**
dem-v1-1-e20n30	25 m	http://land.copernicus.eu
dem-v1-1-e30n30	25 m	http://land.copernicus.eu

The coastline limit was compiled from OSI Open Data Ungeneralised Administrative Areas (Shannon Estuary removed) and OSNI Open Data Large Scale County Boundaries feature data. Islands were removed leaving only the mainland coast. Locations on islands were considered as offshore locations.

An offshore buffer zone and inland buffer zone polygon layer was processed based on the coastline layer generating:

- 35 km offshore to coastline zone
- Coastline to 20 km inland zone

Only DEM pixels within this 55 km wide zone were considered for the Visual Resource Mapping analysis. A corresponding 500 m resolution grid (point feature layer) was generated to cover the 55 km offshore/inland zone. On land, the grid of points extends 20km inland from coast including into Northern Ireland where relevant.

Land with Sea Views

Land with Sea Views provides an insight into land areas in terms of their views of the sea. Observation points extend 35 km offshore at 500 m intervals, representing observation points (sea surface level; OFFSET A = 0 m) that viewers (OFFSET B = 2 m; i.e. height of a 2 m tall human) on land (20 km zone) can see. A visibility distance of 35 km was applied. The analysis assigns each onshore (20 km zone) raster grid a value based on the number of offshore observation points (35 km zone) that are visible to each onshore grid cell. Grid cells with high values indicate locations on land where a greater extent of the sea can be seen. The following table sets out the parameters used in this Land with Sea Views analysis. Land with Sea Views (LWSV) visibility analysis was conducted (ArcGIS - Spatial Analyst – Visibility) to determine the number (none–to-multiple) offshore raster grid cells (offshore radius 35 km) that are visible from the onshore (20 km inland) observation points at an offset of 2 m elevation.

Parameter	Value
Observation point height	0 m
Height above ground level added to each cell considered for visibility	2 m
Resolution of resampled DEM and resultant output	500 m
Grid spacing between observation points	500 m
Theoretical limit to visibility	35 km
Location of Observation Points	35 km

Sea surface Visibility from Land

Sea Surface Visibility from Land (SSVL) provides an insight into sea surface location in terms of their visibility from land. Observation points extend a distance of 20 km inland at 500 m intervals, representing theoretical viewers who visually observe at a height of 2 m (OFFSET A = 2m; i.e. height of a 2 m tall human). A visibility distance of 35 km is applied. The analysis assigns each offshore (35 km zone) raster grid a value based on the number of observation points on land (20 km zone) that are visible to each offshore grid cell. Grid cells with high values in the sea can be seen by many viewers on land and are therefore more 'visible' to viewers on land. The following table sets out the parameters used in this SSLV analysis. Grid points in Northern Ireland were omitted, hence the lack of data along the Northern Ireland coastal and offshore zones. Visibility analysis was conducted (ArcGIS - Spatial Analyst – Visibility) to determine the offshore raster grid cells (offshore radius 35 km) that are visible from the onshore (20 km inland) observation points at an offset of 2 m elevation.

Parameter	Value
Observation point height	2 m
Height above ground level added to each cell considered for visibility	0 m
Resolution of DEM and resultant output	500 m
Grid spacing between observation points	500 m

Theoretical limit to visibility	35 km
Location of Observation Points	20 km

Natural Resources Wales 2015. National Seascape Assessment for Wales. LUC, NRW Evidence Report No: 80 (November 2015) https://landuse.co.uk/national-seascape-assessment-for-wales-published/

