The International Regulation of Offshore Wind Farms

under the 1982 Law of the Sea Convention
(UNCLOS)

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INTRODUCTION

The current interest in the development of offshore wind farms is twofold. On the one hand it is the result of the new climate policy on the international as well as regional level. In the UN Framework Convention on Climate Change from 1992 the so-called Annex 1 countries[1] agreed to reduce the emission of greenhouse gases. In the 1997 Kyoto Protocol of the UN Framework Convention on Climate Change it was explicitly agreed upon a reduction of overall emissions of such gases by at least 5 % below 1990 levels in the commitment period 2008 to 2012[2]. On the regional level, Member States of the European Community[3] are confronted with Directive 2001/77/EC which aims at an increased use of renewable energy sources in electricity production. On the other hand onshore wind developers are confronted with problems such as civil complaints due to noise, size and appearance of such turbines; also wind tends to blow usually lesser onshore than offshore which causes profit and effectivity problems; finally, there is a space problem. Which European country may for example be able to erect a wind farm onshore consisting of hundreds of turbines without getting serious problems with national laws and the community as such? To produce on a profitable level, to circumvent national jurisdiction and to fulfil their international as well as regional obligations countries were forced to seek new solutions.

Many of the best wind sources lie offshore in open marine waters, some within but most beyond States' territorial sea. While to date only two wind farms are truly operated under offshore conditions[4], offshore wind farms are likely to multiply during this decade because wind farms extending beyond territorial waters are starting to emerge[5].

Developers of offshore wind farms are therefore not only faced with technological challenges but also with legal and regulatory challenges, as a new legal framework needs to be established[6].

[1] Such as the OECD countries, Eastern Europe and Russia.
[2] Art. 3 (1) Kyoto Protocol.
[3] Which is also party to the Kyoto Protocol.
[4] I.e. the Danish Horns Rev and the English AMEC Blyth Offshore Farm are both far from coast. However, both are still situated in the territorial sea of both States.
[5] For example the Federal Maritime and Hydrographic Agency (BSH) of Germany has up to now 33 project applications received (North Sea 27, Baltic Sea 6), some of them comprising several hundred wind turbines. See Annex 1.1.
[6] See also Roggenkamp/Hammer (2004), 94.

The following work will examine the currently existing legal framework upon its applicability and suitability in relation to offshore wind farms under international law here in particular under the 1982 United Nations Convention on the Law of the Sea (UNCLOS)[7]. The focus will explicitly placed on UNCLOS. Some issues under international environmental law will be discussed as well, however, not in further detail.

The work will be split up in three parts which intends to cover the whole "lifespan" of such a farm. Part I deals with the construction and planning of an offshore wind farm; Part II shows upon interesting issues concerning the operation of such a farm; and Part III will discuss the issue of decommissioning.

PART I: The Construction Phase

1 Types of Offshore Wind Turbines and their Legal Status

1.1 The structural configuration of offshore wind turbines

The structural configuration of support structures[8] can be categorised into five based types: gravity, monopole, tripod, lattice and floating structures[9]. While monopole, tripod and lattice structures are structures permanently fixed on the seabed, usually transported in sections and put together at sea, are gravity structures situated on the seabed due to their weight. Gravity structures and Monopiles are the classical versions of wind turbines. Monopiles are mainly used in Denmark and Sweden and are suitable for water depth up to 30 meters. Tripods and lattice structures are designed for greater water depths. Tripods are well suited for water depths ranging from 20 to 50 meters and lattice for 20 to 40 meters[10]. Such bottom-mounted wind turbines are promising to become common feature across the shallow areas of Northern Europe. However U.S. waters as well as the waters around Japan are generally deeper. Also in parts of Europe such as the northern North Sea, parts of the Irish Sea and the Baltic and most of the Mediterranean Sea, the seabed falls steeply away leaving little room for seabed-mounted turbines[11]. This will require new technologies such as the upcoming floating

[7] From thereon "UNCLOS".
[8] „support structure" means the entire structure below the nacelle, including possible sub-seabed constructions.
[9] See: OPET-Finland (2004), 3.
[10] See: OPET-Finland (2004), 3.
[11] See: ERU, 1.

structures[12]. In comparison to the permanently fixed structures floating structures can be produced and put together on land and towed by ship to the final anchor place. At a certain water depth floating wind turbines will have better economics than bottom mounted wind turbines and they have already been successfully demonstrated by the marine and offshore oil industries[13]. They are quasi-permanently fixed structures and all of them are bottom mounted using moorings connected to the seabed[14].

1.2 Legal Status of offshore wind turbines

Categorising offshore wind turbines as offshore installations and structures, artificial islands or even as ships may have different legal consequences in each particular situation. The legal status of offshore wind turbines is therefore from a number of practical points of view of fundamental importance.

1.2.1 Offshore wind turbines as "ships"

The definition of "ship" is not clear in either municipal nor international law[15], and UNCLOS does not define the terms "ship" and "vessel" at all. However, in legal systems, a ship is usually considered to be a moveable chattel with certain qualifications such as tonnage, the ability to navigate, use for purpose of transportation and means of propulsion[16]. Fixed offshore wind turbines seem to lack these kinds of requirements. They are neither constructed to be used in navigation nor are they self propelled or used for the purpose of transportation of goods and people at sea. However, when considering especially floating wind turbines, it may be questionable to categorise them as "ships" under international law. The main difference between fixed turbines is the "floating" element which could lead to the possibility of navigation and capability of going to sea. Some argue that the fact that floating structures are not able to navigate independently but are towed by ships does not affect the ability to be used in navigation[17]. Also in most national cases the occasional use in navigation may be considered as evidence of navigability[18], such as during their transport from the coast to their anchor place. On the other hand wind turbines are not crewed by a captain and crew, such as in the case of floating oil rigs. The question will then inevitably arise if it is not rather the whole section, tug boat and floating turbine, which may be considered

[12] See: Henderson et.al. (2002), 505; Musial/Butterfield (2004), 4.
[13] See: Bulder et. al. (2003).
[14] To get an impression about fixed and floating structures see Annex 1.2. and 1.3.
[15] Esmaeili (2001), 21.
[16] Esmaeili (2001), 22.
[17] Esmaeili (2001), 23.
[18] Esmaeili (2001), 23.

as being a ship, rather than the single turbine as such. In sum it may be concluded that due to the lack of clear definitions in international as well as municipal law the possibility to define floating wind turbines in at least certain situations as "ships" may be possible. However, especially with regard to some typical ship-requirements floating wind turbines tend more to come under terms such as "artificial islands" and "installations and structures" rather than to "ships".

1.2.2 Offshore wind turbines as "artificial islands" or "installations and structures"

UNCLOS does not define "artificial islands", "installations and structures" and uses various expressions to describe it in a number of articles. UNCLOS uses both terms simultaneously[19] and there is also an inconsistency in the use of the different expressions used to refer to installations[20]. Arts. 60 and 80 make a distinction between offshore installations for the purpose of the exploration and exploitation of the natural resources of the sea and other economic purposes and artificial islands. Such a distinction seems tenuous, since, in the absence of a definition of an "artificial island", an "installation" or "structure" could be regarded as being an "artificial island" as well. On the other hand, due to this distinction between "artificial islands" and "installations and structures" the categories are presumably not intended to overlap[21]. It may also be understood from the provisions of Arts. 56 and 60 that the category of artificial islands is theoretically larger than that of offshore installations. Artificial islands may be constructed for any purpose[22], while offshore installations are constructed only for the mentioned limited purposes. However, the exact meaning of each category is still unclear and UNCLOS has resolved the problem by applying a similar legal regime to both artificial islands and offshore installations and structures[23]. One may argue that due to their size wind farms as such may be considered as being an "artificial island". However, Art. 60 (1) (b) refers with its term "…and other economic purposes" to Art. 56 and here to "other activities" where energy from wind is explicitly mentioned. Due to this explicit reference, it seems reasonable to categorise wind farms as "installations or structures" rather than as "artificial islands".

[19] See the Arts. 11, 56(1)(b)(i), 60, 87(1)(d) and 208(1).
[20] See Esmaeili (2001), 50; International conventions and treaties in general do not define the term „artificial islands".
[21] See: Churchill/Lowe (1999), 167/168; Esmaeili (2001), 50; Kwiatkowska (1989), 107/108.
[22] Esmaeili (2001), 43: offshore prisons, artificial reefs, and military installations could be examples of artificial islands.
[23] Esmaeili (2001), 50: „Certain kinds of installations for some economic purposes, such as an offshore hotel, may be considered either an artificial island or a structure for the purpose of tourism".

2 Delineation of the sea[24]

2.1 The Territorial Sea and Contiguous Zone

Every State can establish a territorial sea with a maximum breadth of 12 NM, measured from the baseline (Art. 3). The normal baseline for measuring the breadth is the low-water line along the coast (Art. 5)[25]. A coastal State may also establish a contiguous zone to the territorial sea and extending a maximum of 24 NM from the baseline. However the contiguous zone enjoys independent legal status only as long as the coastal State has not proclaimed an EEZ exceeding the outer limits of the contiguous zone. The contiguous zone then becomes a part of the EEZ and all provisions which apply to the latter also apply completely and fully in the contiguous zone[26].

2.2 The Exclusive Economic Zone (EEZ)[27]

The institution of the EEZ is defined in Part V (Arts. 55 to 75). The EEZ is an area beyond and adjacent to the territorial sea (Art. 55) that extends to 200 NM from the baselines from which the breadth of the territorial sea is measured (Art. 57). The wording of Art. 57 suggests that, while 200 miles is the maximum extent of the EEZ, it would be possible for a State, to claim an EEZ of some lesser extent[28]. Art. 55 and 86 show that the residual status of the EEZ is not that of the high seas, and the jurisdiction of the coastal State and other States in this area has to be determined by the provisions of the Convention. Also, the EEZ does not have a residual territorial sea character[29]. The EEZ is regarded as a separate functional zone of *"sui generis"* character, between the territorial sea and the high seas[30].

2.3 The Continental Shelf (CS)

The CS was firmly installed in international law by the 1958 Geneva Convention on the Continental Shelf. The sea bed adjacent to a typical coast is usually considered to consist of three separate sections[31]: *the continental shelf proper*[32]; *the continental*

[24] See Annex 1.4.
[25] To the development of the concept of the territorial sea see: Churchill/Lowe (1999), 71ff.
[26] See: Bernaerts (1988), 30.
[27] By the year 1997 from 151 coastal States, 102 declared an EEZ, from it 93 use the maximum breadth of 200 NM. Further thirteen States declared an Exclusive Fishery Zone up to 200 NM. Further 10 declared a coastal sea of 200 NM; around 35 % of the world's high seas are considered EEZ (see: Ipsen (2004), 853).
[28] See: Churchill/Lowe (1999), 162.
[29] Churchill/Lowe (1999), 165.
[30] Churchill/Lowe (1999), 166.
[31] For the following see: Churchill/Lowe (1999), 141.

slope[33] ; and *the continental rise*[34]. These three sections form the *continental margin.* According to Art. 76, the landward limit of the CS is being the outer limit of the territorial sea. While the landward limit was never contentious, the outer limit was. As a result the legal definition of the shelf is quite distinct and different from the geological definition. The areas of the sea bed which lie beyond the physical continental margin are included, so long as they are within 200 NM of the coast. Where the continental margin extends beyond 200 NM, the outer limit of the legal CS is determined by the application of a complex test known, after its architects, as the "Irish formula"[35].

2.4 The High Seas

According to Art. 86 the high-seas rules apply to "all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State"[36]. It includes the water column as well as the superjacent air space. In the case of the "outer" CS beyond the EEZ it also extends to the seabed and subsoil[37]. From Art. 86 it can be followed that the EEZ is of an optional character and that a significant proportion of the freedoms of the high seas are applicable in the EEZ (Arts. 58 and 87). This is also the position in customary international law[38].

3 Admissibility of offshore wind farms under UNCLOS

3.1 The Admissibility of offshore wind farms in the Territorial Sea

According to Art. 2 (1) a coastal States' sovereignty extends to its territorial sea. Through this sovereignty a coastal State may also establish offshore installations, such as wind farms. It is important to mention in relation to wind farms, that the sovereignty of the coastal State extends in this area also to the air space as well as to its sea bed and subsoil. The sovereignty is only limited by the fact that it must be exercised in accordance with UNCLOS and with international law (Art. 2 (3)).

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[32] "slopes down gradually from the low-water mark to the depth, averaging about 130 metres, at which the angle of declination increases markedly".
[33] "the section bordering the shelf and having the steeper slope, going down to around 1,200 to 3,500 metres".
[34] "an area beyond the slope where the sea bed falls away more gradually and is composed mainly of sediments washed down from the continents; its typically descends to a depth of around 3,500 to 5,500 metres".
[35] Churchill/Lowe (1999), 148; see also Vitzthum (2004), 396/Rn. 56; Ipsen (2004), 864/Rn. 41.
[36] Art. 86.
[37] See: Churchill/Lowe (1999), 204.
[38] Brownlie (2003), 223.

3.2 The Admissibility of offshore wind farms in the Exclusive Economic Zone

3.2.1 The coastal States' "sovereign" rights in Part V of UNCLOS

In Part V of UNCLOS the coastal State has sovereign rights and jurisdiction in the area of the 200 NM EEZ which allows it to explore and exploit, conserve and manage the natural resources, whether living or non-living, and with regard to other activities for the economic exploitation and exploration of the zone[39]. Under "other activities", the exploitation of energy from wind is exemplary listed but not further regulated. It confirms the coastal States' sovereign rights for all the economic activities that take place in this area, whether in reference to natural resources or other possibilities, at present or in future[40]. They are sovereign rights for special purposes, therefore, "functionally limited".

"Other activities"

The question arises what are "other activities". The regime applicable to these other economic activities does not receive a particular elaboration in the context of the 1982 Convention, principally because these other activities have not been the subject of intensive development by 1982[41]. Especially offshore wind energy was not a topic[42]. Certainly, it has to be something else than the use of living and non-living resources. The production of energy out of water, currents and wind is exemplary listed and there are further economic activities possible[43]. On the one hand, it follows from the EEZ context that "other activities" have to be interpreted in a limited way: covered are all economic activities which are not already regulated in the EEZ regime[44]. On the other hand one has to consider that the term "other activities" does not contain only current known economic activities, it also covers future developments which are under development or even not in mind yet[45]. Therefore also offshore wind farms which were even not in mind in 1982 can be seen as being covered by the term "other activities". In addition, these "other activities" are also subject to the rules concerning artificial islands[46].

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[39] Art. 56 (1) (a).
[40] See: Orrego (1989), 25.
[41] See: Orrego (1989), 72/73.
[42] Kwiatkowska (1989), 105.
[43] See: Gündling (1983), 212; Kwiatkowska (1989), 105.
[44] Gündling (1983), 213; for artificial islands, installation and structures as well as e.g. for pipelines and cables exists separate regulations.
[45] Gündling (1983), 213.
[46] See: Kwiatkovska (1989), 105/106; Orrego (1989), 72.

"Sovereign rights"

The production of energy is due to the choice of words "sovereign rights" equally treated with the exploitation and exploration of living and non-living resources, consequently with the economically most important utilisations. Because of their character of sovereign rights, they are exclusive rights of the coastal State, and interests of other States are forced back to Art. 56 (2)[47]. The utilization of energy out of wind in the EEZ is therefore, as a starting point, an exclusive right of the coastal State.

3.2.2 The coastal States' jurisdiction and exclusive rights

To consider production of wind energy as a coastal States' sovereign right does not say anything about the way how to utilize it. This is covered by Art. 56 (1)(b) and Art. 60.

The coastal State has jurisdiction, as provided for in the relevant provisions of UNCLOS, with regard to the establishment and use of artificial islands, installations and structures[48]. The detailed rules and provisions regarding the construction, operation and use of all offshore installations and artificial islands are set forth in Art. 60. Art. 60 (1) (c) extends the right of the coastal State over "installations and structures which may interfere with the exercise of the rights of the coastal State in the zone". It follows that the rights of other States to establish any kind of artificial island, wind farm or other installation are strictly limited to those authorised by the coastal State. Non-economic installations may only be allowed if the construction of such structures does not interfere with the exercise of the rights of the coastal State in the zone[49].

3.2.3 "Sovereign rights" versus "jurisdiction"

The fact that Art. 56 makes a distinction between on the one hand "sovereign rights" for the production of energy and on the other hand "jurisdiction" with regard to the establishment of artificial islands, installations and structures, leaves the consequences in relation to "jurisdiction" open. The term "jurisdiction" must not be interpreted as a comprehensive power[50]. But the expectation deceives if one compares it with Art. 60 and the coastal States enforceable rights mentioned in Art. 60 (1): "the exclusive right to construct and to authorize and regulate the construction, operation and use"; as well as Art. 60 (2): "exclusive jurisdiction" included "the jurisdiction with regard to customs fiscal health, safety and immigration laws and regulations". It may be followed that due

[47] See: Jenisch (1997), 374; Orrego (1989), 25.
[48] Art. 56 (1) (b) (i).
[49] See Esmaeili (2001), 76.
[50] See: Hailbronner (1983), 507; Orrego (1989): "a concept that legally is more limited",73.

to the term “jurisdiction” the coastal State does not loose any construction, authorization and regulation rights[51].

3.3 The Admissibility of offshore wind farms beyond 200 nautical miles

The Admissibility of wind farms beyond the 200 NM zone will be discussed within the following chapter about the dualism of the EEZ and the CS[52].

4 The Dualism of EEZ and Continental Shelf

From a historical perspective it was the doctrine of the CS which first sanctioned the extension of the coastal State’s resource rights beyond the territorial sea[53]. Later on it was the concept of the 200 miles EEZ which combined the pre-existing rights of the coastal State over the sea-bed resources with those over living resources of the superjacent waters under one category of sovereign rights over all natural resources[54]. UNCLOS distinguishes between these two regimes and provides separate provisions for the regime of the EEZ in Part V and for that of the CS in Part VI. This raises the difficult question of the relationship between these two regimes and thus the effect on offshore wind farms.

4.1 The dualism of both regimes under UNCLOS

What does the duality consist off and how does it take place under UNCLOS? If we have a look at Art. 56 (3) we get a first gleam of this dualism. Pursuant to Art. 56 “the rights set out in this article with respect to the sea-bed and subsoil shall be exercised in accordance with Part VI”. This kind of incorporation clause indicates that parts of the CS dealing with coastal State rights shall be also applicable for the EEZ. But the dualism does not merely consist of this[55]. The duality has its real reasoning in the fact that the regime of the CS, defined in Art. 76, coincides wholly or at least partly within the EEZs seabed and that the provisions of part VI of UNCLOS pursuant to Art. 56 (3) are also applicable to the EEZ. The regime of the CS is being valid at the same time within the EEZ. From a legal point of view this dualism of the regimes is not unproblematic, because there are differences and incoherencies between these arrangements.

[51] See: UNCLOS–Commentary, II, 584; Jenisch (1997), 375.
[52] See for this reasoning e.g.: UNCLOS-Commentary, II, 514ff, 837ff., 900ff..
[53] See Kwiatkowska (1989), 7.
[54] See Kwiatkowska (1989), 7.
[55] See Gündling (1983), 202.

