



COMMISSIONED REPORT

Annex to Commissioned Report No. 271

A review of relevant experience of coastal and marine national parks

Case study (4)

**Wadden Sea National Park - Schleswig-Holstein Area,
Germany**



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Foreword

The case study was undertaken from May to June 2007 and the information presented in this report originates from a review of various reports, personal communication with key actors in the process as well as a limited number of follow-up interviews with the local fishing community in the German Sector of the Wadden Sea.

Front page photo: North Easter part of Sylt Island, part of the Schleswig-Holstein Area the Wadden Sea National Park. Photo: Stig Møller Christensen

This report should be cited as:

Christensen, S. M. (2008). *Case study 4 - Wadden Sea National Park - Schleswig-Holstein Area, Germany.* Scottish Natural Heritage Research, Annex to Commissioned Report No. 271 - Available online at <http://www.snh.org.uk/strategy/CMNP/sr-adnp01.asp>

This report is one of a number of studies undertaken to inform the following publication:

Hambrey Consulting (2008). A review of relevant experience of coastal and marine national parks. *Scottish Natural Heritage Commissioned Report No. 271 (ROAME No. R07NC).*

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Sketch profile

Location and size

The Wadden Sea extends along the coastline of Denmark, Schleswig-Holstein, Lower Saxony and the Netherlands. It is a unique marine coastal landscape where natural forces and human settlement have combined to form an unparalleled combination of sandbanks, dunes, salt-marshes and islands and one of the largest areas of tidal mudflats in the world. The total area of the park is 4,415 km². It consists of a zero use zone - reference area; conservation areas not open to the public or utilisation, an intermediate zone with limited public access as well a utilisation of natural resources and a whale protection zone. Five percent of the park is designated as a UNESCO MAB reserve.

Scope

Mainly a marine national park with strong preservation and conservation objectives. Close link to development of sustainable tourism which is the largest sector in the area.

Objectives

The park has three main development objectives:

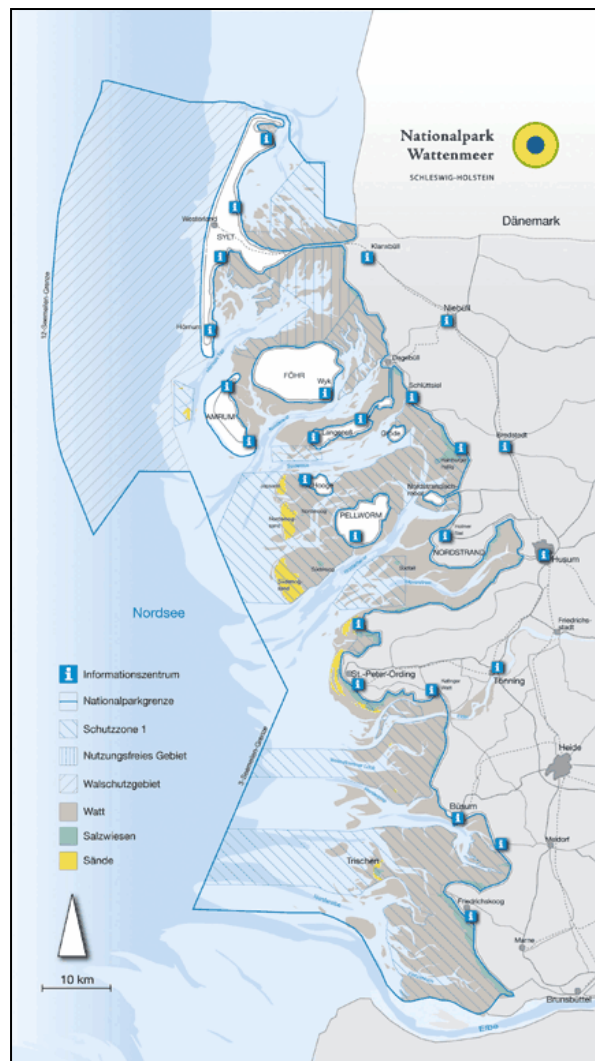
- Protection of the Wadden Sea for future generations;
- Undisturbed development - leave nature to its own devices;
- Recreation and nature experience.

Status

National park was established in 1985 using a top down approach. The national park law was amended in 1999 based on a 7-year scientific study and a following 2-year participatory process.

Issues and initiatives

Successful establishment of a National Park Partner brand resulting in a high level of support from the tourist sector; communication and information has high level of priority with success; high level of external national funding ensures efficient park administration and management as well as positive spin-off effects to local tourist industry; large scale monitoring programme is used in adjusting management practices.



Contents

Sketch profile	1
Contents.....	3
Key achievements and lessons learned	5
Setting the Scene for Schleswig-Holstein Wadden Sea National Park.....	7
Wadden Sea national parks.....	7
Rationale for selecting the Wadden Sea as a national park pilot.....	7
Schleswig-Holstein National Park development objectives and management principles ...	8
Trilateral Wadden Sea objectives & management principles.....	9
Timeline for Schleswig-Holstein Wadden Sea National Park.....	10
Organisation and community participation.....	11
Organisation and management.....	11
Community participation	13
Discussion.....	13
The Wadden Sea - conservation areas and legal framework	14
Conservation areas.....	14
Legal Issues.....	15
Relationships between the management body and other agencies	15
Key elements in planning and management.....	16
Zoning.....	17
Management principles.....	19
Discussion.....	19
Fisheries management	20
Local knowledge and scientific knowledge	22
Local ownership.....	23
Key performance indicators	23
The impact of the process.....	26
References.....	27

Key achievements and lessons learned

Schleswig-Holstein Wadden Sea National Park was established 22 years ago in line with the Trilateral Wadden Sea Agreement between Denmark, Germany and Holland. Schleswig-Holstein Provincial Government issued a national park law in 1985 using a traditional “top-down approach”. Five years later a seven year large scale research and monitoring programme was established in order to develop a better scientific understanding of the Wadden Sea ecosystem and its dynamics. In addition, trends etc. were to be used to suggest inputs to draft a new national park law. In 1997, a two year participatory process was initiated based on the scientific information and scientists recommendations for sustainable future management. The process resulted in several conflicts of interests, especially from NGO’s, fishermen and farmers. The process, being democratic resulted in general consensus and a new national park law which was passed in 1999.