Figure D1 Visual Resource Mapping -Land with Sea Views

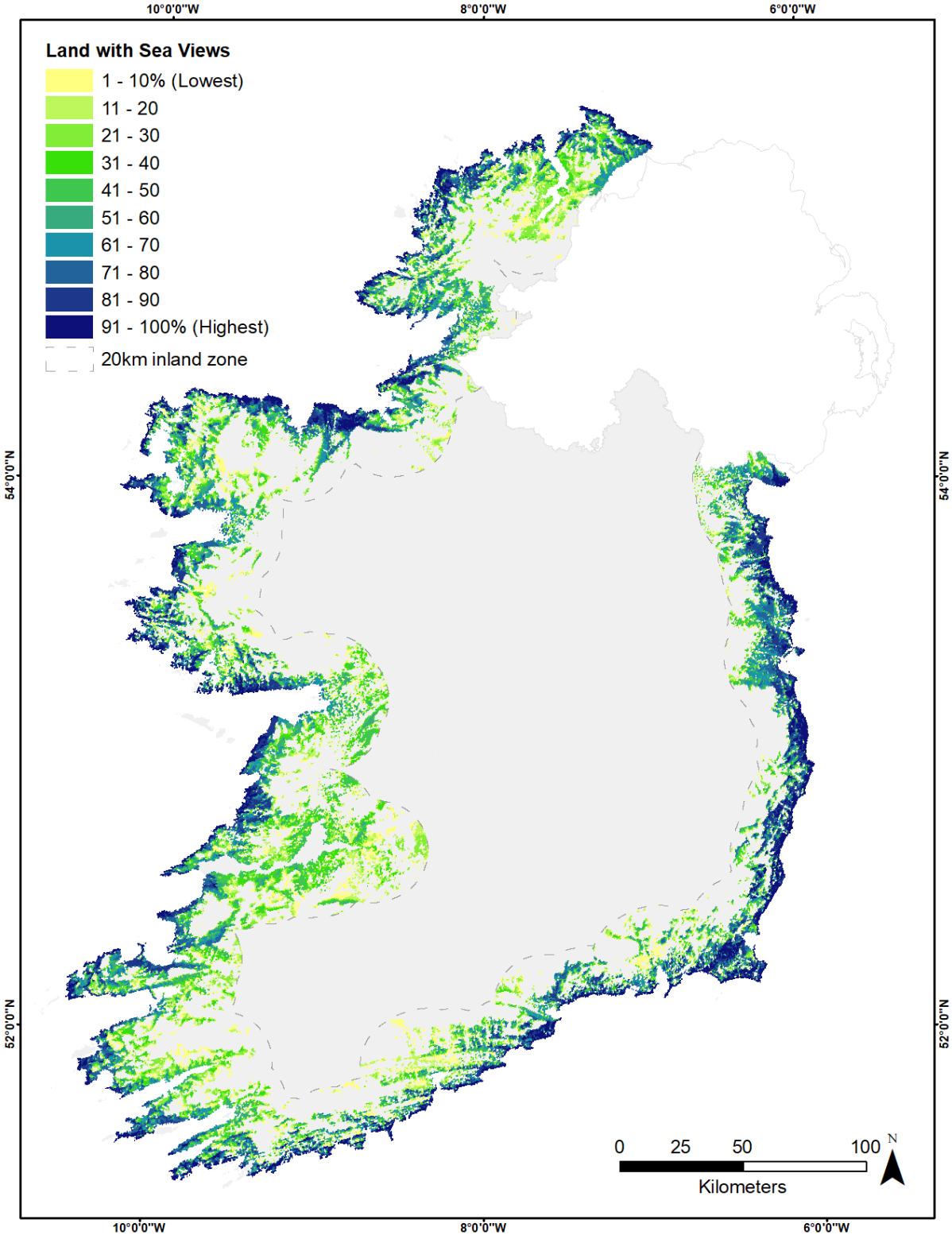


Figure D2 Visual Resource Mapping- seascape visible from land

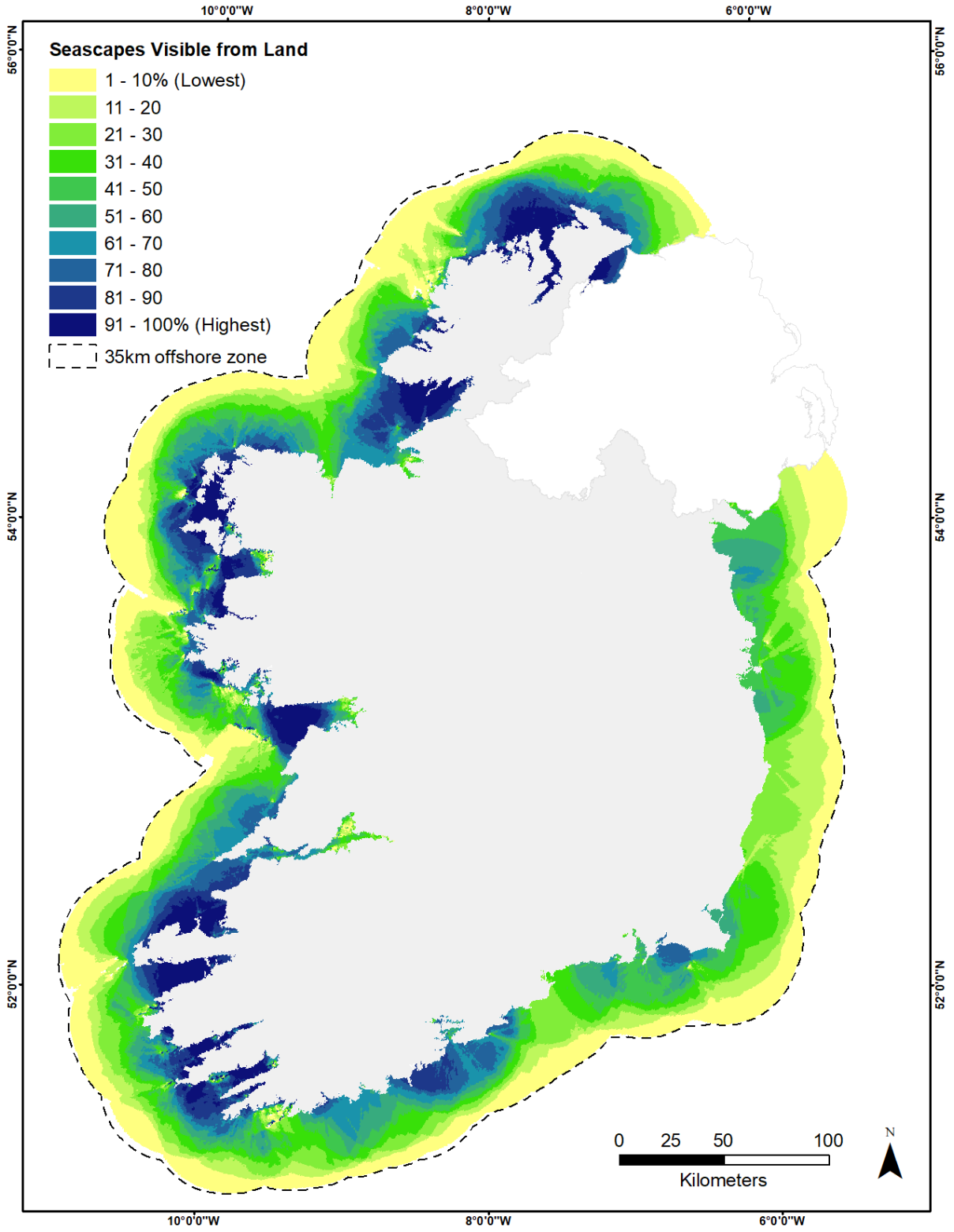


