Maritime Ireland / Wales
INTERREG 1994-1999

Guide to Best Practice in Seascape Assessment

March 2001

Photo: J Briggs *Point Lynas*

M. Hill, J. Briggs, P. Minto, D. Bagnall, K. Foley, A. Williams

Countryside Council for Wales
Brady Shipman Martin
University College Dublin

CYNGOR CEFN GWALD CYMRU
COUNTRYSIDE COUNCIL FOR WALES

BRADY SHIPMAN MARTIN

Maritime Ireland / Wales INTERREG Report NO.5
Measure 1.3: Protection of the Marine and Coastal Environment and Marine Emergency Planning

Marine Institute
Foras na Mara

"to undertake, to co-ordinate, to promote and assist in marine research and development and to provide such services related to marine research and development that, in the opinion of the Institute, will promote economic development and create employment, and protect the marine environment".

Marine Institute Act, 1991

Maritime INTERREG Series

The Maritime INTERREG Series was established to promote the dissemination of results of on-going INTERREG funded research to the wider marine community. It is intended that the Series will stimulate discussion on the contribution of R & D to the development of the marine sector.

Note: Responsibility for information presented and views expressed in the Series rest solely with the author and do not necessarily represent those of the Marine Institute.

Further copies of this publication may be obtained from:

The Marine Institute
80 Harcourt Street, Dublin 2, Ireland.

Phone: +353 1 4766500 Facsimile: +353 1 4784988 Website: www.marine.ie/intcoop/interreg/.

Maritime (Ireland / Wales) INTERREG Programme- Building Bridges.

Maritime Ireland / Wales INTERREG
1994 – 1999

March 2001

Guide to Best Practice in Seascape Assessment

M. Hill, J. Briggs, P. Minto
Countryside Council for Wales
Bangor

D. Bagnall
Brady Shipman Martin
Dublin

K. Foley, A. Williams
University College Dublin
Dublin

This project (Contract EU/100/10) is supported under Measure 1.3 Protection of the Marine and Coastal Environment of the Maritime (Ireland-Wales) of the INTERREG Programme (1994 – 1999) administered by the Marine Institute (Ireland) and the National Assembly for Wales (Wales) and is part funded by the European Union's Regional Development Fund.

ISBN: 1393 9025

Maritime (Ireland/Wales) INTERREG Programme (1994 – 1999)

The EU Maritime (Ireland / Wales) INTERREG II Programme (1994 - 1999) was established to:

1. promote the creation and development of networks of co-operation across the common maritime border.
2. assist the eligible border region of Wales and Ireland to overcome development problems which arise from its relative isolation within the European Union.

These aims are to be achieved through the upgrading of major transport and other economic linkages in a way that will benefit the constituent populations and in a manner compatible with the protection and sustainability of the environment. The Maritime INTERREG area includes the coastlines of counties Meath, Dublin, Wicklow, Wexford and Waterford on the Irish side and Gwynedd, Ceredigion, Pembrokeshire and Carmarthenshire on the Welsh side and the sea area in between.

In order to achieve its strategic objectives the programme is divided into two Areas:

Sub-Programme 1: **Maritime Development:** transport, environment and related infrastructure (59 mEuro)

Sub-Programme 2: **General Economic Development:** Economic growth, tourism, culture, human resource development (24.9 mEuro)

The Marine and Coastal Environment Protection and Marine Emergency Planning Measure (1.3) has a total budget of 5.33 mEuro of which 3.395 mEuro is provided under the European Development Fund. EU aid rates are 75% (Ireland) and 50% (Wales).

The specific aims of Sub-Programme 1.3 are:

- to promote the transfer of information between the designated areas.
- to establish an in-depth profile of marine/coastal areas for conservation of habitat/species.
- to explore, survey, investigate, chart the marine resource to provide a management framework.
- to develop an integrated coastal zone management system.
- to improve marine environmental contacts and co-operation.
- to promote the sustainable development of the region.
- to improve nature conservation.

Joint Working Group

The Joint Working Group, established to oversee the implementation of Measure, consists of 5 Irish and 5 Welsh representatives.

Irish representation: Department of the Marine & Natural Resources, Department of the Environment & Local Government, Department of Transport, Energy & Communications, Local Authority and Marine Institute.

Welsh representation: National Assembly for Wales, Countryside Council for Wales, National Trust, Local Authority (Dyfed), Local Authority (Gwynedd).

This Report series is designed to provide information on the results of projects funded under Measure 1.3 Protection of the Marine & Coastal Environment and Marine Emergency Planning.

TABLE OF CONTENTS

FOREWORD

Authors
Countryside Council for Wales
Dr. Margaret Hill
John Briggs
Dr. Peter Minto

Brady Shipman Martin
David Bagnall

University College Dublin
Karen Foley
Tony Williams

Layout and design by Niall Matthews, BSM

The Welsh - Irish Seascapes Project

This guide forms a summary of output from an 18 month research project involving a partnership between:

The Countryside Council for Wales;
Brady Shipman Martin, Dublin;
University College Dublin.

This team brings together a range of experience from the public, private, and academic spheres on both sides of the Irish Sea. The study reflects the value and importance that both Wales and Ireland give to the proper conservation, management, and development of the coasts and the adjoining seas.

The project was funded from the INTERREG II European Regional Aid Fund, with matching funding from:

- Marine Institute Dublin
- Fingal County Council
- Dun Laoghaire - Rathdown County Council
- Countryside Council for Wales
- University College Dublin
- Brady Shipman Martin

The study was developed by undertaking a number of pilot assessments at a number of locations around the Irish Sea using different landscape consultants and a variety of approaches. In addition to these studies, reports were prepared dealing with historic and cultural matters, public perception of seascape, and the extent of national seascape units.

Study area and locations for pilot projects.

The views and experience expressed in this report are those of the study team and do not necessarily reflect the views or current policy of Countryside Council for Wales, Brady Shipman Martin, or University College Dublin

1 INTRODUCTION

Photo J. Briggs

1.1 Seascape

Seascape is a crucial element in any maritime nation's sense of identity and culture. It has played an important part in the history and development of Ireland and Wales. The coast and the sea is a primary holiday and leisure location and is a significant asset in a nation's recreational resource. The coast and related seascape is a finite resource under almost continual pressure for development.

In both Ireland and Wales we are currently experiencing a period of exceptional change around our coasts. The response to sea level rise is generating more proposals for coastal defence works. We have seen the development of new ports and the upgrading of existing facilities, and proposals for aquaculture schemes have become more prevalent around some coasts. Energy strategies are giving rise to wind turbine projects off both coasts. We have also become more aware of how valuable and important our seascapes are to the character and identity of much of our countryside, towns and cities. With all of these development pressures related to the coast and the sea, a systematic approach to issues raised is now timely and essential to ensure that the decision making process has the tools to deal with the upcoming changes.

For these reasons development that affects our coasts and seascapes require particular attention and care. Such consideration can best be given in a structure based upon a thorough understanding of the character and values attributable to the relevant seascapes. This guide attempts to provide a methodology to deal with the issues involved.

1.2 Definition of seascape

The Concise Oxford Dictionary defines 'Seascape'as a 'picture or view to the sea'. However for the purposes of this guide we have broadened the concept and assumed the definition to include:

- Views from land to sea
- Views from sea to land
- Views along coastline
- The effect on landscape of the conjunction of sea and land

These parameters are used to define the seascape areas included in this methodology. Some additional areas on land may be included that are coastal in character, but which may not have direct views of the sea, such as areas behind sand dunes.

1.3 The need for seascape assessment

Seascape assessment is intended to assist policy formulation, decision making and project inception along the coast and in the sea.

Although most landscape assessment methods are designed to be applicable to any landscape, many current examples give little attention or emphasis to the sometimes crucial effect of coast and sea.

Traditionally, including these areas within assessments would have been considered pointless as the sea has been seen as dangerous, inaccessible, ubiquitous and largely out of bounds to planning authorities and those concerned with land based development. Yet the sea is historically and culturally important. It has major impacts on the land near it and many people are drawn to its edge to experience its wild, dynamic and primary qualities. At worst, this exclusion can wrongly imply there can be no impacts from development on these areas.

Photo J. Briggs

1.4 Purpose of the guide

In preparing this guide, the team were conscious of the need to produce an approach that will be of use in the decision making process in both jurisdictions. The guidelines should be of assistance in the following instances:

- To identify the areas which form the components of seascape
- To identify the essential elements in determining the character and quality of the coast
- To assist in the strategic, regional and local planning of coasts and the adjoining marine environment, and assist in coastal zone management
- As a starting point to evaluate change, and provide a basis for evaluating potential coastal development and developments below the high-water line including coastal defence works, aquaculture schemes and wind farms
- To assist in the preparation of Environmental Impact Statements related to coastal and marine projects
- To contribute to the design process by identifying issues and potential problems which are amenable to mitigation and avoid abortive work

1.5 The guide will be used by:

- Government Departments concerned with developments on the coast or in the marine environment
- Planning authorities with responsibility for planning and development in coastal areas
- Agencies with a role in promoting development in coastal and marine settings
- Developers and promoters of new structures and facilities along the coast and in the sea
- Organisations concerned with conservation and coastal protection
- Practitioners engaged in planning or evaluating development zones
- Community groups and those with concerns relating to the coast

1.6 Links between seascape and landscape assessment

Seascape assessment is an extension of landscape character assessment rather than a specialism in its own right. It does not replace the need for a thorough landscape assessment on land. Over recent years there have been more programmes of landscape characterisation and assessment carried out over large areas of Wales. Many guides and methodologies have been published and the techniques of carrying out this type of work are now well developed. Experience with earlier methods has led to significant refinement of procedures in the more recent guides.

1.7 Existing landscape assessment in Wales and Ireland

The background to seascape assessment in Ireland and Wales is very different. In Ireland the role and benefits of landscape characterisation and evaluation are only now becoming apparent to State and Local Authorities and a first phase of studies is in the process of commissioning. However, little hard information or experience is available within the planning system to provide useful links to assist seascape assessment and considerable additional work may have to be carried out to establish the land-side baseline.

In parts of Wales a seascape assessor can start from a basis of an established suite of landscape character assessments whereas at present in Ireland there is unlikely to be any such background.

In Wales, a process of integrated assessment is being developed known as LANDMAP ("Landscape assessment and decision making process"). It includes not only visual and sensory aspects of landscape and the influences of history and culture in a planning context, but also scientific information on earth sciences and biodiversity, providing a more holistic final evaluation in the assessment. The information is presented using GIS layers for ease of access, within which it is possible to access the original survey data. Already some planning authorities in Wales have adopted LANDMAP, to which other relevant planning data can also be added.

If a landscape assessment already exists for the study area, it should be fed into the seascape assessment, along with any landscape and planning policies.

Photo D. Bagnall

2 SEASCAPE FUNDAMENTALS

Some crucial elements in seascape are common to landscape assessment. There are other elements however, that are significantly different or entirely absent in landscape assessment. These are:

- The effect of historic and cultural issues related to the marine environment
- The coast as an edge
- Variability and dynamism
- Difficulties of scale and distance
- Principles of visual movement
- Amenity functions and uses of the seashore
- Functions and uses of the sea

2.1 The effect of historic and cultural issues

As two maritime nations Wales and Ireland have over the years developed a complex and changing relationship with the coast and the sea. The Irish Sea and its coasts have been both a source of livelihood and the subject of myth and legend. The Welsh coast and the Irish East coasts are not well provided with natural harbours, and seafarers have always treated the Irish Sea and the Bristol Channel with considerable respect. Despite this, there is on both sides of the Irish sea significant marine activity including shipping, fishing, ports, and amenity uses. Towns such as Arklow, Wexford, Fishguard, and Holyhead are communities with a long relationship with the sea and to whom the sea and the coast is still an important element in their economic well-being. These long links with the sea are reflected in their cultural and historic backgrounds. There are also links across the Irish Sea between communities; Wexford and Waterford to Cardiff and Bristol, Dublin to Holyhead and the Dee estuary, Wicklow and Pwllheli.

It follows that many seascape elements around the Irish Sea are connected to a tradition, event or famous person. Many others have significant cultural associations being represented in books, poems, and local myths. The history, particularly of the Irish State, is intimately bound up with its island status, an important factor in the Irish sense of identity. Many of the important events in history, the arrival of the Vikings, the establishment of Dublin, the Flight of the Earls, and Thomas Telford's bridge linking Anglesey to mainland Wales for the first time are intimately bound up with our relationship to the sea. In some cases there is visible evidence on the ground; castles, remains of human settlement, etc. that will give clues to an interesting past and cultural links. However, in many other instances there will be no evidence or such evidence as exists will be concealed. Beneath the sea itself there are the remains of many ships, tragedies that are remembered along the coasts. Information is available from recognised sources on all of these matters and this should be supplemented with local lore and tradition.

These events, myths, and legends relating to particular places can differentiate between sections of the coast and the seascape that that would otherwise appear similar. Likewise, unremarkable features such as particular beaches can have significant historic events associated with them. It is important that the seascape assessor is familiar with the historic and cultural background of the section of coast under review and can identify those features and areas that are of significance. The assessor should also be familiar with the economic marine activities based or operating in the seascape area. For example, the nature of the fishing industry should be understood; is it seasonal; is it inshore or offshore; is it in decline or expanding?

Today we imbue the coast with a high spiritual value. Adjoining a largely tamed, and man altered landscape the sea embodies those qualities of openness, wildness and savagery that, even in our civilised state, we need to experience from time to time. It is not therefore surprising that we value seascapes highly as a recreational resource. A large proportion of the population associate the coast and the sea with holidays and many will spend almost all of their lifetime's holidays in one coastal environment or another. The coasts and the related seascapes constitute some of our most beautiful and valued visual amenities.

Photo J. Briggs

There is a substantial tourism industry dependent upon high quality coastlines and seascapes, and many coastal communities are heavily dependant upon the income that visitors bring to the area as a direct consequence of their wish to spend time by the sea. However, the coastal zone is also a very desirable or essential location for other types of commercial, residential, transport and industrial developments, making conflict and integration important considerations in planning for this limited resource. The recent interest in offshore or near-shore locations for wind turbines is a new factor competing for space on the limited coastline.

Any review of local or regional plans on either side of the Irish Sea will indicate a clear disposition to describe or designate almost all coastal areas as having an amenity role which tends to take precedence over other activities. The assessor should research the existing landscape and amenity designations included in existing planning policies and objectives for the area.

2.2 The coast as an edge

The essence of any coastal environment is that it is an edge or interface between two fundamentally different environments; one stable, changing little, and providing a safe, secure, habitat for human beings, the other a shifting, ever changing setting where people only venture with care. The link between the two is the coast, an environment of great diversity and interest in visual, landscape and scientific terms. Perspectives from either side of the line can differ dramatically. Views from the land to the sea and from the sea to the land frequently offer completely different perceptions of the same general area. Observers who venture out on the sea and look back to familiar sections of the coast frequently comment on how different everything looks from the sea. It is similar to Alice passing through the looking glass; 'everything is familiar but different.'

Sea based views also have a different sense of perspective to those from the shore. Even close to the land (0.5NM, 1km), to an observer in a small vessel, the shore appears flattened without perspective or depth. This happens because the horizontal base formed by the sea makes it very difficult to discern indentations in the coast. All mariners are aware of the difficulty of discerning openings in the coast and there are many stories of boats passing harbours and being unable to locate the entrance.

This type of edge condition makes it imperative that any assessment carried out along the coast has a marine based component to complement the land-based assessment. For most purposes, it is suggested that this can be carried out with a range of viewpoints in the zone 3 to 6 km offshore. At these distances, the overall character and nature of the coast is apparent and sufficient detail can be determined to accurately identify land-based features.

2.3 Variability and dynamism

In Riddle of the Sands, Erskine Childers captured the foggy, misty conditions of the Freisan coast, conditions which form an important part of the character of that coast.
'It was a cold vaporous dawn, the glass rising, and the wind fallen to a light air from the north west. Our creased and sodden sails scarcely answered to it as we crept across the oily swell to Langeoog. "Fogs and Calms" Davies prophesied'

A particular feature of seascape is its variability. The most important variables in determining the character of the sea are wind, light, tidal movements and the clarity or otherwise of the atmosphere. It is this play of light and shade, the noise of the waves breaking on the shore and the promise of change that gives the sea a special quality in any view. In these latitudes seascapes are altered hugely by the weather to a far greater extent than any terrestrial, rural or urban environment.

The sea has special qualities that inland water bodies do not have unless they are very large. Looking out to sea the observer is generally conscious of the absence of enclosure around the water body. Furthermore an ocean has swells and rollers that travel great distances to break on our shores. There are tides that rise and fall generating intertidal areas, and there is that special smell and taste of wind blown salt spray.
However there are also small embayed and enclosed sea lochs and inlets that are, with the exception of tidal conditions, very similar to lakes in terms of character and feel.

