

## Case Studies – Level 1

# Wadden Sea Region

Area/Country: Denmark, Germany and the Netherlands

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### Pen Picture

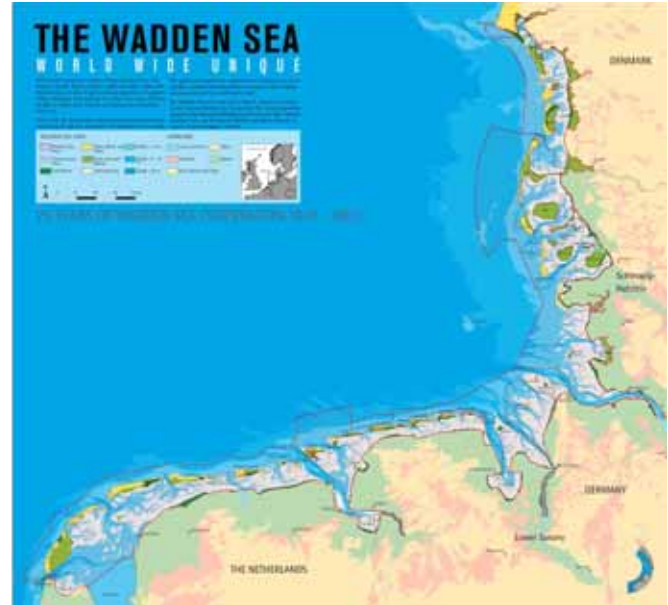
The Wadden Sea is one of Europe's most important marine conservation areas and contains one of Europe's largest marine national Parks. Each year approximately 10 million tourists and 30-40 million day-trippers visit the Wadden Sea Region comprising the Wadden Sea, the Wadden Sea islands and the adjacent mainland areas. A major study on sustainable tourism has been undertaken that could benefit those planning for a marine national park in Scotland.

### Key Lessons

- Tourism is based on both unique natural environments and cultural landscape.
- For tourism to be sustainable, the quality of the natural and cultural heritage must be maintained.
- A marine national park can sustain large numbers of tourists and these seeking recreation opportunities.
- Planning and management of tourism and recreation is subject to anthropogenic influences that cannot be addressed purely at a local government or national park authority level.
- Given the major catchments surrounding the North Sea any marine national park surrounding that sea will need to be planned and managed within a broad bio-geophysical and socio-economic region that often extends beyond the boundaries of a single nation.
- Marine national parks need to incorporate their respective coastal zones.
- There is a clear mandate to address land based and marine activities that could influence the management of marine national parks for sustainable tourism and other objectives.
- National park legislation alone is not sufficient to address the broader scale issues, such as watershed management, or sea-use planning that can have major implications for the sustainable use of a park.
- There is a common vision, objectives and management principles adopted for the Wadden Sea.
- Stakeholders need to be incorporated into the national park designation, planning and management process.
- Multiple-use management of a park and its resources provides a stronger basis for public support and acceptance of constraints on access where it can be seen to help sustain the welfare of stakeholders.
- Global change will influence the planning and management of the marine region. Such changes are not easy to predict, but can change the character of the park's natural systems and the viability of public and private investment associated with conservation, tourism and recreation.

## Location

The Wadden Sea extends some 450 km from the Varda Estuary and Skallingen in Denmark to the island of Texel and the mainland port of Den Helder in the Netherlands. See Map 1. The average width of the Wadden Sea is some 10km, including the immediate coastal zone and islands offshore.



## Overview

The Wadden Sea is one of the World's largest and most important inter-tidal wetland ecosystems. It is internationally recognised as an area of major ecological, economic and social importance. The ecological importance is based on the great biological productivity and diversity of the complex mosaic of coastal ecosystems comprising mud flats, sand banks, sea grass beds, salt marshes, mussel beds, islands, estuaries and river systems. These systems provide one of the most important habitats for coastal waterfowl and shorebirds and are a major staging area on the East Atlantic flyway for migrating birds. The renewable resources derived from the Wadden Sea ecosystem sustain a wide range of economic activities from fisheries to energy production.