4.2 Significant points of distinction

Significant points of distinction which could be seen as being relevant when dealing with offshore wind farms are the following: (i) The coastal State has sovereign rights over its CS *only* for the purpose of exploring it and exploiting its non living natural resources. Whereas, in their EEZ, coastal States have sovereign rights for the purpose of exploring and exploiting the natural resources, whether living or non-living, *and* sovereign rights with regard to other economic activities such as the production of energy from winds[56]. (ii) The EEZ is optional, whereas rights to explore and exploit the resources of the shelf inhere in the coastal State by operation of law[57]. (iii) Shelf rights may exist beyond the limit of 200 miles from the pertinent coasts when the CS and margin extend beyond that limit[58], while the EEZ does not exceed 200 miles. The problems pertaining to this relationship have been significantly clarified by the theory of parallelism between the EEZ and the CS expounded by Judge Shigeru Oda in his Dissenting Opinions in the 1982 Tunisia/Libya and the 1985 Libya/Malta CS cases[59]. He stated that such parallelism is twofold: "on the one hand, it occurs between the legal regimes of the areas of the CS, i.e., the inner CS up to 200 miles and the outer CS extending beyond this limit up to the edge of the continental margin"[60]. Thus the basic difference between the EEZ and the CS regime consist of the fact that Part V on the EEZ does not contain a provision parallel to Art. 77 (3), that coastal State rights over the CS do not need to be proclaimed. It follows that the coastal State does not possess rights over the EEZ ipso jure and ab initio, unlike over its CS, and must *act* in order to establish all or any of its rights under the EEZ regime[61].

Thus, if we accept that the EEZ's existence depends on an express proclamation, it may be possible for a State to have an EEZ with less then 200 NM[62] as well as a CS completely without a superjacent EEZ[63]. Thus in cases where the geomorphologic continental margin extends beyond 200 NM, and where a coastal State has not established an EEZ, only the legal regime pertaining to the CS will be applied[64]. Until

[56] Esmaeili (2001), 77.
[57] Brownlie (2003), 221.
[58] Brownlie (2003), 221.
[59] 1982 ICJ Rep. at 18; 1985 ICJ Rep. 13 at 33. "This theory involves the interrelated issues of the impact which the EEZ has had upon the outer limit of the CS, and of a new parallelism between the legal regimes of the EEZ and the CS." (Kwiatkowska (1989), 9.
[60] In: Kwiatkowska (1989), 9.
[61] Churchill/Lowe (1999), 145.
[62] See also Art. 57 which declares only "shall not extend beyond 200 nautical miles".
[63] Such as the UK, which only declared an Exclusive Fishery Zone.
[64] Esmaeili (2001), p. 78/79; and beyond the CS then the legal regime of the high seas.

an EEZ is declared, the shelf's superjacent waters would seem to remain part of the high seas[65]. Consequently, this raises the question if States without having declared an EEZ being allowed first of all to produce energy from wind and secondly being allowed in establishing suitable structures to carry it out.

5 EEZ non-declaration and the production of wind energy

As it was mentioned above, by an EEZ non-declaration only the legal regime pertaining to the CS is applicable. It follows that coastal States wanting to establish an offshore wind farm beyond their territorial sea have to look at Part VI which covers the regime of the CS.

5.1 Regulations of the continental shelf

Rights of the coastal State over the CS are mentioned in Art. 77 (1) and (4). Article 77 provides that a coastal State has sovereign rights over the CS for the purpose of exploring it and exploiting its natural resources. It sets out the nature of those rights, and describes the natural resources to which Part VI applies to[66]. Unlike Art. 56 (1), Art. 77 (1) refers only to *natural resources* which are further explained in paragraph (4) of Art. 77. Natural resources consist of the mineral and other non-living resources of the sea-bed and subsoil. To declare "wind" as such a natural resource seems problematic. One could argue that only from the absence of the word "wind" does not as such limit the exploration and exploitation to only those of the natural resources of the sea bed and subsoil of the shelf. But we have also to consider that Art. 77 (1) is referring to "exploring it and exploiting *its* natural resources" (italics added). And wind is of course not situated on the CS. In addition Art. 78 (2) clearly says that the "continental shelf do not affect the legal status of the superjacent waters or of the air space above those waters", they remain high seas. As a result, the CS regime does not seem to give the coastal State the right to exploit wind on the CS.

However, if we have a closer look to the following articles, Art. 80 creates a link between the CS regime and the EEZ by saying that "article 60 applies *mutatis mutandis* to artificial islands, installations and structures on the continental shelf" (italics added). Art. 80 applies in two circumstances: (i) where a coastal State has not established an EEZ; and (ii) where the CS extends beyond the outer limits of the EEZ[67]. But what is

[65] See also Attard (1987), 59, 141.
[66] See also UNCLOS-Commentary, II, 893.
[67] See UNCLOS-Commentary, II, 919.

meant by the reference to *mutatis mutandis* ? The phrase *mutatis mutandis* means that 'the necessary changes have to be made; to substitute new terms; with respective differences taken into consideration'[68]. So, it carries the connotation that the reader should pay attention to the corresponding differences between the current statement (here Art. 60) and the previous one (Art. 80). The question arises if a coastal State would be able by applying Article 80 to build wind installations anyway. This brings us back to the EEZ regime, here to Art. 60.

Under Art. 60 the coastal State has the exclusive right to construct and to authorize and regulate the construction, operation and use of artificial islands, installations and structures in the EEZ and regulates in detail the operation of such installations. Art. 60 (1) (b) refers further to "installations and structures for the purpose provided for in Art. 56 [including the production of energy from wind] and other economic purposes"[69]. Does that mean that we are able to apply Art. 56 and therefore being able to construct, operate and use wind installations? Does from this also follow the possibility of producing energy out of wind? And are we allowed to refer to Art. 56 at all? If a coastal State would be allowed to do this, a conflict arises. On the one hand, the coastal State in the continental margin beyond 200 NM as well as in the area up to 200 NM where no EEZ exists, by virtue of Arts. 80, 60 and 56, it may be suggested that the coastal State has the exclusive right to establish offshore installations for any economic purpose including the exploration of that same area and the exploitation of its natural resources and installations which may interfere with the exercise of that right[70]. On the other hand, the coastal State only has sovereign rights for the purpose of exploring the CS and exploiting its natural resources. It seems that all this depends on the relationship between Arts. 60 and 80 and here in particular on the interpretation of the term *mutatis mutandis*.

5.2 The relationship between Arts. 80 and 60 UNCLOS

5.2.1 View of some scholars

The first possibility to describe the relationship between Arts. 80 and 60 could be to interpret the term *mutatis mutandis* in such a way that the reference to Art. 56 mentioned in Art. 60 (1) (b) is seen as being applicable. Due to this reference it may

[68] See: Pickett (2000).
[69] See Plant (2003), 939, 945.
[70] See Esmaeili (2001), 80.

therefore be suggested that the coastal State has the exclusive right to authorise and regulate the construction, operation and use of installations and structures for the economic exploitation and exploration of the zone, such as the production of energy from the water, current and wind, and other economic purposes (Arts. 80, 60 (1) (b) and 56 (1) (a))[71]. A question arises if the reference in Art. 60 (1) (b) only includes the right to construct, operate and use of such installations, or if it also includes the right of exploitation. As we have seen above[72] we have to distinguish between exploitation (covered by Art. 56 (1)) and utilization (covered by Art. 60). Art. 60 includes the right to "operate". Then one could argue, if we are able to operate it, then also the right to exploit it should be included. If not, a strange situation would arise when applying this solution: we could build such an installation but we are not allowed to use it. To solve the above mentioned conflict between EEZ rights and CS rights, Esmaeili states that it may be inferred that the rights of the coastal State to establish artificial islands and installations for economic purposes other than the exploration of the sea and exploitation of its natural resources in the geomorphology continental margin beyond 200 NM could be seen as being not exclusive[73].

The result of the first view would be that coastal States without an EEZ would have the right to construct, operate and use a wind installation as well as to exploit energy from wind. This would be possible up to 200 NM as well as beyond 200 NM in cases where the CS extends.

5.2.2 General rules of interpretation

The above described interpretations have shown that questions remain open. In cases of uncertainty of interpretation the Vienna Convention on the Law of Treaties 1969 gives in Arts. 31 and 32 general rules of interpretation. In this respect the wording in the context is most important; but one can also consider the objects and purposes as well as the preparatory work of the articles.

If we have a closer look to the wording in the context and here especially to the term *mutatis mutandis*, we have to pay attention to the corresponding differences between Arts. 60 and 80. The main difference is that Art. 80 deals only with rights applicable under the CS regime, regulated under Art. 77. Whereas Article 60 deals with EEZ rights, regulated under Art. 56 (1) (a). If we consider now these differences it appears that Art. 80 makes only an EEZ regulation complex under the CS regime applicable, so

[71] See Esmaeili (2001), 79.
[72] See under 5.1.
[73] See: Esmaeili (2001), 80.

Art. 80 represents only a kind of incorporation clause [74]. It is also obvious that it would go too far in considering the EEZ applicable in the CS regime by implementing it under Art. 80[75]. Thus, regulations concerning Art. 56 will be not covered by this, because they are dealing exclusively with EEZ rights. Art. 60 (1) (b) could be read as follows: 'installations and structures for the purpose for in article 77 and other economic purposes'. This can be underpinned by the structure and objects and purposes of the articles in question. The regimes of the EEZ and the CS are clearly separated. This could lead to the assumption that there is no intent to mix the rights, only in cases explicitly mentioned. The distinction made between the exploitation and utilization phase also shows the intent to clearly distinguish between these rights. If there is still uncertainty one could also look at the preparatory work of Art. 80. Here at the third session (1975) the Evensen Group presented a proposal which clearly distinguished between the CS up to 200 NM in which Art. 4 (now Art. 60) shall apply, mutatis mutandis to artificial islands, installations and structures and beyond 200 NM in which the coastal State has only the right for the exploration and exploitation of its natural resources of the CS. The Art. 60 provisions shall apply to the latter also mutatis mutandis[76]. This proposal could be also seen to follow the view that without EEZ declaration only the CS regime applies and then also only the CS rights are applicable.
The result of this view would be that a coastal State without having declared an EEZ would not get the right to construct a wind installation under the CS regime and would not have the right to exploit energy from wind.

5.2.3 Conclusion

When looking at the discussed views of interpretations, it may be suggested that the first view, e.g. to interpret the term *mutatis mutandis* in such a way that the reference to Art. 56 mentioned in Art. 60 (1) (b) is seen as being applicable, could be seen as being a very good solution for the wind industry as such. But it is also quite obvious, especially in comparison with the second one, that it is a very broad interpretation of international law. The result of the second one, however, seems to be too tight and does not keep the development of public international law in mind. To find a solution which on the one hand promotes the production of energy from wind and on the other meets international law could give the following approach: Every State has the right to declare an EEZ, a State has also the right to abstain from declaring an EEZ. Due to Art. 57 a coastal State

[74] See: Gündling (1983), 206.
[75] See Gündling (1983), 206.
[76] See for this proposal UNCLOS-Commentary, II, 923/924.

has also the right to declare an EEZ less then 200 nautical miles. From all this follows, that a coastal State should also have the right to declare only a partial economical use in the area up to 200 NM[77]. This would allow the coastal State to exploit and utilize wind in those areas. Beyond 200 NM, however, the area will be still treated as being the high seas. Art. 87 (1) (d) refers, when dealing with installations, back to the CS regime under which a construction would not be possible. Anyway, the coastal State could still utilize and exploit wind in its declared areas. This solution would also give coastal States without an EEZ the possibility to keep step with the new developments arising in such areas.

By all this trouble, it may be well asked why some States, such as the UK, have not declared an EEZ yet. This may vary from case to case. Some may lack the necessary technical and administrative expertise to establish an EEZ, in other cases it is geographically impossible for a State to claim an EEZ, serious delimitation problems may also deter[78]. By others having declared an Exclusive Fishery Zone (EFZ), the answer "may lie in the fact that these claimants consider that their fisheries legislation coupled with their exclusive shelf rights provide them with sufficient authority to control and exploit the commercially recoverable resources"[79]. But the previous chapter has shown that declaring an EEZ would really help to clarify main issues which are not solved yet.

6 Wind Farms and the Environment

With regard to the planning and construction of an offshore wind farm, various measures must be observed for ensuring the protection of the environment. This chapter completes Part I with an examination of the effects such installations might have on the marine environment, general environmental regulations under UNCLOS as well as the Environmental Impact Assessment (EIA).

6.1 Special environmental impacts of offshore wind farms

Due to the relatively new activity there are significant gaps on an international scale in scientific knowledge with regard to potential impacts from the establishment of offshore wind farms. To date rather few ecological studies concerning wind farms have been

[77] For example in declaring a special Renewable Energy Zone like the UK is planning to do.
[78] See also Attard (1987), 60.
[79] Attard (1987), 60/61.

carried out and there are only a small number of wind farms already erected[80]. Experience in relation to their environmental impact beyond the territorial sea does not exist at all. However, working groups such as under the OSPAR umbrella[81], investigate their potential environmental impact on the marine environment. In the following, their investigations will be only briefly referred to.

The destruction or disturbance of the local seabed area due to the construction of the installation to the sea floor and the laying of submarine cables, the possible introduction of hard substrate habitats as well as possible impacts on the hydrography and the geomorphology are common impacts for all kind of offshore installations. Special with regard to wind farms might be the noise and vibration from the turbines. During operation wind turbines and the transformer will emit noise to air and through the tower and foundation to the water. This may have impact upon fish and marine mammals which could leave the area. Special is also the electromagnetic field which is generally created within cables when an electric current is running through the cable. This could result to thermal loss and finally in a warming of the surrounding sediments. Birds, such as wading birds and water birds, may be affected, as well as marine mammals, fish and zoobenthos. Wind-farms might also affect birds by increasing mortality rates through collisions or by deflecting bird movements away from their intended tracks. However, to date there has been little research into the impacts on birds and a rather limited knowledge exists on the risk of birds colliding with wind turbines. Also, there exists still limited knowledge of the impact of electromagnetic fields on marine animals. Impacts will also vary in significance from location to location. Therefore, there is still further work needed to determine the generic significance and/or acceptability of these impacts in more detail.

6.2 General regulations concerning the protection of the marine environment

While Art. 21(1)(f) states that the coastal State has the right to regulate the preservation of the environment in its territorial sea, Art. 56 (1) (b) (iii) of Part V provides the coastal State jurisdiction also with regard to the EEZ. These provisions are governed by specific principles and rules established in Part XII. The environmental provisions on the marine environment in UNCLOS are supported by a strong measure of opinio juris and represent an agreed codification of existing principles which have become part of

[80] With the exception of the Danish Horns Rev Wind Farm all current offshore wind farms are located close to shore.
[81] See: OSPAR (2002-2003).

customary law[82]. Here pursuant to Art. 192 all States have the obligation to protect and preserve the marine environment. According to Art. 194 States shall take all measures to prevent, reduce and control pollution of the marine environment. These measures shall include those designed to minimize to the fullest possible extent pollution from installations and devices operating in the marine environment – such as wind farms are (Art. 194 (3) (d)). Pursuant to Art. 208 coastal States "shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from […] artificial islands, installations and structures under their jurisdiction [such as wind farms], pursuant to articles 60 and 80".

6.3 Environmental Impact Assessment (EIA)

Pursuant to Art. 206 States shall, as far as practicable, assess the potential effects of planned activities under their jurisdiction or control on the marine environment and shall communicate reports of the results of such assessments. Important in this respect is the Transboundary EIA Convention (Espoo, 1991)[83]. It stipulates the obligations of Parties to assess the environmental impact of certain activities at an early stage of planning and the general obligation of States to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries. The Convention gives a list (Appendix I) of activities likely to have a significant adverse transboundary impact. Through the second amendment adopted in 2004 the list of activities was revised. Once in force it will cover under para. 22 also "major installations for the harnessing of wind power for energy production (wind farms)". By now Parties only are required with regard to activities not listed in Appendix I – such as wind farms – to agree on the adverse transboundary impact of the project (Art. 2 (5) Espoo)[84].

[82] See: Birnie/Boyle (2002), 351.
[83] Which is also applicable under UNCLOS with regard to Arts. 237, 311.
[84] See also in the European Community: Council Directive 85/337/EEC.

PART II: The Operational Phase

In the previous part the planning and construction of an offshore wind farm was discussed. In this part consideration is given to the operation of such a farm. Focused will be on the special relationship between coastal State rights and international rights and we are going to have a deeper look into rights of other States, operational limits of the coastal State and possible conflicts arising from such an operation.

1 The freedoms of the high seas and customary international law

Part VII of UNCLOS regulates the high seas. Pursuant to Art. 86, Part VII applies to all parts of the sea "that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State"[85]. However, a significant proportion of the freedoms of the high seas are according to Art. 58 (1) applicable in the EEZ which is also the position in customary international law[86]. The freedoms of the high seas can be found in Art. 87 and comprise the freedom of navigation, the freedom of over-flight, the freedom to lay submarine cables and pipelines, the freedom to construct artificial islands and other installations, the freedom of fishing and the freedom of scientific research. It shall be mentioned that the high seas freedoms may not only have an affect on the operational phase, they may also affect the construction and planning of such farms from the beginning. The chapter will therefore cover both influences.

1.1 The Territorial Sea

Wind farms in the territorial sea have raised new planning law issues on the national as well as international level. Wind farms in this area are obliged to accommodate national interests in the exercise of public rights of navigation and fishing. Considering international interests, wind farms in territorial waters are obliged to accommodate international interests of ships of foreign nationality in exercising the Public International Law right of innocent passage through the territorial sea and the right of transit passage through international straits.

1.1.1 The Right of Innocent Passage

One of the most established and developed regime dealing with navigational freedoms is that of innocent passage through the territorial sea. The right to innocent passage has

[85] See: Art. 86, 55.
[86] See also the reference to freedom of navigation in the EEZ by the ICJ in the Nicaragua v. United States (Merits), 1986 ICJ Rep., 14 at 111-12, paras. 213-14.

been developed through a combination of both customary international law, judicial decisions and Conventions[87]. For the first time in a global international convention the 1958 Geneva Convention on the Territorial Sea and Contiguous Zone defined innocent passage, and the regime was duplicated with some additions in UNCLOS. Art. 17 gives ships of all States the right of innocent passage through the territorial sea.

Art. 18 defines "passage" as traversing the sea without entering internal waters or calling at a port. It also extends to the act of navigating through the territorial sea so as to proceed to or from internal waters or to call at a port facility. It encompasses the act of anchoring and stopping, only if incidental or necessary by force majeure, or to provide assistance to vessels in distress. The right of innocent passage does not extend to over flight by foreign aircraft, nor to submerged passage by foreign submarines. In addition, foreign vessels have no right to fish within the territorial waters[88]. Pursuant to Art. 19, passage is innocent so long as it is not prejudicial to the peace, good order or security of the coastal State. Paragraph 2 lists activities which are considered to be not innocent. Pursuant to Art. 25 (1) the coastal State may take the necessary steps in its territorial sea to prevent passage which is not innocent. The coastal State may also suspend temporarily in specified areas of its territorial sea the innocent passage of foreign ships if such suspension is essential for the protection of its security, Art. 25 (3). If a vessel engages in innocent passage then the coastal State may not hamper that passage. In particular, the coastal State shall not impose any requirements that have the particular effect of denying or impairing the right of innocent passage or which discriminate in form or in fact against the ships of any State (Art. 24).
Authorities are therefore bound to consider whether or not the operation of a wind farm would have the practical effect of denying or impairing foreign ships' right of innocent passage. This may therefore also affect the construction phase in the essence that the size and location of such a farm must be planned vis-à-vis foreign ships passing on the surface.