A key aspect of the oceans variability is the tides. The mean tidal range varies around these islands from around 3 metres to over 10 metres in the Channel Islands and the Bristol Channel. On steep rocky coasts the state of the tide has a minimal impact on the seascape character. However on gently sloping shores, vast acreages of sand, mud or gravel may appear and disappear with the different stages of the tide. Over a period of 6 hours the appearance of some seascapes will undergo enormous changes. This has substantial implications for seascape assessment.

Variability arising from weather conditions can significantly affect the process of seascape assessment. In conditions of poor visibility little useful work can be done. In any event weather conditions and visibility should always be recorded when undertaking a seascape assessment and the observer must have some understanding of how typical the conditions are whilst on site.

Photo J. Briggs

It is important to be aware of the general conditions of visibility particular to any area. Information on characteristics of this kind are included in 'pilot' books and other guides to coastal navigation and should be studied as part of the assessor's desk studies prior to field studies.

An assessor must take into account these predictable and sometimes substantial changes particularly when studying coasts that are sensitive to change with the tides. The RACER (Risk Assessment and Collaborative Emergency Response) programme, funded by INTERREG, included a study of seastates within the INTERREG area, including chartlets of seastates and conditions. This could be used as background research.

2.4 Difficulties of scale and distance

In contrast to a landscape, a large water surface is roughly all of the same appearance. It offers few clues to help us to judge how far away a particular point in the water lies. Distances are particularly difficult to judge when looking out to sea.

Differing levels of visibility derived from atmospheric conditions further complicate the issue. Even in apparently clear summer conditions the atmosphere can obscure distant objects. In mist or haze their colour and sharpness is altered and this can confuse observers

The horizon is the furthest point on the sea surface that is seen. Actual distance to the horizon line increases with elevation of the viewer and decreases at lower elevations and with reduced atmospheric clarity. On a clear day viewed from a beach, the horizon will be in the order of 3 nautical miles (approx. 6km) distant. Viewed from a height of 60 metres the horizon will be in the order of 16 nautical miles (approx. 32km) and from the top of a 1000 metre mountain the horizon will be at a distance of 62 nautical miles (approx. 113km). Yet the horizon itself will appear much the same in all of these views and is always perceived as very distant. This difficulty of appreciating distance and by association, scale, presents a real challenge to seascape assessment and evaluation (see fig 2.1).

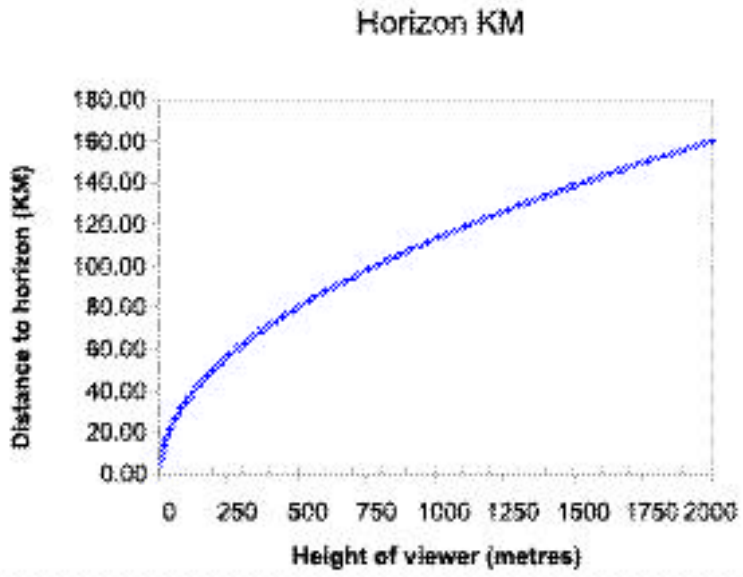


Figure 2.1; graph illustrating the increase in distance to horizon line with increased viewer elevation.

The difficulties in judging scale and distance, the variability of the distant horizon as a function of elevation and the tricks that the atmosphere can play with haze, fog, mist and rain require that the assessor is particularly careful to benchmark the visibility on the day of any site survey. It is important to record the height of observer so that a distance to the horizon can be calculated.

Methods of benchmarking should include consulting the Metrological Office, studying maps and charts on site to determine the distance that objects of particular sizes and types can be seen, and by making use of local knowledge.

as to distance and scale. On indented coasts with bays and islands it may be easier to judge distance and size but only if the adjoining land offers clear clues as to scale. Typically houses and fields on the land, and boats or ships on the sea will assist, but where they are absent it can be very difficult to assess scale and distance when looking at rocks or undeveloped islands or the open sea.

It follows that objects of an unfamiliar appearance may be scaled incorrectly at sea. Oil or gas rigs, unusual vessels, or offshore wind turbines may fall into that category.

It is worth bearing in mind that there is a limit to the acuity of the human eye. At a distance of 1 km, in conditions of good visibility a pole of 100mm diameter will become difficult to see, and at 2km a pole of 200mm diameter will similarly be difficult to see. In other words there will be a point

The presence of a ship or boat in a view can assist in the appreciation of scale and distance

Photos A Williams

where an object whilst still theoretically visible will become too small for the human eye to resolve. Mist, haze, or other atmospheric conditions may significantly exacerbate that difficulty.

2.5 Principles of visual movement

Visual movement in landscapes and seascapes is a poorly understood and little used tool in establishing key elements in any view. Identifying these elements is of great assistance in establishing the vulnerability or robustness of landscapes and seascapes.

Figure 2.2 Original View
Photo J.Briggs

The sea forms a horizontal plain. The eye oscillates back and forth across a horizontal line in the absence of a focus. The eye scans down such a line if it is tilted. (See figures 2.2 and 2.3) Obstructions to these lines become focus points and occur where objects break the line and where lines change direction abruptly. Planning policies that discourage ridgeline development without due cause recognise this.

When looking at the sea, horizon lines are always level with the viewer. The line moves with the viewer, so a level horizon is maintained regardless of their altitude. However, the lower the viewer, the closer the horizon line in distance. Vertical objects in the sea will be more likely to break the horizon line the closer to sea level the viewpoint is.

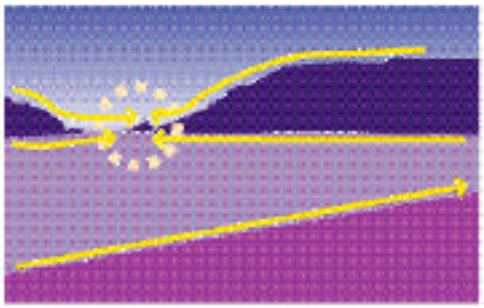


Figure 2.3 Schematic View
Arrows indicating 'Visual Movement'
Circle indicates 'Focus Point'

Horizon lines provide visual focus planes and are therefore visually sensitive. The coastline often marks an abrupt change in horizon line, and therefore the point where land and sea horizons join is more visually sensitive. The assessor should note these sensitive locations within the seascape panorama.

2.6 Amenity functions and uses of the seashore

Given the dramatic effect that differing functions can have on the appearance of coastal areas, seascape assessment needs to record these uses, particularly their function as an amenity or tourist resource. Some amenity uses are more sensitive to changes in the visual environment than others. Sections of the coast that are accessible, yet offer seclusion and a wilder or more 'natural'character, will be more sensitive and vulnerable to change than areas of the coast with a heavily developed resort setting.

Important amenity resources relevant to seascape assessment would include:-

- Car parks or access points
- Coastal footpaths
- Resort facilities
- Beaches
- Promenades
- Piers
- Sand dunes
- Accommodation facilities including; hotels, guest houses, holiday homes, caravan parks, and camp sites
- Coastal angling locations
- Coastal golf courses or links
- Slips or other boat facilities
- Surfing beaches
- Water sports access points

Such resources should be identified in the assessment and their role in both local and transient communities understood.

2.7 Functions and uses of the sea

To complement the land based amenity uses, there are also water-based leisure activities that may depend on the character and quality of the seascape for their user's enjoyment, and which also affect the appearance of the coast. Water-based recreational activities have been increasing steadily over the years and has been matched by increasing levels of boat use and ownership in recent years. These include a number of pursuits, such as coastal cruising, that depend on the seascape for the quality of the experience in different ways.

Our coastal waters are used by commercial shipping and fishing vessels as well as amenity users. However, with the possible exception of passenger ferries these users would not generally be sensitive to seascapes or to changes in seascape conditions. Ports used by passenger ferries are gateways to our respective nations and convey important first impressions to visitors. However, the trend in modern ferries, particularly the high speed vessels is to restrict public access to outside decks and to enclose the passengers inside offering reduced opportunities to appreciate the setting of the port. However, it should be noted that more than several million people cross the Irish Sea every year.

Almost all water-based activity is dependant on organised access to the sea. Thus the greatest level of activity is found in the vicinity of harbours, although surfing, wind surfing, and some canoeing and angling are generally beach-based activities. Most boating activity happens within 5 Nm (10km) of a harbour or slip with the majority occurring within half that distance.

The assessor should identify 'recreational marine activity areas' and, where appropriate, an appropriate buffer (2km around the activity area as a rule of thumb) within which proposed interventions may impact on the quality of the setting of the marine activity.

The assessor should be aware of the type and intensity of the marine leisure activities that may be prevalent in the area. Many of these activities are very seasonal and an 'off season' site assessment may not tell the full story. Local knowledge and information from tourist authorities and representative organisations may be of considerable assistance. Such activities and their relative sensitivity to seascape character and quality is discussed in Section 6.

Photo J.Briggs

3 SEASCAPE ASSESSMENT

As is commonly accepted in landscape assessment, we define seascape assessment as a 2 stage process, namely:

1. Characterisation **-** the describing, classifying and mapping seascape character, showing how one area is distinct from another. It comprises:

- Dividing the three components (land, sea and coastal edge) of the seascape unit into types or areas of distinct, recognisable and common character
- Mapping the distribution of these units of common seascape character

2. Evaluation - the process of making judgements about seascape to inform decision making. Seascape evaluation is the point where the seascape assessment process moves from characterisation to making judgements and taking decisions for strategic planning and future change in seascape. Typically the qualities, values, and sensitivities of particular areas of seascape, coast or adjacent land would be identified.

Photo J. Briggs

4 SEASCAPE CHARACTERISATION - CONCEPTUAL

4.1 Defining the study area

The objective of characterisation is to provide a value free description of all of the key elements in seascape. To do this the seascape should be subdivided into coherent segments or units and the elements that make up that segment or unit recorded in a methodical way.

View sheds are proposed as the basis for definition of working seascape units. A view shed is simply an area of sea and land where the different parts are visible one from the other. These parts can also be described as being inter-visible.

Seascape characterisation differs from landscape characterisation in one important respect. On land, the definition of the character area occurs towards the end of the process as a result of discovering the combination of elements that make up coherent areas. By contrast, in seascape the most useful determinant of seascape unit boundaries is apparent from the start, namely view sheds, coastal geometry, and coastal orientation.

This approach derives from the edge condition and inherently linear character of coasts. In seascapes the linear component of the coastline dominates the other dimensions. Coasts are logically divided along their length from headland to headland, or bay to bay, etc. Such linear divisions are the basis for the generation of the seascape units. It follows that larger seascape units may contain a number of subdivisions of differing character types, for example, rocky foreshore and sandy beach but both may be part of one seascape unit

4.2 Seascape units - A hierarchical approach

Seascape characterisation begins by identifying the spatial extent of the ***seascape units***. The seascape study team has concluded that seascape units should be defined by a hierarchical approach based on physical size from major seascape units through intermediate sized seascape units down to micro seascape units. This approach is seen as best recognising the essential part that **context** and **marine dynamics** play in seascape assessment. These units, which have been given the terms ‘National’, ‘Regional, and ‘Local’, in this *Guide to Best Practice in Seascape Assessment*, range from large to small and ‘nest’ inside each other. They can be defined as follows:

4.3 Definition of national unit

Zones of Visual Influence are zones in which all areas are intervisible, that is any area or location in a zone can be seen from some other location within that zone

Coastal sediment cells are lengths of coast within which the movement of sediments by tides and currents are fairly contained

These units are extensive sections of the coast with an overriding defining characteristic such as coastal orientation and landform. In general these units will be defined by major headlands of national significance dividing land and marine environments. The units will extend to 24 km or 12 Nautical Miles Offshore and inland to the extent of the Zone of Visual Influence (ZVI). These headlands are frequently identified in Shipping Forecasts and coastal pilots as major landmarks or waypoints on the coast. Typical examples would include Carnsore Point and St David’s Head. Given the distance between the limits of a national unit, which may be in excess of 100km or 50NM, they cannot be said to be based upon visual criteria, as either limit of such a unit may not be visible from many locations within it. Rather they are related to the orientation and topography of the coast. In this they differ from the regional and local units that are derived purely from visual criteria. National units will be defined substantially by desk studies. It is fortunate that there is a clear congruence between these headland to headland units and Coastal Management Units (UK) or Major Planning Units (Coastal Zone Management, Draft Policy for Ireland) which are based on major sediment cells (see figure 4.1and 4.2). These units are the dominant units for other aspects of coastal planning and management.

Figure 4.1 Basis for National Units
Coastal Management Units. These units could form the basis of the national units for the UK.

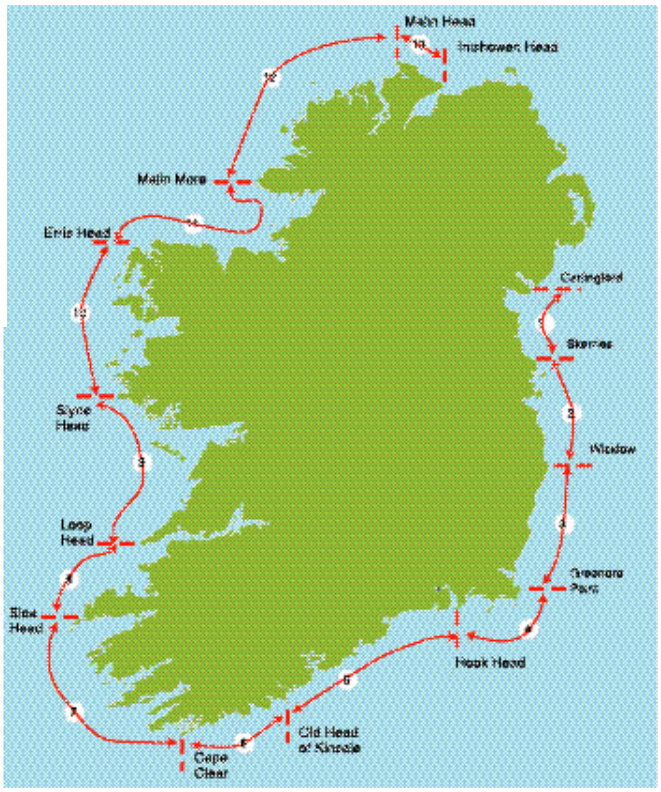


Figure 4.2 Basis for National Units
Major Planning Units These units could form the basis of the national units for Ireland *(Coastal Zone Management; A Draft policy for Ireland)*

Having defined the linear extent of the national unit, GIS can be used to define the breadth of the seascape unit in terms of land to sea and sea to land visibility. The study team has produced ZVI analyses for the coasts of Ireland and Wales, within the study area (see figures 4.3 and 4.4).

The following information might be collated for national units and provide a context for the assessment of smaller scale units. For example, a beach may be included in a Regional Unit and may be assessed as of indifferent character and quality, but if it is the only beach within the national unit then it may merit more careful consideration.

Zone of Visual Influence (both land and sea)
Unique or rare geomorphologic or landscape features
Major public access points to the coast and the sea
Access to the sea for commercial and recreational use
Marine and coastal recreation
Cultural and historic links
Landscape designations
Conservation designations
Marine and coastal habitats

It is envisaged that these national units will eventually be determined and classified by the relevant Welsh and Irish national agencies as they will provide a solid basis context for undertaking the finer grained studies described below.

4.4 Definition of regional unit

Regional units will be the normal working level for seascape assessment. They will normally be defined by regional headlands, islands, or coastal features and the determining factor will be shared intervisibility (although there will be pockets inside this where some other parts are not visible). The unit will generally extend up to 15km offshore, and inland to the extent of the ZVI or buffer. The distance offshore (or the offshore buffer) may be extended where there is elevated topography in close proximity to the shore.