The natural and cultural landscape is unique in Europe and one of the most important tourism and recreation destinations for a large area of Europe. The Wadden Sea is considered particularly worthy of protection, because it has far-reaching links to other ecosystems, and because it is the largest natural or near-natural landscape that remains in Europe. The Wadden Sea ecosystem and its associated cultural landscape are being considered as a potential World Heritage Site under the World Heritage Convention.

### Status of Conservation Designation

In 1981, the Netherlands adopted the Key Physical Planning Decision (PKB), which designated a major part of the Dutch Wadden Sea as a protected area under the Nature Conservation Act. In 1982, the Danish government increased the protection of its Wadden Sea area under its Nature Conservation Act. This was followed in 1985 by the Germany creating a series of national parks covering much of its area of the Wadden Sea. The landward component of the national parks is very small in comparison to the inter-tidal area in Germany

A Tri-Lateral agreement has been formulated with the objectives of developing a unified vision for the future of the Sea, harmonisation of their respective development objectives and policies, better integration of management strategies and the application of ecosystem management. These objectives fit well with the concept of sustainable development and are supported by a Joint Declaration on the Protection of the Wadden Sea (1982).

### Planning Framework

#### **Sub-Regional**

The Dutch Wadden Sea area is the responsibility of the National Government and is managed by the Ministries of Nature Management, Agriculture and Fisheries (LNV) and Transport and Water management (V&W). The PKB is a national policy to promote "sustainable use" of the Wadden Sea that is binding on all sub-regional and district authorities. Economic and spatial planning decisions by all levels of government must adhere to the PKB.

The **Sub-Region** is made up of Noord-Holland, Friesland and Groningen, and the Dutch Wadden Sea area is ca. 250,000 ha of which nature reserves comprise ca. 150 000 ha.

In Germany, the Federal Government has passed legislation for the establishment and management of National Parks. However, it is the Lander, or regional authorities for Neider Saxen, Schleswig Holstein and the City State of Hamburg that oversee the implementation of the national parks legislation on behalf of the nation

In Denmark, it is the national nature conservation legislation that forms the basis for the conservation of the Danish area of the Wadden Sea, including a 12-mile buffer zone seaward of the islands.

The three Wadden Sea States are working toward harmonisation of the principles, standards and management guidelines adopted under the three different approaches.

As is the case for many "protected areas", the sustainable use of the Wadden Sea is constrained by the lack of a wider regional management perspective that would help safeguard the integrity of the Wadden ecosystem. For example, through a wider perspective based on watershed management that would ensure the land management standards and the quality of waters draining into the Wadden Sea would avoid pollution, maintain habitat quality and ensure continuous production of renewable resources, such as fish stocks.

The current limited perspective concerning land and water use management in the broader catchment of the Wadden Sea may well be broadened through the implementation of the Water Framework Directive and other EU instruments. However, it must be recognized that the interpretation and effective use of various EU Directives and other instruments varies considerably among the Member States. This inhibits their use as an integrated package of measure that would help deliver the "Guiding Principle".

### **Local**

In addition to the above comments about national and sub-regional planning and conservation management, the National Park authorities in Germany base the spatial plans for their respective areas on a three-tier system for public access. The first tier is formed by Core Zones where human access is severely restricted in an attempt to maintain reference points nature will evolve as far as is possible free from human impacts. The Core Zones are also used to develop environmental baselines, which are used as part of a monitoring process to assess the impact of human use of the parks and whether the management arrangements in place are effective in maintaining desired conditions such as abundance of species, water quality, etc. The second tier is formed by limited access zones where permitted levels and forms of human use can take place. The third tier is formed by broader zones where human activities are less restricted

### Background/History

Growing awareness of the unique and valuable nature of the Wadden Sea, combined with mounting concern over deterioration in environmental conditions affecting the ecosystem, led the three Wadden Sea States to seek ways of working together to achieve wise and sustainable use of the Sea and its resources. Tourism forms one of the most important uses of these natural resources. (See Conservation section above).

