

**IDENTIFICATION AND PROTECTION OF SPECIAL AREAS  
AND PARTICULARLY SENSITIVE SEA AREAS**

**Designation of the Wadden Sea as a Particularly Sensitive Sea Area**

**Submitted by Denmark, Germany and the Netherlands**

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**SUMMARY**

**Executive summary:** This document sets forth a proposal to designate major parts of the Wadden Sea area as a Particularly Sensitive Sea Area (see coordinates in **Annex 1**, chart in **Annex 2**). The Wadden Sea is an exceptional, highly dynamic tidal ecosystem of global importance, which is vulnerable to the impact of international shipping and other activities. It extends along parts of the coasts of the Netherlands, Germany and Denmark. An extensive regime of protective measures, consisting of both international and national regulations, is in place inside and adjacent to the proposed PSSA; examples of relevant measures are compulsory reporting, routing systems and the designation of MARPOL special areas. Hence, additional associated protective measures are not proposed to accompany the proposed PSSA. The Committee is asked to review the application, to approve the designation of this PSSA proposal in principle at this session and to take the appropriate actions, such as to inform the Sub-Committee on Safety of Navigation of this decision and subsequently approve the final PSSA designation.

**Action to be taken:** Paragraph 6.1

**Related documents:** IMO Assembly Resolution A.927 (22)  
MEPC 47/20 report section 8.13

## **1 Introduction**

1.1 According to the Ministerial Declaration of the 9th Trilateral Governmental Conference on the Protection of the Wadden Sea, which took place in Esbjerg on 31 October 2001, Denmark, Germany and the Netherlands agreed to submit a trilateral application to the IMO for the designation of major parts of the Wadden Sea as a PSSA, as defined in **Annex 1** and **2**, exclusively on the basis of existing measures in the field of shipping safety, access to harbors, and the protection of the marine environment. The proposed PSSA Wadden Sea falls entirely within the limits of territorial sea of the applicant states.

1.2 The Wadden Sea is an exceptional, highly dynamic tidal ecosystem of world importance. Biophysically it represents an interconnected morphological system with the adjacent North Sea, significant in terms of unique ecological, socio-economic, scientific and cultural characteristics. The integrity of the Wadden Sea is vulnerable to the impact of international maritime and other activities. The objective of the proposed PSSA Wadden Sea designation is to address the area's vulnerability to damage by international shipping and the risks to navigation in and close to the area. An extensive (inter-)national protection regime is in place inside and adjacent to the proposed PSSA and therefore associated protective measures are not proposed; a list of measures already in place can be found in **Annex 3**. The designation of a PSSA Wadden Sea will send a strong signal to, and increase the awareness of the international shipping community regarding the particular sensitivity of the area.

1.3 This submission was drafted in accordance with the relevant provisions of the Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas (Assembly resolution A.927 (22)). The application consists of two parts: Part I "Description, Significance of the Area and Vulnerability" (see §§ 2 - 4) and Part II "Appropriate Associated Protective Measures" (see § 5).

## **PART I: DESCRIPTION, SIGNIFICANCE OF THE AREA AND VULNERABILITY**

### **2 Description of the Area**

2.1 The proposed area for PSSA designation extends along the North Sea coasts of the Netherlands, Germany and Denmark from Den Helder in the Netherlands to Blaavandshuk in Denmark (see **Annex 1 and 2**). In most parts, the geographical range of the proposed PSSA extends to three nautical miles from the baseline – determined in accordance with the United Nations Convention on the Law of the Sea of 10 December 1982 -; in some parts it exceeds or remains within the three-nautical-mile-line. The Ems Dollard shipping lanes in the border area between the Netherlands and Germany, the Jade, Weser and Elbe shipping lanes and the shipping lane to the Port of Esbjerg are not part of the proposed PSSA Wadden Sea. The proposed PSSA Wadden Sea includes the national parks in Germany and the Trilateral Co-operation Area in Denmark and the Netherlands (reference to 2.6 and 2.7). The proposed PSSA does not include the inhabited islands inside the area.

2.2 In the following paragraphs the Wadden Sea ecosystem is described. It is linked to the system of the North Sea. Furthermore, the existing level of environmental protection of the Wadden Sea on the national and international level is described.