The use of Geographical Information Systems (GIS) will be of assistance in defining the ZVI and in undertaking the collection of data and its analysis. While GIS may not be essential to the process it is very difficult to establish zones of inter-visibility between land and sea without this tool. A field based visual and landscape assessment would confirm or modify the visual compartments and provide the context for further physical subdivisions into the local units. It will also establish in detail the extent of sea views and characterise the views from the land and the sea with descriptions and sketches.

All significant landuses, water uses, protection areas (SPAs SACs etc), and cultural associations should be identified and denoted on maps. Important views, viewing points, vistas, and prospects should be noted.

This level of assessment and evaluation is appropriate to the formulation of strategic and area based planning policies on a county or sub-regional level. It is the appropriate scale for substantial coastal developments such as large offshore wind farms, oil or gas fields, or similar projects. A detailed ‘step by step’ description of the process of seascape assessment is set out later in this guide.

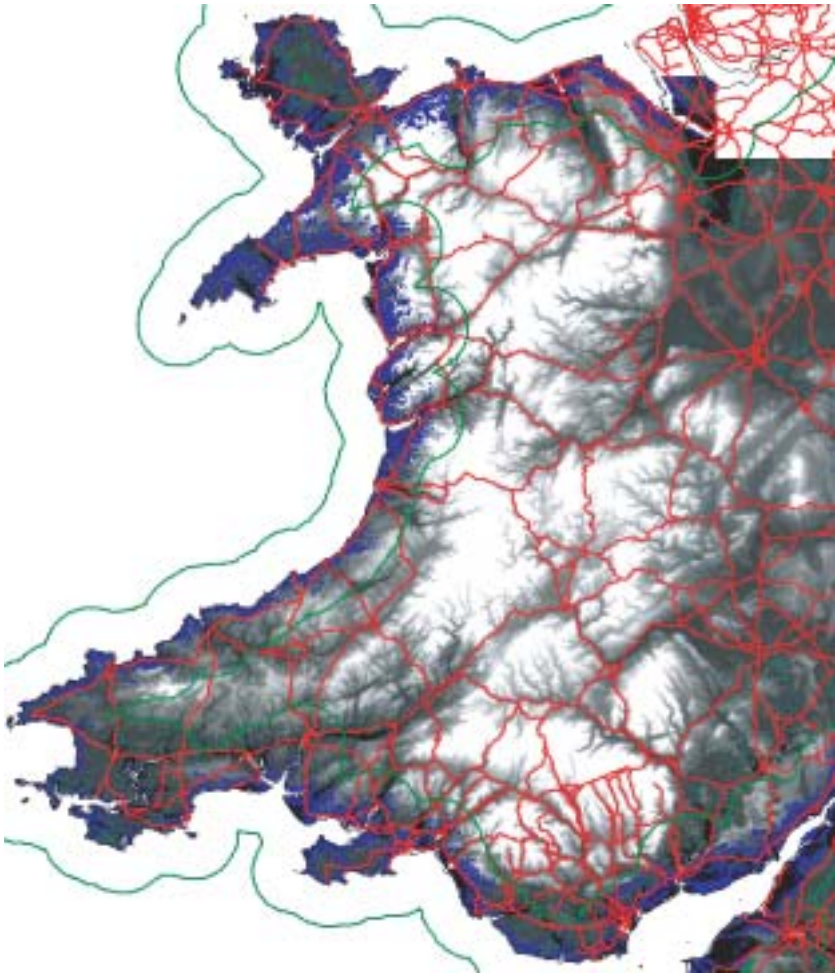


Figure 4.3
Computer generated zone of visual influence (ZVI) for Wales. Based upon a 10km seaward and landward buffer. It was prepared using a sample of points on land and sea. The dark blue represents the area of land which has views of the sea within the buffer.

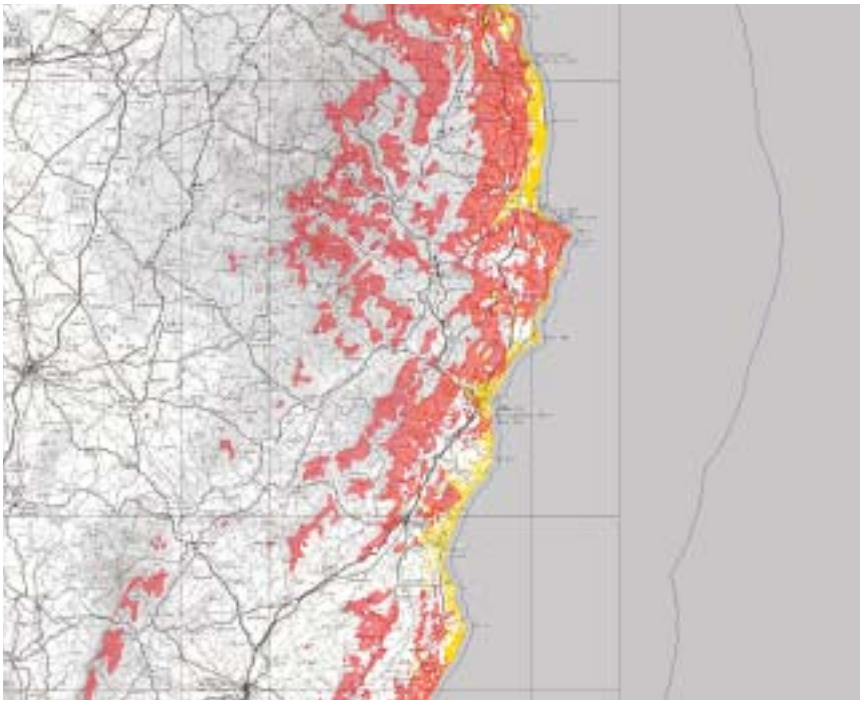


Figure 4.4
Computer generated zone of visual influence (ZVI) for South Leinster. Based on a 24km seaward buffer and an unlimited landward buffer. It was prepared using a series of points along two lines at 24km(red areas on the map) and 2km (yellow areas on the map) from the coast

4.5 Definition of local unit

Assessment at a finer level than regional may be required on some complex areas of coast in dealing with specific localised interventions. The procedure is similar to that outlined for the regional unit in previous section, but at a reduced scale and more intense level. These units will usually deal with intimate or local areas of coast and sea up to 2km or 1 nautical mile offshore and 500 metres inland. This may be altered significantly depending on the nature of the coast and the brief up to a value of approximately 5km inland. This type of detailed assessment is also appropriate to impact assessment of specific coastal or marine based developments including marinas, harbour works, aquaculture, coastal defences. Local unit assessments should be 'nested' within the context of a regional unit.

Assessments at this scale are probably not appropriate in dealing with large scale proposals offshore, such as oil and gas rigs and wind farms. The nature of this type of study will also be substantially determined by the inherent character of the subject area. In other words the framework for an assessment within a low lying estuary will differ significantly from that for a rocky indented coastline. This level of assessment is used to assist in the preparation of action area or local plans and to assess coastal developments and marine developments close to the shore.

4.6 The advantages of the hierarchical approach:

The advantages are:

- The assessment can be carried out at the appropriate level of detail to meet the requirements of the brief
- The differing scales of assessment are nested one within another in a logical fashion
- The assessment can be carried out a scale related to the stages in the decision making process
- The varying character subdivisions can be seen within the visual context of one another
- These different zones also coincide approximately with differing categories of maritime activity, namely;
    - The national units used by commercial international shipping, larger fishing boats, and passage making yachts
    - The regional unit frequented typically by coastal shipping, medium fishing boats, keel-boat racing, and coastal cruising
    - The local zone, utilised by dinghies, windsurfers, canoeists, and inshore fishing boats

4.7 Components of seascape

In each hierarchical level the units will have three distinct components, they are:

- **The coastal dimension.** This is defined by landform, i.e. primarily headland to headland it will include all of the inter-tidal areas and areas on land directly related to the marine environment e.g. dunes and machair/morfa.
- **The marine component.** The study team proposes that seawards limits be related to visibility and suggests the following rules of thumb, or for different distances to suit different purposes;

  National units: 24 km offshore, comparable to views to the sea surface from a height of 33 metres over sea level and coincident with the National 12 nautical mile offshore limit.

  Regional units: 15km offshore, comparable to views to the sea surface from 6 metres over sea level;

  Local units: 2-3 km offshore limit comparable to views to the sea surface from 1.5 metres over sea-level;
- **The hinterland component**. This is primarily defined by ZVI with additional reference to landform and land cover.

5 SEASCAPE CHARACTERISATION - TECHNICAL

5.1 Summary of the process of characterisation for national units.

As part of a desk study the national unit, within which the regional or local unit is located, should be identified and the issues arising understood. As suggested in Chapter 4, the national units would be mapped by national agencies on the basis of the following criteria:

- Zone of Visual Influence (both land and sea)
- Unique or rare geomorphologic or landscape features
- Major public access points to the coast and the sea
- Access to the sea for commercial and recreational use
- Marine and coastal recreation
- Cultural and historic links
- Landscape designations
- Conservation designations
- Marine and coastal habitats

Pre-Study Familiarisation

In order to properly structure the assessment it is necessary to undertake the following:

Familiarisation with the National unit within which the area is located. Ordnance Survey maps, sea charts, pilot books and almanacs should be obtained.

Familiarisation with the tidal range and tidal features.

Familiarisation with scientific or other designations.

The cultural associations and history of that particular section of coast should be researched and the relevance to particular landmarks and features in the sea understood.

Familiarisation with social, commercial, and amenity uses.

Familiarisation with any landscape characterisation studies carried out on the coast and adjoining lands.

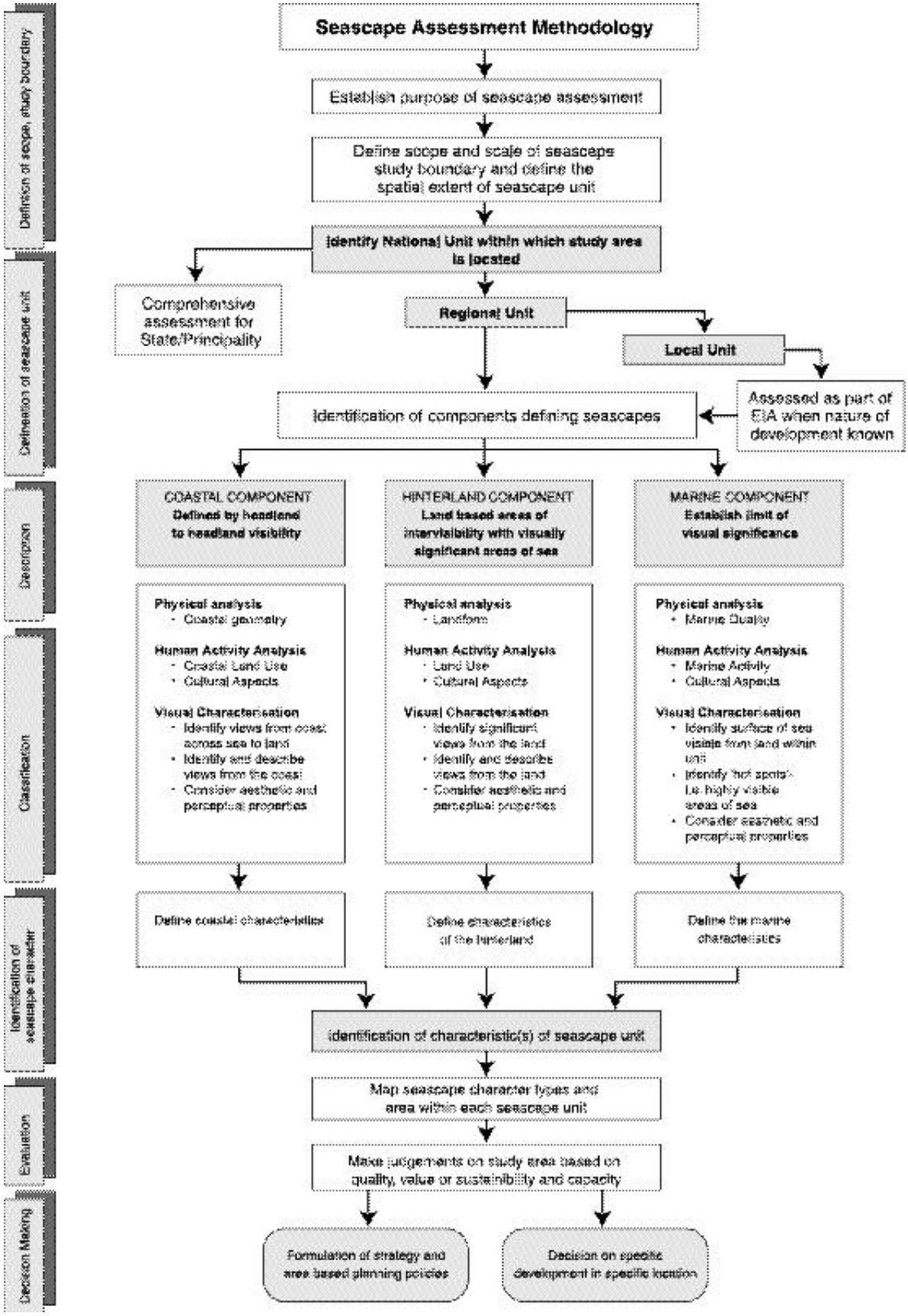
5.2 Summary of the process of characterisation for regional and local units

There are 4 basic stages required to assess regional and local units, they are:

- **Area** definition by visual criteria, and appropriate buffers;
- **Visual** analysis of visibility, view points and views ;
- **Characteristics** for sea, coastline and land parts of each area;
- **Integration** of sea, coastline and land components together.

Stage 4, integration, actually describes seascape character and provides the necessary information to be taken forward to evaluation. The stages are described in some detail in the following sections. See flow diagram, following page.

Figure 5.1


Definition of scope, study boundary
Delineation of seascape unit
Description
Classification
Identification of seascape character
Evaluation
Decision Making
Seascape Assessment Methodology
Establish purpose of seascape assessment
Define scope and scale of seascape study boundary and define the spatial extent of seascape unit
Identify National Unit within which study area is located
Comprehensive assessment for State/Principality
Regional Unit
Local Unit
Assessed as part of EIA when nature of development known
Identification of components defining seascapes
COASTAL COMPONENT
Defined by headland to headland visibility
HINTERLAND COMPONENT
Land based areas of intervisibility with visually significant areas of sea
MARINE COMPONENT
Establish limit of visual significance
Physical analysis
- Coastal geometry
Human Activity Analysis
- Coastal Land Use
- Cultural Aspects
Visual Characterisation
- Identify views from coast across sea to land
- Identify and describe views from the coast
- Consider aesthetic and perceptual properties
Physical analysis
- Landform
Human Activity Analysis
- Land Use
- Cultural Aspects
Visual Characterisation
- Identify significant views from the land
- Identify and describe views from the land
- Consider aesthetic and perceptual properties
Physical analysis
- Marine Quality
Human Activity Analysis
- Marine Activity
- Cultural Aspects
Visual Characterisation
- Identify surface of sea visible from land within unit
- Identify 'hot spots' i.e. highly visible areas of sea
- Consider aesthetic and perceptual properties
Define coastal characteristics
Define characteristics of the hinterland
Define the marine characteristics
Identification of characteristic(s) of seascape unit
Map seascape character types and area within each seascape unit
Make judgements on study area based on quality, value or sustainibility and capacity
Formulation of strategy and area based planning policies
Decision on specific development in specific location

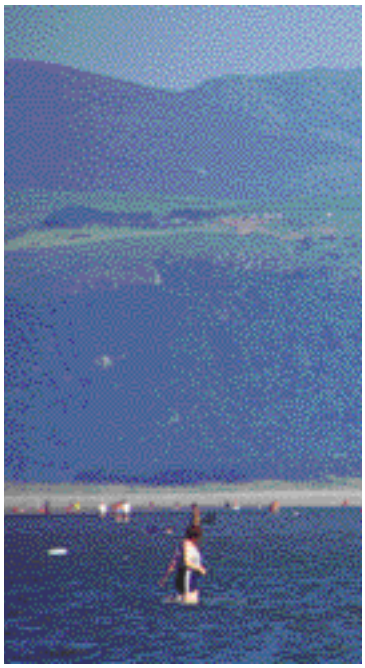


Photo J. Briggs

5.3 Analysis of seascape unit

The process of describing seascape character type and/or areas involves data collection on the three factors that determine seascape character. These are: -

- Physical/natural factors
- Human activity
- Visual characteristics

A desk-based survey will gather preliminary data on the physical and human factors associated with each of the three components of the seascape unit i.e. the coastal, the hinterland and the marine. Such information will be subsequently confirmed in the field study. Although physical factors, human activity and visual characteristics are listed separately they do interact, e.g. coastal dynamics influencing land use and hence visual characteristics.