The three Wadden Sea nations have set an example of trans-national governance of a common ecosystem, which other nations are beginning to emulate. Significant progress has been made in harmonising national policies, management objectives, laws and regulations, and in developing complementary environmental management systems. A major part of the Wadden Sea now enjoys strong environmental protection and the three-nation partnership is working.

Multiple use management of the Wadden Sea ecosystem for tourism, recreation and many other activities is being adopted by the Wadden Sea States and they are attempting to unify their interpretations of and effective use of international agreements, which can help sustain tourism and strengthen the protection of the coastal and marine ecosystems. Examples include the EC Habitats Directive, Ramsar Convention, Bonn Convention, Berne Convention, EC Bird Directive, EU Recommendation on Integrated Coastal Zone Management, and the EC Water Framework Directive.

However, it must be recognized that integrated management and full harmonisation of the use of national and international environmental management instruments, and sustainable development concepts and tools will take a long time. There are factors that hinder full integration and rapid harmonisation. These include:

1. Three different legal bases for managing the Wadden ecosystem. In Denmark, national nature conservation legislation forms the main basis for protecting the marine component of the Wadden Sea. In Germany, national park legislation forms the primary legal basis and management tool and its implementation rests with the Lander and not the national government. In the

Netherlands, the national Key Physical Planning Decision (PKB) sets the policy of sustainable use of the Dutch part of the Wadden Sea area and its resources that all sectoral agencies and levels of government are encouraged to work towards. This is supported by the Nature Protection Act, which all agencies must respect when formulating development plans.

2. Although all three Wadden Sea States have adopted the concept of sustainable development, this has not been fully translated into working management objectives and achievable targets for activities such as tourism and recreation. There is also no common policy among the three nations as to how the concept should be implemented, or common priorities for action.
3. There are distinctly different management approaches that have been adopted in each the three nations. While each is appropriate to their respective legal and governance systems, there are few common principles for guiding and, where necessary, controlling development activities based upon the maintenance of the functional integrity of Wadden Sea ecosystems.
4. There are different jurisdictional boundaries in each of the Wadden Sea States that define the geographic area of control available under the different management systems. In Denmark, the Nature Conservation Act deals primarily with the marine area and only a narrow band of land on the coastline is included in the definition of the Wadden Sea area. In Germany the boundaries of the National Parks do not always encompass a landward component and may begin at, or in front of, the sea dykes. In the Netherlands the Principle Planning Policy (PKB) sets out a strong statement for sustainable use of the Wadden Sea and the integration of sectoral development objectives and plans. However, the boundaries of the formally defined Wadden Sea area in the Netherlands do not tie up with those in Germany. In effect, you have three sovereign nations attempting to manage a shared and common ecosystem with no common definition of where it begins and where it ends.
5. There is also a common obstacle to the ecosystem based management of the Wadden Sea in that none of the three management systems has real control over issues and problems outside their jurisdictions that have a negative influence on the coastal and marine components of the ecosystem. Diffuse land based sources of pollution are a case in point.
6. Differing development pressures and attitudes influence the application of controls over individual rights of access to and use of resources of the Wadden Sea. For example, in the Netherlands there is very strong opposition to hunting in the Wadden Sea area, while in Denmark there is a strong tradition of hunting wildfowl. Some Danes see the application of stronger environmental protection and species conservation measures as infringing on personal liberties. This is in part a reflection of the lower population pressures in Denmark.
7. Strong pressures from different resource users to limit restrictions on economic activities such as oil and gas exploration and extraction, fishing and mussel and cockle harvesting, tourism, port and harbour development, and defence activities.
8. Different opinions on the sustainability of large scale engineering modifications to marine and coastal areas relating to coastal defence, infrastructure development - such as causeways linking islands to the mainland -, and dredging to maintain channels and increase water depths for access to harbours to accommodate ever increasing sizes of ships.

These obstacles are not insurmountable and the progress that has been achieved to date sets a fine example for other nations to follow in the search for wise and sustainable use of the world's rich and diverse marine and coastal heritage.