1.1.2 The Right of Transit Passage

The regime of straits transit passage gives all ships and aircraft the right to travel through international straits in their normal operational mode ("continuous and

[87] Rothwell/Bateman (2000), 74.
[88] See for example Plant (2003), 6.

expeditious", Art. 38 (2)) on, under, or over the water (Art. 38) [89]. UNCLOS makes clear that transit passage shall not be hampered or suspended, Art. 38 (1). And transit ships and aircraft must comply with international safety and pollution standards (Art. 39 (2) and (3)). Apart from the right to implement international safety and pollution standards, coastal States may legislate for passing vessels only in respect of fishing and the taking on board or putting overboard of any commodity, currency or person in violation of local customs, fiscal, immigration or sanitary regulation (Art. 42 (1)). Coastal State jurisdiction over ships in transit passage is therefore narrower than over ships in innocent passage.

It may be concluded that the establishment of large wind farms in straits used for international navigation with transit passage regimes seems more likely to meet with international objections on grounds of potential interference with navigation than it would elsewhere in the territorial sea[90], which will influence the construction and planning phase as well.

1.2 Beyond Territorial Waters

Wind farms beyond territorial waters must be erected and operated with "due regard" to the rights and duties of other States[91]. In the EEZ third States' freedoms consists of communication freedoms such as navigation, over flight and lying of submarine cables and pipelines[92]. On the high seas they also include natural resource and economic rights[93]. Wind farms beyond territorial waters have to compete with these other sea uses.

1.2.1 The Freedom of Navigation and Over Flight

In Art. 90, UNCLOS establishes the "freedom of navigation" which is along with fishing, one of the oldest and one of the most important uses of the sea[94]. The freedom of navigation beyond territorial waters extends to submerged navigation and is a broad freedom in fact. A foreign ship is free to move, stop or anchor for example, as long as it does so with due regard to the economic and other rights of the coastal States' freedoms. In accordance with Art. 58 (1) and (2), the freedom of navigation applies also

[89] See: Rothwell/Bateman (2000), 94ff., Yturriaga (1991), 165ff.. If the right of transit passage has already passed into customary international law is still uncertain but by virtue of State practice since the adoption of the Convention it remains possible. For further explanations on this issue see: Churchill/Lowe (1999), 110ff..
[90] See also Plant (2003), 6.
[91] Art. 56 (2).
[92] Art. 58 (1).
[93] Art. 87 (1).
[94] See. Churchill/Lowe (1999), 255.

in the EEZ. In relation to wind farms it should be mentioned that the potential interference between wind farms and navigation seems greater in the EEZ than in the territorial sea, because wind farms are likely to be both larger and erected in deeper waters[95].

The freedom of over-flight on the high seas is set out in Art. 87 (1) (b) and follows directly from the principle of the freedoms of the sea [96]. The right of over-flight is patterned on the right of navigation. Pursuant to Art. 89, no State may "validly purport to subject any part of the high seas to its sovereignty"; the same rule applies to the superjacent airspace beyond the outer limits of the territorial sea[97]. Under Art. 58 (1), all States enjoy the freedom of over-flight in the EEZ, subject to the relevant provisions of the Convention. Over-flights must be conducted with due regard for the rights and duties of the coastal State (Art. 58 (3)). On the other hand the coastal State has full sovereignty in the air space over its territorial sea, and aircraft do not have a right of "innocent passage" [98]. Already during the negotiation processes of UNCLOS in 1979 there were concerns about the coastal States sovereign rights to explore and exploit energy-producing winds at a height normally used by aircraft engaged in over flight, and it was discussed if this exploitative activity would not require the establishment of "wind-energy exploitation zones"[99].

1.2.2 The freedom to lay submarine cables and pipelines

Under Art. 87 (1) (c), the freedom to lay submarine cables and pipelines applies in the high seas subject to Part VI. In Part VI the relevant provision in this regard is Art. 79, which contains certain limitations on that freedom on the CS both within and beyond the limits of the EEZ. Art. 58 (1) states that all States enjoy the freedom to lay submarine cables and pipelines in the EEZ, subject to the relevant provisions of the Convention. Further regulations in relation to the high seas are set out in Arts. 112 to 115. According to the International Law Commission (ILC) the term "submarine cables" applies not only to telegraph and telephone cables but also to high-voltage power cables[100]. Where a wind farm with its bottom-bearing installation is established,

[95] See also Plant (2003), 20.
[96] See UNCLOS-Commentary, III, 81.
[97] See UNCLOS-Commentary, III, 81.
[98] See Bernaerts (1988), 121.
[99] See: Gamble (1979),127.
[100] Art. 27, YB ILC 1956 II, para.(4); UNCLOS-Commentary III, 82.

no other State can lay cables or pipelines in this area[101]. Also with regard to navigation of submarines, fishing activities (bottom trawling) or the anchoring of tankers, interferences with navigation are predictable.

1.2.3 Freedom to construct artificial islands and the freedom of research

Only on the high seas do all States enjoy the freedom to construct artificial islands and installations, subject to Part VI (Art. 87 (1) (d)). The use of artificial islands and installations on the high seas can be governed by rules and regulations from three legal sources: regulations of the coastal State (Art. 60; Art. 80)[102]; regulations of the Sea-Bed Authority with respect to activities in the Area (Art. 147 (2) (a))[103]; and when such use is undertaken on the high seas, the national regulations of the State concerned or of the State of registry which they belong to will apply (Art. 262)[104].

Art. 87 (1) (f) provides that the freedom of scientific research on the high seas is subject to Parts VI and XIII [105]. On the continental shelf as well as in the EEZ the coastal State has the right to "regulate authorize and conduct" marine scientific research (Art. 77; Art. 246 Part XIII). Only the high seas were declared open to research by all.

If we would suggest that a coastal State may also build an offshore wind farm beyond 200 NM and the CS extends beyond this distance, than interference between offshore wind farms and artificial islands other States may be possible. Concerning research, collisions may only emerge on the high seas. However, the establishment and operation of an offshore wind farm beyond 200 NM seems technically not possible by now. Nevertheless, if in the future floating structures become financially and technologically possible, also these areas could be suitable areas for wind farms.

1.2.4 Freedom of fishing

The freedom of fishing applies only on the high seas pursuant to Art. 87 (1) (e). UNCLOS regulates that the exploitation of the living resources of the EEZ depends on the coastal State (Art. 56 and 58). As a consequence, it is the coastal State that will set the priority between the establishment of artificial islands/installations and the fishing industry in view of its own needs. Nevertheless, national vessels engaged in fishing or

[101] See: Wahiche (1983), 41 with regard to oil and gas exploitation.
[102] In the case where the continental shelf extends beyond the EEZ, then the waters superjacent to the continental shelf are the high seas.
[103] Art. 147 (2) (b) introduces an additional condition in requiring non-interference "in areas of intense fishing activity". In 1994 the UN General Assembly adopted an Agreement relating to the Implementation of Part XI of UNCLOS 1982. The Agreement and the Convention are to be interpreted and applied together as a single instrument (see also Brownlie (2003), 243).
[104] See Bernaerts (1988), 122.
[105] Where the CS extends beyond the EEZ or where a coastal State has not declared an EEZ.

foreign vessels with a permission of fishing will be limited in their fishing grounds due to wind farm establishments. They may hinder the passage of fishing vessels and results in loss of access to fishing grounds. Pollution due to underwater noise may also affect this freedom[106]. In addition the underwater equipment of wind farms may cause serious damages to fishers engaged in, for example, bottom trawling.

Once the various impacts of wind farms have been assessed, the means of accommodating these structures with the other uses of the sea must be sought. Due to the fact that the great majority of conflicts are likely to be concentrated in zones where there is intensive activity, the following chapters will focus on the territorial sea and the EEZ. In relation to wind farms, these two zones are for the present and future development of wind exploitation most important. In the territorial sea wind farms already exist[107] and the first offshore wind farms beyond territorial waters are going to be built in the very soon future[108]. For the high seas, no such installations are planned yet.

2 Use-accommodation in the Territorial Sea

Before a coastal State is able to build a wind farm in its territorial waters, the authorities should consider whether or not this would have the practical effect of denying or impairing foreign ships' right of innocent passage. This may include getting information about existing traffic patterns; proximity of port facilities or roadstead; position of shipping channels and fairways; location of ships' routing and other ship traffic systems; location of cables and pipelines and environmental issues[109]. Another main concern is the high risk of collision with such farms in the territorial sea. Wind farms have to be protected from ship collisions which may cause a serious damage to the installation, ship, crew and environment.

[106] See also above under Part I, 6.
[107] E.g. the Danish wind farm Horns Rev consists of 80 wind turbines and is erected 14- 20 kilometres off the coast.
[108] The Federal Maritime and Hydrographic Agency (BSH) of Germany granted in accordance with the Marine Facilities Ordinance (SeeAnlV) in February 2005 already to the eighth offshore wind farm situated in the EEZ the approval to be built. See: BSH Press Release from 11.2.2005.
[109] In Germany a wind farm in the EEZ for example requires approval by the German Federal Maritime and Hydrographic Agency (BSH) which than analyses suitable grounds in advance before granting consent.

2.1 Sea lanes and traffic separation schemes (TSSs)

Pursuant to Art. 22 (1), the coastal State may, where necessary having regard to the safety of navigation, require foreign ships exercising the right of innocent passage to use sea lanes and traffic separation schemes (TSSs). The establishment of sea lanes and TSSs serves to promote the safety of navigation, where the freedom of movement of shipping is e.g. inhibited by restricted sea-room or the existence of obstruction to navigation[110]. Traffic Separation Schemes are one way of routeing ships. The "routing involves vessels being channelled by more or less 'mandatory'[111] means into lanes or areas of sea so as to reduce risk of collision, grounding or clashes between navigation-based and other uses of the sea"[112]. This is possible solely in areas where it is "necessary having regard to the safety of navigation" and under conditions laid down in Art. 24 (1).

Pursuant to Art. 22(3) coastal States seem not required to submit plans for such routing systems to the IMO. However, recent developments show tendencies that the IMO may be getting more and more a monopoly of routing systems also in the territorial sea[113].

2.2 Laws and regulations of the coastal State

The coastal States power to regulate innocent passage, including in the vicinity of a wind farm, is not limited to the operation of 'positive' routing systems', such as TSS or sea lanes[114], but comprehend *any* reasonable 'traffic' measures whether mandatory or voluntary for foreign ships (Art. 21). This may include "safety zones" or "Areas to be Avoided" (ATBAs)[115]. Mandatory ATBAs, established by the coastal State, could lead to the result that traffic in fact is banned from these areas. If there are no alternative routes available this would impair the right of innocent passage. Such a measure, of course, results in an infringement of Art. 24 (1). It is questionable however, if a coastal State when providing alternative shipping routes, would be allowed to "shut down" a specific area. According to Art. 25 (3) a coastal State may "suspend *temporarily* in

[110] UNCLOS-Commentary, II, 206; TSSs have increasingly been used to route ships through areas of offshore petroleum exploration and exploitation, perhaps this will also become true of wind farm areas.
[111] As traffic systems they are not binding in the sense that ships would be obliged to use these routes if there are other alternatives. Nevertheless, Art. 22(1) states that the coastal State may "require foreign ships … to use" such TSSs. Especially with regard to Art. 22 (2). See: Ringbom (1996), 52, 54.
[112] Plant (1985), 134. Unlike TSSs, 'sea lanes' are not IMO-adopted routing measures, see: Plant, Water Law (2003), 81, fn. 61.
[113] Ringbom (1996), 61.
[114] See Plant, Water Law (2003), 82.
[115] A „routeing measure comprising an area within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which should be avoided by all ships, or certain classes of ships": Plant (2003), 11, fn. 57; Ringbom (1996), 52.; The UK Government mooted to include 500-metre "exclusion zones"; see Plant, Water Law (2003),82.

specified areas of its territorial sea the right of innocent passage if such suspension is essential for the protection of its *security*, including weapon exercises" (italics added). ATBAs are not temporary by nature, and the addition of "weapon exercises" gives a clear indication that the security interests concerned are solely those connected with matters of military security[116]. Mandatory ATBAs in specified areas may therefore not be allowed under UNCLOS. However, Ringbom compares specific mandatory ATBAs with mandatory TSSs which, he follows, means "that the possibility to adopt mandatory TSSs in practice means that surrounding areas by definition will be viewed as 'areas to be avoided', as an obligation to divert to use such a scheme essentially is the same as prohibiting traffic in approximate areas"[117]. Then, a solution could only be made on a case-by-case basis which includes for example the size of the area and possible alternative routes. Therefore it may be possible in special designated territorial areas to establish mandatory ATBAs when the risk of collision with such wind farms is after a case-by-case study still too high and alternative routes are available. Otherwise, ATBAs should be non-mandatory, because they tend more to negate rather than regulate the right of innocent passage.

Other relevant traffic measures in the territorial sea which might be useful in relation to wind farms could be "no anchoring areas" (NAAs)[118], "ship reporting systems" (SRSs)[119] and "vessel traffic services" (VTSs)[120]. SRS and VTS facilities might be placed in wind farms, perhaps as a condition of the lease, and operated remotely from shore[121].

3 Use-accommodation in the EEZ

One of the most controversial issues at the UNCLOS III Conference was the establishment of a general principle to ensure compatibility between the exercise of the coastal State powers having in its EEZ with the exercise of navigation and other

[116] See also: Dupuy/Vignes (1991), II, 936; Ringbom (1996), 55.
[117] Ringbom (1996), 56.
[118] Where anchoring should be avoided by all ships or certain classes of ships, except in cases of immediate danger to the ship or persons on board. Plant Water Law (2003), 82, fn. 71.
[119] Which require ships entering or sailing within a prescribed area to report to coastal authorities information enabling them to be prepared for search and rescue, pollution or other emergencies. Plant, Water Law (2003), 82.
[120] Which variously offer either information, advice or movement instructions to vessels for safety or environmental protection purposes within a prescribed and remotely monitored zone. Plant, Water Law (2003), 82.
[121] At the Danish wind farm Horns Rev, the provision of radar, multi-channel VHF radar, CCTV and AIS to back up the radar is required (Plant, Water Law (2003), 82); In international straits, however, the coastal State's rights regarding traffic regulations are limited to TSSs and other sea lanes adopted by the IMO, which restricts the possibility to include reporting systems or VTSs in this jurisdiction.

freedoms, which in the same area, continued to be recognized for all States. The application of these freedoms to the EEZ proved to be a complex task, because these regimes had to be harmonized with the interests recognized in it in the benefit of the coastal State.

3.1 "Striking a balance"

Hence, as previously mentioned, a significant proportion of the freedoms of the high seas are according to Art. 58 (1) applicable in the EEZ. Questions arise if the said freedoms can be considered as being equal with the coastal State rights, are they subordinated or do they probably serve priority? The basic solution adopted in UNCLOS is contained in two provisions: Article 56 (2) and Art. 58 (3)[122]. The basic idea resulting from these provisions is to strike a balance.

It seems that the purpose of inserting the reference to Art. 87 in Art. 58 (1) is to be that of ensuring the quality of the freedoms enjoyed in the zone is similar to those enjoyed on the high seas. However, although the freedoms applied in the EEZ are qualitatively the freedoms of the high seas, they do not represent an extension of the regime of the high seas per se. This may be seen in Art. 86, which states that the high-seas regime applies to all parts of the sea that are not included in the EEZ and declares further that this "does not entail any abridgement of the freedoms enjoyed by all States in the exclusive economic zone in accordance with article 58". Any further analysis must therefore also include Art. 58[123]. The first restriction comes from Art. 58 (1) that the freedoms are "subject to the provisions of this Convention", which places certain limitations on their exercise and interpretation. A second restriction is that they need to be related to the freedom mentioned, "thus […] that it cannot refer to unrelated matters, and that of being subject to the test of compatibility with the provisions of the Convention"[124]. Finally, Art. 58 (3) constitutes that States "shall have due regard to the rights and duties of the coastal State" and the restriction to comply with "the laws and regulations adopted by the coastal State". These restrictions may give the impression that the Convention tilts the balance in the direction of the coastal State. However, these provisions have to be read in connection with Art. 56 (2) which forms the "mirror image" of Art. 58 (3). Art. 56 (2) obliges the coastal State to exercise its rights and

[122] Art. 59 deals also with a type of dispute but relates only to rights or jurisdictions which have not been attributed to any State by the Convention. This is not the case concerning wind farms which fall under Art. 56 (1).
[123] See also Orrego (1989), 95; in detail: Gündling (1983), pp. 273.
[124] Orrego (1989), 96.

duties with “due regard” to the rights and duties of other States. In addition the coastal State “shall act in a manner compatible with the provisions of the Convention”. So, both coastal State and other States must have due regard for the competing rights of each other. The meaning of the term “due regard” has not been clarified. But it can be derived from the “reasonable regard” provision of Art. 2 of the Convention on the High Seas[125].

The basic idea of the EEZ is therefore to give the coastal State precedence in using its resources by maintaining at the same time the freedoms mentioned in Art. 58 (1). The Convention seeks a balance between both uses, which as one author stated “may provide the judicial basis for resolving many practical problems of competing uses”[126].

3.2 Safety of Shipping

The most obvious example of interference with community rights of other States is of course the right of the coastal State to construct, and to authorize and regulate the construction, operation and use of artificial islands, installations and other structures in the EEZ. Therefore UNCLOS provides in Art. 60 explicit safeguards for this case to protect the freedom of navigation and other lawful activities. The difficulty in relation to wind farms is here obviously the lack of experience with the operation of such farms in this area. Not only that the legal regime is different beyond the territory of the coastal State, also the conditions are different under which wind farms will operate. All this makes it difficult to assess the impact on the freedoms of other States and the installation as such. Nevertheless, experiences from already existing territorial wind farms as well as experiences from the oil and gas industry may help in finding solutions.

3.2.1 Warnings, notification and removal

UNCLOS explicitly recognizes the danger and interference that such constructions may cause to navigation and proposes in Art. 60 (3) that due notice must be given of the construction of such artificial islands, installations and structures and permanent means of warning of their presence must be maintained. Here, experiences in already existing wind farms in the territorial sea may help to find adequate solutions for EEZ

[125] See: Robertson (1983-1984), 883, fn. 86; see also Plant: „due [i.e. reasonable] regard” in: Plant (2003), 14; In addition, considering the fact that the term was proposed by the land locked States, it is understandable that the words are mentioned in Art. 56 (2) emphasises the special duties of the coastal States in relation to the rights of other States in the EEZ, particularly with regard to the right of navigation, see Esmaeili (2001), 236/237.
[126] Oxman (1977), 260-261.

conditions[127]. In contrast to offshore oil rigs, wind farms do not have personnel on board that would be able to carry out security tasks like monitoring the surrounded area or advising ships in distress. Therefore warnings and notifications are much more essential in the case of wind farms. Accompanying security boats as operate from oil platforms may also help to secure the surrounded area. In addition, abandoned or disused installations shall be removed to ensure safety of navigation. However, due to its importance this issue will be discussed later on in Part III.