Physical

Landform and geology will influence the shape of the coast, the visual prominence of the land and the coastal characteristics. The coastal shape influences how the sea is experienced from the land, i.e. exposed or sheltered. The aspect of the coast will also influence the degree of exposure. Certain seascape associated with sunset will have different cultural and visual associations in contrast to a seascape associated with sunrise. Coastal dynamics, i.e. erosion and deposition influence land use.

Human Activity

Human influences, trends and pressures on the land and sea should be identified. These would include settlement, marine activities, recreation and tourism, land use, historical and cultural features.

Visual Characteristics

Identification of the visual characteristics, would be carried out by field survey. It would deal with assessing and describing how the seascape is perceived and include a preliminary recording of aesthetic and perceptual qualities.

This stage involves a thorough understanding of seascape fundamentals and is mainly a site based activity.

Preliminary considerations

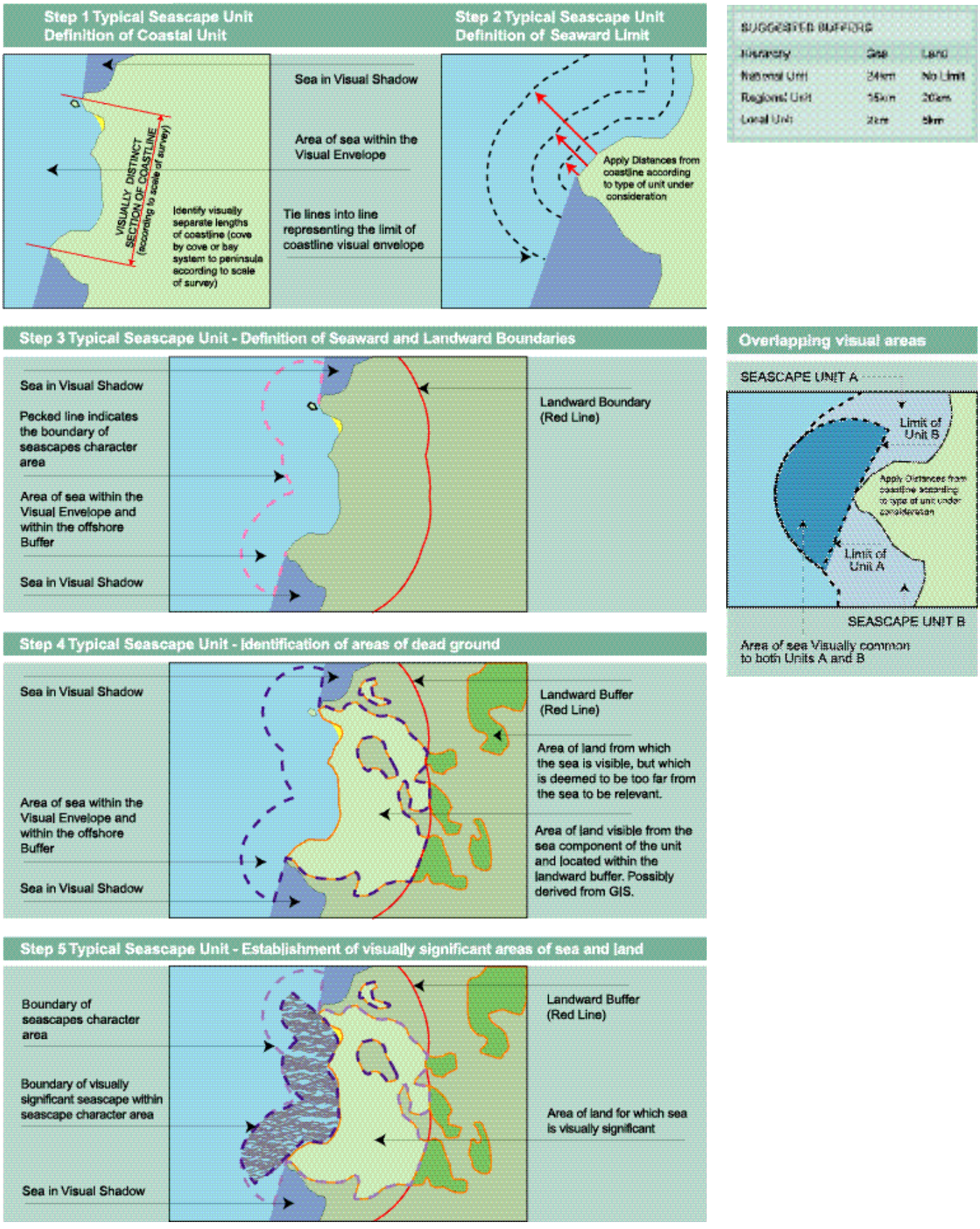
5.4 Stage 1 – Defining the area of seascape

Define the lengths of coastline for each unit according to scale of survey
This should be started as a desk study and confirmed on site. Use informed observation, based on ZVI and fieldwork to determine visibly related sections of coastline, to be called the **view-fields.**

At National Scale, divisions are based upon major headlands and changes in direction of the coast or major changes in character. The boundaries of existing management regimes, such as those based on sediment cells, should be used where appropriate.

At Regional scale, divisions are based on headland visibility from at least part of the length of coastline. The study team suggests that 15km would be the maximum limit of visual significance, and therefore the maximum length of one seascape unit along the coast will be 30km, ignoring coastline indentations. Greater distances suggest that more than one seascape unit is required, and a break point (a lesser headland, mid-way)

Figure 5.2


Step 1 Typical Seascape Unit
Definition of Coastal Unit
Step 2 Typical Seascape Unit
Definition of Seaward Limit
VISUALLY DISTINCT SECTION OF COASTLINE (according to scale of survey)
Identify visually separate lengths of coastline (cove by cove or bay system to peninsula according to scale of survey)
Sea in Visual Shadow
Area of sea within the Visual Envelope
Tie lines into line representing the limit of coastline visual envelope
Apply Distances from coastline according to type of unit under consideration
SUGGESTED BUFFERS
Hierarchy
Sea
Land
National Unit
24km
No Limit
Regional Unit
15km
20km
Local Unit
2km
5km
Step 3 Typical Seascape Unit - Definition of Seaward and Landward Boundaries
Sea in Visual Shadow
Pecked line indicates the boundary of seascapes character area
Area of sea within the Visual Envelope and within the offshore Buffer
Sea in Visual Shadow
Landward Boundary (Red Line)
Overlapping visual areas
SEASCAPE UNIT A
Limit of Unit B
Limit of Unit A
SEASCAPE UNIT B
Area of sea Visually common to both Units A and B
Step 4 Typical Seascape Unit - Identification of areas of dead ground
Sea in Visual Shadow
Area of sea within the Visual Envelope and within the offshore Buffer
Sea in Visual Shadow
Landward Buffer (Red Line)
Area of land from which the sea is visible, but which is deemed to be too far from the sea to be relevant.
Area of land visible from the sea component of the unit and located within the landward buffer. Possibly derived from GIS.
Step 5 Typical Seascape Unit - Establishment of visually significant areas of sea and land
Boundary of seascapes character area
Boundary of visually significant seascape within seascape character area
Sea in Visual Shadow
Landward Buffer (Red Line)
Area of land for which sea is visually significant

should be sought for this. Although the resulting 2 seascape units would be related, sheer distance apart can determine different assessments for both.

At Local scale, it is suggested the limit of visual significance is 2km from the centre point (giving a suggested length of 4km). Distinct headlands may not be present to define the limits of the area, but smaller distinct visual areas can be plotted, including estuaries and inlets that are not distinguished at larger scales. The different scales of unit will nest within one another. Although subdivisions at local level may relate to differences in landscape character, they can still form parts of one inter-visible regional unit.

Establish A Seaward Limit Of Seascape Units
Using the distances identified to represent the limits of visual significance (e.g. 24km, 15km and 2km), project lines in the sea at these distances from the coast (for national, regional and local units respectively). A judgement has to be made whether the limit should be drawn from offshore islands, or the coastline itself.

Establish visibility splays at each end of the seascape unit
The view fields will splay beyond the boundary points on the coastline, particularly where there is a large headland limiting the unit. See figure 5.1,'Steps'. It is likely the view from the headland itself will include much of the next unit in its panorama, although these areas may not be representative of the inter-visibility of the unit being plotted. Therefore the judgement of the assessor will be required in defining the angle of the splay.

Other units may overlap with the area of sea within the unit being plotted at the headlands (see 'Overlapping visual areas'; figure 5.2) The extent of the adjoining seascape units should also be plotted to ensure a complete understanding of the unit under consideration as overlapping areas may have higher levels of visibility.

Establish the Landward Boundary
View-sheds can be defined by the use of GIS and checked in the field. The view-shed will be defined in relation to views of the sea within the marine component.

As discussed in Seascapes Fundamentals, theoretical visibility may be much greater than significant visibility. The significance of views of the sea diminish with distance, so while the sea may theoretically be visible from the top of mountains at a distance of over 30 km from the shore, the assessor's judgement will be required to define a realistic landward limit for the regional or local unit. A limitation of 10km on the regional unit and 5km on the local unit appeared to the study team to be appropriate for consideration as a visual boundary or buffer. The final decision will depend on the nature of the issues for consideration and may vary from site to site and brief to brief.

Identify Areas of Dead Ground
The ZVI will have identified areas of dead ground which can be 'ground truthed'. If these areas are within the hinterland 'buffer', they merit inclusion in the characterisation process.

Establish the Visually Significant Areas of Sea and Land.
It is possible then, to use GIS to refine our understanding of visibility within the marine component. That is, it would be possible to define which areas inside the marine component had greatest visibility from land, and were in effect, 'hotspots'. Analysis of this kind would be particularly useful in the case of proposed development at sea but may be less important if the major focus of study is the hinterland component. GIS may also assist in establishing patterns of visibility, for example width of view, so that in some areas panoramic sea views were characteristic, in others glimpses and narrow views were characteristic. This can also be done by fieldwork.

Confirm areas on site – Field Study
The above stages can be substantially carried out as desk based studies, and require confirmation in good visibility on site. (This can be combined with visual analysis stage that follows).

5.5 Stage 2 – Visual analysis of areas

This stage involves a thorough understanding of seascape fundamentals and is mainly a site-based activity. Information should be collected in a structured way, but allowing scope for sketching and recording unique seascape characteristics that checklists alone would not capture. Maps of the study area should be marked up on site and all relevant spatial information noted for incorporation in survey record (see example survey forms in appendix 1).

Denote And Describe Views From Land To Sea
Conventional visibility assessment techniques can highlight which views are more important in seascape than others. These views include those from fixed view points such as hill tops, and tourist car parks, running views such as those from promenades, coastal roads and coastal footpaths, and views from certain general areas of open ground such as publicly accessible hillsides, sandy beaches and dune systems. Particular views, including sea, coastline and land, showing distinctive and unusual seascape character, are especially important and may warrant protection where they are famous or have cultural connections. These viewing points should be described and denoted on maps and charts.

Denote The Views From The Coast Across Sea To Land
Where coastline is concave or where there are islands, views may be seen across sea to more land. These views can be analysed in terms of the shapes and levels of detail seen (based on the limits of visual significance) as well as in terms of form and content.

Identify Distant Views From Land To Sea Where Sea Is An Important Part
As the sea is difficult to scale but massive, a sea view from 1km inland may appear similar to a sea view from 10km inland from greater altitude, in good visibility. But note that the view from further inland will be of a much larger area of sea, and therefore any objects within it, such as a ship, will be a much smaller element of the view, and so less significant. The two views in themselves may appear similar, and be of similar significance as views from those points, but some components may be beyond the limit of significance in seascape assessment.

Identify and Describe Views from the Sea
Views from the sea to the land are as important to record as land-based views. The sea is the essential element in seascapes and it is not possible to properly complete an assessment of a regional or local unit without undertaking a visual analysis of the unit from the sea. Access to a boat will be required and some familiarity with basic boat operation will be essential. As with all matters marine, the weather may significantly constrict access times to the water and programmes should be prepared to allow for these contingencies. The use of Global Positioning Systems (GPS) will be of considerable assistance in providing accurate locations for offshore observations. The benefits of such water based assessment cannot be overrated. Features on the coast which dominate landbased views may be completely insignificant from the sea and conversely background topography hard to see on the coast may dominate views from the sea.

Photo R. Holt

5.6 Stage 3 – Characteristics of each seascape character area:

Each seascape area will include marine, coastal and hinterland components. Each has very different character in landscape terms, and so it is relevant to support statements about seascape character with information on the contribution each of these 3 parts makes to the whole. This requires collecting and analysing information on each distinct part. This stage is in effect reductionist, and necessary to show the elements of seascape character.

Define Marine Characteristics

Admiralty charts and pilots will provide information on unusual sea conditions, such as rapids, races and over falls. Site observations should confirm these and they should be recorded on maps and in descriptions. Whilst brevity is encouraged, a checklist will help to show that such characteristics have been considered, even if few were found.

Examples of water features in the sea include:

The Swellies in the Menai Strait;
The Falls of Lora by Connel Ferry, Oban;
The Whirlpools of Corryvrechen north of Jura;
The Severn Bore;
Holyhead Race;
Overfalls at Tuskar Rock
Tidal Race in the North Channel

Despite such features, the sea surface is more likely to be relatively uniform within a typical site based assessment, character being determined primarily by the coastline edge and landscape backdrop. Indeed part of the usual character of seascape is the contrast of complex coastline with uniform sea.

Whilst a sea surface has great variety in character type due to wind and lighting, it is not possible to map this by area, as these are dynamic and temporary characteristics. In regional and national studies, the water clarity of one sea or inlet may differ to another and therefore affect appearance, and thus seascape character. However such general characteristics are not likely to be significant in either area specific or development based impact assessment.

Photo D. Bagnall

The nearest relevant level of sea based information that can be mapped at regional and local unit scale is degree of exposure. Although meteorological data and maps show this, it is field observations, and local information on the effects of wind and waves on coastline character that are relevant for seascape assessment.

Define Coastal Characteristics

For coastline, the linear landscape character formed by the meeting of the water and the land can be recorded (if such studies do not already exist). Survey forms will ensure efficient and methodical collection of data. At this stage, and in the interests of brevity, intrinsic character rather than wider comments on the relationship between land and sea is all that is needed.

The coastline is of variable width, from almost nothing (vertical cliff) to many kilometres (large estuaries and sand dune systems) and the survey method needs to take this into account.

On the seaward side of coastline, the boundary is obviously the line where water and land meet. However, it would not represent the coastline if the inter-tidal area was excluded from coastline characterisation, which means the coastline boundary would be at the LOW tide mark.

The inland side of the coastline boundary is more complex, as although some coastlines have a very contained character, with a clear division between coastline and an otherwise inland landscape beyond, the whole issue of deciding when one changes to the other will be very

complicated when considering the gradual transitions, such as with reclaimed land, old sand dunes turned into woodland, raised beaches, and the flat plains arising where rivers meet the sea and drop their sediments. The important thing to remember is that the purpose of seascape characterisation is to inform planning along coastlines and in the sea, and that whilst it is relevant in characterisation to mention the wider landscape setting, this can be done with a brief description, and not as a major element in itself.

Along the coastline, divisions can be made according to conventional landscape characterisation principles, and can work at scales or purposes to suit, from a "cove by cove" analysis to regional coastal character. This will define the combinations of patterns and processes that make each section of the coastline distinctive.

Identify the Characteristics of the Coastal Hinterland
An existing landscape assessment may be available to provide the necessary information. Where such assessments do not exist, as is likely to be the case in Ireland, it will be necessary to carry out the field survey stage of landscape assessment, using conventional landscape assessment forms, together with analysis of that information. However, in the interests of brevity, evaluation in terms of landscape character would not be required.

Note the character of coastline and the hinterland landscape may be very different, for example:

The steep, rocky coastline and exposed sea around south Pembrokeshire is contrasted by a gentle and rolling landscape setting;

The gentle, sandy coastline and more sheltered, shallow sea around Merionydd is contrasted by a steep, craggy, mountainous and exposed landscape setting.

Information on landscape character areas can be gained from conventional landscape characterisation, and in Wales this information should eventually be available from the relevant LANDMAP assessment. With complete coverage of landscape assessments in some areas, seascape assessment should not need to carry out landscape assessment afresh. In Ireland it may not be available and may have to be gathered as part of the seascape assessment process.