1. The time factor was an important element in the establishment and development of Schleswig-Holstein Wadden Sea National Park. It took several years before the impact of the park could be monitored and trends could begin to be projected. The process of public participation was conflict prone and long with more than 200 public meetings being executed in the two year period.
2. Park development objectives reflect a strong focus on sustainable ecological development and a rather limited focus on broad community development. This may be a consequence of the highly skewed economic importance of the various sectors.
3. A ‘double tuning’ process with local stakeholders resulted in the suggestions of the scientists being only partly implemented in the law. This has created increased local ownership of the law and increased motivation and adherence to the regulations set forth within it.
4. Tourist development opportunities have been highlighted throughout the process and the sector represents 20% of the local economy. In contrast fisheries account for less than 1%. In this light it was relative easy to mobilise the tourist sector to partake. The impact of the park on the socio-economy overall was clearly positive.
5. The establishment of a National Park Partner brand was an excellent marketing concept and most people in the tourist sector signed up to one year compulsory courses. Apart from engaging the sector the park administration also increased the amount of National park communicators - for limited extra costs.
6. Communication and information has very high priority in the park and is an essential element in sustaining the tourist infrastructure.
7. The national park administration receives around 10 million Euro annually to manage the park. In addition a limited further income originates from operating information centres and executing various training activities.
8. Park management and administration is conducted by two locally established organisations. In addition, continued public participation is made through two advisory councils consisting of locally elected members representing a broad range of local stakeholders.

9. In the park's life time cockle fishing has been banned and it is likely that mussel fishery will be banned as well. Fishermen have converted to the brown shrimp fishery which is increasingly being conducted outside the park boundaries. Although a small sector it is still part of the area's cultural heritage and therefore it is important to maintain the sector - also to the benefit of the tourist sector. However, alternative fisheries related opportunities still need to be identified.
10. Large scale monitoring is being conducted and the information is used to adjust management practices. The monitoring conducted in the park is part of a Trilateral Monitoring and Assessment Programme which is a joint monitoring programme including the entire Wadden Sea from Den Helden in Holland to Esbjerg in Denmark.

Setting the Scene for Schleswig-Holstein Wadden Sea National Park

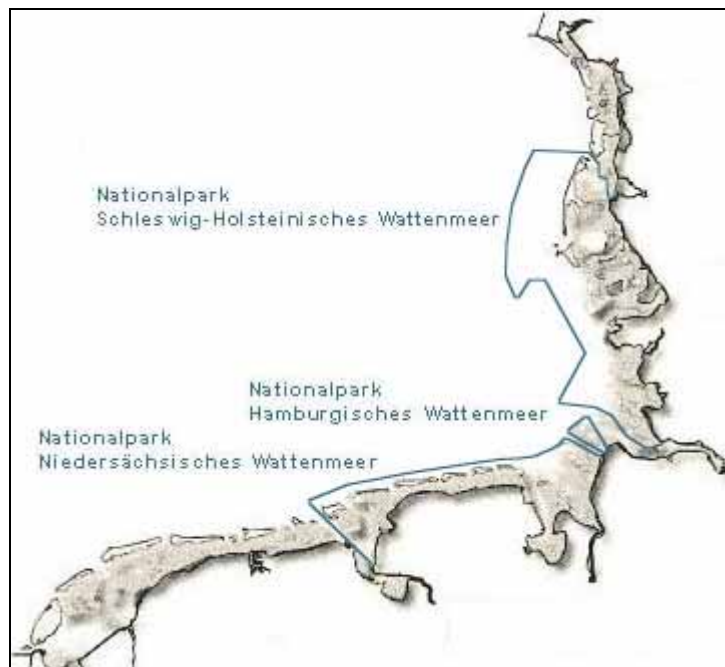
Wadden Sea national parks

Germany has three national parks associated with the German sector of the Wadden Sea. These are:

- Schleswig-Holstein Wadden Sea National Park;
- Hamburg Wadden Sea National Park;
- Lower Saxony Wadden Sea National Park.

Figure 1 The three German Wadden Sea national parks

(<http://www.wattenmeer-nationalPark.de/>)



Rationale for selecting the Wadden Sea as a national park pilot

The Wadden Sea extends along the coastline of Denmark, Schleswig-Holstein, Lower Saxony and the Netherlands. It is a unique marine coastal landscape where natural forces and human settlement have combined to form an unparalleled combination of sandbanks, dunes, salt-marshes and islands and one of the largest areas of tidal mudflats in the world.

The small salt-marsh islands - the "Halligen" - are a special feature of the Schleswig-Holstein Wadden Sea. Lying just above the high-tide mark they are flooded regularly during spring-tides and stormy weather. Then only the "Warften - the earth mounds on which the houses are built - remain above water.

Every year in mid summer almost the entire European population of the common shelduck - about 200,000 birds - collect around the island of Trischen, just a few kilometers off the mainland coast, to moult. The mudflats and creeks are then full of flightless birds and the local beaches littered with their feathers.

Innumerable marine mussels, snails, shrimps and worms inhabit the Wadden Sea as well as several marine mammal species. The Schleswig-Holstein Wadden Sea possesses Germany's only breeding population of the grey seal. Their young are born in winter on sandbanks in the area. The waters off the islands of Sylt and Amrum are the most important nursery area for common porpoise in the North Sea (SHWSNP, 2007).

The area was also designated a UNESCO biosphere reserve in 1990, with high biological diversity, it contains 5% of all animal and plant species in central Europe.

Schleswig-Holstein National Park development objectives and management principles

Development objectives

The following three development objectives have been defined:

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

Management strategy

Section 2 of the new national park law for Schleswig-Holstein National Park states that the following issues to be included in the protection and management of the park:

1. The national park serves to protect the natural development of the Schleswig-Holstein Wadden Sea and to preserve its particular characteristics, its beauty and its natural state. As far as possible an undisturbed development of natural processes should be ensured. The national park is to be preserved in order to protect the habitats of naturally occurring animal and plant species and the relationships between these habitats and species. The whole natural environment, its natural development and all plants, animals and ecosystems have an intrinsic value that should be protected.
2. Coastal defense measures, including the conservation and proliferation of salt marshes and the drainage of inland areas, are not to be restricted. The grazing of salt-marshes and the extraction of clay and sand are permitted if they are necessary for coastal defence purposes.
3. Unreasonable impairment upon the interests and the customary practices of the local population shall be avoided. All issues of use and exploitation have to be impartially considered in the light of the overall protection aims of the national park and individual cases. The conservation of nature by the national park should lead to an improvement of the living and working conditions of the human population living within the region through positive repercussion on tourism and the reputation of the region.

Trilateral Wadden Sea objectives & management principles

The guiding principle of the Trilateral Wadden Sea policy as agreed at the Esbjerg Conference in 1991 is to achieve, as far as possible, a natural and sustainable ecosystem in which natural processes proceed in an undisturbed way.

Common objectives

At the Esbjerg and Leeuwarden Conferences the regulation of all major common uses and activities in the Wadden Sea was laid down in so called “common objectives”. These objectives set standards for what should be done by the countries to ensure that the Wadden Sea is protected as an entity and used in a sustainable way.

A selection of common objectives within the agreement are (CWSS):

- for sea defence it has been agreed to prohibit, in principle, further embankments of the Wadden Sea and to minimise unavoidable loss of biotopes by sea defence measures;
- for mussel fishery the negative ecological impact on the Wadden Sea shall be limited by closing considerable parts of the Wadden Sea to this activity;
- zones shall be established covering the most sensitive areas where no recreational activities are allowed.