- The Wadden Sea is an area of some 9,500 km<sup>2</sup>, with a further 4,000 km<sup>2</sup> representing the transition zone to the North Sea. Some 30% of the Wadden Sea is within the jurisdiction of the Netherlands, 60% within the jurisdiction of the Federal Republic of Germany, and 10% within the jurisdiction of Denmark.

2.4 The Wadden Sea is a highly dynamic ecosystem with a complex geomorphology of dunes, beaches, river mouths, salt marshes, sands and tidal flats, tidal channels, barrier islands that separate the Wadden Sea from the North Sea, and an 'offshore' transition zone to the North Sea. Four large sheltered bays can be identified: the Ho Bugt in Denmark, the

Jadebusen and the Leybucht in Lower Saxony, and the Dollard in the Netherlands-German border area.

2.5 The Wadden Sea and the adjacent North Sea have many physical and biological interconnections. The North Sea, up to the 20-m isobath, forms one morphological system with the Wadden Sea proper. Sediments are transported back and forth between the Wadden Sea proper and the North Sea in a virtually closed system.

***Existing level of environmental protection***

2.6 The national nature protection regimes in Denmark, Germany and the Netherlands form the trilateral Wadden Sea Conservation Area, consisting of the nature and wildlife reserves in Denmark, the Wadden Sea national parks in Germany and the area covered by the key spatial planning decision (PKB) in the Netherlands.

2.7 Since 1978, the environmental protection of the Wadden Sea as an entity has been perceived as a joint mission for the three Wadden Sea states, resulting in the Joint Declaration on the Protection of the Wadden Sea in 1982. Coordinated stewardship of the Wadden Sea has, as a consequence, been strengthened and intensified over the past twenty years. Agreed management principles and common objectives are embodied in the Trilateral Wadden Sea Plan, which is valid for the whole Trilateral Wadden Sea Co-operation Area (Wadden Sea Area). The Wadden Sea Area, which includes the Conservation Area, extends seaward of the main dike (or spring-high-tide waterline; in rivers brackish water limit) to three nautical miles from the baseline, in some parts, it exceeds the three-nautical-mile line. The delimitation of the Wadden Sea Area is nearly identical to the proposed PSSA, except for the major shipping lanes.

2.8 Other protection regimes that are applicable in major parts of the proposed PSSA are:

- Wetlands of international importance (Ramsar Convention 1971);
- Special Protection Areas (SPAs) under the EC Bird Directive 1979 and thus part of NATURA 2000;
- Special Areas of Conservation (SACs) under the EC Habitat Directive 1992 and thus part of NATURA 2000; and
- UNESCO Man and Biosphere Reserves (MAB) (Germany and the Netherlands).

### **3 Significance of the Area: Ecological, Socio-Economic, or Scientific Criteria**

3.1 In the following, the term “Wadden Sea” is used for the proposed PSSA.

#### ***Ecological Criteria***

##### Uniqueness or rarity

3.2 The Wadden Sea is the largest European wetland ecosystem, with the greatest biological dynamics. As such it is ‘the only one of its kind’. Its tidal flats form the largest unbroken stretch of mudflats worldwide, accounting for 60 % of all tidal areas in Europe and North Africa. The salt marshes of the Wadden Sea are the largest coherent salt marshes of Europe and constitute an essential element of the Wadden Sea ecosystem. Several rare and extremely rare species can be found in the different habitats of the Wadden Sea. The Wadden Sea also provides the most important staging area for migrating waders along the flyway between the breeding areas ranging from Canada and Greenland in the west to northern Scandinavia and Siberia in the east and the wintering areas ranging as far as south as West Africa, the so called East Atlantic Flyway.

##### Critical habitat

3.3 The Wadden Sea ecosystem contains a critical habitat for 2,500 marine species in the intertidal and subtidal zones and about 2,300 semi-terrestrial species, mostly the flora and fauna of the salt marshes. The importance of Wadden Sea habitats for birds, seals, shellfish and fish species stems from high levels of primary production. This is due to the presence of the factors essential for high primary production, i.e. the shallow water, which provides sufficient light for algae to grow. In particular, the Wadden Sea is a critical habitat for *Sabellaria* reefs and *Zostera* fields, which are endangered in the North Sea. The Wadden Sea is a critical habitat for several fish and shrimp species.