5.7 Stage 4 – The integration of marine coastline and hinterland – the essence of seascape character

In addition to considering sea, coastline and landscape as distinct aspects, the relationship between one and another has to be described. This is likely to be obvious to informed observers on site, and will be most clearly expressed in an objective description followed by a subjective description. This can be done afresh for each seascape character area using a combination of checklist form and description under headings, all supplemented by photographs, sketches and sections. A balance has to be struck between the need to consider each seascape character area on a like for like basis (which a standard checklist will help to demonstrate) and drawing out the potentially unique character which may not be explained by combining a few standardised checklist words.
The end product of this stage of the assessment process is a map of one or more seascape units showing their subdivision into areas of different seascape character, together with a written description of that character.

5.8 Field survey sheets

In order to ensure the efficient and methodical collection of data, information should be recorded in 'the field' on a field survey sheet designed specifically for the purpose. One field survey sheet should be used at each survey point. In accordance with contemporary best practice the field survey sheet should record both subjective and objective observations. Objective observations note the intrinsic qualities of the landscape itself while subjective observations record the response of the individual viewer.

The contents of the field survey sheet should include space for:

- Written description of the character observed at particular points
- An illustrative sketch
- A check list seascape elements and their significance
- A check list of aesthetic and perceptual factors;
- Space for observations about the condition, sensitivity and management needs of the seascape unit
- Significant marine and sea/land views
- Bearings, taken with a hand bearing compass
- An annotated map should supplement the field survey record.

During the survey the map should be annotated to show

- Routes taken
- Location of the survey points
- Key view points
- Photographs should be taken at each survey point. These should be numbered, annotated and referenced to the annotated maps of the route taken and the points surveyed (both land and sea based). Photographs provide an important supplementary record and point of reference for subsequent desk analysis once the survey of the seascape unit is complete.

Annotated sketches are a valuable recording tool as they can show how the different components of seascape interact and fit together.
Although not practical at larger scaled studies, the assessor should try to maximise sensory perception by ensuring the visit includes as much 'open air' time and walking as practical rather than being limited to cars. If there is a popular coastal path, consider walking part of the length of study area as this will be how many people perceive it. Use all senses. Make notes, annotate plans, sketch sections and take photographs as necessary to record the impressions of character. Visit prominent view points, and make an initial assessment of the main 'running' or linear viewpoints, key views, serial vision and panoramas. Try to define character area subdivisions where they are obvious, and note also where no clear boundary exists.

Photo J. Briggs

Map scales to use
This will vary according to level of detail to be collected, and extent of survey. It is suggested that:
1:250,000 scale is used for National units, as they can encompass large areas;
1:50,000 scale is used for Regional units, as a combination of detail and the need to show relatively large view-sheds;
1:25,000 or 1:10,000 scales are used to show Local units where view-sheds are small and fine detail is most critical. (1:25,000 maps are not available through Ordnance Survey sources in Ireland and this may require additional mapping, use of aerial photographs, etc.)

Joining sea charts and land maps
As both sea and land are of equal interest and need to be seen in relation to each other, the separate Admiralty Charts and Ordnance Survey maps should, where possible be joined or if that is not possible used in conjunction with one another. Joining maps and charts will require ortho-rectification of Admiralty Charts, which are drawn on a different projection to Ordnance Survey maps. (CCW has done some of this for parts of Wales). This can be difficult to achieve in practice and the assessor should ensure that they have both the maps and charts to hand in the appropriate scale when undertaking the assessment.

Photo J. Briggs

5.9 Research into historic and cultural identities of seascape areas

Historic landscape characterisation is relevant to seascapes and can cover hinterland, coastal and marine components. Bearing in mind the large numbers of ship wrecks, lost villages, disused docking, industrial and fishing infrastructure that can be seen along and off our coasts, historic and cultural aspects can play an important underlying role in defining the character of seascape. There are a variety of types of historic and historical information available, from various sources, from museums and other archives, to encyclopaedias and research papers, photographic collections and monographs. The most effective way of obtaining and analysing such information is to engage a historical organisation or archeological trust where the local knowledge and sourcing of information, coupled to expertise on valuing it will usually be much greater than that of the seascape assessor. The examples below indicate how historic and cultural information differs, although it is not always practical to separate one from the other. There will be many more examples than just the few shown here.

Examples of historic characteristics of seascape:

- *Defences (castles, invasion beacons)*
- *Defences (harbours, sea walls, groynes)*
- *Communications (bridges, docks, cranes)*
- *Safety (lifeboats, light houses, buoys)*
- *Archaeology (burial chambers, old settlements)*
- *Maritime (ships, wrecks, boat yards, ferries)*
- *Contraband (smuggling, piracy, coast guards)*
- *Extractive industry (quarrying, staiths, railways)*
- *Dumping (fill, rubbish, ballast, dredging)*

Examples of cultural characteristics of seascape:

- *Sea shanties and ballads*
- *Communications (trade, holidays, employment)*
- *Migration and Immigration (arrival, departure ports)*
- *The people (fishermen, cartographers, dockers)*
- *Art (paintings, poetry, plays, novels)*
- *Language (dialect, seafaring, foreign languages)*
- *Leisure and recreation (holidays, retirement)*
- *Religion, education, social institutions*
- *Customs, classes, politics, land ownership*

Symbols and Abbreviations used on Admiralty Charts

(Chart 5011, Produced by the United Kingdom Hydrographic Office)

Available from:

Admiralty Distributors
General Enquiries
Admiralty way
Taunton
Somerset
TA1 2DN
UK

Tel: +44 (0) 1823 337900
Fax: +44 (0) 1823 284077
Web: www.hydro.gov.uk

6 EVALUATION AND JUDGEMENT

6.1 The definition and purpose of evaluation

This section examines how information gathered at the characterisation stage can be used to inform decision-making.

There are at least three ways in which the survey results of seascape characterisation could be used:

- to rank seascape units according to their perceived 'quality'
- to rank seascape units according to their perceived 'value'
- to rank seascape units according to 'capacity to accommodate change'

Some preliminary definition is necessary. These definitions are closely based on those commonly used in landscape assessment and described in the 1998 "Interim Guide to Landscape Assessment", prepared for The Countryside Agency and Scottish Natural Heritage by ECUS and Land Use Consultants.

Seascape evaluation is defined as the judgement and ranking of seascapes according to their *quality*, *value* or *capacity to accommodate change.* This will focus a decision-maker's attention on the issues affecting seascape character as well as on the characteristics themselves, and can be used as a basis for grouping seascapes with similar quality, value, or capacity to accommodate change.

Quality in seascape reflects the condition of the seascape components or features that comprise a seascape. It also reflects the extent to which the character of the area is well defined, in the sense that features present are not fragmented, are in good condition, and the seascape unit is an integrated whole.

Value in seascape reflects the relative degree of importance attached to a seascape feature, seascape character area or seascape type. Different value judgements are possible and can be based on quite different underlying aesthetic systems. For example, we place a much higher value on naturalness as expressed in the landscape than did Capability Brown's contemporaries. Subjectivity can be limited, or at least made transparent, by the use of explicit criteria, for example rarity, fragility, integrity, diversity, tranquillity, and wilderness value. Regard should also be had to consensus opinion, as expressed by statutory or local designations, or simply by the popularity of a seascape.

Capacity to accommodate change in seascape is the ability and degree to which a seascape character area or type can accommodate change without unacceptably reducing quality or value. In evaluating the capacity, character of the area will be the most important factor, but it is also likely that the perceived value of a seascape will directly affect judgements about acceptable change. The concept of capacity to change is inseparable from consideration of the type of development proposed, and it likely that an overall assessment of capacity without reference to such information would be of little value.

An example of an approach to capacity questions, which the seascape team would endorse, is Scottish Natural Heritage Review No. 71 by Caroline Stanton, "Skye and Lochalsh Landscape Assessment" (1996). This study provides a landscape planning and design context, by describing the character of each landscape type, relating each to different kinds of development, and offering guidance with sketches, photographs and process diagrams on how developments might best fit the context. The Guide to Good Practice in Seascape Assessment will not deal with design guidance to the same extent.

The availability of resources and required outputs will determine whether the focus of evaluation of character is on quality, value, capacity or a combination of these. As with landscape assessment, these considerations can be used as a basis for whether to advocate conservation, restoration, or the creation of new landscape character. Typically, conservation would be advocated where units or areas within them show distinct, intact character, where the elements are in good condition. Restoration would be advocated where distinct character was

fragmented or in a poor condition. Where character is indistinct, there may still be a value basis for restoration to some former state. Planning for new seascape character is most appropriate where character is indistinct, condition is poor and quality and value are low. However in reality, the need to develop may dictate change regardless of existing character, quality, value, or capacity. Where this is necessary, it may still be possible to conserve or even enhance some existing characteristics whilst discarding others, as well as creating new seascape character through creative planning and design process.

Information on how to evaluate quality, value and capacity and how then to classify seascapes is given in sections 6.4, 6.5, and 6.6 respectively.

The stages of Evaluation - examples

The following provides examples of different ways of expressing the stages of seascape information in an assessment:

> ***Characterisation:*** *based on summarising only the information produced in the characterisation exercise. "The Seascape contains the following characteristics which can be seen together as the natural mouth of a large sandy estuary backed by undeveloped steep wooded hills."*
>
> ***Expressing quality:*** *"The character of the seascape forms one of a group of north facing estuaries, but no others have the intactness coupled to protection by (Landscape scenic value designation)."*
>
> ***Expressing Value:*** *"The seascape is rare in a national context for being intact in close proximity to developed area" or expressing perceived value"The seascape is regarded by many as an outstandingly beautiful area and is designated for protection of its scenic value."*
>
> ***Expressing capacity to accept change****: "The seascape is highly valued by many visitors for recreation, but has a fragile and open character which limits its capacity for change."*
>
> ***Expressing a resulting strategy for the future****: "If present trends in increased visitor pressure continue, the fragile qualities of this seascape will decline, and so action is required now to conserve it."*

6.2 Characterisation as a precursor to evaluation

To minimise confusion, evaluation should be written as a separate section to characterisation, to make clear the distinction between describing character and making comments on it. Evaluation is therefore based on having completed characterisation first.

The merits of basing evaluation on characterisation:

- *The spatial extent and inter-relationship between elements of the resource have already been recorded and presented clearly and simply*
- *The information is consistent and either objective or transparent, forming a reliable point of reference*
- *Few should find the information is wrong, biased or incomplete so few should object to its use*

In evaluation it is important leave a clear trail back to the results of characterisation or other relevant background research so as to make transparent the basis of judgements. This is especially important in resolving planning conflicts as they can develop into adversarial situations. It is always worth trying to minimise potential differences of opinion by:

- Keeping simple obvious links back to fact and researched consensus of opinion
- Avoiding temptation to preconceive an outcome and ignore aspects of quality, value or susceptibility to change that do not accord with this.

6.3 Expressing character

The characterisation exercise should provide the following information of direct use in the evaluation stage:

- Overall character
- Characteristics, positive and negative
- The dynamics of the seascape, which are:
  - *i. History*
  - *ii. Present factors for change*
  - *iii. Strengths weakness, opportunities and threats.*

6.4 Evaluating 'quality'

Put simply, if all the essential elements of a character area or character type are present, and in a good state of repair or condition, then that is an indication of a better quality seascape. If there are some detractors, or elements out of place or conflicting with the underlying character, or if elements are fragmented, missing or in a poor state of repair or management, then this indicates a poorer quality seascape. However, poor *quality* seascape does not, in itself, indicate low *value*. A low quality seascape area might be of low quality with respect to its features and integrity, but it might nevertheless be of a rare and highly valued type. Additional resources for conservation or restoration, or particular care over new development, would be indicated. Alternatively it may be of good quality but not valuable because it is common both locally and nationally.

The field survey should identify the physical condition of individual seascape elements. When combined with other studies, such as history, culture, and stakeholder consultation, the probability, nature and trend of future change may be established. Considering all this information together should reveal any opportunities to intervene, either to prevent those changes which may have adverse consequences on seascape character, or to maximise opportunities for enhancement. The evaluation of this should consider the importance attached to characteristic elements and the likelihood of either positive or negative change to them.

It is helpful if field surveyors note seascape condition and intactness, the presence of detractors and so on, as these are useful aids to establishing the quality of different features.

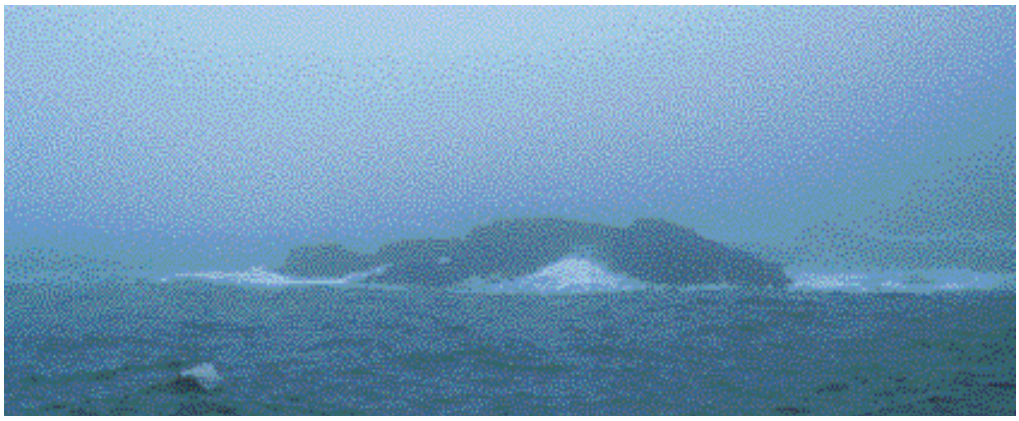


Photo J. Briggs

The following examples will assist with this:

Intactness: ***Complete ---------- Remnant***

What patterns are evident?
Examples – field boundaries, limestone pavement, sand dune hills, grand facade of a seaside resort
Do these patterns have sections missing? If so, to what extent?
Examples – hedges having been removed, limestone pavement having been quarried, sand dunes having been eroded and patched up with rock armour on their seaward base, an old promenade facade broken by clearance sites.

Condition: ***Maintained---------- Abandoned***

How well maintained are the elements that are essential for character?
Examples – sea defences, sand dunes, beach, docks, resort frontages and gardens
Are there particular elements that are not receiving appropriate maintenance?
Examples – eroded defences, 'blown out'dunes, eroding beach without replenishment of sand, derelict docks, tatty frontages in poor repair, and disused properties and buildings.

Detractors: ***None ---------- Many***

Are there elements that are out of place?
Examples – buildings not designed to fit into their surroundings, over standardisation of modern road signage, concrete kerbs, large warehouses in an otherwise historic harbour setting, large rock armour on a popular recreational beach.

Typicality: ***Representative ---------- Unusual***

Is the seascape area a 'classic example'or 'role model'of its type?
Example – Llandudno as a grand Victorian resort with promenade frontage, Bray Head as the place where the Wicklow Hills meet the sea, Dublin Bay as Dublin's seascape unit.

Clarity: ***Clear ---------- Muddled***

Are there too many patterns overlaying, and too many detractors, to see clear character?
Examples – a sandy beach, with rock armour, and a wreck, with flood lights and factories, a caravan site, castle, nature reserve with and lots of busy roads and many people moving around, may appear muddled, with no clear indication of which elements form the key characteristics.

Fragility: ***Delicate ---------- Robust***

Is the character very easily destroyed by the addition, alteration or removal of key elements?
Example – a resort backed by steep hills may have a road bypass placed between the town and the beach. This simple addition breaks the inter-relationship of town and facades with direct access to the beach, and can advance its decline as a resort.

Rarity: ***Common ---------- Rare***

Are there many seascapes of the type in the national context?
Example – the only remaining section of undeveloped coastline within the national unit might be a small local unit. Whilst in itself the local unit is unremarkable, if it is rare within its context, it merits conservation.

Distinctiveness: ***Bold ---------- Indistinct***

How easy is it to remember a seascape? Are the patterns dramatic or do you have to look carefully to find them?
Examples – the spectacular north-west coast of the Lleyn Peninsula is memorable for the way the high heathery mountains fall away directly into the sea, giving it a bold character. However, on the South-Eastern coast of the Lleyn Peninsula, the topography is far more gentle and less distinct.

Note that certain qualities may also be valued, but it is important to judge *quality* and establish its *value* separately. Criteria should not be awarded numerical scores, either cardinal or ordinal. Apart from the danger of adding ordinal figures, adding scores may conceal issues. A very high score for rarity might, for example, be more important than all other factors combined and that point may be hidden if the evaluation is expressed in an overall numerical figure.

There are some advantages in judging the quality of components:

- *Key qualities are highlighted in a 'value-neutral' way*
- *The process can be carried out relatively quickly with minimum additional time and cost*
- *An evaluation of quality may be all that is required for the purpose of the study*

Example applications

- *Showing which seascapes have the strongest and most intact character*
- *Focussing limited resources on protecting the best examples of particular seascape types*
- *To form a transparent basis on which overall quality can be judged*

An overall judgement of quality should be attempted, with the linkage between judgement of individual components and the overall judgement made explicit and transparent. An overall judgement enables one seascape to be rated against another. This may not be directly related to its overall value although in practice there will often be a close correlation.