Common management principles

For the implementation of the guiding principle, eight management principles have been adopted which are fundamental to any decisions concerning the protection and management of the Wadden Sea (CWSS).

- **Principle of Careful Decision Making**
to take decisions on the basis of the best available information.
- **Principle of Avoidance**
activities which are potentially damaging to the Wadden Sea should be avoided.
- **Precautionary Principle**
to take action to avoid activities which are assumed to have significant damaging impact on the environment, even where there is no sufficient scientific evidence to prove a causal link between activities and their impact.
- **Principle of Translocation**
to translocate activities which are harmful to the Wadden Sea environment to areas where they will cause less environmental impact.
- **Principle of Compensation**
the harmful effect of activities which cannot be avoided, must be balanced by compensatory measures.
- **Principle of Restoration**
where possible, parts of the Wadden Sea should be restored if it can be demonstrated by reference studies that the actual situation is not optimal, and that the original state is likely to be re-established.
- **Principle of Best Available Techniques**
to apply the latest technology, processes, facilities or methods with the aim of limiting emissions, reducing bycatch etc.
- **Principle of Best Environmental Practice**
to apply the most appropriate combination of measures with the aim of limiting environmental impacts.

Timeline for Schleswig-Holstein Wadden Sea National Park

Table 1 Timeline of major events direct or indirect affecting the establishment and management of Schleswig-Holstein Wadden Sea National Park

Date	Key event	Content of event
1978	Trilateral Wadden Sea Cooperation	Denmark, Germany & Holland agree on joint management, monitoring, research & policy
1982	Joint Declaration on the Protection of the Wadden Sea	
1985	Schleswig-Holstein Wadden Sea National Park established	Establishment of the national park after the Schleswig-Holstein Wadden Sea National Park law was passed
1987	Common Wadden Sea Secretariat established	Its primary task is to support, initiate, facilitate and coordinate the activities of the collaboration
1989	Cockle fishery banned	Cockle fishery banned within the park. Cockle fishermen transforms into brown shrimp fisheries
1990	UNESCO Biosphere Reserve	High biological diversity containing 5% of all animal and plant species in central Europe
1990	R&D Project on Wadden Sea initiated	Seven year large-scale research on ecological systems in the Wadden Sea commences
1995	TMAP outsourced to Schleswig- Holstein National Park administration and management section	Trilateral Monitoring and Assessment Program (TMAP) is outsourced to the national park administration & management section
1997	Trilateral Wadden Sea Secretariat established	Secretariat established in Wilhelmshaven Germany
1997	Public participation process initiated	A two year public participation process to develop the new content for the Schleswig-Holstein Wadden Sea National Park initiated
1999	New law for Schleswig-Holstein Wadden Sea National Park passed	New law for the national park passed based on extensive R&D and input from public participation
2004	Extension of MAB reserve status	Extension of the designation as a biosphere
2006	ECC Council Directive on the conservation of wild birds and habitats (Birds Directive) & ECC on the conservation of natural habitats and of wild fauna (Habitats Directive)	Entire national park is given status as Natura 2000 area and the wild bird area exceeds the park boundaries

Organisation and community participation

Organisation and management

The organisation of the national park consists of two main organisations:

- National park administration and management for the Schleswig-Holstein Wadden Sea National Park;
- National Park Service gGmbH.

National park administration and management

The headquarters is in Tönning and the section is responsible for nature protection issues within national park. The national park administration and management section for the park is also the upper and lower authority in relation to nature protection.

The national park administration and management section is divided into four units with individual areas of responsibility and management.

Table 2 Organisation and responsibilities of national park administration Schleswig-Holstein Wadden Sea

Unit No.	Unit Name	Unit Responsibilities
10	Organisation & Management	<ul style="list-style-type: none"> • Staff management • Budgeting • Organisation
20	Nature Protection	<ul style="list-style-type: none"> • Adherence to protection regulations • Control of activities executed in nature • Development & implementation of protection concepts • Service contracts • Issues related to UNESCO MAB reserve
30	Public Services & Environmental Awareness Raising (Education)	<ul style="list-style-type: none"> • Develop & implement concepts for environmental awareness raising • Develop information material and design of information centres • Execute seminars and courses (education) • Press releases and PR contacts
40	Monitoring & Research	<ul style="list-style-type: none"> • Trilateral monitoring & assessment programme • GIS • Trilateral & international cooperation

Two advisory councils are connected to the national park administration and management. The park is within the boundary of two Landkreise (counties) Nordfriesland and Dithmarschen.

Each of the advisory councils consists of 10-15 people who have been appointed politically or due to their technical competences. The advisory councils provide advice to the national park administration and management. Consensus must be obtained between the administration and the council regarding development issues. In case this cannot be achieved the State Ministry of Environment decides how to settle the dispute.

National Park Service gGmbH

This section is mainly responsible for 'in-field' tasks such as execution of activities, maintenance of reserve facilities and management of the visitor centres.

The National Park Service consists of three advisory and management bodies:

1. Organised association of key stakeholders
2. Advisory council
3. Management unit of the National Park Service

Table 3 Organisation and responsibilities of National Park Service gGmbH Schleswig-Holstein Wadden Sea

Unit Name	Unit Responsibilities
Organisation & Management	<ul style="list-style-type: none">• Staff management• Budgeting• Organisation
Management & Public Services	<ul style="list-style-type: none">• Maintenance of visitor infrastructure• Public service related activities• Field monitoring and data collection
Nature Experiences & Protection	<ul style="list-style-type: none">• Management of information and visitor centres• Responsible for ranger service• Development of national park experience concepts• Planning of events
Multimar & Exhibitions	<ul style="list-style-type: none">• Manage and operate Multimar Wattforum (http://www.multimar-wattforum.de/index.php?cccpage=startseite&set_language=en)• Continuously develop Multimar and Information centres

The National Park Service has developed a system of National Park Partners with a regional brand of the same name. In practice partners have to adhere to good practices set forward in a 'code-of-conduct'. Partners represent a broad variety of businesses linked to the tourist sector:

- Hotels
- Summerhouses
- Restaurants
- Travel bureaus
- Boat operators
- Nature guided trips
- Shipping
- Train

The National Park Partner trademark is certified and inspected by VIABONO (<http://www.viabono.de/>). Partners must attend courses in order to be able to give tourists a good insight of the national park and in order to use the logo.

Funding

Schleswig-Holstein Province finances operation of the national park while the Federal Government allocates funding for research and monitoring. The Multimar Information Station also receives public funding, and in addition the station generates an income from tourists. The 2003 budget amounted to approximately 10 million Euro.

Community participation

The community's influence on the park management is ensured via the two democratically elected Advisory Councils. The council members, representing a broad group of stakeholders, continuously advise and guide the park administration on the direction that the community would like the park to steer towards. This process is also a democratic one within the council which means that compromises are often required to achieve consensus (pers. comm.).

The national park administration section also conduct frequent meetings with municipalities, communes and interest organisations in order to ensure that emerging issues are dealt with at an early stage. However, in practice it is the advisory board's opinions which are mainly reflected in new initiatives (pers. comm).