##### Dependency

3.4 The ecological processes of the Wadden Sea are highly dependent on the dynamic biophysical processes. Several rare and extremely rare species (including threatened species), that are dependent on Wadden Sea habitats, are found in the region. Several fish species from the North Sea are also dependent on the Wadden Sea as their main nursery ground. The Wadden Sea is the main staging area for birds migrating from the breeding grounds in the arctic tundra of northeast Canada, Greenland, Scandinavia and North Siberia to the wintering grounds in Europe and West South Africa. It is estimated that 10 to 12 million birds pass through the area and stay there for shorter or longer periods each year. The Wadden Sea ‘store-room’ makes it possible to build up the necessary energy reserves to migrate thousands of kilometers without further food intake. The Wadden Sea is vital for about 50 bird species originating from a large part of the Northern Hemisphere. Among these are many rare and threatened species (see also 3.8). The area is of international importance for at least 52 geographically distinct populations of 41 species. In about 20 populations, more than half of the individuals utilize the Wadden Sea at some stage of their annual life cycle. For about 10 species, almost the entire populations occur in the Wadden Sea.

##### Representativeness

3.5 The Wadden Sea supports highly representative ecological processes and natural characteristics associated with tidal flats and salt marsh systems. The representativeness of this extensive stretch of tidal flats and largest coherent salt marsh area can be gauged by the levels of international nature conservation designation as emphasized in 2.8.

### Diversity

3.6 The Wadden Sea provides a multitude of transitional zones to the land, the sea and the freshwater environment, which is the basis for an exceptional biodiversity. This includes 2,000 species of spiders, insects and other invertebrates in the salt marshes and 1,800 in the marine and brackish areas. Among these organisms, there is a high degree of ecological specialization. The marine environment serves as a nursery for 50 species of fish, supports 300 species of invertebrates and 1,100 - 1,200 micro- and meiobenthos species.

### Productivity

3.7 The productivity of the Wadden Sea in terms of biomass is one of the highest in the world. The Wadden Sea provides a multitude of transitional zones between land, the sea and freshwater environment, which is the basis for an exceptional species richness. Among these organisms, there is a high degree of ecological specialization. On the tidal flats, the microbiota is highly diverse too, while only a few species of macroflora and macrofauna have adapted to the extreme environment. Of these, however, exceptionally high numbers can be found. The high productivity is most significantly demonstrated with respect to fish and birds.

### Spawning or breeding grounds

3.8 For more than 30 bird species, the Wadden Sea is an indispensable reproduction area. For some endangered species, like Little Tern (*Sterna albifrons*) and Kentish Plover (*Charadrius alexandrinus*), the Wadden Sea has special significance and responsibility; and for three species, e.g. Avocet, the Wadden Sea is of crucial importance, because more than 50% of the northwestern European population breeds in the Wadden Sea Area. The most important breeding areas are the salt marshes, and, to a lesser extent, the dunes and beach plains of the islands.

3.9 The Wadden Sea is the main nursery ground for fish species that are hatched in the North Sea. The commercial fishery of the North Sea is dependent on these nursery ground facilities and derives considerable income from them. 80% of the plaice (*Pleuronectes platessa* L.) and 50% of the sole (*Solea solea*) and in some years a large part of the North Sea herring grows up in the Wadden Sea. The Wadden Sea is a particularly important nursery for 1-2 year old cod (*Gadus morhua* L.), sole and plaice. Concentration areas for spawning sole are also found off Texel, Netherlands.

3.10 The most numerous native marine mammal species in the Wadden Sea is the common seal (*Phoca vitulina*). Based on annual surveys, there were some 19,400 individual seals living in the Wadden Sea area in 2001. For the Common Seal, sand banks in the tidal area and beaches and for the Grey Seal (*Halichoerus grypus*), dunes and salt marshes are essential for the maintenance of the vital biological functions such as whelping, nursing, breeding, moulting and feeding.

### Naturalness

3.11 The Wadden Sea is one of the last near-natural large-scale ecosystems remaining in central Europe. This transitional environment between land and sea is characterized by the constant change of flood and ebb tides, great fluctuations in salinity, high temperatures during summer and occasional ice cover in winter. These circumstances have created numerous ecological niches, colonized by species that have adapted to the extreme environmental conditions. Large parts of the Wadden Sea are still in pristine condition and have not been unduly affected by human activity. However, since the Middle Ages man has changed the Wadden Sea landscape by building dykes and reclaiming land.