6.5 Judging 'value'

Value need not be considered in every assessment. Some applications do not require this, for example:

- Preparing design guidelines for future development
- Preparing plans for landscape and seascape conservation
- Preparing the content of area action plans

However there will be applications where value is more important:

- Preparing policies and objectives for planning and development within seascape units
- Targeting areas for regeneration or action plans
- Identifying areas for seascape conservation
- Identifying historic and culturally important seascapes and key views, for conservation

In moving from character to value, it is vital to make transparent the basis on which each value is assessed, and to make the criteria explicit. Although it is possible to consider value under each individual characteristic and quality, it may be much simpler to record overall values and reasons for them, as value to some may stem from intangible factors that cannot be determined by a seascape assessor alone, such as a place of spiritual or community, political, cultural or historic significance.

In assessing the value of a particular seascape characteristic or overall seascape character the following criteria may be used as 'clues' to its value:

- Designation (whether for landscape, amenity or conservation, statutory or non-statutory, from National Park down to community open spaces)
- Size (for example, a large mountain usually attracts more walkers than a smaller one next to it)

- Naturalness (although not appealing to everyone, a place that appears natural is also valuable for a number of psychological and aesthetic as well as ecological reasons)
- Rarity (Rarity to be considered separately at Local, Regional and National scale)
- How representative it is of its type
- Diversity
- Fragility
- Potential to restore or recreate
- Recreation and amenity uses (as designated, especially at a local level, and how managed, and what facilities are available to assist, and how much recreational satisfaction the seascape type can offer)
- Remoteness (how far a place is from main centres of population, coupled to an undeveloped character)
- Accessibility (the quality, number and type of access areas and routes, view points and interpretation)
- Tranquillity (lack of background traffic noise, night lighting, development or other human activity that detracts from a quiet and peaceful place)
- Scenic value (the most subjective perhaps, where further criteria would help)
- Conservation value (not in this sense a value in terms of wildlife, earth science or other archeological or historical interest, but as a visual association or indicator for these values)
- Historic or cultural associations (mentioned in poems, literature, location of music and so on)
- Sense of place
- Popularity
- Tourist or other incomer value (marketing an economic value)

If other criteria are used they should be similarly made explicit.

As with quality, an overall judgement of value should be attempted, again with a transparent link between judgement on individual criteria and the overall judgement. This enables a hierarchy of units to be graded from ‘best’to ‘worst’and can be undertaken at any of the nesting scales of seascape assessment.

Values may be different at different scales of seascape. An assessment of the whole coast will show which of the national seascape units should have highest priority for protection because they are the most highly valued. This will assist in designating value that covers large areas, such as a National Park. The grading of the different seascape units, nested inside the national unit would be comparable to the identification of landscape areas within in a Local Plan, such as Areas of Special Control (Ireland) or Areas of Great Landscape Value (Wales). In addition, considering value at these larger scales could direct potential developers towards more appropriate seascape locations early in the planning process. The most detailed value grading of seascape units will occur at the local seascape scale. Evaluation at this level of detail would be of use in local decision-making processes e.g. a Local Area Action Plan, Conservation Area Designation, or to provide background context to an Environmental Impact Assessment.

It is important to deal with Local, Regional and National value, particularly but not exclusively with respect to rarity. The issue of rarity should also be considered when an overall judgement of value is made, since it is the combination of components that may be particularly rare.

The need for consultation

If a value is to represent a common consensus and not just the assessor's own value system, then it is necessary to identify those groups and individuals with an interest (the 'stakeholders'), who are:

- **Communities of interest** include professionals, developers, conservationists, government and local authorities. They are usually small in number but great in influence and control, however remotely located. However, they are often easily identified and their interest easily understood
- **Communities of place** include residents, weekenders, workers, and visitors. They are usually large in numbers but can be difficult to identify or communicate with. At times their interests will be many and varied and be difficult to understand clearly

There are clear advantages in involving stakeholders in the evaluation process:

- Particular values can be placed on particular seascapes
- Communities are more likely to support the outcomes of the assessment if their opinions have been taken into account, or agree to changes to seascape if they have taken ownership of the decision-making process
- A wider perspective, involving perception and cultural dimensions, should provide a fuller and more balanced evaluation

The seascape assessor should therefore include in a judgement of value:

- Asking for the opinions of those with an interest in seascape
- Research into public preferences, trends and consensus
- Research into historical and cultural traditions and associations of the area
- Professional experience

Obtaining the opinions of stakeholders can be very difficult and time consuming, with no guarantee that there will be a general consensus of opinion. However, by including the opinions of stakeholders, they are more likely to support the outcomes that their opinions helped to create.

Whilst there are a multitude of levels of potential participation by other interested parties in a seascape assessment, there are 2 broad levels worth being aware of:

- The **'top down'** approach, where an authority, developer or other outside interest wants to achieve a particular goal, and wishes to maximise popular support by engaging in consultation with communities,
- The **'bottom up'** approach where the action of communities is the prime force and the eventual outcome is very uncertain.

It is important to feed current opinions into the assessment process, as opinions may change over time even where the seascape resource does not.

The opinions will also not necessarily be based on elements that can be observed on site. For example:

- *Site of religious significance, mass gathering or popular legend*
- *Popularisation by painters, poets, writers and famous people*
- *Traditional place for holiday and recreation*
- *Stable community concerned at any imposed change at all*
- *Negative association (e.g. with danger, crime, invasion, destructive power of the sea or a troubled past)*
- *Personal interest (e.g. in development)*
- *Pride of place (or the opposite) with no simple reason*

The role of the assessor will be to ascertain and assemble the various opinions of stakeholders in as transparent and 'value-neutral'way as possible. The personal opinions of the assessor are usually irrelevant.

A pilot study established that not only do the public respond to visual impact (of a particular object, in a particular setting), but also to their understanding of the function of that object. In other words the cognitive merges into the affective, i.e. what people know affects how they feel. The example used in the research noted that perceptions of a wind turbine at sea were less negative than that of an oil rig (taking into account respective sizes). Further research is required.

Information may be gained from primary sources, asking communities themselves by focus groups or questionnaires, and secondary sources, by reviewing or commissioning historic and cultural studies.

Community participation is not a single, set procedure and research into public perception of seascape is very limited.

6.6 Evaluating capacity to accommodate change

Having used judgements of quality and value based on character to establish whether a seascape should be changed or not, the study of capacity to accommodate change considers to what degree of change can be made whilst still retaining current character. This can be done by making clear the form, function and scale of changes needed to significantly affect:

i. The seascape resource (as expressed in quality), and
ii. The opinions of receptors (as expressed by their perceived value of it)

Seascape character - Capacity in the marine component

The marine component has a uniform but low capacity in itself. Yet its large scale can absorb some small change without affecting its overall character - especially where the change is far out to sea and well away from land based receptors.

It can take just one prominent alien object in open sea to change an undeveloped character. It is hard to judge a saturation point, beyond which further changes become over-development. Judging the seascape unit as a whole overcomes this.
So capacity in the marine component takes account of:

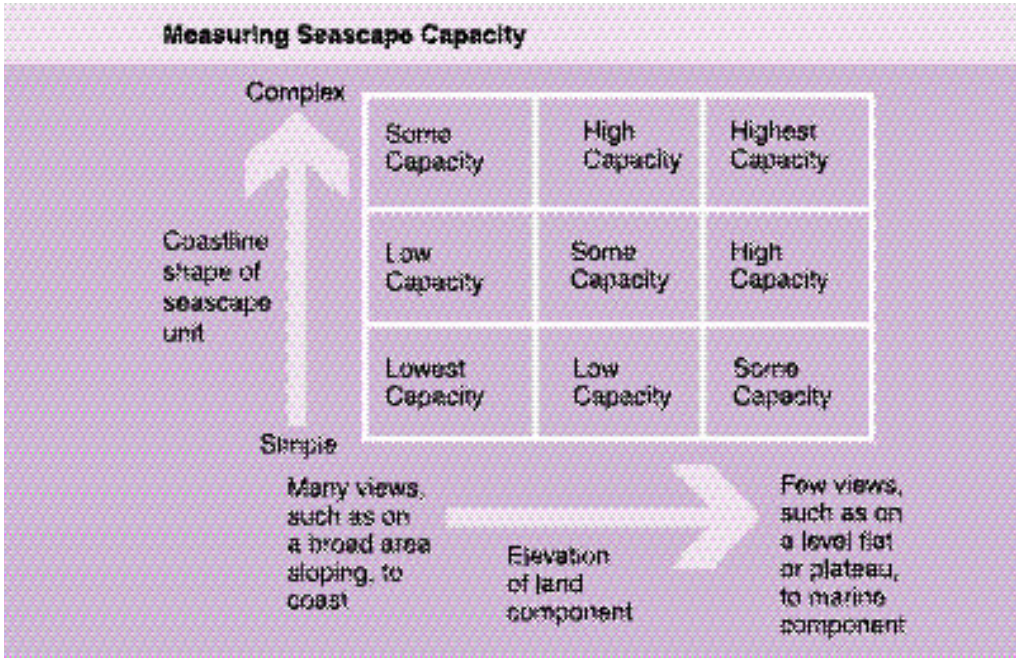
- Form, function and scale of possible changes,
- Distance from receptors,
- Deference to capacity of coastal and hinterland components

Seascape character - Capacity in the coastal and hinterland components

In the coastal and hinterland components, capacity can be judged on the basis of:

- The complexity of coastal shape
- Topography and landscape structure of the hinterland

where both can work together to contain and conceal change from sensitive receptors, and to provide a reference of elements that can be used in design to maintain or enhance character.



Notes: ***Coastline Shape:*** *The more complex a coastline the less likely clear views are possible to a particular point at sea. With inter-visibility reduced the capacity of the seascape unit is increased.*

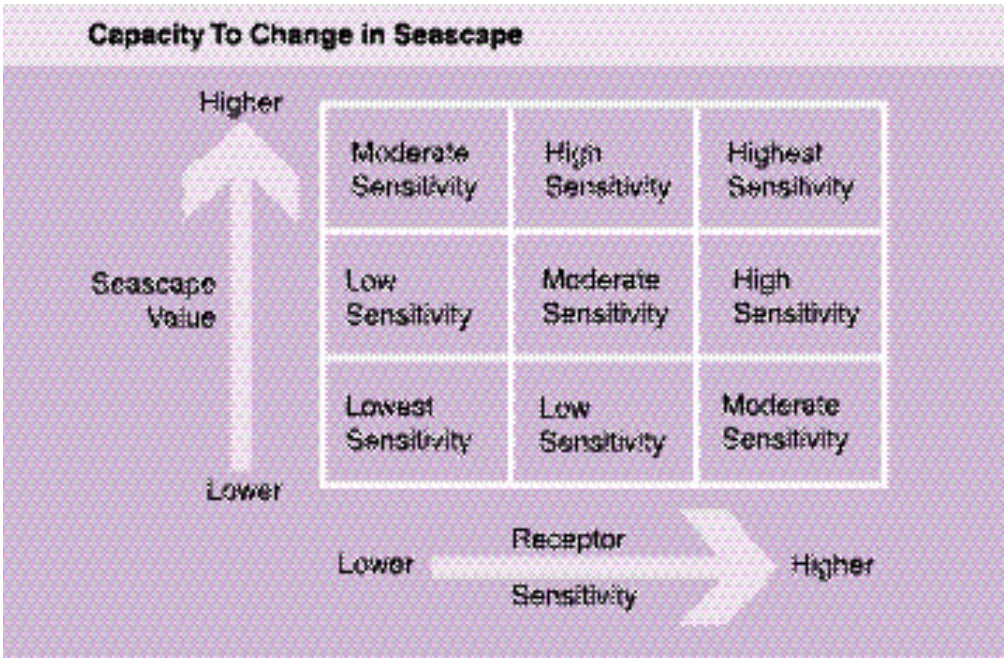
Elevation of land component: *Most viewers are land based and therefore the form of the land within the seascape unit will influence the visibility of the sea. Gently concave slopes allow maximum inter-visibility between sea and land reducing the capacity of the seascape unit. Conversely a level plateau or very steep land will limit views of the sea and thus has a higher capacity.*

Seascape character - variability in capacity

Capacity is not always fixed and character can be altered to increase capacity to some extent. Where it is intended to maintain existing character, capacity to change depends more on the intrinsic characteristics of that seascape. However, where a seascape has fragmented character or declining distinctiveness, or low quality and value, any proposed change can be used as a tool to increase capacity through altering or creating new character. This has been especially useful in landscape, where for example increasing the importance of woodland structure as a dominant landscape characteristic can increase the capacity for built development.

Sensitivity of receptors

Apart from the capacity of seascape itself, it is important to consider receptors, as they will have differing expectations about what they should see. For example, those who visit or value a remote coastline (such as the Pembrokeshire National Park) will expect to see natural seascape, and will be sensitive to detractors such as caravan sites, whilst those who visit and value a resort (such as Rhyl) may expect to see caravan sites, and therefore not be sensitive to their presence. Sensitivity is therefore more dependent on the purpose of their presence than on the receptors as individuals. For example, the same individual would be more sensitive to detractors in a historic fishing harbour on a recreational walk than when concentrating on work in the same location.



Examples of different receptor sensitivities are given in the table below, but should be used as only a rough guide. The differences in sensitivity between receptor groups result from differences in the importance to which visual quality plays in their presence.

Land based Viewers	Sensitivity
• Tourists attracted to scenery and some residents • Residents • Tourists attracted to resorts and non-scenic areas and other residents • Commercial where pleasure of visit is of little relevance	High Low

Marine Based Viewers	Sensitivity
• Yachts and in-shore recreational boating where acitivity and scenery are both of importance • Passenger ferries and cruisers with many observers • Competitive or high speed water sports where activity is most important • Commerical shipping and fishing vessels where pleasure of visit is of little relevance	High Low

The more sensitive observers will have a higher expectation of scenic value, and of distinct and high quality seascapes.

The issue of the capacity of a seascape type and receptors is, in practice, often inseparable since the type of seascape attracts different kinds of receptors. In turn these receptors have an influence on development trends. This is why seascapes differ so greatly in character from the undeveloped coast, to fishing harbours, and to resorts such as Llandudno and Bray.

6.7 Conclusion

Seascapes may usefully be grouped according to particular characteristics that are valued, or as complete units where some similarity has been identified as important. This can be used as a tool of exploration, for example to establish the distribution of character types, or of seascapes with low susceptibility, high capacity or any other factor. The increasing use of GIS computer techniques can enable maps showing the distributions to be available at a glance

Decisions can then be made on which seascape units of particular character (or derived) types can best assimilate specific kinds of the development or change and what areas require similar special attention to conserve, enhance or restructure character and to form the most appropriate mitigation measures for development located in each character type.

Above all, these key characteristics can be identified for protection from adverse change and guidelines can be produced to show the actions required where it is necessary to introduce change.

Photo J. Briggs

Differing seascapes attract different types of receptors
Photo J. Briggs

APPENDIX 1 FIELD SURVEY FORMS

Use of the Field Survey Forms

As part of the Seascapes assessment project seven landscape architectural practices undertook pilot studies on different parts of the INTERREG coast. Part of these individual studies involved the preparation of a field survey form. The field survey form prepared by the study team is based on preliminary seascape assessment studies and a review of the field survey forms presented in the pilot studies by the landscape consultants (included at the end of this appendix).

The following notes should be read in conjunction with the study team's field survey form:
Context and Assessment Conditions: The seascape unit being assessed is placed in context, i.e. the adjacent seascape units are identified and, if 'nested'within a larger unit, the relationship to this larger unit is described. The linear boundaries of the unit are identified, i.e. the defining headlands or other physical features. The study team recommend that a map be used in conjunction with each survey form where annotation can augment information filled in on the form. The seaward limit as identified in Section 5.4 **Stage 1 - Defining the area of seascape,** should be plotted onto this map as it will be impracticable to do this on site.

The weather conditions existing at the time of the survey should be noted. As well as influencing visibility different weathers conditions can have a key impact on perception.

Designations: Information on planning designations and ownership will be initially identified at the desk based study stage preceding the field survey. The precise boundaries can be plotted on the map accompanying the field study form.

PHYSICAL FORM

The physical aspects of the three components of the seascape unit (i.e. marine, hinterland and coastal) are analysed. For the marine component these focus on tidal conditions. This information will be difficult to assess on a single site visit. Other sources of information and local knowledge may have to be consulted.