3.2.2 Safety Zones

Especially in the EEZ just warning and notification installations may not be sufficient enough to warrant security for both navigation and the installation. Therefore, Art. 60 (4) states that a "coastal State may, where necessary, establish reasonable safety zones around such artificial islands, installations and structures in which it may take appropriate measures to ensure the safety […]" of such installations which "all ships must respect" (Art. 60 (6)). These zones do not imply an appropriation of stretches of the high seas, their object is solely to avoid conflicts between their users[128] and they may be established around fixed as well as mobile platforms[129]. The wording "may where necessary" indicate that the establishment of such safety zones is no obligation for the coastal State. In cases where the wind farm may be situated in shallow waters with only a few meter depths, where even sports shipping is not possible, safety zones may be omitted at all. The wording "reasonable" seems to go to size, configuration, location and jurisdictional powers exercisable by the coastal State[130]. Each zone's design is required to be "reasonable related to the [platform's] nature and function" and its extent is limited to a maximum of (only) 500 metres measured from each point of its outer edge (Art. 60 (5)). But what constitutes the "outer edge" at a wind turbine? Shall the rotor or the blades of the turbine be the start point? Plant suggests that it seems reasonable to take the "full span of the circuit described by the blades when in motion to represent the relevant part of that outer edge"[131].

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[127] The Danish wind farm Horns Rev has for air traffic, warning lights placed at the top of the nacelle consists of two red lights controlled by visibility. To increase safety at daytime the turbine blades have been painted orange. To warn sea traffic, in the outer north, south, east and west rows of the farm, four of the turbines have lanterns beaming with a yellow light to warn sea traffic. All lanterns blink simultaneously with a power of approximately 5 NM. http://www.hornsrev.dk/Engelsk/default_ie.htm (visited June 2005).

[128] See: Wahiche (1983), 45.

[129] See: Esmaeili (2001), 129.

[130] See also Plant (2003), 20, fn. 124.

[131] Plant, Water Law (2003), 91, fn. 157; see for broad interpretations on "outer edge" also Ulfstein (1988), 243, 244.

The 500 metres limitation

The radius of 500 metres was first suggested in 1953 by the International Law Association because several countries had already adopted this limit for oil rigs onshore, a radius within which it was forbidden to smoke or start a fire[132]. Offshore oil installations are usually protected by 500 meter safety zones, although violations of these zones are a problem[133]. Therefore, the question arises, if they are an adequate protection against ship-platform collisions[134] when the farms are not manned and the turbines are close together, that especially larger ships are not able to manoeuvre[135]. Although offshore wind farms were probably not conceivable in the nearby future by that time, UNCLOS III considered this point, since it had to deal not only with offshore oil rigs but also with other types of structures mentioned in Art. 56 (1). The reason why 500 metres was finally adopted can be seen in the fact that States were not able to agree upon another solution[136]. However, derogations can be considered if they are authorized by international standards or recommended by appropriate international organizations, like the IMO (Art. 60 (5)). International standards allowing wider safety zones than 500 metres do not exist yet and accordingly there is no recommendation by the IMO on safety zones wider than that limit[137]. However, recognizing the various violations of safety zones, the IMO had adopted a number of resolutions in relation to the safety and protection of offshore oil installations, particularly with respect to safety zones around such installations, such as Resolution A. 671 (16) on Safety Zones and Safety of Navigation around Offshore Installations and Structures[138]. The resolution mentions offshore installations and structures as well as the need to ensure safety at sea in general terms in its Preamble. This may include also wind farms which can be considered as being “installations”. However, the wording as such does not seem to leave space for implementing wind farms under the resolution. The exploitation of natural resources as well as drilling operations are continuously mentioned which clearly indicates the resolutions orientation. The resolution seems therefore mainly designed for offshore oil

[132] See: Wahiche (1983), 45; Plant, Water Law (2003), 91, fn. 157.
[133] See: Ulfstein (1988), 236; Vessels engaged in fishing are their most frequent violators. This is because platforms provide good habitats for fish: Plant, Water Law (2003), 90.
[134] For example early UK safety zones were established more for protection against harassment by Soviet intelligence-gathering ships and terrorist threats than against ship-platform collision, see: Plant (2003), 21, fn. 139.
[135] At the territorial Horns Rev Wind Farm the distance between the turbines is 560 m and the rotor diameter is 80 m.
[136] See: Esmaeili (2001), 128.
[137] See: Ulfstein (1988), 245; Plant, Water Law (2003), 91; Esmaeili (2001), 129.
[138] See: Annex 1.5.

and gas rigs and it is questionable if it is also applicable in cases like wind farms[139]. The adoption of another resolution with, for example wider zones for wind farms as it is sanctioned in Art. 6(0(5), could therefore help to solve this uncertainty. However, by today, resolution A.671(16) is the only resolution regarding safety zones around offshore installations as such. And even if the resolution deals mainly with issues concerning petroleum installations, with regard to wind farms, it seems to be a helpful tool as well. One could therefore argue to apply resolution A.671(16) with analogy to offshore wind farms[140].

The abuse of Safety Zones

In cases like wind farms a possibility to abuse the right of safety zones exists. When Art. 60 (4) states that "around" the installations and structures safety zones may be established, does that mean around each single wind turbine or does that mean around the farms as such? In territorial waters wind farms tend to be relatively small in size, if there is an establishment of 500-metre safety zones around each turbine this would appear to be entirely reasonable, and consistent with the rights of innocent passage[141]. Horns Rev consists of 80 turbines and the distance to the neighbouring turbine is 560 metres, in sum the farm covers an area of 20 km^2. However, if EEZ wind farms will consist of hundreds of turbines, and if exactly a 500 metre safety zone is declared around each, the effect would be to close off large areas of sea to navigation[142]. The result would be the transformation of actually "safety zones" into practically "exclusion zones" covering large areas of sea and then of course to close off the areas to navigation[143]. Due to the vague wording in Art. 60, even 500 metres between each turbine can be still considered as being "reasonable" and may be an easy task to be explained by a coastal State. This issue may lead to problems between stakeholders in the wind farm and shipping industry, for example due to probably increasing shipping costs[144].

[139] See: Jenisch (1997), 378.
[140] IMO resolutions are formally non-binding instruments. To the discussion about their legal nature in more detail see Ringbom: (1996), 42-45 who states that „there are several arguments speaking for attaching a certain legal weight to them".
[141] See: Plant, Water Law (2003), 82.
[142] See e.g. Plant, Water Law (2003), 91 where an area of 12km x 12km was estimated.
[143] See also Plant, Water Law (2003), 82.
[144] See in more detail to this issue under Plant, Water Law (2003),91, fn. 162.

Other kinds of restrictive zones outside safety zones?

As previously mentioned, safety zones are not very sufficient in preventing collisions between oil installations and ships. How shall they be then sufficient in cases of wind farms? May the coastal State be able to establish other kinds of restrictive zones outside the ordinary safety zones in addition? An example may be the "cautionary zones" proposed by Canada in 1985 to the IMO which included a maximum of 3 NM around installations, and the making of fairways or routing systems in the areas of offshore exploitation. Norway established on its Ekofisk and Statfjord oil fields non-anchoring and non-fishing zones[145]. A coastal State operating a wind farm may be able to establish such an additional zone to protect its farm as well. However, Art. 60 (4) states only that the coastal State "may take appropriate measures to ensure the *safety* both of navigation and of the artificial islands, installations and structures" (italics added). Thus, jurisdiction in the safety zone is limited to establishing necessary safety measures; they are not intended to prohibit passage and fishing. This corresponds with the use of the term "safety zone" in the preparatory work[146]. Ulfstein therefore concludes that "the jurisdiction in the safety zones is functionally limited to the necessary measures. All zones around oil [wind] installations established for safety reasons must be considered to be safety zones without regard to what they are called in national legislation. The geographical limit of 500 m will therefore apply to such zones"[147]. Other kinds of restrictive zones outside the safety zone limits are therefore not possible under UNCLOS.

Recognized sea lanes essential to international navigation

The only exception to the UNCLOSs' "balancing" is mentioned in Art. 60 (7) that the installations and safety zones must not be established "where interference may be caused to the use of recognized sea lanes essential to international navigation". This is the only priority established by UNCLOS. However, this term is not clearly defined in international law; also it is not clear as to who decides upon whether or not a sea lane is essential to international navigation. It is also far from easy to identify areas where the risk of ship collisions with wind farms would be low enough to be "acceptable"[148].

[145] see: Ulfstein (1988), 245/246.
[146] See: Ulfstein (1988), 247.
[147] Ulfstein (1988), 247.
[148] German and Dutch governments have already launched inter-Departmental processes to identify such „potential suitable" or „priority" (low use-conflict as well as windy) EEZ areas for wind farm development; see: Plant, Water Law (2003), 92 and fn. 175.

3.2.3 Routing and Reporting Systems

The best means of controlling the collision-risk appears to be the combination of safety zones and traffic measures such as "positive" (TSSs) and "negative" (NAAs, ATBAs) routing systems or reporting systems.

In sea areas outside the limits of the territorial sea the coastal State has no sovereign rights (either according to the IMO rules or to UNCLOS) to adopt TSSs or ATBAs. While the Convention made express provisions for the adoption of TSSs in territorial waters (Art. 22), straits used for international navigation (Art. 41) and in narrow channels in archipelagic sealanes (Art. 53), no such an express provision is made concerning their establishment in the EEZ. However, Art. 56 (1) (b) provides that a coastal State has "jurisdiction" with regard to "the protection and preservation of the marine environment" which is further regulated in Art. 211 (5). Once a coastal State decides to make use of its powers, it is limited to "conforming to and giving effect to" the rules and standards that originate from the international level which became "generally accepted" (GAIRAS). Within these limits it seems that any rule or standard, as long as "generally accepted", could be applied in the EEZ. This could also extend the coastal State jurisdiction to navigational measures, even though no explicit reference is made to them[149]. However, the problem lies in the requirement of "generally accepted" which is not suitable for all routing systems[150]. In any case Art. 211 (5) stipulates that navigational measures in the EEZ have to be established at the international level[151]. Since 1997, this uncertainty seems to be brought to an end, by allowing a coastal State to seek IMO adoption of mandatory routing and SRS systems[152]. The only example up to date of such a "positive" mandatory routing system over EEZ areas is the "Mandatory Route for Tankers from North Hinder to the German Bight and Vice Versa" where many petroleum platforms are present. It consists of a connected series of routing measures (two DWRs, three TSSs and a precautionary area), and runs parallel to the Dutch and German coasts. Ships joining and leaving the route are advised to be aware, that platforms might be encountered in its vicinity. This might be a model to study with wind farms and other renewable energy developments as well. In addition NAAs, might also play in the EEZ a useful role as well as SRSs or VTSs. In relation to SRSs systems it should be mentioned that the IMO's criteria to adopt mandatory routing systems and SRSs are primarily aimed at environmental protection rather than ship or

[149] But see Art. 211(1) which recognizes routing systems.
[150] E.g. a TSS has to be designed for one particular defined situation.
[151] See in more detail: Molenaar (1998), 363ff.
[152] See in more detail: Plant (1997), 11ff.

platform safety[153]. The IMO may therefore only adopt such mandatory systems where such collision would give rise to high risks of environmental pollution, for example where wind turbines are erected in environmentally sensitive waters frequented by tankers[154]. Concerning VTSs systems, the operation of such systems are required as a licensing condition, of a number of petroleum platforms on the North Sea CS[155] which could also be used as a requirement for obtaining wind farm licences. However participating in it by foreign passing vessels must be voluntary[156]. Concerning "negative" routing measures a coastal State may decide upon setting up an ATBA in its EEZ. If a coastal State decides upon an ATBA, the State would have to seek its adoption by the IMO before implementing it[157]. However the IMO seems to be cautious in adopting ATBAs around great offshore installations. This may be seen in the case of Canada's Terra Nova Floating Production Storage and Offloading Vessel[158] which unsuccessfully sought an ATBA. Instead a precautionary area in which ships are advised merely to navigate with particular caution was adopted [159]. With regard to offshore installations the IMO maybe fears the abuse of such ATBAs to escape the normal size limit of safety zones[160].

3.2.4 Particular Sensitive Areas (PSSAs)

Another possibility for a coastal State to protect its wind farm area may also be to declare a PSSA. The IMO adopted "Guidelines for the Identification and Designation of Particular Sensitive Areas"[161] and defines PSSAs as "an area that needs special protection through action by [the] IMO because of its significance for recognized ecological, socio-economic, or scientific reasons and because it may be vulnerable to damage by international shipping activities"[162]. PSSAs can be established within or

[153] See here in more detail Plant (1997), 11-13, 16-18, 24-29.
[154] See: Plant, Water Law (2003), 94.
[155] See: Plant (1990), 78.
[156] See: Plant, Water Law (2003), 94.
[157] Non-IMO-adopted ATBAs, however, may be found around the Louisiana Offshore Port and petroleum platforms in the Bass Strait and in the UK "development areas" are set up around groups of petroleum platforms' safety zones – ships having not business there are recommended to keep clear. Their intend is to prevent "rig-running" through small gaps between adjacent safety zones. See: Plant, Water Law (2003),93.
[158] Terra Nova, Eastern Canada's second largest oil field, is located on the Grand Banks 350 km east-southeast of St. John's Newfoundland, and 35 km SE of Hibernia, in 95m of water.
[159] See IMO doc. SN/Circ. 220.
[160] Also Plant states that "negative" routeing measures seem to be likely to be of less utility, "if only because such measures established around wind farms will probably be regarded by mariners as devices to circumvent the size limits of 500 metre safety zones" (Plant, Water Law (2003), 93).
[161] IMO Res. A.927(22): see Annex 1.6.
[162] Res. A.927(22), 1.2; to the relationship between Art. 211(6) and PSSAs see Molenaar (1998), 441, 442.

beyond the limits of the territorial sea[163]. The resolution adopts three different forms of criteria: an ecological criterion, a social, cultural and economical criterion and a scientific and educational criterion; of which at least one has to be met. It could be argued that a wind farm could fulfil the ecological criteria of vulnerability[164] which describes it as an area "subject to environmental stresses owing to human activities" which "may be in need of special protection from further stress, including stress arising from international shipping activities". The economic benefit of the area may also be subject to the economic criteria of the resolution, although the guidelines just mention the utilization of "living marine resources" as an economic criterion. However, currently there are seven designated PSSAs which were appointed mainly due to their ecological uniqueness or rarity[165] . It seems therefore questionable if a wind farm area would be appointed by the IMO as a PSSA. However, the Western European Waters were appointed as a PSSA and discussions are going on to designate the whole North-East Atlantic as a PSSA[166]. With regard to this development also the designation of a wind farm area as a PSSA seems not impossible for the future.

3.3 Submarine cables and over-flight

With regard to cables it is worth to mention that they are not covered by the Art. 60 safety zone regulations[167]. Nevertheless, high-voltage power cables are afforded at least some legal protection pursuant to Art. 113, which states that breaking or causing injury to "high-voltage power cables" wilfully or through culpable negligence shall be a punishable offence.

The same problem arises with regard to over-flight, because operational control of the aircraft flying within the EEZ is not linked to the exercise of the coastal State's sovereign economic rights[168]. Even the establishment of "air" safety zones are not covered by Art. 60, because para. (4) allows only the establishment of safety zones "around" such installations. However, jurisdiction in respect of flights to and from wind farms can be seen as being connected with the coastal State's right to use, operate and construct such installations, Art. 60 (1). Also State practice supports this view[169]. In order to avoid navigational hazards, such installations may not be established – on the

[163] Res. A.927(22), 4.3.; this issue may be therefore also relevant with regard to the territorial sea.
[164] Res. A.927(22), 4.4.10.
[165] E.g. Great Barrier Reef, Australia; Florida Keys, USA; Wadden Sea, Denmark, Germany, Netherlands; Western European Waters.
[166] See: Deutsches Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit under http://www.bmu.de/europa/und/umwelt/doc/4314.php (visited June 2005).
[167] See: Esmaeili (2001), 241; Ulfstein (1988), 241; Plant, Water Law (2003), 90, fn. 140.
[168] Hailbronner (1983), 509.
[169] See: Hailbronner (1983), 510; Kwiatkowska (1989), 123.

analogy to Art. 60 (7) – where interference with recognized "air" lanes essential to international "aviation" may be caused[170]. A coastal State may also require aircraft flying over wind farms to comply with its national air traffic regulations in relation to these farms.

3.4 Conclusion

The chapter has shown that existing regulations concerning the accommodation of different rights in the EEZ may be seen as being weak or do not exist at all. Experiences in the petroleum industry show that safety zones as such are not sufficient to warrant the safety of navigation and the installation. Concerning wind farms additional measures have to be taken with regard to the wind facilities' special circumstances. However, the IMO is hesitant in adopting stronger standards on this issue in general. This may be seen in the fact that the IMO is in the end a maritime organization which main concerns may lay in the further restriction of the freedom of navigation. However, offshore wind parks beyond the territorial sea will become common reality and the IMO as the responsible organization has to deal with this issue once inevitable.

PART III: The Decommission Phase

It is becoming increasingly apparent that also decommissioning plans will become important if not critical during the development of offshore wind farms – here especially with regard to the EIA. Therefore it is important that decommissioning of such installations is regulated and that standards and guidelines exist. Thus, Part III deals with current legal regulations concerning the decommissioning of offshore installations on the international as well as regional level and will analyze their applicability of offshore wind farms.

1 International Conventions

1.1 The 1958 Geneva Convention on the Continental Shelf

The Continental Shelf Convention states in Art. 5 (5) that "any installations which are abandoned or disused must be completely removed". This is a precise duty requiring total removal after use. The question arises if this may also be the case when dealing with wind farms? The Continental Shelf Convention focuses upon the exploration and

[170] Hailbronner (1983), 510.

exploitation of the natural resources on the CS. The production of energy from wind does not extend to the CS, because it does not exploit the CS, it is just situated above it. Therefore, wind facilities do not fall immediately under Art. 5 (5) and may not be seen as being covered by the total removal obligation under this Convention.

1.2 UNCLOS

1.2.1 Removal under Art. 60 (3) UNCLOS

While the Continental Shelf Convention contains a precise and absolute removal duty, Art. 60 (3) abolished this duty when qualifying the obligation with a view to the safety of navigation. This change from a total removal obligation to a partial one was on the initiative of States like the UK and Norway with important offshore oil and gas deposits[171]. They feared especially costs and risks when removing such installations from their continental shelf[172]. Art. 60 (3) sets forth the balancing of interests and adds that, "such removal shall also have due regard to fishing, the protection of the marine environment, and the rights and duties of other States". Parts of the installation may therefore remain if there is no interference with the rights of other States. Art. 60 (3) relates to "installations and structures" which may probably not encompass cables used at these wind facilities. However this issue is also with regard to pipelines still unclear under international law and various State practice exists[173]. UNCLOS suggests only general criteria for determining the extent of removal in specific instances. If an installation is not entirely removed, the coastal State is obliged to give "appropriate publicity" to its "depth, position and dimensions"[174]. However, the provision recognizes the need for applicable standards in the phrase "shall be removed to ensure the safety of navigation, taking into account any generally accepted international standards established in this regard by the competent international organization". The "competent international organization" to establish such standards is the International Maritime Organization (IMO)[175].