## Aims/Objectives

### The Wadden Sea

The Guiding Principle of the Trilateral Wadden Sea Plan is “to achieve, as far as possible, a natural and sustainable ecosystem in which natural processes proceed in an undisturbed way”. The trilateral agreement is based on a commitment to treat the Wadden Sea as a single ecosystem and it is recognised that the management activities outside of the designated protection areas can influence the Wadden ecosystem and the human activities its resources sustain. However, the area covered by the Stade Declaration and the WSP is limited mainly to the inshore marine waters and a narrow band of coastal land. It should also be pointed out that the Stade Declaration provides no legally binding instruments for the implementation of the WSP.

### Aims and Objectives of National Parks and Tourism Development

There are three national parks in Germany that focus on the Wadden Sea. The one from Schleswig Holstein provides a good example of the scale of park, and its aims and objectives. The total area under National Park jurisdiction is 441,000 ha. The Park is the largest national park in Central Europe. The Objectives of the park are embodied in the 1985 the Schleswig-Holstein Wadden Sea National Park Law which was amended in 1999 after careful consideration of nature conservation aims, traditional economical interests and development potential for tourism within the region to provide:

- Protection of the Wadden Sea for future generations
- Undisturbed development - leave nature to its own devices
- Recreation and nature experience

A specific case study exists for this Marine National Park.

## Key Resource Facts

### **Habitats**

The Wadden Sea, islands and adjacent coastal mainland form a postglacial ecosystem less than 10,000 years old. The Wadden Sea is an ecotone that forms a zone of transition from the North Sea to mainland Europe.

### **Topography**

There is little variation in elevation in the terrestrial component of the Wadden Ecosystem, which is made up mainly of a coastal plain and offshore islands with low elevations. Coastal sand dunes, beach ridges and major dykes protecting low-lying freshwater marshes and agricultural fields form major features of many areas of the Wadden Sea. The topography of the inter-tidal area is marked by a myriad of channels, mudflats and sandflats that are exposed at low tide.

### **Climate**

The climate is similar to that of the east coast of Scotland. The area is exposed to severe gales, and ice in winter that can cause major fluctuations in the animal and plant populations. These climatic conditions are also a factor in the dynamism of the linter-tidal and supra-tidal landforms,. As a result, the evolution of any given marine or terrestrial site in the Wadden Sea is highly variable and unpredictable (Reise 1994).

### **Biodiversity**

Heydemann (1998) has stated that no other ecosystem has a recorded diversity of species similar to that of the Wadden Sea. The biological diversity is high: some

30 biotopes contain about 4800 marine and semi-terrestrial species, or 5% of the 95,000 animal and plants species in central Europe (Heydemann 1998).

The salt marshes in the Wadden Sea have the highest species diversity. While they constitute only 3% of the surface area, they contain nearly half of the recorded plant and animal species. Many of these species are endemic, living exclusively in this biotope. No other central European ecosystem has a higher number of animal species than the salt meadow, with a species density per unit of area up to 900 times higher than the North Sea (Heydemann 1998).

The Wadden Ecosystem supports a major commercial fishery in the North Sea, a large range species of migratory wildfowl using the East Atlantic Flyway, and large numbers of marine mammals.

### **Culture/Heritage**

The long tradition of human settlement, development of agriculture, fisheries and trade based on the Wadden Sea and its coastal hinterland has created a rich and diverse cultural landscape over the past 5,000 years. For example, the North Friesland area of the Netherlands is considered a cultural landscape unique in Europe and one that would have to be incorporated into a World Heritage designation for the Wadden Sea.

### **Key Tourism Facts**

When tourists are asked for their motives when visiting the Wadden Sea Region, answers are not exclusively linked to the ecological components. The simple presence of unspoiled scenery and absence of heavy human influence in many places also play a major role in attracting people to the area. An increasing number of visitors choose the Wadden Sea Region for its unique cultural features.

### **Product Services and Infrastructure**

The cultural landscape, sandy beaches, islands, wild seascapes and abundance and diversity of wildlife form the basis for a thriving international tourism industry and a European focus for coastal and marine recreation. There are well-developed tourism and recreation facilities throughout the Dutch coastline and some of the larger Wadden Sea islands, while other Dutch islands remain relatively undeveloped. Similar conditions exist in the German part of the Wadden Sea where islands such as Sylt have formed a major tourism and recreation destination since the early 1900s. The national parks in Germany provide a very high standard of facilities and sophisticated management.