### Integrity

3.12 The Wadden Sea is a biologically functional unit inasmuch as it contains all the ecosystem components required for the continuous existence of the species within that system. It is an effective, self-sustaining ecological entity whose value can be effectively protected. However, as coastal sea, there are many interactions with the North Sea and the northwestern European mainland.

### Vulnerability

3.13 The ecology of the Wadden Sea is vulnerable to the impacts of international maritime activities. The nature of the salt marshes and tidal flats makes them particularly vulnerable to the adverse effects of any oil and chemical spills. At certain times of the year and in certain locations the Wadden Sea ecology is more vulnerable. For example, for the most important commercial fish species the spawning season varies, but collectively it lasts from December to June; the eggs and larvae are pelagic (i.e. they live in the water column) and fry remain pelagic until they seek out the seabed in the course of the summer.

### Biogeographic importance

3.14 The biogeographic importance of the Wadden Sea is without question. This too is recognized by criteria determining international nature conservation designations and the region's complex biogeographic composition. The Wadden Sea was listed as a well-known marine protected area in the global list of different biotopes in the IMO Resolution A.720 (17) paragraph 1.1.3.

## ***Social, Cultural and Economic Criteria***

### Economic benefit

3.15 The Wadden Sea is of particular importance to the utilization of the living marine resources including commercial, recreational and subsistence fishing, harvesting, and aquaculture. For example, the landings from the principal shellfish fisheries in the Wadden Sea (all three countries) were approximately 74,000 metric tons gross of Blue mussels (average yearly landings 1990 – 1999), and approximately 34,000 metric tons gross wet weight of cockles (average yearly landings 1990 – 1999 mostly Netherlands, other parts have been more or less closed for cockle fisheries except for one issued license each in Denmark and Lower Saxony, Germany). The Wadden Sea is the main nursery ground for fish species that are hatched in the North Sea, and commercial fishery in the North Sea is dependent on this.

### Recreation

3.16 The Wadden Sea is extremely important for recreation and tourism, both in terms of income and employment. Approximately 8 - 10 million tourists visit the Wadden Sea region annually. Almost 20% of the earned income in the regions stems from the tourism industry. The total number of overnight stays for the whole of the Wadden Sea region is estimated at some 53 million per year, which in addition to the millions of day trippers makes it the most important vacation region in Germany, and one of the most important ones in the two other countries. Tourism in coastal areas, such as that of the Wadden Sea, is based on an intact nature, and the recreational activities are based both on land and water. The special natural conditions under which the culture of the area has developed allow the region to offer the tourist an insight into a special realm of European history.

### Human dependency

3.17 The Wadden Sea region has many common cultural and historical elements. Man's ability to adapt to the dynamic natural environment of the region is visible in the cultural traits of all three Wadden Sea countries. The cultural-historic and landscape values encompass many age-old landscape elements, hidden archaeological objects, and works of art, folklore and traditions. The material culture deals with hydrological devices, hunting and fishing technologies, agriculture, trade, and defense structures. Other outstanding artifacts are monuments, typical houses, churches and settlement patterns. LANCEWAD (Landscape and Cultural Heritage in the Wadden Sea Region) was a trilateral project that prepared an inventory of outstanding landscape and cultural.

### *Scientific and Educational Criteria*

#### Research

3.18 The Wadden Sea is one of the most intensively used scientific study areas in the world. There are several long-established scientific institutions that deal mainly with Wadden Sea matters. For example, in Germany, the Wadden Sea Station Sylt (founded in 1924) and the Senckenberg Institute in Wilhelmshaven (1928) and the Coastal Research Institute on Norderney (1937) further biological research in the coastal zone. The biological station on Helgoland (1892) is now, together with the Wadden Sea Station of Sylt, part of the Alfred-Wegener Foundation for Marine and Polar Research. The GKSS Research Institute in Geesthacht (1955) has also been engaged in Wadden Sea research for more than 20 years. The Netherlands Institute for Sea Research (NIOZ) on Texel was founded in 1876 as the Marine Zoological Station and is one of the major European oceanographic institutes.