1.2.2 IMO-Resolution A.672(16)

As the competent international organization, in respect to the development of criteria for removal of abandoned or disused offshore installations to ensure safety of navigation,

[171] See in detail: Ijlstra (1989), 270.
[172] See: Jenisch (1997), 379.
[173] See in more detail: Ulfstein (1988), 250.
[174] See: UNCLOS-Commentary, II, 585.
[175] See: UNCLOS-Commentary, II, 585.

the IMO instructed its subcommittee on safety of navigation to start working on this project. Then in 1989 the resolution A.672(16) "Guidelines and Standards for the Removal of Offshore-Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone" was adopted[176]. The guidelines accept a case by case approach in relation to the removal of offshore platforms, they require the complete removal of all abandoned or disused installations or structures standing in less than 75 metres of water and weighing less than 4000 tonnes in air, excluding the deck and superstructure (Art. 3.1. of A.672(16)). Partial removal, such as cutting the tops off platforms to allow ships to navigate, and toppling the structure on the seabed, would be for bigger structures in deeper waters, provided there is not less than 55 metres above the remains[177]. In addition the resolution provides that all installations and structures installed offshore on or after the 1. January 1998, must be designed so that they can be removed entirely[178]. These guidelines clearly follow UNCLOS Art. 60 (3), which permits the partial or even non-removal on a large scale[179]. It is questionable however if the resolution is applicable on wind farms? International standards have not yet been established for unused or abandoned wind turbines[180]. Resolution A.672(16) refers in general to Art. 60 and does not especially focus on installations exploiting natural resources, such as resolution A.671(16) does. It is further stated that the standards should apply to future installations and structures as well[181]. This statement seems reasonable when looking at the IMO as the responsible international organization whose obligation is not only to focus on oil and gas rigs, but also on other installations and structures covered by Art. 60. From this point of view the resolution may give the impression that offshore wind farms are covered by it. On the other hand, it should be noted, that such as resolution A.671(16) for safety zones, also resolution A.672(16) for removal was designed as an international standard with regard to the removal and abandonment of petroleum installations. Also the wording as such seems to be designed more for oil and gas rigs rather than for other installations. In addition, no such an installation was visible in the nearby future in 1989 and no experience in this areas existed. Worth noting may also be that throughout the preparatory work the discussing parties were more concerned about the legal and technical issues related to oil and gas

[176] See Annex 1.7.
[177] Res. A.672(16), 3.5 and 3.6.
[178] Res. A.672(16), 3.13.
[179] See also: Esmaeili (2001), 203-4.
[180] See: Roggenkamp/Hammer (2004), 110; see: Jenisch (1997), 378.
[181] Res. A.672(16), 3.14.

platforms rather than to other installations[182]. However, to date resolution A.672(16) is the only resolution covering the removal of offshore installations and may, even if it refers more to petroleum platforms, be applicable with analogy to offshore wind farms.

1.2.3 Dumping under Art. 210 UNCLOS

Article 210 of the 1982 Law of the Sea Convention is also worth noting, because UNCLOS deals with the issue of the disposal of offshore platforms in a number of other articles under the subject “dumping”. “Dumping” is considered as a form of pollution and UNCLOS requires States to adopt rules "to prevent, reduce and control pollution of the marine environment by dumping"; “to establish global and regional rules and procedures […] to prevent, reduce and control such pollution”; and to adopt national laws no less effective than the global rules and standards. Dumping is in Art. 1 (5) (a) (ii) defined to include any deliberate disposal of platforms and man-made structures and was adopted with drafting changes from the 1972 London Dumping Convention. Art. 210 goes beyond the provisions of earlier Conventions because it applies in the EEZ as well. For each exception of resolution A.672(16) an assessment will be necessary and “dumping” can be considered as one of the possible options. If dumping is chosen, (parts of) the installation could be toppled at site, or transported to a chosen dump-site[183]. This may also be possible in cases of wind farms. However, especially subsequent Conventions tend to apply much more restrictive regulations than UNCLOS actually does.

2 Regional Conventions

Because of its importance with regard to suitable grounds for wind farms and recent changes to it, the following chapter will mainly focus on the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR-Convention) and the Convention on the Protection of the Marine Environment of the Baltic Area (Helsinki-Convention).

2.1 The 1992 OSPAR-Convention

OSPAR was adopted in 1992 and came into force in March 1998. It replaced the 1972 Oslo Convention (on dumping from ships) and the 1974 Paris Convention (on

[182] Kasoulides (1989), 71.

[183] See: FAQ 4.2. of the London Convention under http://www.londonconvention.org/FAQ.htm (last visited on 9.6.2005). This may also be seen as being the biggest disadvantage of resolution A.672(16) which does not say anything about how and in what a way such a removal shall be carried out. A removal at sea seems therefore possible.

discharges from land) to protect the marine environment of the North-East Atlantic from pollution[184]. Its main role is to control disposal of all waste at sea and discharges from land. Art. 5 (1) of Annex III provides for the removal of offshore installations. It requires that "no disused offshore installation or disused offshore pipeline shall be dumped and no disused offshore installation shall be left wholly or partly in place in the maritime area[…]"[185]. Pursuant to Art. 1 (f)(ii)(2) "dumping" includes any deliberate disposal in the maritime area of offshore installations and offshore pipelines. This should be seen as being applicable on offshore wind farms as well. However, Art. 1(l) defines "offshore installations" as "any man-made structure […] placed within the maritime area for the purpose of offshore activities", and "offshore activities" are narrowly defined in Art. 1(j) as "activities carried out in the maritime area for the purpose of the exploration, appraisal or exploitation of liquid and gaseous hydrocarbons". The wording therefore suggests that offshore wind farms may not be covered by the Convention. One could also argue that with regard to offshore installations mainly oil and gas rigs were under discussion by that time. However OSPARs main goal is the protection of the marine environment of the North-East Atlantic as such. If it would turn out that also wind farms threaten the marine environment in this area it may be predictable that the OSPAR-Commission will start investigations on this issue as well.

Such a trend can be seen in the adoption of Annex V in 1998[186]. The Convention has now the authority to deal with adverse effects of all human activities, including prevention and restoration. Appendix 3 of the Convention contains criteria for identifying Annex V human activities. OSPAR works by first identifying the impact of each human activity, then assessing what is already being done in each country, then the results are reviewed to establish whether further collective action is needed or not. According to the outcome, OSPAR adopts measures. Offshore wind-energy parks are considered as being human activities under the Convention and they were chosen for investigation under the OSPAR-Biodiversity Strategy[187]. Under this investigation the OSPAR-Commission suggested in 2004, when dealing with the decommissioning of wind energy installations, that the installations (including foundation) and cables should be removed completely and disposed of (recycling) on land and the pipes should at least

[184] Including the European Community, there are 16 contracting parties by now.
[185] Art. 5(1) OSPAR-Convention.
[186] Addition to Convention for the protection of the marine environment of the North-East Atlantic, Annex V and Appendix 3 (on the protection and conservation of the ecosystems and biological diversity of the maritime area), 23.7.1998.
[187] OSPAR-Workshop (2003), 52, 53.

be cut off far enough beneath the seabed to ensure that the remaining parts will not be exposed by natural sediment dynamics[188]. However, they concluded that more work has to be done, and recommendations or even guidelines do not exist by now[189].

2.2 The 1992 Helsinki-Convention

The Helsinki-Convention[190] is confronted with the same problems such as the OSPAR-Convention concerning wind farms. The 1992 Helsinki-Convention is the successor of the 1974 Convention[191] and focuses on environmental issues affecting the Baltic Sea. It covers the whole of the Baltic Sea area, including inland waters as well as the water of the sea itself and the sea-bed. Pursuant to Art. 12, Parties shall take measures "to prevent pollution of the marine environment of the Baltic Sea Area resulting from exploration or exploitation of its part of the seabed and the subsoil thereof or from any associated activities". In Regulation 8 of Annex VI the Parties "shall ensure that abandoned, disused offshore units and accidentally wrecked offshore units are entirely removed and brought ashore under the responsibility of the owner and that disused drilling wells are plugged". The wording suggests here as well, that the Convention relates more to offshore petroleum installations rather than other installations such as wind farms. However, the terms "activities" or "offshore units" are not defined which leaves space to interpret the wording in a broad manner. Due to equal rights of both, drilling installations as well as offshore wind farms, it may be also suggested that also the Helsinki-Commission (HELCOM) is going to deal with this issue and will probably adopt the same ruling upon wind farms as adopted upon the others.

Both the OSPAR-Commission and HELCOM have made commitments to apply and further develop ecosystem approaches to manage human activities impacting on the marine environment ("the ecosystem approach")[192]. Their aim is to identify critical processes for maintaining the structure and functioning of ecosystems and to assess and manage the impacts of human activities. HELCOM and OSPAR will jointly develop necessary programmes and measures and will draw the attention of other international bodies to any issues more appropriately addressed in those other forums. Here, the OSPAR-Commission has already taken an initiative to adopt guidance on a common

[188] OSPAR-Commission (2004), 12.
[189] By 2010, they are going to complete an assessment of the impact of all human activities and conclude what programmes and measures are required. See: OSPAR-Commission (2002-2003), 4.
[190] Entered into force on 17 January 2000.
[191] The 1974 Convention entered into force on 3 May 1980.
[192] Joint HELCOM/OSPAR Statement (2003).

approach when dealing with offshore wind-energy farms[193]. In the working programme of the OSPAR Biodiversity-Committee for 2004/2005 special focus is placed on wind farms, where also the issue about their removal is going to be dealt with[194].

3 Conclusion

We have seen that there are gaps in international as well as regional law considering decommissioning of wind farms. While on the regional level already strategies are elaborated and future plans are made in finding solutions and to develop adequate guidelines and standards, such an effort lacks at the international level. It may be suggested that the OSPAR-Commission as well as HELCOM will continue their strict approach concerning removal of offshore installations also in cases like wind farms. If such a strict removal strategy is however in cases like wind farms of such an importance as for oil and gas rigs, may be also questionable. The pollution risk seems to be of much lesser extent and the farm will probably create large artificial reefs which even help the marine environment. On the other hand outside the OSPAR and HELCOM regions, the case-by case approach based upon the IMO Guidelines appears to be still the prevailing international legal standard for the foreseeable future. Especially on the international level is it therefore important to develop adequate standards.

CONCLUSION

In sum, it can be concluded that the establishment of offshore wind farms raises interesting issues under international law. On the one hand the new technology of offshore wind turbines capable of being erected beyond the territorial sea can be seen as a good example for the development of law as such. Already existing legal regulations change in their interpretation and adapt to the new condition; even new regulations develop to be able to deal with the new legal challenges. However, due to long negotiation processes or scientific uncertainties, the technological progress seems often faster than the legal one. On the other hand offshore wind facilities may be seen as a good example for the trend of States to see the ocean more and more as a source of space rather than as a source of functional limited rights of exploration and exploitation. Sovereign rights of the coastal State pertain only to the resources of the zone rather than to the zone itself. In relation to oil and gas rigs, this may cause no problem. It consists

[193] See: OSPAR-Commission (2004).
[194] OSPAR-BDC (2004/2005).

of a *temporary* sea use exploiting an *exhaustible* resource[195]. With regard to wind farms, however, we are dealing with a *quasi-permanent* structure, exploiting a *non*-exhaustible resource. Questions may arise if this kind of sea use may not lead to a kind of transformation from the primarily functional aspect into an area/space-orientated aspect[196]. The coastal State enjoys power of a spatial type which it exercised both with regard to its nationals and with regard to enterprises from other States[197]. Such a tendency seems to be not any more in full conformity with the fundamental principles of the zone as such. It will be therefore interesting to look upon the further development of offshore wind farms under international law in the future.

[195] Once the resource is exhausted, the intention is essentially to remove the platform.
[196] Graf Vitzthum (2004) speaks in this relation from: „Terraneisierung der Meere“, 398.
[197] But of course, the fact that the coastal State can establish safety zones around these installations does not substantially affect its mastery of the zone as a space. See: Dupuy/Vignes (1991), I, 293.

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"*Case Concerning Military and Paramilitary Activities in and against Nicaragua"* (Nicaragua v. United States of America), ICJ Reports 1986, pp. 13-546.

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Aftenposten

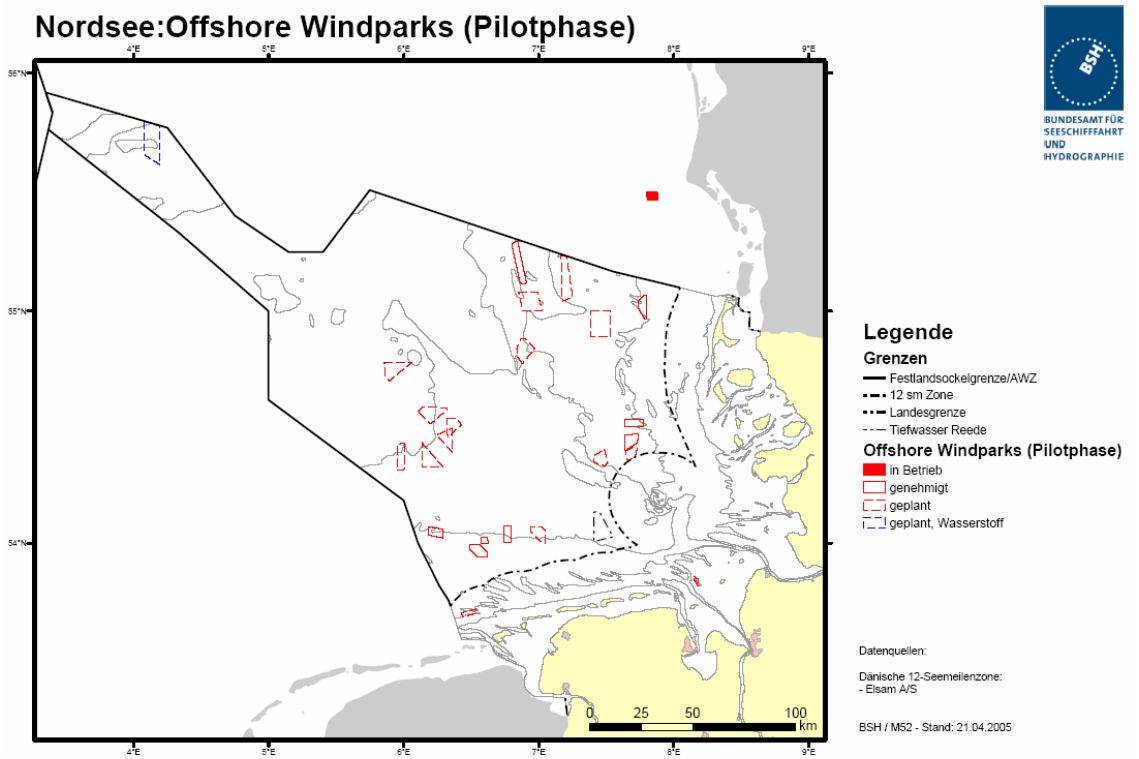
Frankfurter Allgemeine Zeitung

Der Spiegel

Die Welt

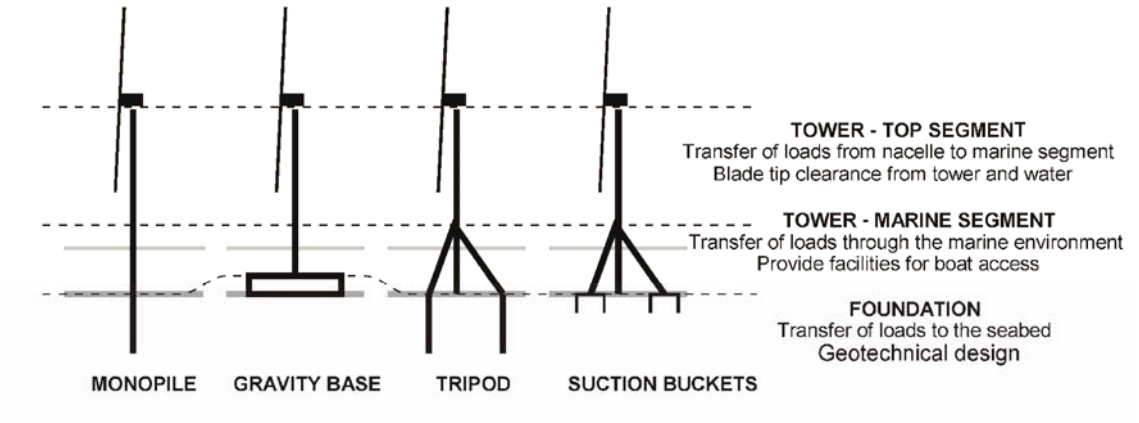
Annex

1.1 Planned Offshore Wind Parks in the German EEZ – North Sea



Source: Federal Maritime and Hydrographic Agency (BSH) <http://www.bsh.de> (visited June 2005).

1.2 Illustrations of fixed offshore wind turbines



Definitions of the support structure (Source: Zaaijer, M. B., 2003)

The figure illustrates the distinction and additionally concepts having a fair base in the offshore industry: two concepts for the marine segment of the tower (single column and tripod) and three foundation concepts (pile, suction bucket and gravity base). Other concepts e.g. lattcie tower and floatiing designs, have reached an advanced status on the drawing board and prototype of a suction bucket was took in use in Denmark during Autumn 2002.

Source: OPET-Finland (2004), 4.

1.3 Illustrations of floating offshore wind turbines

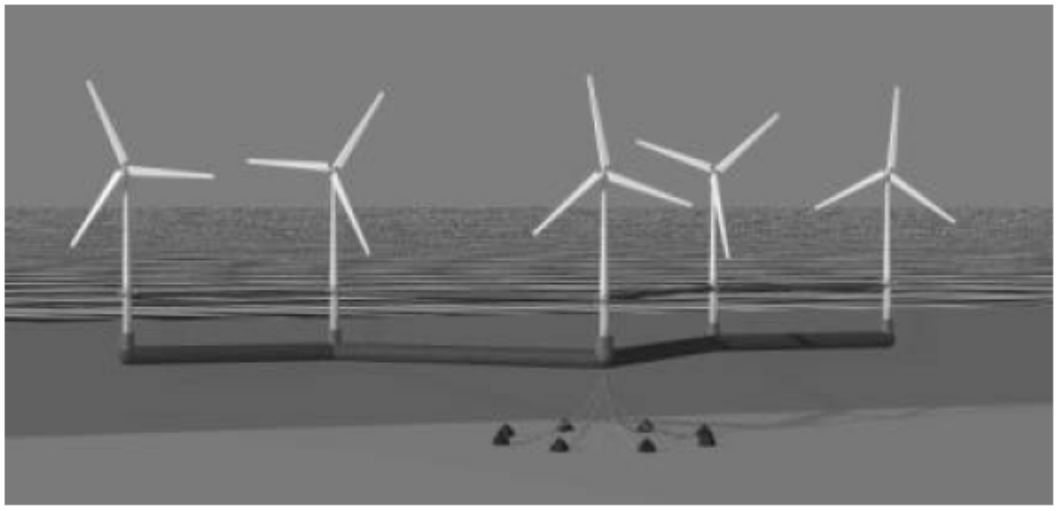


Fig. 6 Semi-Submersible
Source: Henderson et. al. (2002), 509.