There are a number of visitor centres to support tourism and recreation throughout the Wadden Sea region. Examples from the Netherlands include:

- *Schiermonnikoog*: Visitor centre of the National Park Schiermonnikoog, Torenstreek 20, 9166 LK Schiermonnikoog, tel. 0519 531641.
- Vlieland: "De Noordwester", Dorpsstraat 150, 8899 AN Vlieland, tel. 0562 451700.
- Texel: "EcoMare", Centrum voor Wadden en Noordzee; tentoonstellingen en opvang van zeehonden en zeevogels. Ruijslaan 92, 1796 AZ De Koog, tel. 0222 317741, <http://www.ecomare.nl/>.

### **Volume**

Each year approximately 10 million tourists and 30-40 million day-trippers visit the Wadden Sea Region comprising the Wadden Sea, the Wadden Sea islands and the adjacent mainland areas. The tourists mainly come from the three Wadden Sea countries. (NetForum Report <http://www.irwc.ribeamt.dk/pages/Tourism-in-the-wadden-sea.htm>).

Schleswig-Holstein, Lower Saxony and Hamburg have established national parks for the major parts of the Wadden Sea in 1985, 1986 and 1990 respectively. The Schleswig-Holstein Wadden Sea National Park, includes the western coast of Schleswig-Holstein and the North Frisian Islands. The Hamburg Wadden Sea National Park, extends from the mouth of the Elbe river to the tiny bird islands of Neuwerk and Scharhörn. The Lower Saxony Wadden Sea National Park extends over an area of 288,000 hectares and includes the northern coast of Lower Saxony and the the East Frisian Islands.

It is estimated that one out of five jobs in the region of Schleswig-Holstein is related to tourism. This amounts to some 9,000 full-time jobs. This means that approximately 1/3 of the population in the Schleswig-Holstein area of the Wadden Sea region depends on the tourism trade. The situation in the Netherlands and in Denmark can be compared to the situation in Schleswig-Holstein.

A sense of the economic importance of tourism and recreation can be gained from details of tourism published by the Schleswig Holstein Wadden Sea National Park. Some four million day-trippers and seventeen million overnight-stays recorded on the west coast of Schleswig-Holstein every year demonstrate the importance of tourism for the national park region. Almost 150,000 beds are available to visitors. About a third of the local population earns a living at least in part from the tourist industry. Every fifth Euro in the region is earned in tourism and related jobs. Outdoor activities are the favourite pastime, ranking before culture or sports. Most visitors support the national park and are willing to accept restrictions if they can be seen to help to protect the environment.

#### Key Issues associated with tourism development/management

Major progress has been made in developing a robust planning and management framework and supporting measures to for sustainable use of the Wadden Sea while protecting the integrity of its natural and cultural features. There are, however, concerns on the part of the EU, World Heritage officials and international conservation bodies such as the WWF and the European Coastal Union concerning the sustainable use of the Wadden Sea and its natural and cultural heritage. These include:

- The Wadden Sea States and other national governments are not achieving targets to reduce nutrient inputs, combat eutrophication, etc.
- Regulation of tourism infrastructure development by local authorities may not be adequate to meet current and future tourism pressures.
- There is a lack of a common vision on coastal defence; in particular there is no common policy to allow for a dynamic coastline, including natural changes in SACs, and/or the restoration of degraded coastal habitats.
- There is no proactive and consistent approach to support sustainable fisheries management practices.
- The trilateral co-operation arrangements do not provide a clear mandate to address land-based activities influencing the Wadden Sea. This weakens the application of Integrated Coastal Zone Management as set out under the EU Recommendation on Integrated Coastal Management.
- Establishment of Marine Protected Areas in adjacent North Sea waters has been on the political agenda for some years with only minor progress in their implementation. There needs to be greater consistency in the designation of existing and potential protected areas under the European Habitats Directive and Bird Directive in all three Wadden Sea countries, and neighbouring countries surrounding the North Sea. The idea of designating the Wadden Sea and adjacent waters as a Particularly Sensitive Sea Area (PSSA), including a seawards buffer zone beyond 12 nautical miles based on the



guidelines of the International Maritime Organisation (IMO), was initiated in 1987 and a feasibility study was undertaken in 1992. As yet this type of management tool has not been fully utilised.