3.19 Wadden Sea research is currently carried out by a number of research institutes and universities in co-operation with partners in the three Wadden Sea countries or on an international level. Trilateral scientific co-operation started in 1975 with regular International Scientific Wadden Sea Symposia to recommend enhanced protection of the Wadden Sea ecosystem. Under the auspices of the Trilateral Wadden Sea Co-operation management related research projects are carried out to identify areas of special concern. The results of these research projects will serve to develop proposals for future integrated coastal defense and nature protection.

#### Baseline and monitoring studies

3.20 Long-term surveys started in the Wadden Sea in the 1960s mostly as an initiative of individual institutes or scientists. During the 1970s and 1980s monitoring programs were established, which focused mainly on aspects related to eutrophication and pollution. In the 1990s, the programs were supplemented by monitoring of species, habitats and indicators of climatic change. Currently the integration of processes and biological effects into regular monitoring is under discussion.

3.21 Trilateral coordinated monitoring started in 1989 with regular counts of breeding birds and development of common guidelines to harmonize the counting methods in the three countries. This was followed by trilateral coordinated monitoring of migratory birds and seals. In 1994, the Trilateral Monitoring and Assessment Program (TMAP) was employed, entailing a common package of TMAP parameters and associated harmonizing of data exchange, handling and analysis. The common monitoring program for the entire Wadden Sea provides the common framework for the assessment of the status of the Wadden Sea ecosystem and the implementation of the Trilateral Targets.

3.22 Comprehensive assessments of the Wadden Sea ecosystem have been prepared in the framework of Trilateral Wadden Sea Co-operation, integrating data from different baseline and monitoring studies in the three countries. The first integrated study was submitted to the 6<sup>th</sup> Trilateral Governmental Conference in Esbjerg in 1991. The second assessment was published in 1993 as part of the OSPAR North Sea Quality Status Report. The third baseline performance indicators were presented in the most recent Trilateral Quality Status Report (1999).

#### Education

3.23 The Wadden Sea offers broad educational opportunities for universities in the Wadden Sea countries, as well as in Wadden Sea Public Information Centers and Museums around the entire Wadden Sea. The Worldwide Fund for Nature (WWF) has produced an inventory of Wadden Sea visitor centers. There are several informative websites on the Internet.

## **4 Vulnerability of the Area to Damage by International Shipping Activities**

### *Introduction*

4.1 Directly adjacent to the proposed PSSA Wadden Sea, there are several major seaports of international significance which have considerable economic importance for the entire region. Partly within the proposed PSSA, a number of small ports with ferry and supply traffic are relevant to tourism, the supply of islands and the mainland and maritime installations.

4.2 The economic importance of the ports is demonstrated by a high shipping volume. Access to the ports in connection with transit traffic to Scandinavia or to the Baltic Sea has turned the sea area off the Netherlands, Danish and German coast to one of the regions with the highest traffic concentrations in the world. The traffic takes place mainly in the vicinity or – to a lesser extent - within the proposed PSSA and will have to continue to do so. Furthermore, – from a climatic point of view – this region lies within the west wind zone, which is characterized by changing weather with adverse weather situations, like heavy winds and restricted visibility. Despite all national and international activities and despite the progress made in the improvement of ship's safety, shipping safety and the protection against maritime pollution, shipping will continue to be a potential source of risk for damage the Wadden Sea and the adjacent coastline.

### *Vessel Traffic Characteristics*

#### Operational factors

4.3 Shipping off the Netherlands, Danish and German North Sea coasts is characterized by the joint use of the existing traffic area by commercial vessels, fishing vessels, governmentally owned and recreational ships. In addition, there are a number of special shipping activities, e.g. for research activities and (military) exercises, for the supply of the islands and offshore installations, and for the economic use of the sea, including the exploitation of mineral resources.

#### Vessel types

4.4 Vessels of all flags, categories, and propulsion types are operating in the North Sea, e.g. container vessels, tankers, bulk carriers, Ro-Ro- general cargo- and reefer vessels, passenger

ships and ferries, fishing vessels, governmentally owned ships special-purpose vessels and recreational crafts.

4.5 The sizes vary between small craft (pleasure boats) and large tankers or container vessels. The individual speed depends for instance on the type of propulsion and the economic requirements, it ranges from slow sailing vessels up to high-speed craft (HSC).