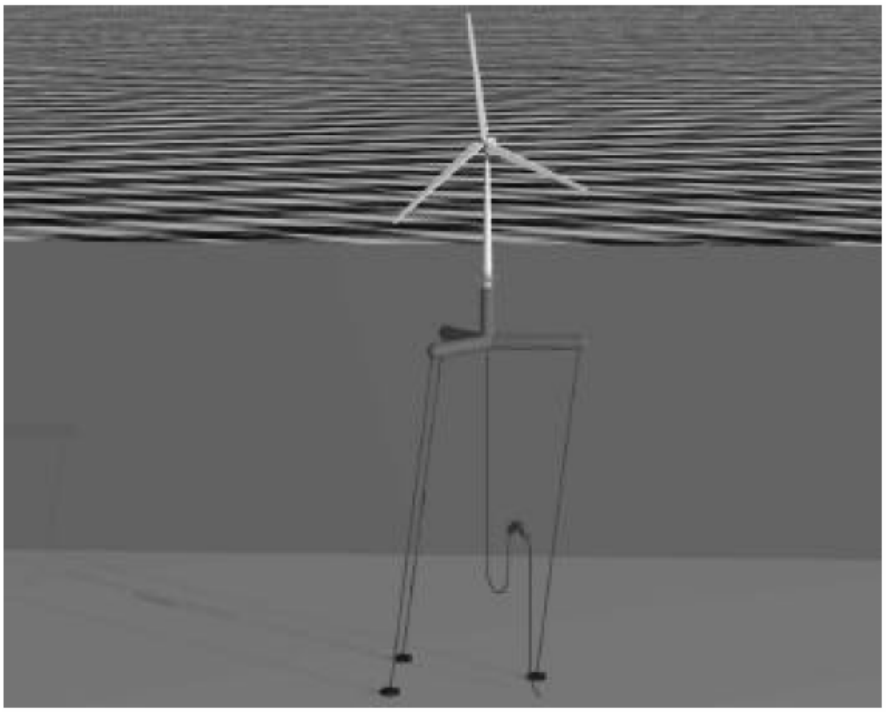


Fig. 7 Tensioned Leg Platform
Source: Henderson et. al. (2002), 509.

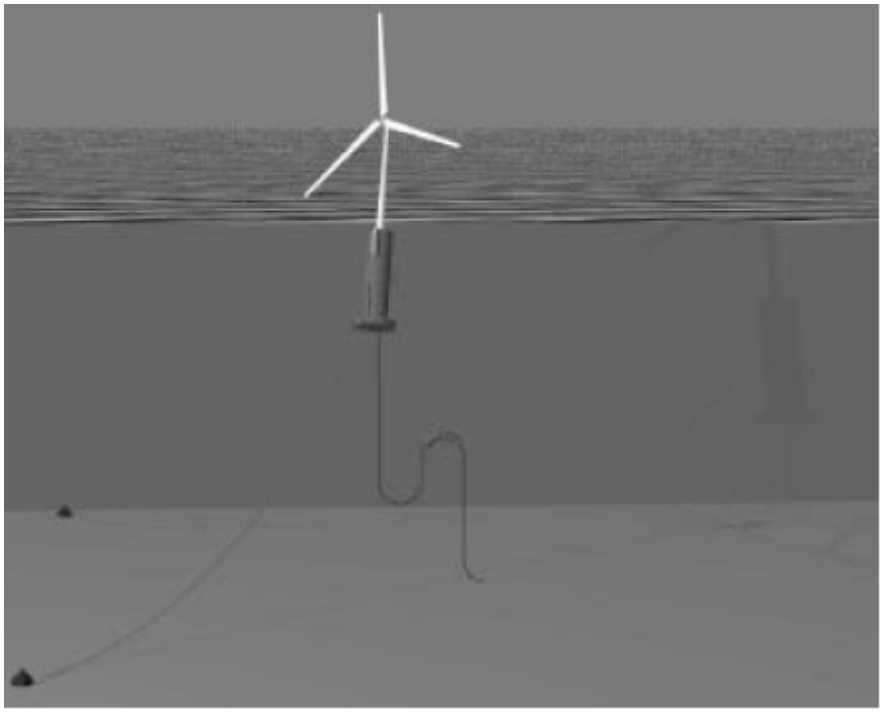


Fig. 8 Spar-buoy
Source: Henderson et. al. (2002), 509.

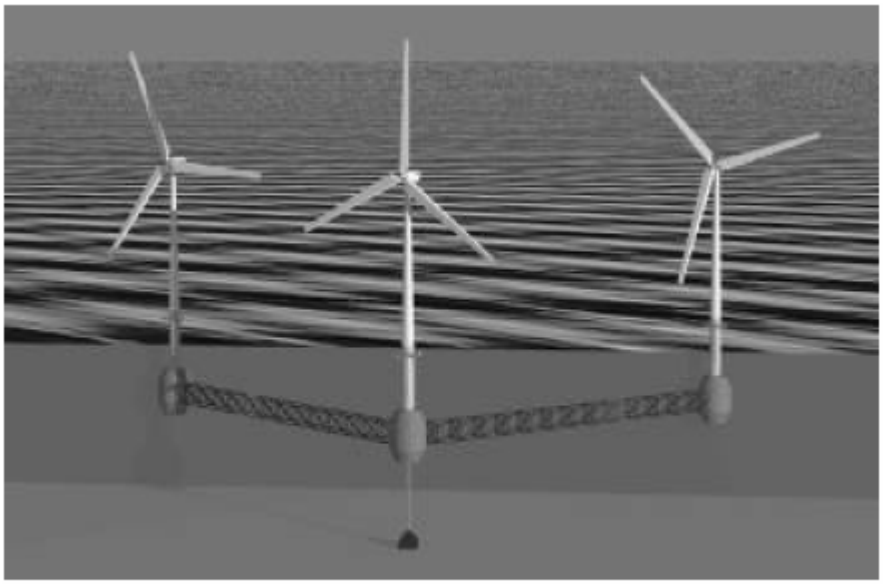
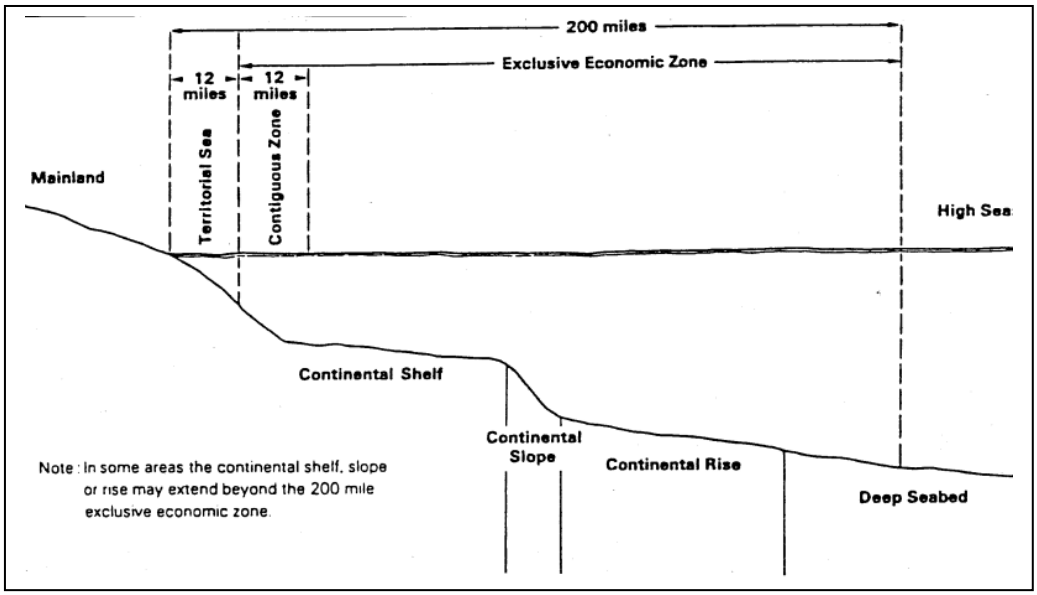


Fig. 9 Space-frame Vessel
Source: Henderson et. al. (2002), 509.

The Triple Floater Concept
Source: Bulder et. al. (2003), vi.

1.4 Delineation of the Sea



Source: Churchill/Lowe (1999), 30.

RESOLUTION A.671(16)

Adopted on 19 October 1989
Agenda item 10

SAFETY ZONES AND SAFETY OF NAVIGATION AROUND OFFSHORE INSTALLATIONS AND STRUCTURES

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

HAVING CONSIDERED articles 60 and 80 of the United Nations Convention on the Law of the Sea, 1982,

NOTING article 5 of the Geneva Convention on the Continental Shelf, 1958,

RECOGNIZING the need for ensuring unencumbered exploitation of natural resources on the continental shelf and in the exclusive economic zone, as well as safety at sea,

RECOGNIZING FURTHER that the congestion of navigable waters by offshore installations or structures could result in ships colliding with such installations or structures thereby causing loss of life, pollution of the marine environment and economic loss,

RECALLING requirements for ships to maintain a continuous listening watch on VHF channel 16 prescribed by regulation IV/8 of the International Convention for the Safety of Life at Sea, 1974 (the 1974 SOLAS Convention), as amended,

RECALLING ALSO requirements for ships to carry adequate and up-to-date charts, notices to mariners and other nautical publications prescribed by regulation V/20 of the 1974 SOLAS Convention,

RECALLING FURTHER:

(a) resolution A.572(14) on general provisions on ships' routeing, and

(b) resolution A.578(14) on guidelines for vessel traffic services,

BEING INFORMED of infringements by vessels, in particular fishing vessels, of safety zones around offshore installations or structures,

BEING CONCERNED about the safety of personnel and the risk of serious damage to offshore installations or structures, vessels and the environment in the event of a collision,

BEING FURTHER INFORMED that:

(a) some flag States do not consistently take action, in accordance with resolution A.379(X), when complaints of infringements of safety zones around offshore installations or structures by their vessels are received,

(b) on occasion, vessels do not respond to radiotelephone calls initiated by offshore installations or structures and that near misses and collisions could have been avoided if vessels maintained a continuous listening watch on VHF channel 16,

(c) vessels identified as having infringed safety zones around offshore installations or structures have, on occasion, been found not to be carrying adequate and up-to-date charts of the area, in violation of regulation V/20 of the 1974 SOLAS Convention,

BEING ALSO INFORMED that not all offshore installations or structures are adequately equipped with devices that would help prevent vessels infringing the safety zones established around them, including lights and sound signals, racons and means for permanent visual look-out and radar watch, and that not all of them listen for and warn vessels on appropriate VHF channels,

BEING AWARE that safety zone regulations are applied by coastal States to protect mobile offshore drilling units* on station, production platforms, artificial islands, accommodation platforms, units and ancillary equipment referred to herein as installations or structures,

BEING ALSO AWARE of the value of accurate and prompt information concerning the existence and location of offshore installations and structures,

DESIRING to bring an end to the infringement of safety zones established around offshore installations or structures,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee, at its fifty-fourth session, that it would be advantageous to consolidate resolutions:

- A.341(IX) – Recommendation on dissemination of information, charting and manning of drilling rigs, production platforms and other similar structures,
- A.379(X) – Establishment of safety zones and fairways or routeing systems in offshore exploration areas, and
- A.621(15) – Measures to prevent infringement of safety zones around offshore installations or structures,

HAVING ALSO CONSIDERED the recommendation made by the Maritime Safety Committee at its fifty-seventh session,

1. RECOMMENDS that Governments:

(a) study the pattern of shipping traffic through offshore resource exploration areas at an early stage so as to be able to assess potential interference with marine traffic passing close to or through such areas at all stages of exploitation;

(b) ensure that the exploitation of natural resources on the continental shelf and in the exclusive economic zone does not seriously obstruct sea approaches and shipping routes;

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* For the purpose of this resolution mobile offshore drilling units (MODUs) used for exploratory drilling operations offshore are considered to be vessels when they are in transit and not engaged in a drilling operation, but are considered to be installations or structures when engaged in a drilling operation.

(c) where traffic patterns warrant it, consider, as appropriate, the establishment of safety zones around offshore installations or structures, or the establishment and charting of fairways or routeing systems through exploration areas;

(d) take all necessary steps to ensure that, unless specifically authorized, ships flying their flags do not enter or pass through duly established safety zones;

(e) ensure that the prohibition on vessels, other than those involved in rendering services related to the operation of the offshore installation or structure, should not apply to vessels entering or remaining in the safety zone:

(i) when in distress;

(ii) for the purpose of saving or attempting to save life or property; or

(iii) in cases of *force majeure*;

(f) draw the attention of seafarers to the need, in the cases referred to in paragraph (e) above, to make early radio contact with the offshore installations or structures, associated vessel traffic services and other vessels in the area;

2. RECOMMENDS FURTHER that flag States should, if necessary, take appropriate measures to ensure that suitable procedures exist to take action against the owner, master or any person responsible at the material time for the conduct of any vessel flying their flag which commits an infringement against any duly established safety zone, and that they inform the coastal State concerned of the follow-up action taken;

3. ADOPTS the Recommendation on Safety Zones and Safety of Navigation around Offshore Installations and Structures which is set out in the Annex to the present resolution;

4. REQUESTS the Maritime Safety Committee, in consultation with the Legal Committee, to keep the present resolution under review and to report to the Assembly as necessary;

5. REVOKES resolutions A.341(IX), A.379(X) and A.621(15).

ANNEX

RECOMMENDATION ON SAFETY ZONES AND SAFETY OF NAVIGATION AROUND OFFSHORE INSTALLATIONS AND STRUCTURES

1 GENERAL

Every coastal State which authorizes and regulates the operation and use of offshore installations and structures under its jurisdiction should:

.1 issue early Notices to Mariners by appropriate means to advise vessels of the location or intended location of offshore installations or structures, the breadth of any safety zones established and the rules which apply therein, and any fairways available;

.2 require operators of MODUs to provide advance notice of any change of their location to the appropriate authority of the coastal State so as to allow timely issue of relevant Notices to Mariners;

.3 require operators of offshore installations or structures, including MODUs which are on station, either moored or resting on the sea-bed, and not actively engaged in drilling operations either prior to commencing such operations or during temporary stoppages for whatever reasons, to take adequate measures to prevent infringement of safety zones around such offshore installations or structures. Such measures may include effective lights and sound signals, racons, permanent visual look-out and radar watch, listening for and warning vessels on VHF channel 16 or other appropriate radio frequencies and the establishment of vessel traffic services; and

.4 request operators of offshore installations or structures to report actions by vessels which jeopardize safety including infringement of safety zones.

2 VESSELS NAVIGATING IN THE VICINITY OF OFFSHORE INSTALLATIONS OR STRUCTURES

Vessels which are navigating in the vicinity of offshore installations or structures should:

.1 navigate with caution, giving due consideration to safe speed and safe passing distances taking into account the prevailing weather conditions and the presence of other vessels or dangers;

.2 where appropriate, take early and substantial avoiding action when approaching such installation or structure to facilitate the installation's or structure's awareness of the vessel's closest point of approach and provide information on any possible safety concerns, particularly where the offshore installation or structure may be used as an aid to navigation;

.3 use any routeing systems established in the area; and

.4 maintain a continuous listening watch on the navigating bridge on VHF channel 16 or other appropriate radio frequencies when navigating in the vicinity of offshore installations or structures to allow radio contact to be established between such installations or structures, vessel traffic services and other vessels so that any uncertainty as to a vessel maintaining an adequate passing distance from the installations or structures can be alleviated.

3 INFRINGEMENTS OF SAFETY ZONES

3.1 Every coastal State which is aware of an infringement of the regulations relating to safety zones around offshore installations or structures under its jurisdiction should take action in accordance with international law and, where it considers necessary, notify the flag State of the infringement allegedly committed by a vessel flying its flag and provide available factual evidence to substantiate the allegation as follows:

.1 name, flag and call sign of the vessel;

.2 course and speed of the vessel;

.3 identification of the offshore installation or structure and its operators;

.4 description of the operational status of the offshore installation or structure (i.e. its latitude and longitude, nature and duration of activity on station, breadth of the safety zone, text and date of notice to mariners giving warning of the offshore activity and rules applicable to the safety zone);

.5 weather conditions at time of the alleged infringement;

.6 details of attempts by installation or structure personnel or personnel on service vessels to contact the approaching vessel including radio frequencies used and the interval between attempts;

.7 description of any communications with the vessel;

.8 statement as to whether the installation or structure exhibited the proper lights and sounded appropriate signals;

.9 photographic evidence or a complete and detailed radar plot, or both, and indication of whether a radar beacon or warning device was in operation;

.10 details of any apparent contravention of any other regulation by the intruding vessel such as the International Regulations for Preventing Collisions at Sea, 1972 as amended, or the 1974 SOLAS Convention; and

.11 name of the Government official to contact regarding the complaint.

3.2 Every flag State which receives a report of an infringement of a safety zone by a vessel flying its flag should make inquiries, take action, where appropriate, in accordance with its national legislation and inform, as appropriate, the coastal State concerned of the follow-up action it has taken.

4 DISSEMINATION OF INFORMATION RELATED TO OFFSHORE INSTALLATIONS AND STRUCTURES

4.1 The coastal State authorizing the search for, and any subsequent exploitation of, any natural resources on the continental shelf or in the exclusive economic zone should be responsible for the dissemination of information essential for the safety of navigation or any other legitimate activity within the area in which, in accordance with international law, it has sovereign rights and jurisdiction.

4.2 This dissemination of information should take the form of radio-warnings and Notices to Mariners (temporary, preliminary and permanent) to cover all stages of activity, initial search and investigation, trial drilling and subsequent exploitation. The information so dealt with should take into account:

.1 the area, period and nature of the initial search;

.2 the position of a subsequent drilling, any warning or navigational marking and period of operation;

.3 the state in which the sea-bed is left, the nature of any obstructions remaining after test drilling and any navigational marking;

.4 the nature and duration of any works connected with the establishment of permanent production installations or structures, and any associated work such as laying of pipelines;

.5 details of any safety zone around the installation or structure and any fairways and routeing systems established in its vicinity including, where relevant, their marking.

4.3 The coastal State responsible for authorizing the above activities should take all steps necessary, either directly or via the development and research agencies, to ensure that all information concerning the said activities is conveyed to the hydrographic authority concerned in complete detail at the earliest possible moment at all stages.

5 CHARTS AND NAUTICAL PUBLICATIONS

5.1 Any features of a sufficiently permanent nature such as permanent installations or structures, bottom obstructions, pipelines, navigational marks and prohibited areas should be shown on all appropriate navigational charts. When such features exist in such density or are of a sufficiently mobile nature as to preclude accurate charting, then information on the areas concerned, together with any associated aids to navigation and fairways and appropriate warning notes should be promulgated and marked on the navigational charts.

5.2 Associated publications, such as Sailing Directions and Notices to Mariners, should carry full details of any related regulations which affect navigation or other maritime activity.

5.3 In cases where the authorizing coastal State has no facility, or inadequate facility for charting or disseminating information as described above, it should take all appropriate steps to convey, either directly or via the development and research agencies, all necessary information to the hydrographic authority/authorities which normally carry primary charting and associated responsibility for the area concerned.

Source: “E-mail from” Arm Hussein (IMO) “to” Carola Fink (June 2005).