Marine Component
The mean high water tide mark (HWTM) and mean low water tide mark (LWTM) are usually noted on Ordnance Survey (OS) maps. However, these do not represent the maximum tidal variations. It is recommended that high and low spring tides, as shown on Admiralty Charts, be used. A quick glance at areas of extensive sand banks as shown on OS maps, compared to Admiralty Charts will show the significant discrepancy. Near ports this information is also available from tide tables with special note being taken of the spring tide range as the maximum. HWTM may also be noted by reference to the extent of bladderwrack at low tide. Tidal features, often shown on Admiralty Charts, should be noted, such as the flow of water at the Swellies in the Menai Straits or the speed of the inundation of Sandymount in Dublin.

Hinterland Component
The form of the hinterland is described in broad terms (flat, undulating etc.) This information will be augmented by sketching a typical section from the landward limit of the seascape unit to the coast. The altitude range gives information on the height of potential viewers. Figure 2.1 (page 8) shows the influence of increased viewer elevation on the distance to horizon line.

Land Cover: Land cover influences visibility and viewer sensitivity. A checklist could be included in this section for efficiency of assessment. A typical checklist is shown below.

extensive forest	**small woodlands**	**shelter belt**	**park land**	**scattered trees**
scrub	**meadow**	**arable**	**pasture**	**river**
urban	**suburban**	**rural**	**industrial**	**other**

The Notes section is used to qualify the information on land cover.

Land use: This information may be addressed in the Land Cover section. This section allows for the inclusion of additional information.

Coastal component
The form of the coastal geometry should be indicated from the checklist provided. The coastal geometry will influence the nature of the views to sea. The aspect of the coast should be recorded either broadly (e.g. West South West) or from bearings (245° WSW). Note that these bearings will need to be 'corrected'for the variation between true North and grid North as shown on land based maps. The coastal aspect influences land use and perception e.g. North-facing coasts are very different in character to South facing coasts.

Coastal form: This refers to topographic typology of the edge of the land, e.g. cliffs, dunes or low-lying areas. Such information is most efficiently recorded by a marked up checklist where broad types are listed. Variations in coastal form within the seascape unit can be noted on the attached map, i.e. variation in cliff height etc.

Predominant nature of the shore: Again a marked up checklist is an efficient way of recording this information and variations in the nature of the shore can be indicated on the attached map. Both the form and the nature of the shore will influence how the area is used.

Land geology/colour: The underlying colour or geology of the coast and foreshore should be noted. Colour should refer to more permanent colour effects, e.g. rock or sand rather than ephemeral colour effects such as those created by the seasonal effects of plants. However some coastal plant effects, e.g. gorse on cliffs are very much associated with specific seaside locations and may be note worthy.

Notable physical features: A checklist is the most efficient way of recording significant elements within the seascape unit . Such a list could be adapted according to the specific nature of the seascape assessment. A typical list would be:

port	**marina**	**harbour**	**pier**	**navigational aid**
boats	**road**	**aquaculture**	**railway**	**coastal path**
church	**castle/fort**	**defensive look-out tower**	**monument**	**ruin**
caravans	**holiday homes**	**golf course**		

Settlements: Settlements within the seascape unit should be identified and described. Their boundaries should be confirmed as correct on the accompanying map and the desk-based study should determine their population.

Installations Onshore: These should be noted on the checklist and their physical location plotted onto the attached map.

power station	**industrial buildings**	**fish processing**	**loading gantries**	**cranes**
chimneys	**radio masts**	**warehousing**	**harbours**	**other**

Significant objects outside the seascape unit, which are visible, should be included but identified as outside the seascape unit.

Installations Offshore: These should be noted on the checklist and their physical location plotted onto the map. Include installations in the intertidal zone such as wrecks, fish weirs etc.

oil rigs	**pipelines**	**lighthouses**	**beacons**	**buoys**
sea defences	**wind turbines**	**other**		

Significant objects outside the seascape unit which are visible, should be included but identified as outside the seascape unit.

ACTIVITY SURVEY

Two of the three components of the seascape unit (marine, and coastal) are described in terms of human activity. It must be noted that for many aspects there is a strong interrelationship between physical form and human activity and some points could be noted in either or both sections. Land based human activity is not covered in this section. It has been broadly covered in the Land use part of the previous section.

Sea based activity

Sea based activity is described under the headings, **recreation, shipping, commercial** and **fishing**. The use of checklists will help will efficient recording

Recreation:

angling	**boat trips**	**day sailing**	**competitive sailing**	**passage making (sail and motor)**
cruising (within cruising ground)	**jet skis**	**water Skiing**	**surfing**	**canoeing**
wind surfing	**other**			

Shipping:

commercial	**cruise**	**private**	**other**	

Commercial:

extractive oil or gas	**extractive rock or sand/gravel**	**power - wind**		**power - wave**

Fishing:

trawler	**net**	**fish farming**	**mussel rafts/beds**	**other**

Coastal and hinterland activity

The activity on coastline is described under the headings, **settlement/habitation, recreation,** or **commercial** with the use of checklists for efficient recording.

Settlement/habitation:
Recreation:

residential	**hotel and guest house accommodation**	**holiday homes**	**caravan parking**	**camping**
retirement	**large industrial processes**	**container storage**	**ferry terminal activities**	**other**

Commercial:

car parking	**walking**	**cycling**	**beach activities**	**promenading**
amusement	**horse riding**	**surfing**	**golf**	**angling**
concerts				
exhibitions				
boating				

harbouring	**heavy industrial**		**ship building or maintenance**	**extractive**
ferry activity	**light industrial**	**container storage**	**other**	

Information should be noted on the size and use of the port and harbour.

Accessibility to Shore/Coast: Access to the shore should be described and noted on the map.

direct	**water sports**	**pier**	**cliff path**	**Other**
	access points			

VISUAL SURVEY

Information is recorded on views from sea to land, land to sea and along the coast.

Views from sea to land:
Views of the land should be recorded from the seaward limit of the unit (15km or 2km depending on whether a Regional or Local seascape unit). The distance offshore should be noted. When viewing the land from the sea patterns and forms are of more interest than detailed elements. These should be noted by a basic annotated sketch, and augmented by a panoramic photograph. The sketch should pay particular attention to patterns and forms on the coastline and skyline as these will be the most visually significant when viewed from the sea.

Attractors and Detractors: Objects of significant visibility within the seascape unit, i.e. at sea, along the coast or in the hinterland should be recorded. These may be as varied as buoys or oil-rigs and their associated 'burn-off', ships in holding cells etc. While the headings used may appear subjective they will function as useful titles under which to list significant elements of the seascape vista that invoke a response in the viewer. As with overlaps in between the sections physical form and human activity, in this section there is potential overlap between visual survey and perceptual response.

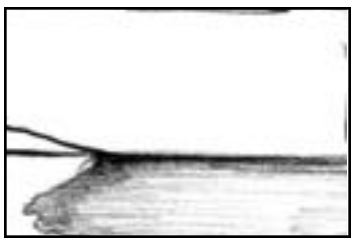
Buoys and lighthouses may generally be considered attractors unless their functional forms are not in pleasing proportions. Sea defences may be attractive unless in bad repair.

A development of white houses on a promontory as individual elements may be of pleasing character, but in terms of seascape assessment may function visually as to reduce the scale of the vista and consequently be considered a detractor.

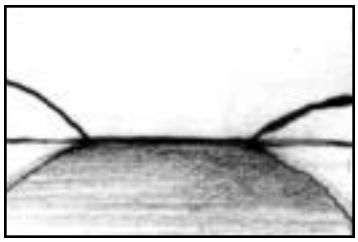
Night lighting: The presence or absence of night lighting should be recorded.

View from land to sea:
The ZVI and site based review of the physical form of the seascape unit and human activity will help identify significant viewpoints. The views from these locations should be recorded. This may result in more than one sketch being required. Note that the nature and extent of **views along the coast** should be included in this section.

Coastal visual envelope: This may take the form of a simple sketch showing the relationship between the coast and the sea. The elevation of the view point and the nature and extent of the view should be recorded.



low edge to open sea



sea view framed by high ground

Degree to which other land is visible: This can be recorded by annotated sketch or photograph. The extent of visible land should be recorded on the accompanying map. The nature of the visible land should be recorded, i.e. whether developed or undeveloped, the type of land use etc.

Attractors and Detractors and Night Lighting: See notes under 'Views from sea to land'.

VISUAL ANALYSIS

A composite sketch should be used to record the typical visual characteristics of the seascape unit and to include bearings to notable points. This sketch unites observations from the views from land to sea, sea to land and along the coast. The sketch can be quite simply done with remarks on the view and any notable features annotated. Alternatively, a panoramic photo may be used. In this case, this section would be used in the field to record the outstanding observations that would subsequently be appended to the photograph.

Proportion of Land/Sea/Sky: From any specific viewpoint the relative dominance of the three elements in the view should be noted. The result may be imagined as looking through a frame at the view. The use of several such diagrams would record the changing dominance of the sea as a component of a view as the viewer's height increases for example when ascending a cliff walk.

Record the extent to which objects/land-form fill the view: The use of 'cross-hairs' and concentric circles can help in recording the extent of different components of the view shed. The circles represent near middle and distant from a specific viewpoint, the cross line represents the coast. This exercise should be undertaken from significant viewpoints within the seascape unit. Their exact location should be noted on the accompanying map.

RECORD AESTHETIC AND PERCEPTUAL ASPECTS:

Checklists of key aesthetic and perceptual aspects and associated adjectives can be used in the field to identify key words that can then be used to prepare written descriptions of the characteristics of the seascape unit.

Note that the historical and cultural associations are the subject of a separate study, but it may be useful to record well known or famous associations which the unit may possess.

EVALUATION

This part of seascape assessment would not be undertaken 'in the field' but forms a desk-based process that follows on from the characterisation of the seascape units. However, it is important as part of the information gathering exercise during the field survey that key facts are recorded for use later at the evaluation stage.

Seascape quality is a function of the condition of the seascape components that make up the seascape unit. The following information should be recorded on the form: (Refer to section 6.4 ***Evaluating 'quality'*** for additional information on completing this section).

Intactness	complete						remnant
Condition	maintained						abandoned
Detractors	none						many
Typicality	representative						unusual
Clarity	clear						muddled
Fragility	delicate						robust
Rarity	common						rare
Distinctiveness	bold						indistinct

Seascape value: This reflects the relative importance attached to part or all of the seascape unit. The assessor can record impressions on the following criteria:

Naturalness
Remoteness
Tranquillity
Sense of place
Popularity
Recreation use
Amenity value

The other impressions of value listed in ***section 6.5 Judging 'value'*** (e.g. size, designation etc.) need not be assessed on site but will form part of the subsequent research and desk based work in the assessment process.

Seascape capacity to accommodate change: This evaluation criterion is a function of seascape value as identified above and sensitivity of receptors. The Field survey form should note the location and purpose of land based and marine based viewers as these factors influence viewer expectations and sensitivity to new development. Note this particular evaluation criteria can only be undertaken when the full nature of the development proposals are known, e.g. as part of an Environmental Impact Assessment.

Shape of coastline
Elevation of land
Flatness
Type of slope
Receptor sensitivity

Sensitivity of receptors: This information is recorded on page three of the form, but may be summarised in this section of the evaluation table. In planning, it is important to minimise visibility or maximise distance of potential detractors from sensitive receptors. With this in mind, the purpose of the field survey form is to locate and classify the sensitive receptors. In the field it may be the case that some locations within a study area or a seascape unit have more sensitive receptors than others. For example, a key viewpoint may have the most sensitive receptors, but that view might be of only one section of a seascape unit. In larger units, visibility by the most sensitive receptors may be possible but by virtue of great distance to the subject of the view, there would not be significant detraction by a particular development there. The field survey form can be used to provide the baseline of information from which this evaluation can subsequently be made.

Seascapes Character Assessment					
CONTEXT AND ASSESSMENT CONDITIONS				Unit Ref:	
Surveyors:				Date:	

		Extent		Survey Conditions	
National		Limit of unit:	From: To:	Weather	
Regional		Adjacent Units:		Visibility	
Local		Adjacent Units:			

DESIGNATIONS (from desk study)	
Planning and Conservation Designations	
Public Ownership	

PHYSICAL FORM - marine					
Marine	Tidal Dynamics Tidal Range	Max Range	Intertidal Zone Broad/Moderate/Narrow	Tidal State (circle): Ebb, Flow, Full, Low HWTM: LWTM:	Observations
	Tidal Features				

PHYSICAL FORM - coastline							
Coast	Coastal Geometry	Straight	Shallow	Deep bay	Convex	General aspect of coast	
	Extent of unit						
	Scale of Coastal Features	Linear	Large bay(s)	Small bay(s)	Indented Cliffs	Estuary/Inlet	Other
	Islands						
	Coastal Form	Low lying	Low cliffs or rocks	Cliffs: Heights:	Dunes	Other	Typical minimum height: Typical maximum height:
	Predominant nature of shore	Mud	Sand	Shingle	Boulders/pebbles	Solid bedrock	Other
	Land Geology/Colour						
	Notable Physical Features and Condition						
	Settlements						
	Installations Onshore						
	Offshore						

PHYSICAL FORM - hinterland						
Hinterland	Surrounding Hinterland	Flat	Gently undulating	Steep		Altitude range
	Land cover				Notes:	
	Land use					

This form is to be completed in conjunction with Ordnance Survey map and Admiralty chart.

Refer to "guide to the use of the form" when completing

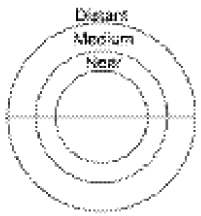
Seascapes Character Assessment		Unit Ref:	

ACTIVITY SURVEY - SEA AND COAST						
Sea based activity - Note pattern and condition						
Recreation						
Shipping						
Commercial						
Fishing						
Other						
Coastline activity - Note pattern and condition						
Settlement / Habitation						
Recreation						
Commercial						
Other						
VISUAL SURVEY						
Views from sea to land						
Backdrop to coastline	Typical view (vista) - Comment or simple sketch		Comments:			
Attractors						
Detractors						
Night lighting						
Views from land to sea						
Coastal Visual Envelope	Typical view (vista) - Comment or simple sketch		Comments:			
Degree to which other land is visible (tick appropriate box)	no other land visible	other land visible across water direct/oblique views	headlands dominant direct/oblique views	island visible direct/oblique views	sea views enclosed by the sea	other:
Attractors						
Detractors						
Night lighting						
Visual Analysis						

This form is to be completed in conjunction with Ordnance Survey map and Admiralty chart.

Refer to "guide to the use of the form" when completing

Seascapes Character Assessment		Unit Ref:	

	
Sketch proportion of land / sea / sky	Record the extent to which objects/landform fill the view

Record Aesthetic Factors

Scale		small		medium		large	Form		sloping		rolling		horizontal
Enclosure		enclosed		open		exposed	Line		curved		angular		straight
Diversity		simple		diverse		complex	Colour		vibrant		muted		bland
Balance		harmonious		discordant		chaotic	Record impression						
Pattern		organised		regular		formal							
Movement		still		calm		busy							

Summary of Seascapes Character

Typical section/sketch (Annotate)	
Marine character	
Coastal character	
Character of hinterland	
Seascape Character and Condition	

Sensitive receptors	
Receptor group(s)	
Receptor location(s)	
Receptor sensitivity	

This form is to be completed in conjunction with Ordnance Survey map and Admiralty chart.

Refer to "guide to the use of the form" when completing

Seascapes Character Assessment		Unit Ref:	

Evaluation - Quality							Notes	Comments
Intactness	complete					remnant		
Condition	maintained					abandoned		
Detractors	none					many		
Typicality	representative					unusual		
Clarity	clear					muddled		
Fragility	delicate					robust		
Rarity	common					rare		
Distinctiveness	bold					indistinct		

Evaluation - Value							Notes	Comments
Naturalness	natural					contrived		
Remoteness	remote					crowded		
Tranquility	calm					busy		
Sense of place	strong					weak		
Popularity	high					low		
Recreation use	high					low		
Amenity Value	high					low		

Capacity to Accomodate Change							Notes
Shape of coastline	complex					simple	
Elevation of land	high					low	
Flatness	flat					sloping	
Type of slope	convex					concave	
Receptor sensitivity	high					low	

This form is to be completed in conjunction with Ordnance Survey map and Admiralty chart.

Refer to "guide to the use of the form" when completing

APPENDIX 2 SUPPORTING STUDIES

Studies were commissioned into specific aspect areas of seascape assessment to support the development of this guidance.