Development of the new national park law was conducted by a two year participatory public discussion process. This type of process was new to Germany and it was initiated in 1997. A seven year scientific research and monitoring programme of the parks ecology and utilisation potential served as a major input to the participatory process.

More than 200 public meetings were held at which results and suggestions of the scientist regarding improving the Wadden Sea protection were discussed. In addition more than 15 advisory council meetings were held. These meetings were conducted prior to drafting the new national park law in 1999. The draft was then subject to a normal public hearing legal process. As a result of this 'double tuning' with local stakeholders the suggestions of the scientists were only partly implemented in the law (Müller, 2000). *This has inevitably created an increased local ownership of the law and increased motivation and adherence to the regulations set forth within it.*

Discussion

In the development of the Danish Wadden Sea National Park it was difficult to mobilise the private sector to participate in the development process of the park. The case of Schleswig-Holstein serves as a great example of mobilising the private sector to partake in development of park guidelines. It is clearly driven by the part of the private sector that stands to benefit directly from the park i.e. the tourist sector. Demand suggests that there is competitive advantage in being able to market tourist activities with the National Park Partner logo. At the same time the park administration are able to increase the public services offered to tourist at a low cost since all partners act as 'park ambassadors'.

Securing a stable funding to be able to set up long term institutions and initiatives are essential in order to steer the park in a long-term sustainable direction. The park has existed for more than 20 years and in that period has been managed based on two different legal bases. While the process of designating the park in the mid 80's was not particularly participatory the revision of the law took public participation very seriously and the outcome has been very successful.

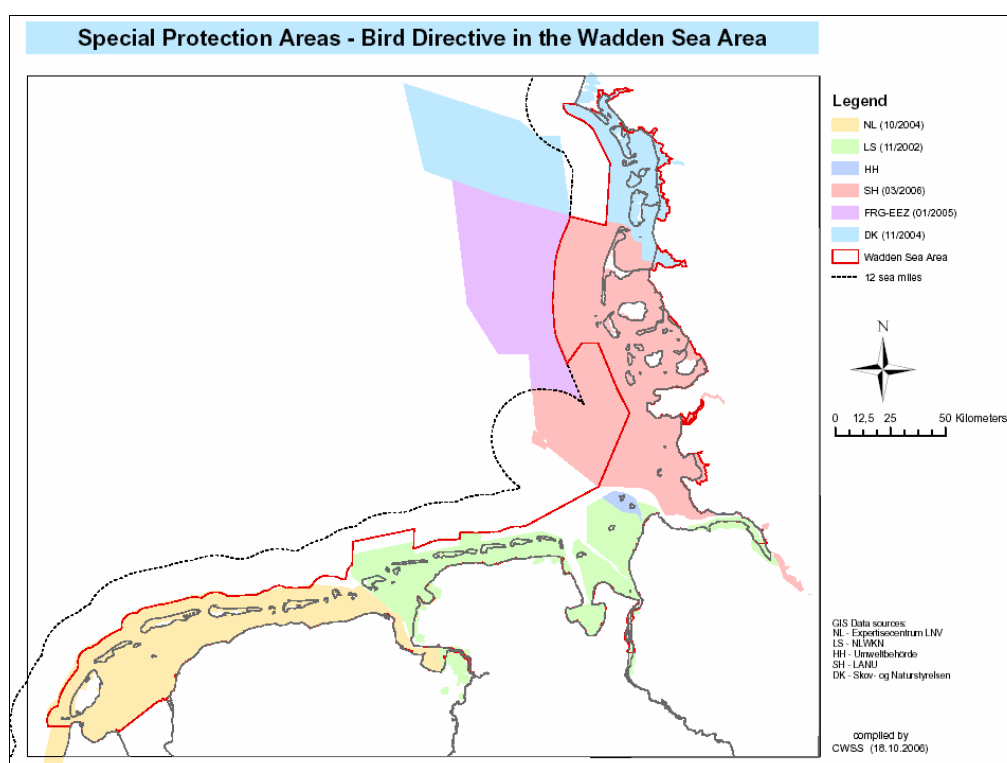
Using long term research and monitoring information and specialist recommendations as the basic input to revise the legal framework through a participatory process is commendable, though it is also important to note that not all the specialist recommendations were accepted by the public. Reaching consensus through trade-off is has been an essential component to gain local ownership and trust. The increased potential in livelihood opportunities the park has offered exceeds the negative impacts on sectors.

The Wadden Sea - conservation areas and legal framework

Conservation areas

The entire zone of Schleswig-Holstein Wadden Sea National Park boundary act as a special protection area in line with European Union Council Directive 79/409/EEC of 2 April 1979 on conservation of wild birds (see Figure 2). In fact the wild bird conservation area exceeds the park boundaries.

Figure 2 Natura 2000 appointed wild bird conservation areas. SH - denotes Schleswig-Holstein (CWSS, 2006)

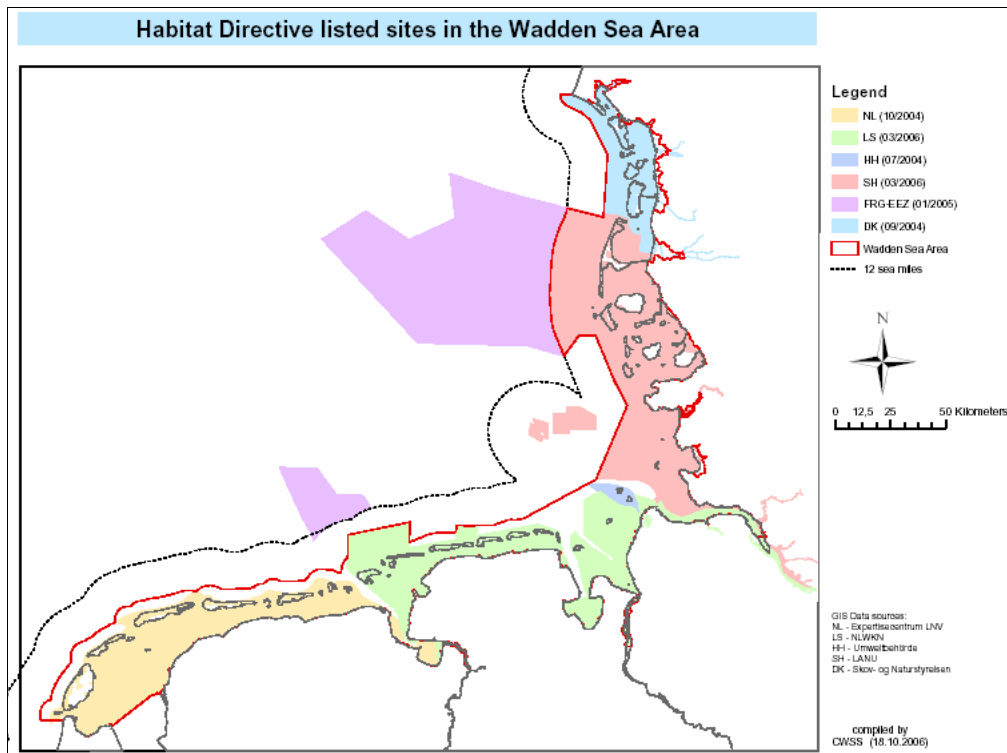


It is clear that there is good linkage between the various Wadden Sea parks and protected areas. In addition the entire area has been listed as a Special Area of Conservation (SAC) in line with Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive).