4.6 The current development shows that the size and velocity of the vessels will continue to increase. The growth, especially in the area of container transshipment, may lead to even larger shipping units. At the same time the feeder services are expected to lead to a higher density of traffic.

#### Traffic characteristics

4.7 A number of major and minor ports which are served continuously by shipping activities are situated in or directly adjacent to the proposed PSSA. Parts of the access routes to these ports are situated within specially protected areas or are close to them. Furthermore, the North Sea serves the transit traffic to and from the Baltic Sea via the Skaw or the Kiel Canal, and trade with the western part of Scandinavia.

4.8 There is very dense shipping traffic along the coast of Belgium, the Netherlands and Germany. When leaving the English Channel northbound the main traffic flow is heading north and northeast. In addition there is north and southbound traffic which is characterized by the trade routes between the European continent and Britain/Scandinavia. Besides that there is traffic in the inshore traffic zone and coastal traffic inside the proposed PSSA.

4.9 Due to the established traffic separation schemes the traffic is differentiated according to the main traffic directions in one way routes. Vessels carrying certain dangerous goods and deep draught vessels are navigating the offshore routes far away from the coast and are thus separated from the other traffic according to the IMO adopted mandatory routeing system.

4.10 With the exception of recreational traffic, which usually is limited to the summer months, the volume of shipping is spread evenly over all the months of the year.

#### Harmful substances carried

4.11 Due to the geographical situation of the industrial nations in Northern Europe, the large majority of harmful substances are transported within the area off the Netherlands, Danish and German coasts. The import of crude oil to Northern Europe must be noted in this context.

4.12 The dangerous or hazardous goods and noxious substances carried on board ships are packed, stowed in containers or transported in bulk (solid, liquid or gaseous substances). The liquid bulk goods are frequently mineral oils, mineral oil products or chemicals, which are usually transported and transhipped in large and deep draught vessels respectively medium sized special purpose vessels.

4.13 Apart from the types and quantities of cargo carried, the vessels often carry a large quantity of bunker oil for propulsion and auxiliary power. The quantity of bunker oil is depending on the size of the vessel, the operational area and the duration of the voyage.

## *Natural factors*

4.14 Navigational hazards in the Wadden Sea and the adjacent area are compounded by periods of severe weather conditions especially in the winter months and tidal streams. In addition, changes to water depths due to seabed sand wave movement and the possibility of negative tide surges due to meteorological conditions have to be taken into account.

### Hydrographical factors

4.15 Within the Wadden Sea the water depth can be as shallow as 0m, in areas adjacent to emergent shoals it can be up to an average depth of approximately 40m in the offshore zone off the Wadden Sea. The following specific considerations are emphasized:

- mobile sand waves and changes to charted depths by gales and tidal streams;
- offshore tidal levels, which are difficult to predict due to co-tidal effects and negative surges, up to 2m;
- the low lying and uniform appearance of the mainland coast and the Frisian Islands;
- the presence and changing nature of shoals and banks which extend well offshore due to the high sediment content of rivers feeding into the coastal zone; and
- numerous wrecks, which rotate over time due to scouring, resulting in unpredictable clearances within comparatively short time-scales.

### Meteorological factors

4.16 Specific considerations are:

- the frequency of poor visibility in coastal areas affected by radiation fog and sea fog. Sea fog can last all day and radiation fog (most common in winter and spring) may also, on occasions, be very slow to clear;
- onshore gales are not uncommon whenever a low-pressure system transits the area. It is stated that 'gale frequencies for coastal waters are usually about half those recorded over the open sea. Records for Helgoland and the river Elbe show that most gales last for less than 4 hours, 20% for 4 – 6 hours, 10% for 6 – 10 hours and 4% for 12 hours or more'; and
- sea ice in the coastal waters in winter, although in normal winters the area is completely or almost completely ice free.

### Oceanographic factors

4.17 The mean currents of the North Sea form a cyclonic circulation with a residual current which runs into a southwest-northeast direction from the Channel along the Wadden Sea coast to Jutland, Denmark and further north to the Skagerrak and the Norwegian coast. North Sea sediment moves with the water circulation and is deposited in the Wadden Sea at places with low current velocities and little wave action. This current also transports pollutants from rivers and illegally discharged residues from shipping and offshore operations (e.g. non-biodegradable pollutants, garbage and oil), and accidental and operational discharges associated with international maritime activities, into the Wadden Sea and to the mainland coast.