Figure D3 Visual Resource Mapping- Population Density per km^2

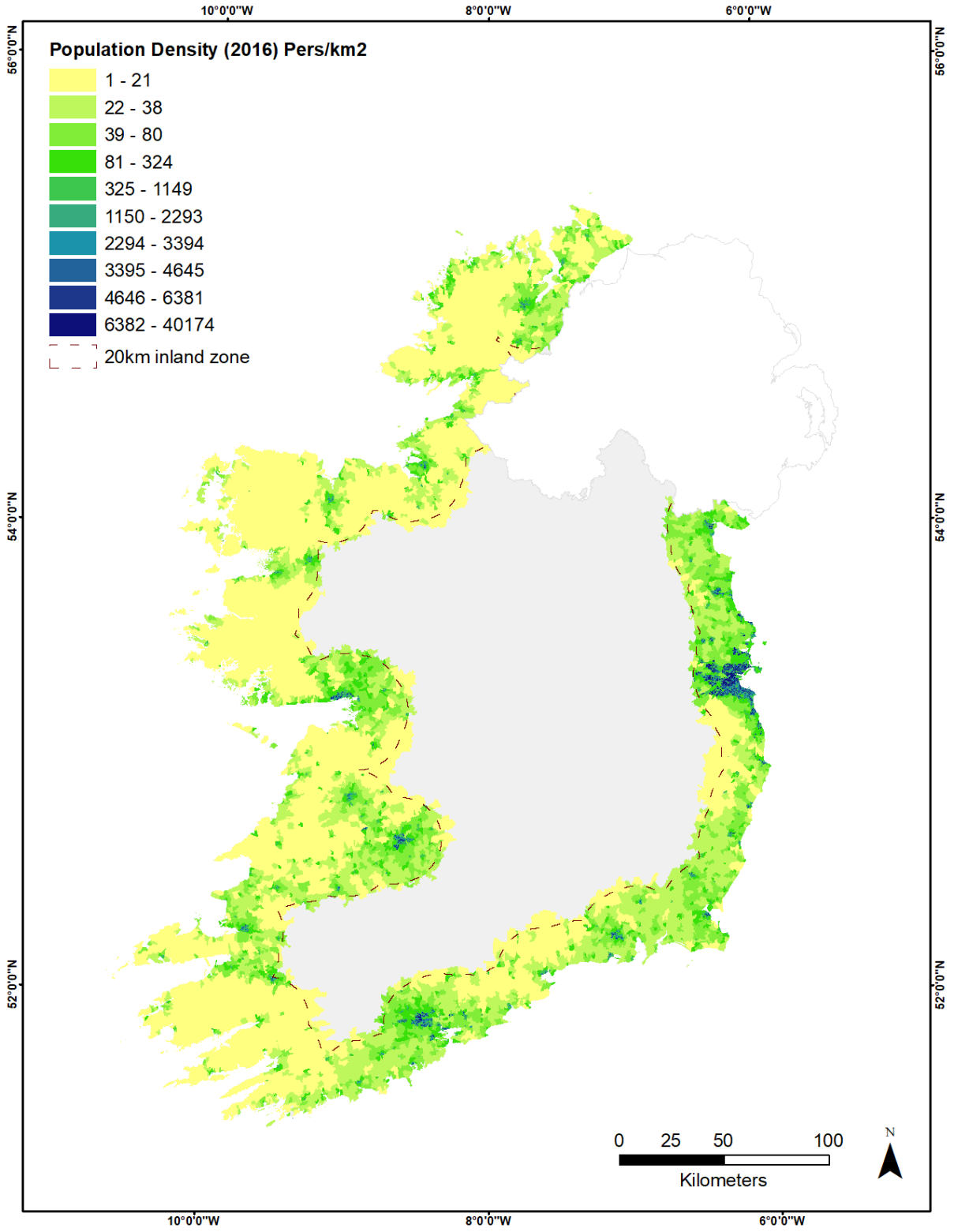
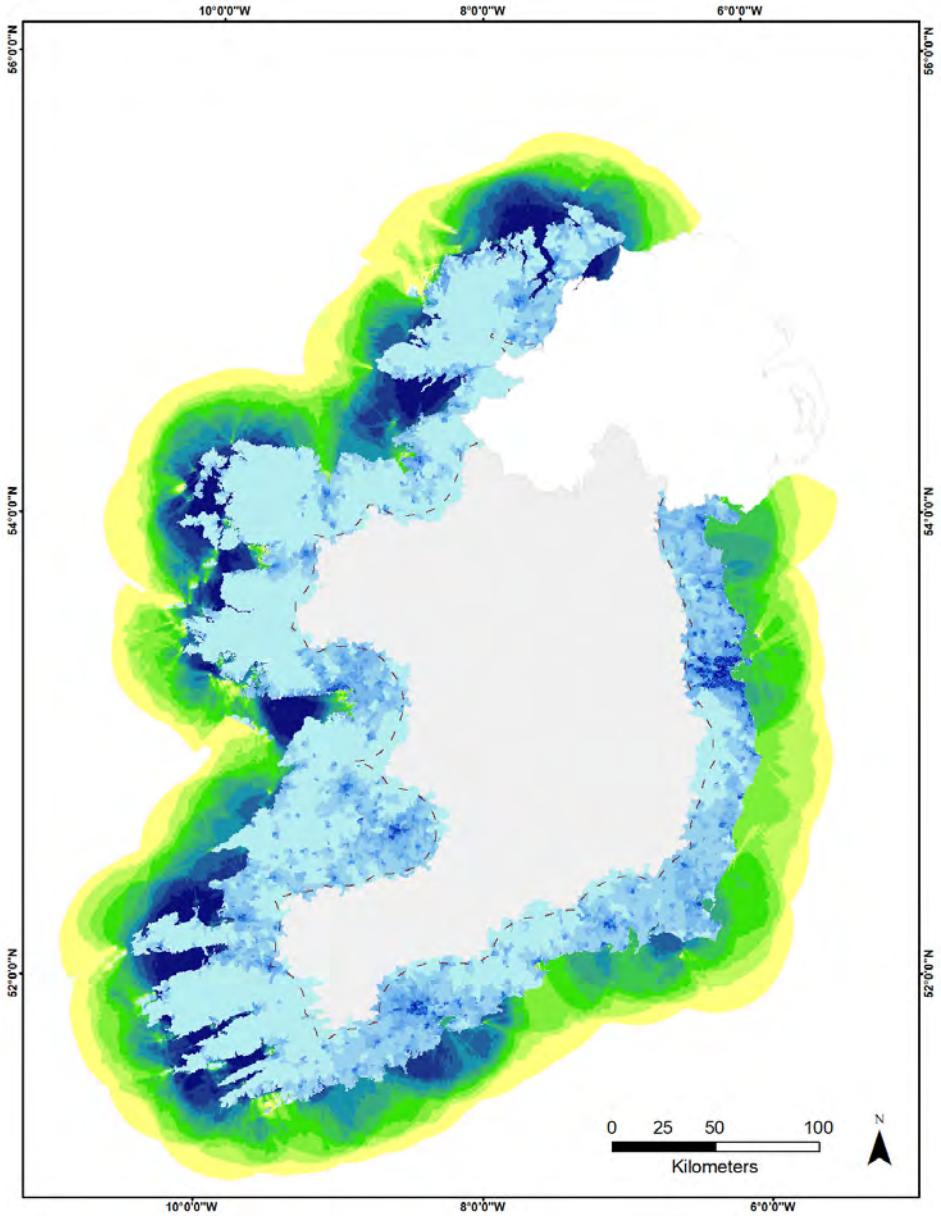


Figure D4 Visual Resource Mapping -Population Density per km2 overlaid on sea visible from land (heat map)



Population Density (2016) Pers/km2

- 1 - 21
- 22 - 38
- 39 - 80
- 81 - 324
- 325 - 1149
- 1150 - 2293
- 2294 - 3394
- 3395 - 4645
- 4646 - 6381
- 6382 - 40174
- 20km inland zone

Sea Surfaces Visible from Land

GRIDCODE

- 1 - 10% (Lowest)
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 61 - 70
- 71 - 80
- 81 - 90
- 91 - 100% (Highest)