The national park is also a Ramsar site, and in 1990 the national park was designated a UNESCO Man-And-the-Biosphere Reserve (MAB) and this status was extended in 2004.

National park authorities are responsible for ensuring management in line with Natura 2000, Ramsar and UNESCO conservation objectives. However, a working group is in the process of getting the entire Wadden Sea nominated as a World Heritage Site. This will should be useful in the global marketing of the region and promote even more business opportunities.

Figure 3 Natura 2000 appointed habitat conservation areas. SH - denotes Schleswig-Holstein (CWSS, 2006)



Legal Issues

The Schleswig-Holstein National Park was established on 1st October 1985 by the National Park Law of 22nd July 1985. A new law was passed on 13th October 1999 by the provincial parliament in Schleswig-Holstein. The revision of the law was based on both scientific knowledge and participatory process which was successful leading to a revision of management objectives and regulations.

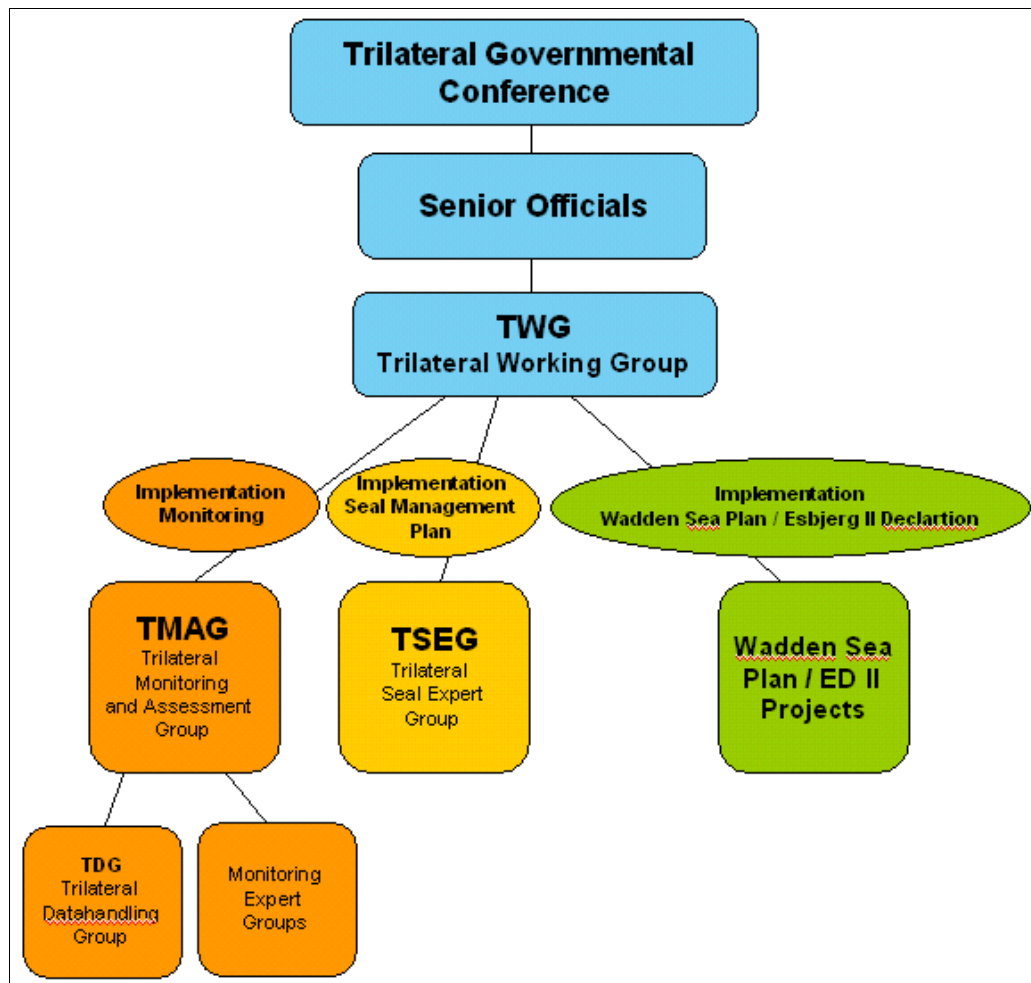
In addition to the national park law, the park management must adhere to the principles set forth in the Trilateral Agreement.

Relationships between the management body and other agencies

In 1987, the Common Wadden Sea Secretariat (CWSS) was established as the secretariat for the Trilateral Cooperation. Since then, it has been situated in Wilhelmshaven, Germany. Its primary task is to support, initiate, facilitate and coordinate the activities of the collaboration.

The CWSS is responsible for the preparation of the meetings held in the framework of the cooperation. It is also responsible for the collection and assessment of information with regard to Wadden Sea protection, management and monitoring including progress in the implementation of the decisions of the ministerial conferences. Furthermore the CWSS collects information on activities that have, or may have, significant effects on the natural environment of the Wadden Sea and give suggestions for appropriate actions. Finally, the secretariat coordinates trilateral initiatives in relevant international organisations.

Figure 4 Organisational structure of the trilateral cooperation (CWSS, 2007)