1.6 Resolution A.927(22)

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ASSEMBLY
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GUIDELINES FOR THE DESIGNATION OF SPECIAL AREAS UNDER MARPOL 73/78 AND GUIDELINES FOR THE IDENTIFICATION AND DESIGNATION OF PARTICULARLY SENSITIVE SEA AREAS

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety, the prevention and control of marine pollution from ships and other matters concerning the effect of shipping on the marine environment,

RECALLING ALSO resolution A.720(17) by which the Assembly adopted the Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas and requested the Marine Environment Protection Committee and the Maritime Safety Committee to keep the Guidelines under review,

RECALLING FURTHER resolution A.885(21) by which the Assembly adopted Procedures for the Identification of Particularly Sensitive Sea Areas and the Adoption of Associated Protective Measures and Amendments to the Guidelines contained in resolution A.720(17), and also requested the Marine Environment Protection Committee and the Maritime Safety Committee to keep these Guidelines under review,

RECOGNIZING the need to update and simplify the Guidelines in order to clarify the procedures for the designation of Special Areas under MARPOL 73/78 and for the identification and subsequent designation of Particularly Sensitive Sea Areas and the adoption of associated protective measures,

HAVING CONSIDERED the recommendations made by the Marine Environment Protection Committee at its forty-sixth session:

1. ADOPTS:

   (a) new Guidelines for the Designation of Special Areas under MARPOL 73/78 as set out in Annex 1, which supersede chapter 2 of the Annex to resolution A.720(17); and

   (b) new Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas as set out in Annex 2, which supersede chapter 3 of the Annex to resolutions A.720(17) and A.885(21);

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2. INVITES Governments to apply the new Guidelines when proposing the designation of a Special Area under MARPOL 73/78 or a Particularly Sensitive Sea Area;

3. REQUESTS both the Marine Environment Protection Committee and the Maritime Safety Committee to keep the new Guidelines under review; and

4. REVOKES resolutions A.720(17) and A.885(21).

ANNEX 1

GUIDELINES FOR THE DESIGNATION OF SPECIAL AREAS UNDER MARPOL 73/78

1 INTRODUCTION

1.1 The purpose of these Guidelines is to provide guidance to Contracting Parties to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) in the formulation and submission of applications for the designation of Special Areas under Annexes I, II, and V to the Convention. These Guidelines also ensure that all interests - those of the coastal State, flag State, and the environmental and shipping communities - are thoroughly considered on the basis of relevant scientific, technical, economic, and environmental information and provide for the assessment of such applications by IMO. Contracting Parties should also review and comply with the applicable provisions of Annexes I, II, and V to the Convention in addition to these Guidelines.

2 ENVIRONMENTAL PROTECTION FOR SPECIAL AREAS UNDER MARPOL 73/78

General

2.1 MARPOL 73/78, in Annexes I, II and V, defines certain sea areas as Special Areas in relation to the type of pollution covered by each Annex. A Special Area is defined as "a sea area where for recognised technical reasons in relation to its oceanographical and ecological conditions and to the particular character of its traffic, the adoption of special mandatory methods for the prevention of sea pollution by oil, noxious liquid substances, or garbage, as applicable, is required." Under the Convention, these Special Areas are provided with a higher level of protection than other areas of the sea.

2.2 A Special Area may encompass the maritime zones of several States, or even an entire enclosed or semi-enclosed area. Special Area designation should be made on the basis of the criteria and characteristics listed in paragraphs 2.3 to 2.6 to avoid the proliferation of such areas.

Criteria for the designation of a Special Area

2.3 The criteria which must be satisfied for an area to be given Special Area status are grouped into the following categories:

- oceanographic conditions;
- ecological conditions; and
- vessel traffic characteristics.

Generally, information on each category should be provided in a proposal for designation. Additional information that does not fall within these categories may also be considered.

Oceanographic conditions

2.4 The area possesses oceanographic conditions which may cause the concentration or retention of harmful substances in the waters or sediments of the area, including:

1 particular circulation patterns (e.g. convergence zones and gyres) or temperature and salinity stratification;

2 long residence time caused by low flushing rates;

3 extreme ice state; and

4 adverse wind conditions.

Ecological conditions

2.5 Conditions indicating that protection of the area from harmful substances is needed to preserve:

1 depleted, threatened or endangered marine species;

2 areas of high natural productivity (such as fronts, upwelling areas, gyres);

3 spawning, breeding and nursery areas for important marine species and areas representing migratory routes for sea-birds and marine mammals;

4 rare or fragile ecosystems such as coral reefs, mangroves, seagrass beds and wetlands; and

5 critical habitats for marine resources including fish stocks and/or areas of critical importance for the support of large marine ecosystems.

Vessel traffic characteristics

2.6 The sea area is used by ships to an extent that the discharge of harmful substances by ships when operating in accordance with the requirements of MARPOL 73/78 for areas other than Special Areas would be unacceptable in the light of the existing oceanographic and ecological conditions in the area.

Implementation

2.7 The requirements of a Special Area designation can only become effective when adequate reception facilities are provided for ships in accordance with the provisions of MARPOL 73/78.

Other considerations

2.8 The threat to amenities posed by the discharge of harmful substances from ships operating in accordance with the MARPOL 73/78 requirements for areas other than Special Areas may strengthen the argument for designating an area a Special Area.

2.9 The extent to which the condition of a sea area is influenced by other sources of pollution such as pollution from land-based sources, dumping of wastes and dredged materials, as well as atmospheric deposition should be taken into account. Proposals would be strengthened if measures are being, or will be, taken to prevent, reduce and control pollution of the marine environment by these sources of pollution.

2.10 Consideration should be given to the extent to which a management regime is used in managing the area. Proposals for designation of a Special Area would be strengthened if measures are being taken to manage the area's resources.

3 PROCEDURES FOR THE DESIGNATION OF A SPECIAL AREA

3.1 A proposal to designate a given sea area as a Special Area should be submitted to the Marine Environment Protection Committee (MEPC) for its consideration in accordance with the rules adopted by the IMO for submission of papers.

3.2 A proposal to designate a sea area as a Special Area should contain:

1 a draft amendment to MARPOL 73/78 as the formal basis for the designation; and

2 a background document setting forth all the relevant information to explain the need for the designation.

3.3 The background document should contain the following information:

1 a definition of the area proposed for designation, including its precise geographical co-ordinates. A reference chart is essential.

2 an indication of the type of Special Area proposed. Proposals may be made simultaneously with respect to Annexes I, II and V of MARPOL 73/78, but proposals for each Annex should be presented and evaluated separately.

3 a general description of the area, including information regarding:

- oceanography
- ecological characteristics
- social and economic value
- scientific and cultural significance
- environmental pressures from ship-generated pollution
- other environmental pressures
- measures already taken to protect the area.

This general description may be supported by annexes containing more detailed material, or by references to readily available documentation.

4 an analysis of how the sea area in question fulfils the criteria for the designation of Special Areas set out in paragraphs 2.3 to 2.6.

5 information on the availability of adequate reception facilities in the proposed Special Area.

3.4 The formal amendment procedure applicable to proposals for the designation of Special Areas is set out in article 16 of MARPOL 73/78.

Detailed discharge requirements

3.5 For detailed requirements relating to discharges under Annexes I, II and V to MARPOL 73/78, please refer to the latest version of the Convention in force.

ANNEX 2

GUIDELINES FOR THE IDENTIFICATION AND DESIGNATION OF PARTICULARLY SENSITIVE SEA AREAS

1 INTRODUCTION

1.1 The Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO) began its study of the question of Particularly Sensitive Sea Areas (PSSAs) in response to a resolution of the International Conference on Tanker Safety and Pollution Prevention of 1978. The discussions of this concept from 1986 to 1991 culminated in the adoption of Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas by Assembly resolution A.720(17) in 1991. The procedures contained in this document were further elaborated upon by Assembly resolution A.885(21), adopted in 1999. In a continuing effort to provide a clearer understanding of the concepts set forth in the Guidelines, the MEPC decided to separate the issues of the designation of Special Areas and the identification of Particularly Sensitive Sea Areas into two documents. This document sets forth the Guidelines for the Identification and Designation of PSSAs.

1.2 A PSSA is an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific reasons and because it may be vulnerable to damage by international shipping activities. In order for the area to be identified as a PSSA, it must meet one of the criteria listed below in section 4. As of 2001, two particularly sensitive sea areas have been designated by IMO: the Great Barrier Reef (MEPC.44(30)) and the Archipelago of Sabana-Camaguey (MEPC.74(40)). Details of designated areas are provided in the Appendix.

1.3 Many international and regional instruments encourage the protection of areas important for the conservation of biological diversity as well as other areas with high ecological, cultural, historical/archaeological, socio-economic or scientific significance. They further call on their Parties to protect such areas from activities, including shipping operations, that may undermine their values.

1.4 The purpose of these Guidelines is to:

(a) provide guidance to IMO Member Governments in the formulation and submission of applications for designation of PSSAs;

(b) ensure that in that process all interests - those of the coastal State, flag State, and the environmental and shipping communities - are thoroughly considered on the basis of relevant scientific, technical, economic, and environmental information regarding the area at risk of damage from international shipping activities and the protective measures to minimize that risk; and

(c) provide for the assessment of such applications by the IMO.

1.5 Identification of any PSSA and the adoption of associated protective measures requires consideration of three integral components: the particular environmental conditions of the area to be identified, the vulnerability of such area to damage by international maritime activities, and the availability of associated protective measures within the competence of IMO to address risks from these shipping activities.

2 INTERNATIONAL SHIPPING ACTIVITIES AND THE MARINE ENVIRONMENT

2.1 Shipping activity can constitute an environmental hazard to the marine environment in general and consequently even more so to environmentally and/or ecologically sensitive areas. Environmental hazards associated with shipping include:

(a) operational discharges;

(b) accidental or intentional pollution; and

(c) physical damage to marine habitats or organisms.

2.2 In the course of routine operations and accidents, ships may release a wide variety of substances either directly into the marine environment or indirectly through the atmosphere. Such pollutants include oil and oily mixture, noxious liquid substances, sewage, garbage, noxious solid substances, anti-fouling paints, foreign organisms and even noise. Many of these substances can adversely affect the marine environment and the living resources of the sea. Pollutants may also damage the environment as a consequence of shipping accidents. In addition, ships may cause harm to marine organisms and their habitats through physical impact. Habitats may be smothered through grounding and ships have been known to strike large marine mammals such as whales.

3 PROCESS FOR THE DESIGNATION OF PARTICULARLY SENSITIVE SEA AREAS

3.1 The IMO is the only international body responsible for designating areas as Particularly Sensitive Sea Areas and adopting associated protective measures. An application to IMO for designation of a PSSA and the adoption of associated protective measures, or an amendment thereto, may be submitted only by a proposing Member Government. Where two or more Governments have a common interest in a particular area, they should formulate a co-ordinated proposal. The proposal should contain integrated measures and procedures for co-operation between the jurisdictions of the proposing Member Governments.

3.2 Member Governments wishing to have the IMO designate a PSSA should submit an application to the MEPC based on the criteria outlined in section 4 and proposed associated protective measures as outlined in section 6. Applications should be submitted in accordance with the procedures set forth in section 7 and the rules adopted by the IMO for submission of papers.

4 ECOLOGICAL, SOCIO-ECONOMIC, OR SCIENTIFIC CRITERIA FOR THE IDENTIFICATION OF A PARTICULARLY SENSITIVE SEA AREA

4.1 The following criteria apply to the identification of PSSAs only with respect to the adoption of measures to protect such areas against damage from international shipping activities.

4.2 These criteria do not, therefore, apply to the identification of such areas for the purpose of establishing whether they should be protected from dumping activities, since that is implicitly covered by the London Convention 1972 (the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972) and the 1996 Protocol to that Convention.

4.3 The criteria relate to PSSAs within and beyond the limits of the territorial sea. They can be used by IMO to designate PSSAs beyond the territorial sea with a view to the adoption of international protective measures regarding pollution and other damage caused by ships. They may also be used by national administrations to identify Particularly Sensitive Sea Areas within their territorial seas.

4.4 In order to be identified as a PSSA, the area should meet at least one of the criteria listed below and should be at risk from international shipping activities, taking into consideration the factors listed in section 5.

Ecological criteria

4.4.1 Uniqueness or rarity - An ecosystem can be unique or rare. An area or ecosystem is unique if it is "the only one of its kind". Habitats of rare, threatened, or endangered species that occur only in one area are an example. An area or ecosystem is rare if it only occurs in a few locations or has been seriously depleted across its range. An ecosystem may extend beyond country borders, assuming regional or international significance. Nurseries or certain feeding areas may also be rare or unique.

4.4.2 Critical habitat - A sea area may be a critical habitat for fish stocks or rare or endangered marine species, or an area of critical importance for the support of large marine ecosystems.

4.4.3 Dependency - Ecological processes of such areas are highly dependent on biotically structured systems (e.g. coral reefs, kelp forests, mangrove forests, seagrass beds). Such biotically structured ecosystems often have high diversity, which is dependent on the structuring organisms. Dependency also embraces areas representing the migratory routes of marine fish, reptiles, birds and mammals.

4.4.4 Representativeness - These areas have highly representative ecological processes, or community or habitat types or other natural characteristics. Representativeness is the degree to which an area represents a habitat type, ecological process, biological community, physiographic feature or other natural characteristic.

4.4.5 Diversity - These areas have a high variety of species or genetic diversity or include highly varied ecosystems, habitats, and communities. However, this criterion may not apply to some simplified ecosystems, such as pioneer or climax communities, or areas subject to disruptive forces, such as shores exposed to high-energy wave action.

4.4.6 Productivity - The area has a high natural biological productivity. Production is the net result of biological and physical processes which result in an increase in biomass in areas of high natural productivity such as oceanic fronts, upwelling areas and some gyres.

4.4.7 Spawning or breeding grounds - The area may be a critical spawning or breeding ground or nursery area for marine species which may spend the rest of their life-cycle elsewhere, or may be a migratory route for sea birds or marine mammals.

4.4.8 Naturalness - The area has a high degree of naturalness, as a result of the lack of human-induced disturbance or degradation.

4.4.9 Integrity - The area is a biologically functional unit, an effective, self-sustaining ecological entity. The more ecologically self-contained the area is the more likely it is that its values can be effectively protected.

4.4.10 Vulnerability - The area is highly susceptible to degradation by natural events or the activities of people. Biotic communities associated with coastal habitats may have a low tolerance to changes in environmental conditions, or they may exist close to the limits of their tolerance (defined by water temperature, salinity, turbidity or depth). They may suffer such natural stresses as storms or prolonged emersion that determine the extent of their development. Additional stress (such as domestic or industrial pollution, excessive reduction in salinity, and increases in turbidity from watershed mismanagement) may determine whether there is total, partial, or no recovery from natural stress, or the area is totally destroyed. Certain oceanographic and meteorological factors could cause an area to be vulnerable or increase its vulnerability, for example by causing the concentration or retention of harmful substances in the waters or in the sediment of the area, or by otherwise exposing the area to harmful substances. These conditions include circulation patterns such as convergence zones, oceanic fronts and gyres, long residence times caused by low flushing rates, the occurrence of seasonal or permanent density stratification which can result in oxygen depletion in the bottom layer, as well as adverse ice states and wind conditions. An area already subject to environmental stresses owing to human activities or natural phenomena (e.g. natural oil seepage) may be in need of special protection from further stress, including stress arising from international shipping activities.

4.4.11 Bio-geographic importance - An area that either: contains rare biogeographic qualities or is representative of a biogeographic "type" or types, or contains unique or unusual geological features.

Social, cultural and economic criteria

4.4.12 Economic benefit - The area is of particular importance to utilization of living marine resources.

4.4.13 Recreation - The area has special significance for recreation and tourism.

4.4.14 Human dependency - The area is of particular importance for the support of traditional subsistence and/or cultural needs of the local human population.

Scientific and educational criteria

4.4.15 Research - The area has high scientific interest.

4.4.16 Baseline and monitoring studies - The area provides suitable baseline conditions with regard to biota or environmental characteristics.

4.4.17 Education - The area offers the opportunity to demonstrate particular natural phenomena.

4.5 In many cases a PSSA may be identified within a Special Area and vice versa. It should be noted that the criteria with respect to the identification of PSSAs and the criteria for the designation of Special Areas are not mutually exclusive.

5 OTHER CONSIDERATIONS FOR THE IDENTIFICATION OF A PARTICULARLY SENSITIVE SEA AREA

5.1 In addition to meeting at least one of the criteria listed in 4.4, the area should be at risk from international shipping activities. This involves consideration of the following factors:

Vessel traffic characteristics

5.1.1 Operational factors - Types of maritime activities (e.g. small fishing boats, small pleasure craft, oil and gas rigs) in the proposed area that may increase risk to the safety of navigation.

5.1.2 Vessel types - Types of vessels passing through or adjacent to the area (e.g. high-speed vessels, large tankers, or bulk carriers with small under-keel clearance).

5.1.3 Traffic characteristics - Volume or concentration of traffic, vessel interaction, distance offshore or other dangers to navigation, are such as to involve greater risk of collision or grounding.

5.1.4 Harmful substances carried - Type and quantity of substances on board, whether cargo, fuel or stores, that would be harmful if released into the sea.

Natural factors

5.1.5 Hydrographical - Water depth, bottom and coastline topography, lack of proximate safe anchorages and other factors which call for increased navigational caution.

5.1.6 Meteorological - Prevailing weather, wind strength and direction, atmospheric visibility and other factors which increase the risk of collision and grounding and also the risk of damage to the sea area from discharges.

5.1.7 Oceanographic - Tidal streams, ocean currents, ice, and other factors which increase the risk of collision and grounding and also the risk of damage to the sea area from discharges.

In proposing an area as a PSSA and in considering what associated protective measures should be taken, other information that might be helpful includes the following:

- any evidence that international shipping activities are causing damage and whether damage is of a recurring or cumulative nature;
- any history of groundings, collisions, or spills in the area and any consequences of such incidents;
- any foreseeable circumstances or scenarios under which significant damage could occur;
- stresses from other environmental sources; and
- any measures already in effect and their actual or anticipated beneficial impact.

6 ASSOCIATED PROTECTIVE MEASURES

6.1 In the context of these Guidelines, associated protective measures for PSSAs are limited to actions within the purview of IMO and include the following options:

6.1.1 designation of an area as a Special Area under Annexes I, II or V, or a SOx emission control area under Annex VI of MARPOL 73/78, or application of special discharge restrictions to vessels operating in a PSSA. Procedures and criteria for the designation of Special Areas are contained in the Guidelines for the Designation of Special Areas. Criteria and procedures for the designation of SOx emission control areas maybe found in Annex VI to MARPOL 73/78;

6.1.2 adoption of ships' routeing and reporting systems near or in the area, under the International Convention for the Safety of Life at Sea (SOLAS) and in accordance with the General Provisions on Ships' Routeing and the Guidelines and Criteria for Ship Reporting Systems. For example, a PSSA may be designated as an area to be avoided or it may be protected by other ships' routeing or reporting systems;

6.1.3 development and adoption of other measures aimed at protecting specific sea areas against environmental damage from ships, such as compulsory pilotage schemes or vessel traffic management systems.

6.2 Consideration should also be given to the potential for the area to be listed on the World Heritage List, declared a Biosphere Reserve, or included on a list of areas of international, regional, or national importance, or if the area is already the subject of such international, regional, or national conservation action or agreements.

6.3 In some circumstances, a proposed PSSA may include within its boundaries a buffer zone, in other words, an area contiguous to the site-specific feature (core area) for which specific protection from shipping is sought. However, the need for such a buffer zone should be justified in terms of how it would contribute to the adequate protection of the core area.

7 PROCEDURE FOR THE DESIGNATION OF PARTICULARLY SENSITIVE SEA AREAS AND THE ADOPTION OF ASSOCIATED PROTECTIVE MEASURES

7.1 If an application for PSSA designation is submitted which does not contain a proposal for an associated protective measure or measures, the proposing Member Government should submit the types of measures it is considering. A proposal for at least one associated protective measure shall be submitted within two years of the approval in principle of the PSSA.

7.2 Alternatively, if no associated protective measure is being proposed because IMO measures already exist to protect the area, then the application should show how the area is already being protected by such measures.

7.3 The application should first clearly set forth a summary of the objectives of the proposed PSSA designation, the location of the area, the need for protection and the proposal for associated protective measures. The summary should include the reasons why the proposed associated protective measures are the preferred method for providing protection for the area to be identified as a PSSA.