These studies are included in full on the accompanying CD-ROM and are as follows:

Zone of Visual Influence (ZVI) studies:

- Miller, D.R., & Morrice, J.G. 2001. *A Geographical Analysis of the Intervisibility of the Coastal areas of Wales.* (Contractor: Macauley Land use Research Institute, Aberdeen) Unpublished report to Countryside Council for Wales.

- Brady Shipman Martin, University College Dublin, 2000. *Seascape Fundamentals*. Unpublished report to Study team incorporating work by Gamma; GIS sub-contractors to the Irish management team

These studies considered aspects of how to define a zone of visual influence for seascape by using computer and mathematical models based on terrain modelling and plotting inter-visibility from land to sea and visa versa.

Seascape characterisation studies:

- Environs Partnership. 2001. *Seascape Character Study. Pembrokeshire Coast. Final Report.* Unpublished report to Countryside Council for Wales.

- ECUS, Sheffield. 2001. *Seascape Character Assessment. Method, Trial and Recommendations. Final Report. North Anglesey.* Unpublished report to Countryside Council for Wales.

- Environmental Design Consultants. 2000. *Seascape Character. Final Report. Denbighshire Coast.* Unpublished report to Countryside Council for Wales.

- White Consultants. 2001. *Seascape Character Project: Swansea Bay. Final Report.* Unpublished report to Countryside Council for Wales.

- Ferguson McIlveen. 2001. *Seascape Character Project: Site Number 3. Arklow to Morriscastle*. Unpublished report to University College Dublin.

- Benson, F.L. and Partners. 2001. *Seascape Character, A new methodology for assessment. North County Dublin.* Unpublished report to University College Dublin.

- Cunnane Stratton Reynolds. 2001. *Welsh/Irish Seascapes, study area No. 2. Dun Laoghaire.* Unpublished report to University College Dublin.

These studies considered the need to find a way of distinguishing one area of seascape from another, in a way that complimented landscape characterisation, but taking into account the need to consider the marine, coastal and hinterland components together. The briefs were open ended enough to allow for the exploration of new and innovative methods. The resulting studies range from relating closely to existing landscape assessment techniques to offering new approaches – all equally valid in the early stages of developing a method for assessing seascape.

Presentations

- Various. 2000. *Seascape Character Assessment Seminar/Workshop 11/12 October. Report of proceedings.* Unpublished, Countryside Council for Wales report no. 00/06/03.

The consultants involved in the seascape character projects came together and individually presented their proposed methods to the project team before finalisation. This also involved group discussions and enabled modifications as a result of feedback, as well as refinement based on seeing the work of others.

Study into Public perception of seascape

- Morgan, R. 2000. *Assessing public perceptions of seascapes.* Unpublished report to Countryside Council for Wales.

There has been very little research into the perception of seascape, and a small pilot study was therefore commissioned to establish some basic parameters, based on public responses to the placing of objects in the sea. Although much more research is needed, the study established some basic patterns in preference, taking into account perceived function as well as appearance of objects in view.

Studies into historic and cultural associations of seascape:

- Smith, A.M. 2000. *Historical and Cultural Study*. Unpublished report by University College Dublin Geography Dept.

- Gwynedd Archeological Trust. 2001. *Seascapes of Wales. Historical and Cultural Aspects. A methodology and Pilot Study. Report No. 380. North Anglesey*. Unpublished report to Countryside Council for Wales.

Historic landscape characterisation can be applied to seascape, and the studies above follow through case studies indicating the type of information, and its source, that can be used to inform seascape assessment.

APPENDIX 3 KEY REFERENCES

- **ECUS and Land Use Consultants. 1998. *Interim Landscape Assessment Guidance.* Scottish Natural Heritage and The Countryside Agency.**

This report formed the most up to date landscape assessment guidance available during the course of the Welsh – Irish Seascape Project, although it is understood that this is now due for replacement with final guidance. The report forms essential reading for all those involved in either landscape or seascape assessment since it considers each stage in great detail and illustrates the methods with reference to real studies. It was of particular relevance in relating definitions, especially in making judgements, to established landscape practice.

- **MAFF. 1995. Shoreline management plans. A guide for coastal defence authorities. Report for UK Ministry of Agriculture, Fisheries and Food, and others.**

The above report outlines the concept of using coastal sediment cells as a way of dividing the coastline into management units, which was used by the Welsh study team as a starting point for defining the national scale seascape units.

- ***Stanton, C. 1996. Skye and Lochalsh landscape assessment.* Scottish Natural Heritage Review No. 71.**
- **McIlveen, F. 1999. *Ross and Cromarty landscape character assessment.* Scottish Natural Heritage Review No. 119.**

The above landscape assessments consider in effect development location and development type together, in terms of landscape character, and information is particularly accessible to designers as the studies contain many process diagrams and illustrations, which form design guidelines.

- **White, S. 1998. *Landscapes working for the Vale of Glamorgan. Design Guidelines: Volume 2.* Report to Vale of Glamorgan Council.**

The above report uses LANDMAP as the basis for creating design guidelines, thereby linking the assessment process with the creative design process.

- **CADW/Welsh Historic Monuments. *1998. Register of landscapes of outstanding historic interest in Wales.***
- **CADW/Welsh Historic Monuments. *2001. Register of landscapes of special historic interest in Wales.***

The above reports locate and explain the importance of these designated landscapes in Wales. Many of these will fall within seascape units.

- **ECUS. 1999. *Landscape impacts of coastal defences.* Unpublished report to Countryside Council for Wales, Contract Science Report No. 360.**

The above report considers visual and landscape impact of various types of coastal defences through case studies throughout Wales. Its purpose is to raise awareness of design issues when fitting major engineering works into what the seascapes project team now refer to as the coastal component of seascape.

- **Countryside Council for Wales. 1993. *Welsh Estuaries Review*. Science Report.**
- **Barne, J.H., Robson, C.F., Kaznowska, S.S. & Doody, J.P. ed. 1995 *Coasts and seas of the United Kingdom. Region 12 Wales: Margam to Little Orme*. Joint Council for Nature Conservation. (Ditto …*Regions 11* and …*13*).**

The above publications are good references manuals for various conservation matters, some of which will underlie seascape character. The information may also be useful in part, in evaluation stages, for example in establishing rarity of a particular characteristic, such as sand dunes, within the national context.

- **Coastline 2000 Project. 2001. CD ROM (not yet published) of project output. Coordinated by The National Trust and the Geographical Association, with surveys being carried out by many groups of young people.**

The above CD ROM should show the entire coast of England and Wales, overlaid with the results of a survey of land use and land type. Whilst the project team have not seen the output at the time of writing this guide, it is thought that a general indication of the state and function of our coast can be gained – for example, how much of the coast is protected with artificial defences. Such information may be useful when considering rarity.

- **Institute of Environmental Assessment and The Landscape Institute. (1995). *Guidelines for Landscape and Visual Impact Assessment*.**

These two institutes have joined forces to present 'best practice' guidelines for landscape and visual assessment. The aim is to assist in predicting and judging the significance that new development may have upon the landscape character and visual amenity. It must be noted that this methodology is based on knowledge of the type of development planned and is therefore limited in its immediate relevance to seascape character assessment. In addition, this guidance is currently being revised and updated.

- **Gillespies. 1998. *A landscape assessment of the Shetland Isles*. Scottish Natural Heritage Review No. 93.**

This study notes that the techniques of landscape assessment, developed originally for large tracts of the British Mainland, may not be suitable for an archipelago lying 150 kilometres off the coast of Scotland. They also suggest that 'landscape'may not be an adequate term for this group of over 100 islands.

- **Fletcher, S. 1998. *Inner Moray Firth landscape character assessment.* Scottish Natural heritage Review No. 90.**

This assessment examines the impact of renewable energy utilising the coastal exposure on certain landscape character and suggests some guidance on the siting of structures to minimise visual impact.

- **EDAW, Inc. 1998. *Visual impact and ecological concerns assessment for the Totton Inlet mussel rafts project*. Report to Taylor Resources Inc. Washington, USA.**

This study analysed the components of visual impact and proposed mitigation measures to maintain the scenic quality of the area whilst allowing the development of aquaculture facilities. Although the actual site example could not be discussed (client confidentiality), the study concluded in general terms that the degree of visual impact of the type of development proposed is highly variable and dependent on the following four interrelated variables, being (1) Landscape setting; (2) The viewer; (3) Location of facility and (4) Design of facility. This study also includes a visual assessment 'workbook' which provides an analytical process for evaluating the sensitivity of different parts of the coast to visual impact from development.

- **Litton. R.B., et al. (1974). *Water and Landscape.* Water Information Center, Inc. Washington, USA.**

This study is primarily concerned with the assessment of waterscapes, such as rivers, lakes but not specifically with seascapes. It explores the aesthetics of water in the landscape and emphasises (1) environmental stimulus and (2) visual resource and considers water at three scales – the 'Landscape Unit' (broad and regional in nature – integrative); the 'Setting Unit' (shows water and landscape in visual combinations and presents the scene for appraisal) and the 'Waterscape Unit'(the detail and sense of the water and immediate shore).

Other references and selected bibliography

Brady Shipman & Martin. (1973) *National Coastline Study – Volumes 1-3.*

Bureau of Land Management (BLM) papers cited in Litton et al. (not generally available).

Chalk Coast Communities Project Steering Group. (2000) *Environmental capital of the Kent Coast.* Kent County Council.

Countryside Commission (1993) *Landscape Assessment Guidance.* CCP3 423. Countryside Commission, Cheltenham.

Countryside Commission (1987) *Landscape Assessment – a Countryside Commission Approach. CCD 18.* Countryside Commission, Cheltenham.

Countryside Commission (1970) *The Planning of the Coastline*. HMSO. pp95.

Countryside Commission UK (1970) *The Coastal Heritage.* HMSO. pp90.

Countryside Council for Wales (1998). *LANDMAP, the Landscape Assessment and Decision Making Process.* Draft handbook for consultation.

Craik, K.H. (1970) *Environmental Psychology – New Directions in Psychology – IV.* Hold, Rinehart and Winston. New York. pp.125.

Denbighshire Countryside Service. (2000). *Denbighshire Landscape Strategy*. (Draft, unpublished). Denbighshire County Council.

Fletcher (1998) *Inner Moray Firth Landscape Assessment. No. 90.* Scottish Natural Heritage.

Gillespies (1998) *A Landscape Assessment of the Shetland Islands, No. 93.* Scottish Natural Heritage.

Grant, A. (2000) *Marine Aquaculture and the landscape: The siting and design of marine aquaculture developments in the landscape.* Scottish Natural Heritage.

Greenough,H. (1947), *Form and Function.* University of California Press, Berkeley, Los Angeles. California. USA.

Institute of Environmental Assessment/Landscape Institute (1995) *Guidelines for Landscape and Visual Impact Assessment.* E.&F.N.Spon, London. pp126.

Land Use Consultants (1998) *Orkney Landscape Character Assessment, No. 100.* Scottish Natural heritage.

Land Use Consultants (1991) *Landscape Assessment, Principles and Practice.* Published by the Countryside Commission for Scotland.

Litton R.B. et al, *Water and Landscape – an Aesthetic Overview of the Role of Water in the Landscape.* Port Washington. New York. Water Information Centre. 1974. pp 314.

Meier, R.L., (1969), *Resource Conserving Cities IV.* The differentiation of Lifestyles (unpubl.).

Moore C.W. (1994) *Water and Architecture.* Thames and Hudson.

Moore C.W. (1957) *Water and Architecture. (unpublished Ph.D. thesis, Princeton, University)(published with additions in 1994)*

Raban, J. (1995). *The Oxford Book of the Sea.* Oxford University Press.

Richards, J. (1998). *Western Isles Landscape Assessment, No. 92.* Scottish Natural Heritage.

Stanton, C. (1998) *Caithness and Sutherland Landscape Character Assessment,* No. 103. Scottish Natural Heritage

Scottish Natural Heritage. (1999) *Guidelines on the environmental impacts of windfarms and small scale hydroelectric schemes.* (Draft, unpublished as yet).

United States Forest Service (USFS) various publications cited in Litton et al.

United States Geological Survey (1962) *Water and Recreation – Value and Opportunities.* Outdoor Recreation Resources Review Commission, Washington, D.C. pp.73.

APPENDIX 4 MARITIME INTERREG II PROJECTS AND NETWORKS (1994 - 1999)

The following co-operative projects and networks are supported under Measure 1.3 "Protection of the Marine and Coastal Environment and Marine Emergency Planning", of the Maritime (Ireland/Wales) INTERREG Programme (1994 – 1999):

Co-operative Projects

1. **Roseate Terns - The Natural Connection - A Conservation and Research Project linking Wales and Ireland.**
   Irish Wildbird Conservancy / North Wales Wildlife Trust.

2. **Marine Mammal Strandings - A Collaborative Study for the Irish Sea.**
   National University of Ireland, Cork / Countryside Council for Wales.

3. **South West Irish Sea Survey (SWISS).**
   Trinity College Dublin / National Museum of Wales, Cardiff.

4. **The Fate of Nutrients in Estuarine Plumes.**
   National University of Ireland, Galway / University of Wales, Bangor.

5. **Water Clarity and Circulation in the Southern Irish Sea.**
   National University of Ireland, Galway / University of Wales, Bangor.

6. **Grey Seals: Status and Monitoring in the Irish and Celtic Seas.**
   National University of Ireland, Cork / Dyfed Wildlife Trust.

7. **Sensitivity and Mapping of inshore marine biotopes in the Southern Irish Sea (SensMap).**
   Ecological Consultancy Services (Dublin), Dúchas / Countryside Council for Wales.

8. **Marine Information System: Scoping Study (Phase I).**
   Marine Institute, National Marine Data Centre/ Countryside Council for Wales.

9. **Achieving EU Standards in Recreational Waters.**
   National University of Ireland, Dublin / University of Wales, Aberystwyth.

10. **Irish Sea Southern Boundary Study.**
    Marine Informatics Ltd (Dublin) / University of Wales, Bangor.

11. **Marine Information System: Demonstration (Phase II).**
    Marine Institute, National Marine Data Centre / Countryside Council for Wales.

12. **Emergency Response Information System (ERIS).**
    Enterprise Ireland, Compass Informatics, IMES / University of Wales, Bangor.

13. **Risk Assessment and Collaborative Emergency Response in the Irish Sea (RACER).**
Nautical Enterprise Centre (Cork), National University of Ireland, Cork, University of Wales, Cardiff.

14. **Critical assessment of human activity for the sustainable management of the coastal zone.**
National University of Ireland, Cork / University of Wales, Aberystwyth.

15. **SeaScapes – Developing a method of seascape evaluation.**
Brady Shipman Martin, National University of Ireland, Dublin / University of Wales, Aberystwyth.

16. **Ardfodir Glan – Clean Coasts/Clean Seas.**
CoastWatch Ireland / Keep Wales Tidy Campaign.

Co-operative Networks

17. **Irish Sea Hydrodynamic Modelling Network.**
Trinity College Dublin / University of Wales, Bangor.

18. **CoAST - Co-operative Action - Sustainability Network.**
Dublin Regional Authority / Isle of Anglesey County Council.

19. **ECONET - Erosion Control Network.**
Enterprise Ireland / Conwyn County Council.

20. **Navigate with Nature.**
Irish Sailing Association / Centre for Economic and Environmental Development (UK).

21. **"Land Dividing - Sea Uniting" Irish Seas Exhibition.**
Irish Seal Sanctuary, ENFO / National Assembly for Wales.

22. **From Seawaves to Airwaves.**
West Dublin Community Radio / Radio Ceredigion CYF.

23. **BENSIS – Benthic Ecology Network.**
Trinity College Dublin / National Museum of Wales, Cardiff.

24. **Remote Sensing of Suspended Sediment Load in the Coastal Zone.**
National University of Ireland, Galway / University of Wales, Bangor.

25. **Paving the Information Highway.**
Ecological Consultancy Services (Dublin) / Irish Sea Forum, University of Wales, Bangor.

26. **Inland, Coastal and Estuarine (ICE) Journal.**
National University of Ireland, Dublin / Centre for Economic and Environmental Development.

For further information see: **www.marine.ie/intcoop/interreg/prjnet.html-ssi**

For further information see: **http://www.marine.ie/library/publications.html-ssi#interreg**

This project (Contract EU/210/14/007) is supported under Measure 1.3 Protection of the Marine and Coastal Environment of the Maritime (Ireland-Wales) of the INTERREG Programme (1994-1999) administered by the Marine Institute (Ireland) and the National Assembly for Wales (Wales) and is part funded by the European Union's Regional Development Fund.

CYNGOR
CEFN GWALD
CYMRU

COUNTRYSIDE
COUNCIL
FOR WALES

BRADY SHIPMAN MARTIN

AD ASTRA
Comeram Fáinne

ISSN: 1393-9025