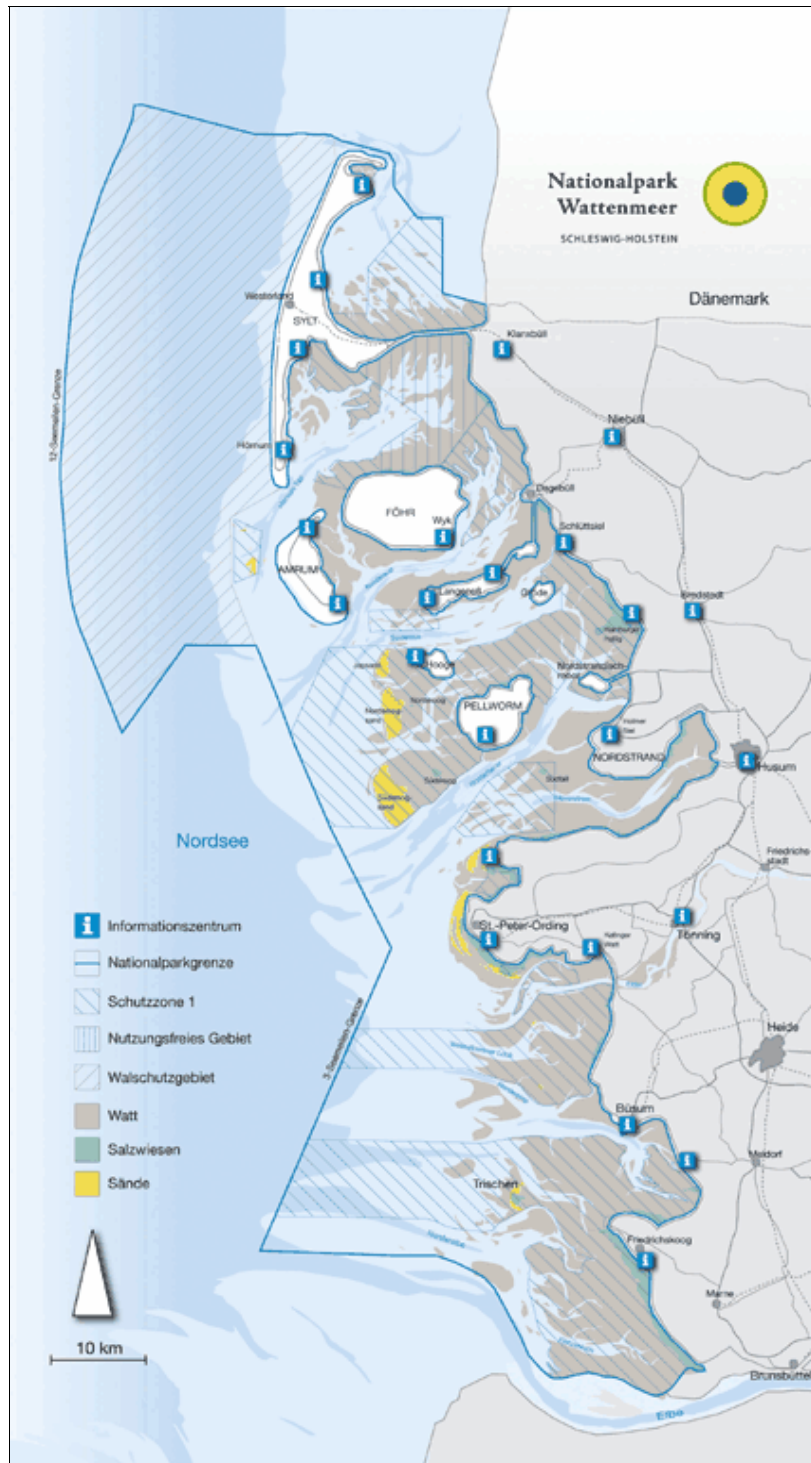


There is a close link between the Schleswig-Holstein Wadden Sea National Park authorities and the Common Wadden Sea Secretariat. This is seen in terms of a coordinated approach to monitoring as well as larger international initiatives such as the establishment of the Wadden Sea as a World Heritage Site.

Key elements in planning and management

In 1999 the state parliament in Schleswig-Holstein passed a new national park law which resulted in an enlarging the boundaries of the park and a change in management principles (Müller, 2000). The total area of the park is 441,500 ha.

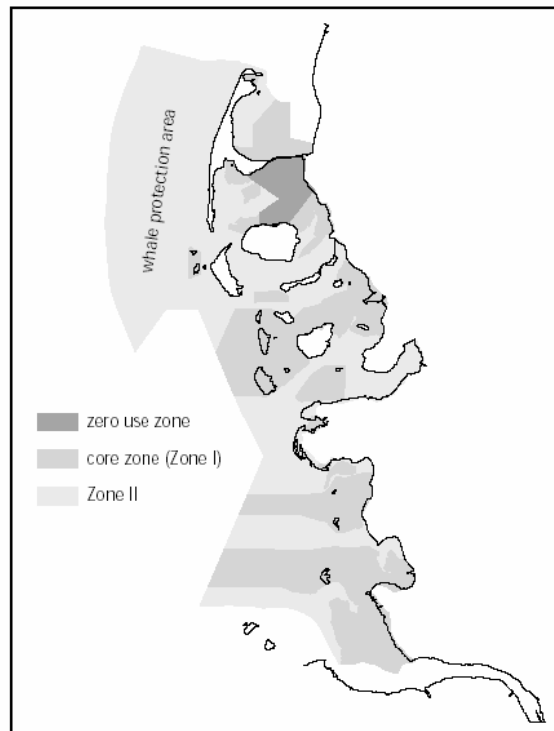
Figure 5 Schleswig-Holstein Wadden Sea National Park
 (<http://www.wattenmeer-nationalPark.de/main.htm>)



Zoning

Originally the park operated with three types of protection zone. With the amended national park law in 1999 a simplified internal zoning system was introduced (Figure 6) which consists of two types of zone: core protected zones and limited protected zones. Each of these are then divided into two types of protection and user zones (see Figure 6).

Figure 6 New zoning of Schleswig-Holstein National Park (Müller, 2000)



Zero-Use Zone

A reference area between Sylt Island and Föhr Island without any use of resources and with no public access (Figure 6).

Core Zone (Zone 1)

Core zone is defined on the basis of ecological criteria and consists, as far as possible, of complete tidal flats. The core zone is not open to the public.

Zone 2

An intermediate zone with limited public access and use of natural resources i.e. fishing. This zone is also used as the main area to promote marine recreational activities and boat safaris to the sights of the national park is made. Zone 2 mainly consists of marine protection areas.

Whale Protection Area

A whale protection area has been created westward of the Sylt and Amrum Islands. There, whale-endangering and impairing fishing forms are forbidden as a precaution. Management of this zone is similar to the principles of zone 2.

Table 4 Surface statistics of the new national park (Müller, 2000)

Total area	441,500 ha
sublitoral in total area	299,693 ha
surface zone 1	160,992 ha
sublitoral in zone 1	64,335 ha
zero-use zone (part of zone 1)	12,537 ha
sublitoral in zero-use zone	3,482 ha
surface whale protection area (part of zone 2)	24,171 ha

Management principles

The major changes in the new national park law were:

1. Enlargement and new boundaries: the national park has been extended to the 3 nm line and a 12 nm line in front of Sylt and Amrum;
2. New zoning system;
3. Introduction of a *reference* area;
4. A cetacean (harbor porpoise) protection area west of Sylt. This area is also used for marine safaris with tourists;
5. Hunting in the national park is not permitted. This has been phased-out since 1989;
6. Protection of birds unable to fly during moulting has been improved by a voluntary agreement with the fishery;
7. Mussel fishery has been limited to utilisation from culture beds (prepared by fishermen). Mussel fishing/culture may only commence outside zone 1 and the eulittoral zones;
8. Redefined section 2 concerning the protection purpose of the national park. Which is concerned with a better protection of the park and the nature within it.

Discussion

The development history of Schleswig-Holstein Wadden Sea National Park serves as a good example of the time required to develop a national park. The park started with a broad conservation initiative allowing the local community to continue most uses of natural resources. Through continuous dialogue and an extensive research and monitoring programme the park has expanded spatially and imposed new regulations and restriction to the use of natural resources.