Specific factors to be taken into consideration:

- tidal streams in the German Bight set alternately southeast and northwest, but closer inshore, run parallel to the coast and into estuaries with a flood tide;
- 'continental water' is retained near the coast for the whole of the Wadden Sea due to the regional circulation pattern; and
- vertical mixing of water throughout the year within the Wadden Sea because of turbulence from strong currents and summer stratification in the adjacent North Sea.

These characteristics are considered to be fundamentally important in determining the area in which any maritime pollution incident would be contained.

### ***Additional information that might be helpful***

#### Evidence of damage

4.18 Despite the existence of an extensive protective regime there is still evidence that oil and chemicals are washed ashore; containers being lost overboard; evidence of illegal discharges of bilge oil and cargo residues. Operational discharges are possibly more significant regarding frequency than accidental pollution, but they are difficult to quantify.

#### Past incidents

4.19 Various past incidents throughout the world have demonstrated the risk that shipping activities may pose, e.g. the *Esso Bernica* docking at Sullom Voe terminal (1978); *Braer* in Shetland (1993), *Sea Empress* in Pembrokeshire (1996), *Nadhodka* off Japan (1997), *Erika* off France (1999); *Multitank Ascania* in the Pentland Firth (1999); *Jessica* in the Galapagos Islands (2001); and the tanker *Baltic Carrier* in the shipping lane in the Baltic Sea between the north German coast and the Danish island of Falster (2001).

4.20 Given the vessel traffic characteristics of the area (as described in section 4.7 and following paragraphs), the Wadden Sea and adjacent North Sea have an excellent record of only a few accidents and incidents. For example, during the period 1995 – 1999, a total of almost 800,000 ship movements in the German North Sea resulted in just over 100 incidents, some of which resulted in emergency tug deployment.

4.21 Nevertheless, accidents may happen in the Wadden Sea area. For example, in 1998, the *Pallas* caught fire 55nm off the Danish coast, drifted aground off Germany's Amrum Island, and spilled 244 tons of intermediate fuel oil and sludge after stranding. As a result some 26,000 birds were oiled and 16,000 died. Following the accident, national activities were reviewed in order to centralize the command structure for effective response and to improve the capacity of emergency tugs and fire fighting vessels, together with the availability of technical pollution countermeasure equipment.

#### Stresses from other environmental sources

4.22 Besides shipping, the Wadden Sea ecosystem is already under stress from other environmental sources such as land-based pollution (e.g. riverine inputs), dredging, exploration and exploitation of gas and oil, offshore wind parks and tourism activities. These sources are addressed by international and national protective measures.

#### Any measures already in effect and their actual or anticipated beneficial impact

4.23 Since the area proposed as PSSA is vulnerable to damage caused by discharges and accidents in which ships are involved outside the actual area, measures taken in the adjacent sea area are of direct relevance. To the extent that the national parks, nature and wildlife reserves or other protected areas are outside the three nautical mile line (nm), now and in the future, the Convention on the International Regulations for Preventing Collisions at Sea (COLREG) of 1972 is applicable for the regulation of shipping. Within the existing nature reserves/national parks (inside the three nautical mile line) additional national traffic regulations are in force. Vessels from a certain size upward and ships carrying certain dangerous goods are subject to reporting requirements when calling for a port in one of the applicant countries and are dealt with by the competent transport authority. Compliance with

the reporting and traffic provisions in the highly frequented areas are monitored by Vessel Traffic Services (VTS).

In this context, the following measures with respect to traffic safety are listed as examples (see also **Annex 3**):

- National ordinances for the navigable waterways and the national parks etc.;
- Permanent surveillance of the traffic by VTS;
- Mandatory pilotage for certain vessels;
- Permanent availability of emergency towing vessels and close bilateral co-operation in this matter;
- Co-operation of the North Sea countries with regard to aerial surveillance and oil pollution combating operations in the framework of the Bonn Agreement and of bilateral agreements such as the NETHGER or DENGER Plans.