- Coastal policy co-ordination beyond the Wadden Sea is weak. Transboundary eutrophication and contamination with east flowing North Sea currents play an important role in international discussions (e.g. the North Sea Conference). However, the need for agreements between the Wadden Sea States, the UK and other nations to maintain sediment budgets and water quality in the Wadden Sea has never been properly addressed.
- The participation of interest groups, local communities and stakeholders in inter governmental decision-making processes and implementation of management measures to sustain tourism and recreation needs to be improved.
- The Interregional Wadden Sea Co-operation (NetForum) on Tourism and conservation bodies have called for the development of tourism development guidelines and a code of conduct for tourism in the Wadden Sea that could be accepted by all stakeholders.
- Global climate change may result in a rise in sea level with a higher frequency of storm surges and higher inputs of energy that could cause the inter-tidal areas to dwindle and coastal lands to be more subject to flooding and damage to infrastructure and private property. Climate change could also reduce diversity of flora and fauna, and reduce environmental services such as provision breeding, nursery and feeding grounds for commercially valuable fin and shell-fish
- The combined effects of global change could reduce the value of the Wadden Sea area for tourism investment, wildlife conservation, recreation, and primary activities such as fisheries and agriculture.

The prospect of creating new jobs and increasing the taxation base by encouraging tourism and recreation development is seen by many local authorities as a logical way of utilising the resources of the Wadden Sea area. However, the economic benefits are often overestimated in terms of full-time employment and the revenues returned to the local community. At the same time, the costs of providing extra services- such as freshwater, sewerage, and solid waste disposal- in islands and other remote locations, and managing fragile environments so that they can sustain additional human use is often underestimated. As a result, the true economic benefits of tourism and recreation are often limited. Specific limits to social and economic benefits include:

- Limited diversity of jobs available in tourism and recreation
- Wages can be lower than the national average
- A major part of the work is seasonal and unemployment in winter can be high
- Jobs in traditional economic sectors such as agriculture and fisheries are being replaced by increasing dependence on tourism in islands and many non-industrialised coastal areas
- The rapid increase in costs of renting or buying house or other property following the growth in tourism and second homes for recreation make it very difficult for young people normally resident in the Wadden Sea region to find affordable accommodation. This, and the lack of diversity of employment opportunities, leads many young people to move away leaving an aging resident population and increasing costs to authorities to provide essential services.
- The North Sea climate hampers attempts to extend the tourist season, and the region cannot compete with other areas of Europe, such as Spain, where

the climate is more amenable to tourism and outdoor recreation for a greater part of the year.

- The increasing dependence on tourism will bring with it pressures for development that, if not properly managed, will have the potential for adversely affecting the wildlife interests of the Wadden Sea region. The policy trend, both internationally and within the EU, for a more sustainable approach to economic development and the emphasis on strict enforcement of EU environmental legislation within the 6<sup>th</sup> Environmental Action Programme, should provide a stronger basis for sustaining tourism while and enhance the environmental management of the Wadden Sea.

#### Achievements/Innovation

Over the past 25 years the three Wadden Sea States - Denmark, Germany and the Netherlands - have developed a unique Tri-Lateral Agreement designed to foster the development of a unified vision for the future of the Sea, harmonization of their respective development objectives and policies, better integration of management strategies and the application of ecosystem management and the promotion of its sustainable use. The progress made towards these objectives has been impressive and forms a model that other nations are emulating.

In many ways the Trilateral Convention for the Management of the Wadden Sea provides a unique framework that can help ensure national parks and other management measures are developed within a framework that addresses both national priorities and international obligations under conventions, treaties and other international agreements. This framework may not be adapted easily to the Scottish context, but may form a basis for developing a broadly based environmental, economic and socio-political perspective for the management of marine national parks where measures such as the North Sea Convention could be combined with the WFD to help protect marine water quality.

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