A point of interest is the link between fishery and tourism in this process. While the mussels are mainly exported to Holland the brown shrimp are landed directly at the harbor in front of restaurants giving the tourist a fresh authentic product and the fisherman a higher price.

Picture 1 Landing site for brown shrimp in List Harbour. To the top left tourist can enjoy the fresh brown shrimp caught by Fisherman Paul (the advert).
Photo: Stig Møller Christensen



Fisheries management

Commercial fishing in Schleswig-Holstein Wadden Sea National Park is mainly for blue mussels and shrimp. Commercial fishing is regulated according to the Law on Protection of the Schleswig-Holstein Wadden Sea National Park (law on national parks). Commercial fishing for cockles and scallops is prohibited within the conservation area.

The fishery for blue mussel and brown shrimp was started in the late 1980s and several fishermen who previously fished for cockle transferred into this form for fishery. Cockle fisheries in Schleswig-Holstein National Park was prohibited in 1989 (QSR, 2004). Aquaculture is not carried out in the German sector of the Wadden Sea apart from one oyster culture site on Sylt Island.

Picture 2 Brown shrimp fishing East of Sylt Island. *Photo Stig Møller Christensen*



The brown shrimp (*Crangon crangon*) fishery is not regulated by the law on national parks. The fleet consists of around 100 vessels. In the Danish sector of the Wadden Sea shrimp fishing may not commence east of the shrimp line, which is to the east of Wadden Sea Island. This is not the case in the German sector.

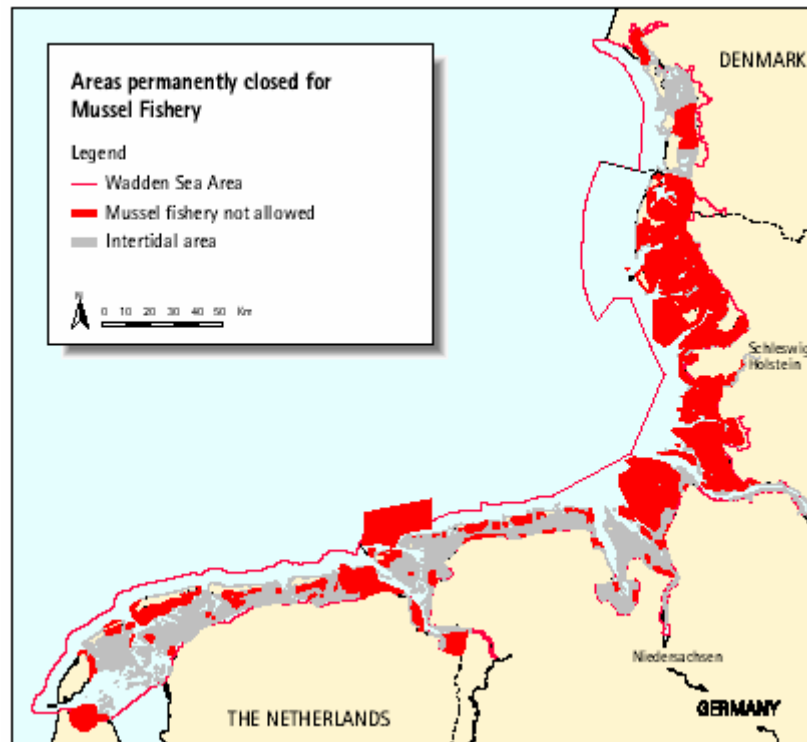
The brown shrimp fishery is not seriously affected by the national park restrictions since the fishermen are increasingly fishing further offshore in deeper waters. However, they still fish within the national park which is in agreement with the compromise made during drafting the new national park law (pers. comm.).

Blue mussel fisheries are mainly carried out with seed mussels from natural beds. The seed mussels are dispersed on culture lots where they grow to marketable size. The blue mussel fishery is highly dependent on natural conditions and catches show strong annual fluctuations. Fishing for seed mussels is only allowed within the sub-tidal part of zone 2 (area with limited public access) and in the sub-tidal areas of four defined areas of zone 1 (area with no public access) (QSR, 2004). Average landing in 1993-2003 were approximately 15,000 metric tons. The total area of the culture lots amounted to 2,200 ha. According to the national park law fishing for seed mussels is only permitted with a license according to sections 40 and 41 of the Schleswig-Holstein Fisheries Law.

Since 1997, a mussel fishery programme for use of mussels within the national park has been in force. This was included in the amended national park law for the area in 1999 as

part of a framework agreement between the park and the fisheries sector. The programme continues until 2016 containing a specification under which mussel seed fishery and mussel fishery may be carried out and the development of fishing and culture practices in the period.

Figure 7 Areas in the Wadden Sea permanently closed for mussel fishery in 2004 (QSR, 2004)



The future of mussel fisheries on culture beds within the park is more uncertain than the shrimp, probably due to a belief that the fishery is more destructive to the environment than shrimp fisheries. Another point is that there are only eight mussel licenses opposed to 100 shrimp fishing licenses, which makes the mussel fisheries a small segment of the fishery sector with little democratic power.

Recreational fishing is legal so long as the fisherman has purchased a license. In general recreational fishing is permitted in the coastal area with the exception of salt marshes and bird breeding and migratory areas. Sign posts have been put up in these areas. Recreational fishing from boats is permitted in almost all areas of the park.

In the lifetime of the park an increased focus has been made on the ecological development of the park due to the 'green objectives' of the park as well as benefiting the main sector in the area - tourism. This focus has had an adverse impact on the fishery and aquaculture sectors of the area and further restrictions have been imposed on the sector. Fishermen are not thrilled with the idea of having further restrictions imposed but seem to have little power due to the scale of the sector. This has resulted in a number of severe conflicts during the development of the new fisheries law (pers. comm.).

Picture 3 Commercial shrimp fishing vessel to the left and to the right a boat tour within the park to observe nature i.e. birds, seals and harbor porpoise.
Photo Stig Møller Christensen



Local knowledge and scientific knowledge

The development of the new national park law was conducted by a two year participatory public discussion process and as input to the process the results of a 7-year scientific research and monitoring programme of the parks ecology and utilisation potential was used.

During the research and monitoring project the national park administration encouraged participation of the local community in order to i) utilise local knowledge and ii) allow skeptics to get an insight into the methods of collection data from the national park. This was not very successful as very few stakeholders wished to partake in the process (pers. comm.).

When the results from the research and monitoring programme were presented to the public along with the recommendations from specialists a number of skeptics felt that the scientific process was overriding local knowledge. However, the same persons had the opportunity to join the research programme on a voluntary basis.

The two year participatory process to draft the content of the new fishery law was highly conflict prone. Via democratic processes the content of the law was mapped but the fishermen and farmers felt that the final management objectives implied too strict utilisation regulations, while the NGO's considered them to be not strict enough (pers. comm.).