## **PART II: APPROPRIATE ASSOCIATED PROTECTIVE MEASURES**

### **5 Associated Protective Measures**

#### *Introduction*

5.1 The high concentration of shipping in the southern North Sea near the area of the Wadden Sea is the reason why the North Sea states, including the Wadden Sea states took national and international measures for the prevention of shipping accidents and marine pollution by shipping. On the one hand, there is a necessity to introduce measures, which offer the highest possible degree of protection against pollution by shipping. On the other hand, the economic needs of the region with regard to ports and shipping interests have to be taken sufficiently into account, as well as the international obligations concerning the right of innocent passage under the Law of the Sea which must be complied with.

5.2 The primary purpose of this PSSA proposal is to protect the exceptional, highly dynamic tidal ecosystem Wadden Sea of world importance. The designation of a PSSA Wadden Sea should send a strong signal to and increase the awareness of the international shipping community regarding the particular sensitivity of the area.

#### *Associated Protective Measures*

5.3 According to Section 7.2 of Annex 6 of Resolution A 927(22) it is possible to put forward an application for a PSSA without proposing additional associated protective measures when IMO measures already exist to protect the area. On the basis of the measures, both international and national, already in place in and in the adjacent area of the proposed PSSA, it is deemed justified not to propose additional associated measures to accompany the proposed PSSA. The measures in place are measures with regard to shipping safety and the protection of the marine environment in the Wadden Sea and the adjacent area. The existing IMO measures in and in the adjacent area of the proposed PSSA according to the requirements of section 7.2 are listed in **Annex 3** together with measures adopted at the national and EU-level. In the following, a summary of IMO measures already in place is given.

## ***Existing Protective Measures***

### Compulsory reporting and traffic surveillance (SOLAS, Chapter V)

5.4 The reporting requirements based on the ship reporting system are the basis for the national transport authorities with regard to monitoring the traffic by means of VTS and to interfering with regulatory measures, if necessary (see IMO Res. A 578, VTS Guidelines). In the framework of traffic surveillance, vessels are given a variety of information and advice in order to avoid dangerous situations. If necessary, it is also possible to initiate and enforce countermeasures to prevent collisions and grounding. This also comprises the determination and documentation of infringements of existing traffic regulations. Experience shows that vessels whose passage is monitored observe the legal regulations better and generally behave more in line with environmental needs.

### Routeing Systems

5.5 In order to prevent or minimize risks resulting from shipping, traffic separation schemes were established including inshore traffic zones. From the English Channel up to the access routes in the estuaries along the Netherlands, Danish and German coast, the traffic is mainly guided in one-way routes. This especially reduces the danger of collisions. In addition hereto, ships carrying certain dangerous goods, especially large tankers, are separated from the other traffic and guided to offshore routes far away from the coast in the southern North Sea. This does not only reduce the danger of collisions. The greater distance from the coast and the drifting area also optimizes the intervention possibilities for emergency tugs and leaves more time for any combating operations, in case the spills drift towards the Wadden Sea area.

Traffic Separation Schemes in the concerned area adopted by the IMO:

- At West Hinder
- Off Botney Ground
- East Friesland
- North Hinder
- Off Texel
- Jade Approach
- Terschelling-German Bight
- Off Brown Ridge
- West Friesland
- Off Friesland
- Off Vlieland, Vlieland North and Friesland Junction
- In the approaches to Hook of Holland
- German Bight Western Approach
- In the approaches to river Elbe

### MARPOL Special Areas

5.6 The entire North Sea was declared a Special Area according to MARPOL Annex I (in force 8/1999 as part of the North West European Waters and MARPOL Annex V (in force 1991), in order to protect the sensitive areas of the North Sea against the discharge of oil and garbage from ships. The presence of adequate reception facilities in the ports in and adjacent to the proposed PSSA and adequate fee system (no special fee system) contribute to the protection of the marine environment.

## **6 Conclusions**

6.1 The Committee is asked to approve of this proposal for the designation of the Wadden Sea as a Particularly Sensitive Sea Area in general at this session and to take appropriate actions, such as to inform the Sub-Committee of Navigation of this decision and subsequently approve the final designation.

## **ANNEXES**

### **ANNEX 1**

**Description of the Particularly Sensitive Sea Area Wadden Sea - Coordinates**

### **ANNEX 2**

**PSSA chart - Proposed Particularly Sensitive Sea Area Wadden Sea Boundary**

### **ANNEX 3**

**Existing Measures: Measures adopted by IMO and at the national and EC-level**