Local knowledge is not really integrated into the current management and monitoring system directly but the advisory councils, which meet twice annually, have the ability to present information when relevant.

The use of scientific information to inform the public participation process was experienced as a positive process and it allowed for issues to be raised before the law was drafted. Since the process was a democratic one there is a risk that minorities lose out, but in this case compromise was made in relation to fisheries.

The use of local knowledge to disclose issues prior to designing a large scale research and monitoring programme could have increased local ownership and reduced the 'mistrust'.

Local ownership

The organisations and businesses which use the National Park Partner brand have a high level of ownership towards the park. The concept is used for all the German national parks with great success. While fishermen do not seem to have much ownership of the park they are affected positively by tourist visiting buying their products, and real-estate value appreciation. In fishing families with multiple incomes, one partner may work off-shore fishing while the other is engaged in the tourist sector, thus a large part of the income is positively impacted by the national park.

Key performance indicators

Monitoring the status of the national park has a high priority. The results are used to analyse trends, and on that basis develop mechanisms to ensure that development of the park continues in line with the development objectives of the park. In case negative trends are observed restrictions may be imposed in order to restore nature if this can be justified scientifically. Monitoring is mainly concerned with nature and environmental monitoring but socio-economic monitoring is also included. On Sylt Island a research station is based and it is currently being enlarged highlighting the importance of monitoring and research and development in the region.

Picture 4 Wadden Sea Research Station - Sylt. Expansion of the research facilities emphasises the importance of monitoring within the Schleswig-Holstein National Park. Photo: Stig Møller Christensen



The following are some of the indicators monitored within the park:

- Seal stocks;
- Wild bird stocks (migratory species);
- Wild bird stocks (breeding species);
- Dovekie stocks;
- Mussel stocks;
- Eel grass and green algae;
- Oil pollution;
- Vegetation structure of coastal land;
- Socio-economy.

The indicators monitored within the park feed into an over-arching Trilateral Monitoring and Assessment Programme (TMAP) for the Wadden Sea.

The aim of the TMAP is:

- To provide a scientific assessment of the status and development of the Wadden Sea ecosystem; and
- To assess the status of implementation of the trilateral targets of the Wadden Sea Plan.

The selection of the parameters for the TMAP was based on selected topical focal points, so-called "Issues of Concern": Climate change; input of nutrients and pollutants; commercial fisheries; recreational activities; and agricultural practices (TMAP Implementation Plan 1997). The parameters, as well as the sampling strategies stem from these five issues of concern and the requirements of the trilateral targets of the Wadden Sea Plan.

The TMAP covers the entire Wadden Sea area including islands and offshore areas and spans a broad range from physiological processes and population development to changes in landscape and morphology. Furthermore, the TMAP has to consider the relevant EU Birds and Habitats, and Water Framework Directives, as well as obligations from other international commitments like the Ramsar, Bonn and OSPAR Conventions.

At regular intervals, related to the Trilateral Governmental Conferences, assessment reports of the Wadden Sea are elaborated. They describe and evaluate the current ecological status of the Wadden Sea, identify issues of concern and indicate possible measures. In March 2005, the latest Quality Status Report (QSR 2004) of the Wadden Sea was published. The TMAP is carried out by national and regional authorities in charge of monitoring. The main partners are the:

- Danish Ministry for the Environment;
- Danish National Environment Research Institute (NERI);
- Counties of Ribe and Sønderjylland;
- German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety;
- State Ministries for the Environment in Schleswig-Holstein, Hamburg and Lower Saxony;
- Dutch Ministries of Agriculture, Nature and Food Quality, and of Transport, Public Works and Water Management.

Table 5 Overview about the TMAP common package parameters. The data are exchanged via TMAP data units in each country for trilateral assessment such as the Quality Status Report
 (<http://www.waddensea-secretariat.org/TMAP/Monitoring.html>)

Common Package of TMAP Parameters		
Chemical Parameters <ul style="list-style-type: none"> • Nutrients • Metals in sediment • Contaminants in blue mussels, flounders and birds eggs • TBT in water and sediment 	Biological Parameters <ul style="list-style-type: none"> • Phytoplankton • Macroalgae • Eelgrass • Macrozoobenthos • Breeding birds • Migratory birds • Beached birds survey • Common seals 	Human Use Parameters <ul style="list-style-type: none"> • Fishery • Recreational activities • Agriculture • Coastal protection
Habitat Parameters <ul style="list-style-type: none"> • Blue mussel beds • Salt marshes • Beaches and Dunes 		General Parameters <ul style="list-style-type: none"> • Geomorphology • Flooding • Land use • Weather conditions • Hydrology
Data Handling		
Data Unit The Netherlands	Data Units Niedersachsen and Schleswig-Holstein/ Hamburg	Data Unit Denmark
Assessment		
Thematic Reports, Quality Status Reports (QSR)		

The Common Wadden Sea Secretariat (CWSS) is the secretariat for the trilateral Wadden Sea cooperation. In the framework of the TMAP, the secretariat is responsible for the day to day management of the program and the preparation of the meetings of the TMAG and of the technical monitoring groups.

Lessons learned

- *Information from the monitoring system is used to continuously define restrictions where needed or to open up for sustainable utilisation or access*

The impact of the process

	Strengths/Benefits	Weaknesses/Drawbacks
Conservation	<ul style="list-style-type: none"> • High level of resources have been available for ecological and socio-economic baselines • Local conservation organisations have been involved in conservation of the Wadden Sea for century • High focus on the benefits of conservation to tourism which accounts for 20% of the local economy • Management of invasive species may prove an economic opportunity for the fishery sector (i.e. Pacific oyster) 	<ul style="list-style-type: none"> • Limited linking of local knowledge with scientific knowledge - fishermen and farmers have good monitoring potential • Local knowledge could have been used to disclose relevant issues prior to establishing a large scale research and monitoring programme
Recreation	<ul style="list-style-type: none"> • Better recreational infrastructure have resulted from the establishing the national park to the benefit of local community and external stakeholders • A number of fishing vessels are now engaged as tourist safari vessels 	<ul style="list-style-type: none"> • Little focus on alternatives for fishermen to be included in the tourist sector development • Hunting has been banned reducing the recreational value of the area for the local community
Sustainable use	<ul style="list-style-type: none"> • National Park Partner brand proved an excellent mechanism to engage the tourist sector • Shrimp fishermen is starting to fish further off-shore in deeper waters 	<ul style="list-style-type: none"> • Cockle fishery was closed in 1989. Fishermen transformed into shrimp. Mussel fishery is threatened
Community development	<ul style="list-style-type: none"> • Advisory board consisting of a broad representation of the local community's interest • Community participated in drafting of the revised national park law (12 years after park establishment) using the scientific results as input for the process • Local management of the park enhances ownership • Socio-economy survey have illustrate a growth in tourist sector as a result from the park 	<ul style="list-style-type: none"> • Conflicts prevails between different stakeholders interest in the areas development • Little use of local knowledge in the park management

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