7.4 Each application should then consist of two parts.

7.4.1 Part I - *Description, significance of the area and vulnerability*

.1 *Description* - a detailed description of the location of the proposed area, along with a chart on which the location of area is clearly marked, should be submitted with the application.

.2 *Significance of the area* - the application should state the significance of the area on the basis of recognized ecological, socio-economic, or scientific reasons and should explicitly refer to the criteria listed above in section 4.

.3 *Vulnerability of the area to damage by international shipping activities* - the application should provide an explanation of the nature and extent of risk that international shipping activities pose to the environment of the proposed area, noting the factors listed in Section 5. The application should explain the effects of the damage on the environmental characteristics of the proposed area and indicate any potential economic harm that may result from such damage.

7.4.2 Part II - *Appropriate associated protective measures and IMO's competence to adopt such measures*

.1 The application should propose the associated protective measures which are available through IMO and show how they provide the needed protection from the threats of damage posed by international maritime activities occurring in and around the area.

(a) The application should identify the proposed measures which may include:

(i) any measure that is already available in an existing instrument; or

(ii) any measure that does not yet exist but that should be available as a generally applicable measure and that falls within the competence of IMO; or

(iii) any measure proposed for adoption in the territorial sea* or pursuant to Article 211(6) of the United Nations Convention on the Law of the Sea.

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* This provision does not derogate from the rights and duties of coastal States in the territorial sea as provided for in the United Nations Convention on the Law of the Sea.

(b) These measures may include ships' routeing measures; discharge restrictions; operational criteria; and prohibited activities, and should be specifically tailored to meet the need of the area at risk.

.2 The application should clearly specify the category or categories of ships to which the proposed associated protective measures would apply, consistent with the provisions of the United Nations Convention on the Law of the Sea, including those related to vessels entitled to sovereign immunity

.3 The application should include the steps that the proposing Member Government has taken or will take to pursue the adoption of a generally applicable measure or the recognition of the proposed measure by IMO.

.4 The application should indicate the possible impact of any proposed measures on the safety and efficiency of navigation, taking into account the area of the ocean in which the proposed measures are to be implemented. The application should set forth such information as:

(a) consistency with the General Provisions on Ships' Routeing, as amended;

(b) implications for vessel safety; and

(c) impact on vessel operations.

7.5 An application for PSSA designation should address all relevant considerations and criteria in these Guidelines, and should include relevant supporting information for each such item.

7.6 The application should contain a summary of steps taken, if any, by the proposing Member Government to date to protect the proposed area.

7.7 The proposing Member Government should also include in the application the details of action to be taken pursuant to domestic law for the failure of a ship to comply with the requirements of the associated protective measures. Any action taken should be consistent with international law as reflected in the United Nations Convention on the Law of the Sea.

8 CRITERIA FOR ASSESSMENT OF APPLICATIONS FOR DESIGNATION OF PARTICULARLY SENSITIVE SEA AREAS AND THE ADOPTION OF ASSOCIATED PROTECTIVE MEASURES

8.1 IMO should consider each application, or amendment thereto, submitted to it by a proposing Member Government on a case-by-case basis to determine whether identification of the area as a PSSA and the adoption of associated protective measures are warranted.

8.2 In assessing each proposal, IMO should take into account the criteria which are to be included in each application as set forth above in section 4 of these Guidelines. In particular, IMO should consider:

.1 the full range of protective measures available and determine whether the proposed associated protective measures are appropriate to address effectively the

assessed risk of damage to the proposed area by identified international shipping activities;

.2 whether such measures might result in increased potential for significant adverse effects by international shipping activities on the environment outside the proposed PSSA; and

.3 whether the size of the area is commensurate with that necessary to address the identified need.

8.3 The procedure for considering a PSSA application by IMO is as follows:

.1 the Marine Environment Protection Committee (MEPC) should bear primary responsibility within IMO for considering PSSA applications and all applications should first be submitted to the MEPC;

.2 MEPC should initially review the application to determine whether it addresses the provisions of the Guidelines. If it does, the MEPC may approve in principle the PSSA, and should refer the application, with its associated protective measures, to the appropriate Sub-Committee or Committee (which could be the MEPC itself) that is responsible for addressing the particular associated protective measures proposed for the area. The Sub-Committee may seek the advice of the MEPC on issues pertinent to the application. The MEPC should make no final determination to designate the PSSA until after the associated protective measures are considered by the pertinent Sub-Committee or Committee;

.3 for measures that require approval by the Maritime Safety Committee (MSC), the Sub-Committee should forward its recommendation for approval of the associated protective measures to the MSC or, if the Sub-Committee rejects the measures, it should inform the MSC and MEPC and provide a statement of reasons for its decision. The MSC should consider any such recommendations and, if the measures are to be adopted, it should notify the MEPC of its decision;

.4 if an application is submitted without proposed associated protective measures, except as noted in 7.2, the MEPC may approve in principle the identification of the area as a PSSA, pending submission of at least one proposed associated protective measure within two years of such approval and subsequent adoption of at least one associated protective measure;

.5 if the application is rejected, the MEPC shall notify the proposing Member Government and provide a statement of reasons for its decision; and

.6 after approval by the appropriate Sub-Committee or Committee of the associated protective measures, the MEPC may designate the area as a PSSA.

8.4 IMO should provide a forum for the review and re-evaluation of any associated protective measure adopted, as necessary, taking into account pertinent comments, reports, and observations of the measures. Member Governments which have ships operating in the area of the designated PSSA are encouraged to bring any concerns with the associated protective measures to IMO so that any necessary adjustments may be made. Member Governments that originally submitted the application for identification with the associated protective measures, should also bring any

concerns and proposals for additional measures or modifications to any associated protective measure or the PSSA itself to IMO.

8.5 After the designation of a PSSA and its associated protective measures, IMO should ensure that the effective date of implementation is as soon as possible based on the rules of IMO and consistent with international law.

8.6 IMO should, in assessing applications for designation of PSSAs and their associated protective measures, take into account the technical and financial resources available to developing Member Governments and those with economies in transition.

9 IMPLEMENTATION OF DESIGNATED PSSAs AND THE ASSOCIATED PROTECTIVE MEASURES

9.1 When a PSSA is finally designated, all associated protective measures should be identified on charts in accordance with the symbols and methods of the International Hydrographic Organization (IHO). Proposing Member Governments may also chart designated PSSAs in accordance with appropriate national symbols; however, if an international symbol is adopted by the IHO, proposing Member Governments should mark PSSAs in accordance with such symbol and other IHO recommended methods.

9.2 Proposing Member Governments should ensure that any associated protective measure is implemented in accordance with international law as reflected in the United Nations Convention on the Law of the Sea.

9.3 Member Governments should take all appropriate steps to ensure that ships flying their flag comply with the associated protective measures adopted to protect the designated PSSA. Those Member Governments which have received information of an alleged violation of an associated protective measure by a ship flying their flag should provide the Government which has reported the offence with the details of any appropriate action taken.

APPENDIX

SUMMARIES OF EXISTING PSSAs

1. Great Barrier Reef, Australia

The Great Barrier Reef region was designated as a Particularly Sensitive Sea Area in November 1990 (MEPC 44(30)).

The Great Barrier Reef is the largest system of corals and associated life forms anywhere in the world. The area extends approximately 2,300 km along the eastern coast of Queensland, Australia from just north of Fraser Island in the south (24 30'S) to the latitude of Cape York in the north (10 41'S), and covers an area of 348,000 sq. km on the continental shelf of Australia. It is acknowledged as an area of great natural beauty and is listed on the World Heritage List.

Characteristics which contribute to giving this area special significance:

Ecological criteria

Uniqueness: largest single collection of coral reefs in the world, which biologically supports the most diverse ecosystem known to man.

Dependency: outstanding example of a biotic structured ecosystem of high diversity dependent on the structuring organisms.

Representativeness: largest and most complex example of a coral reef ecosystem in the world.

Diversity: the most diverse ecosystem known to man.

Productivity: numerous areas of high biological productivity.

Naturalness: apart from some very small areas, is still in pristine condition and has not been unduly affected by human activity.

Integrity: contains all ecosystem components required for the continued existence of the species within that system. It may be regarded as a biologically functional unit.

Vulnerability: coral reefs are susceptible to various forms of contaminants in seawater. In addition, physical destruction of reef structures through vessel impacts, anchors, etc. can take many years to be repaired. Various sectors of the region have relatively low flushing rates due to the blocking effect of the reefs. Contaminants in such sectors can persist for lengthy periods of time.

Social, cultural and economic criteria

Economic benefit: commercial fishing and tourism, recreational pursuits including fishing, diving and camping, traditional fishing, scientific research and shipping all occur in the region. It is also a significant shipping route with around 2000 ships passing through each year.

Recreation: commercial tourism is provided by commercial passenger boats which carry around 1.2 million visitors days per annum. The trips range from day trips to extended cruises.

Human dependency: the degree of dependence of the Australian community on the Reef is high. The economic value of the Reef is approximately $1,000 million per annum.

Historic shipwrecks: the register of the National Estate indicates that the Great Barrier Reef region contains some thirty known shipwrecks of historic importance.

Scientific and educational criteria

Research: an area of high scientific interest. Research within the region is focussed at the four island research stations.

Baseline and monitoring studies: areas significant in terms of their potential for scientific research are protected by zoning plans which allow research to be conducted while protecting the areas from other disturbing influences.

Education: the broad range of natural phenomena which may be observed in the region make it an area of the highest educational value.

Historical value: the northern sector is particularly important in the history and culture of the indigenous Aboriginal groups of the coastal areas of north-east Australia. The hazards of navigation resulted in the construction of a large number of lighthouses, some of which have particular historical importance.

Protective Measures

Compulsory Pilotage: On 1 October 1991, the Australian government declared compulsory pilotage areas for the Inner Route between Cairns (latitude 16° 40' S) and Cape York (latitude 10° 41' S) and for Hydrographers Passage. All vessels of 70 metres or more in length and all loaded oil tankers, chemical carriers and gas carriers of any length, must use the services of a pilot licensed by the Australian Maritime Safety Authority (AMSA).

IMO-recommended Pilotage: The International Maritime Organization (IMO) has recommended under resolution A.710(17) that vessels of 70 metres in length and over and all loaded oil tankers, chemical tankers or liquefied gas carriers, irrespective of size, use the pilotage services licensed under Australian Commonwealth, State or Territory law when navigating the Torres Strait and the Great North East channel.

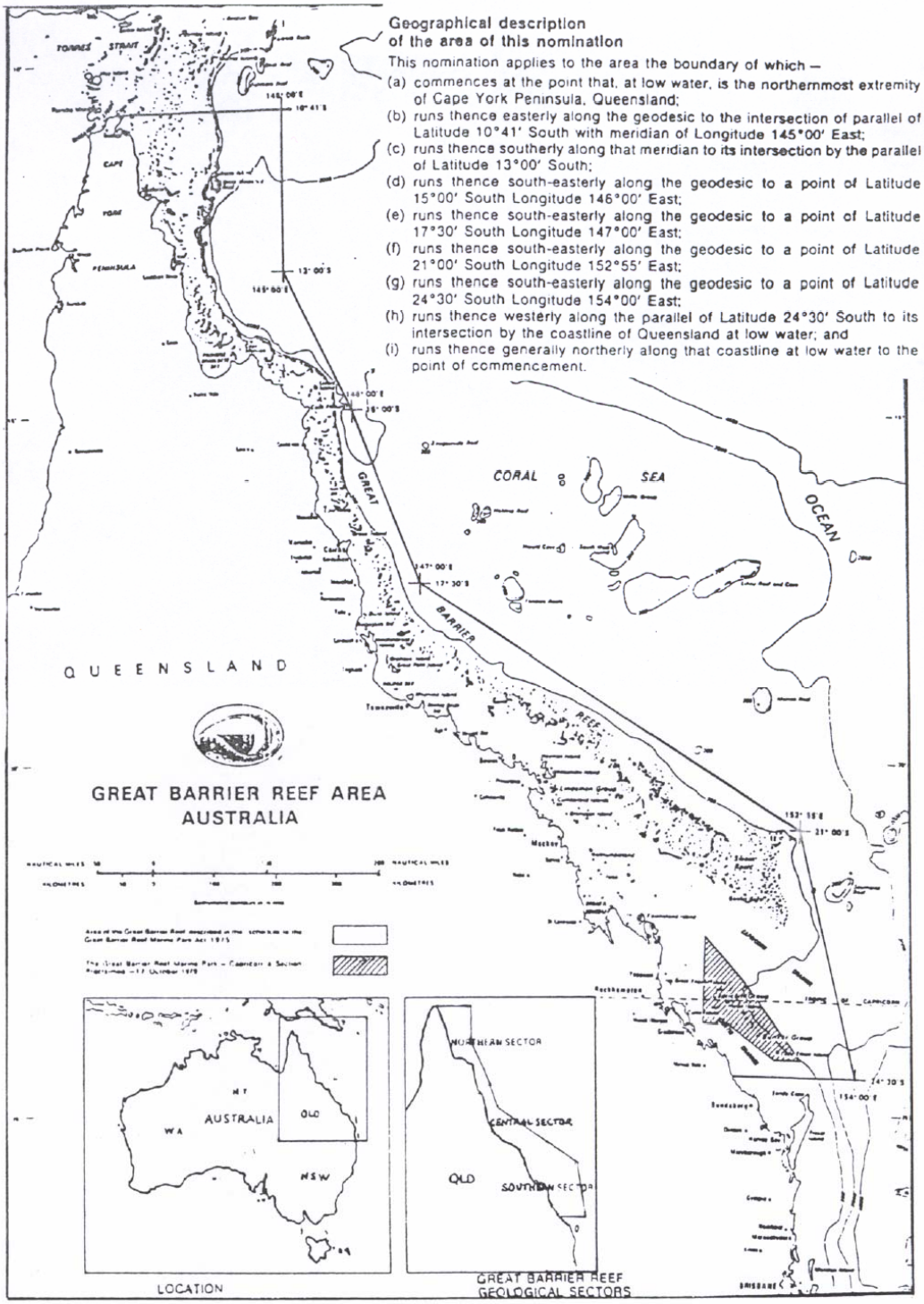
Mandatory reporting: in 1997 Australia introduced a mandatory ship reporting system for all ships 50 metres or more in length, all tankers and INF Code ships, and vessels towing where the ship and tow exceed 150 metres.

SCHEDULE 1

Geographical description of the area of this nomination

This nomination applies to the area the boundary of which –

(a) commences at the point that, at low water, is the northernmost extremity of Cape York Peninsula, Queensland;
(b) runs thence easterly along the geodesic to the intersection of parallel of Latitude 10°41′ South with meridian of Longitude 145°00′ East;
(c) runs thence southerly along that meridian to its intersection by the parallel of Latitude 13°00′ South;
(d) runs thence south-easterly along the geodesic to a point of Latitude 15°00′ South Longitude 146°00′ East;
(e) runs thence south-easterly along the geodesic to a point of Latitude 17°30′ South Longitude 147°00′ East;
(f) runs thence south-easterly along the geodesic to a point of Latitude 21°00′ South Longitude 152°55′ East;
(g) runs thence south-easterly along the geodesic to a point of Latitude 24°30′ South Longitude 154°00′ East;
(h) runs thence westerly along the parallel of Latitude 24°30′ South to its intersection by the coastline of Queensland at low water; and
(i) runs thence generally northerly along that coastline at low water to the point of commencement.



2. Archipelago of Sabana-Camaguey, Cuba

The Sabana-Camaguey Archipelago was designated as a PSSA in September 1997 (MEPC.74(40)). It is located in the north-central portion of the Republic of Cuba, extending for 465 kilometres between the Hicacos Peninsula and the Bay of Nuevitas. It is the most extensive island sub-group of the Cuban Archipelago, comprising more than 2,515 islands and small keys.

Within this zone, consideration must be given to the coral reef that borders the archipelago to the North, which gives it good protection and a high conservation value, particularly in view of its good state of preservation and the ecological functions it fulfils.

Along its outer edge there is a coral reef 400 kilometres long, considered as one of the most notable of the Wider Caribbean Region on account of its size and the diversity of its species.

Characteristics which contribute to giving this area special significance:

Ecological criteria

The Archipelago is a highly singular and unique territory particularly on account of its natural scenery and associated biodiversity. Its singularity derives from the predominance of cumulative carbonaceous island complexes which have features not found in the rest of the Cuban sub-archipelagos.

This group of islands presents highly significant features, particularly in terms of its biotic resources, on account of which it has been categorised as an independent and clearly defined bio-geographical, ecological and scenic unit.

Its importance in this connection is not only national but also regional, since within this area almost all the habitats, ecosystems and biocenosis found in the different Caribbean islands are represented. The particular ecological sensitivity of this territory lies in its high degree of interdependency, both internal and external. Internally, there is a high degree of interaction and interdependence between the coastal and marine ecosystems, especially in the sequence of coastal lagoons/dune/ systems/beaches/algae/coral reefs; and similarly in the combination of mangrove swamps/coastal lagoons/algae/coral reefs, which occurs most often and most extensively in the island group.

Social, cultural and economic criteria

The Archipelago is one of the country's three most productive fishery zones. If productivity is to be maintained, a priority requirement is the conservation of natural habitats and ecosystems. The area is also of great significance for its fish farming, producing large quantities of fish and shellfish to supply both domestic and international markets and the tourist industry.

Additionally, the tourist potential of the hundreds of kilometres of beaches of the highest quality, both aesthetically and environmentally, constitute a feature of significant importance. An extensive development programme for tourism is being implemented on a short-term, medium-term and long-term basis, promoting not only the "sea, sun and sand" type of tourism but also "ecological" tourism, which explores the wide range of existing natural resources.

Scientific and educational criteria

A Coastal Ecosystems Research Centre based in Cayo Coco, collects and processes data on the area and develops new lines of research and monitoring, providing basic information for the wide range of environmental studies needed to support the longer term development of the territory.

The Centre is also involved in developing studies related to the monitoring of the effects of global climate changes, epidemics and mortality in marine organisms, bird and turtle migration; and genetic interchange between marine organism. It is also responsible for environmental monitoring, particularly, in regard to the impact of tourism.

The Centre's activities make an important contribution to education and to a better understanding of the environment. The many ecosystems, biotic communities and characteristic natural processes that exist in the area provide ideal subjects for study, not only by experts and specialists, but also by local people, and by Cuban visitors and tourists who come for purposes of recreation.

Protective Measures

The Traffic Separation Schemes in the territorial waters of the North coast, including those at the latitude of the Costa de Matanzas and in the Canal Viejo de Bahamas, within the territorial waters of the Archipelago Sabana-Camaguey, were approved at the forty-eighth session of the MSC.

MSC at its seventy-second session adopted an area to be avoided in the access routes to the ports of Matanzas and Cardenas

Reference chart: ICH 11425 (Edition of 01/08/1998)
Note: This chart is based on North American Datum (27).

Description of the area to be avoided

The area described below should be avoided by all ships over 150 gross tonnage, for reasons of conservation of unique biodiversity, nature and beautiful scenery. It lies within the coastline of the province of Matanzas and a line connecting the following geographical points:

(1)	23°05'.60 N,	081°28'.50 W	Punta Maya Lighthouse
(2)	23°10'.60 N,	081°28'.50 W	
(3)	23°19'.50 N,	081°11'.50 W	
(4)	23°14'.60 N,	081°07'.20 W	Cayo Piedras del Norte
(5)	23°11'.50 N,	081°07'.20 W	Punta Las Morlas

Regulations relating to discharges in inland and territorial waters under the jurisdiction of the Sabana-Camaguey Archipelago.

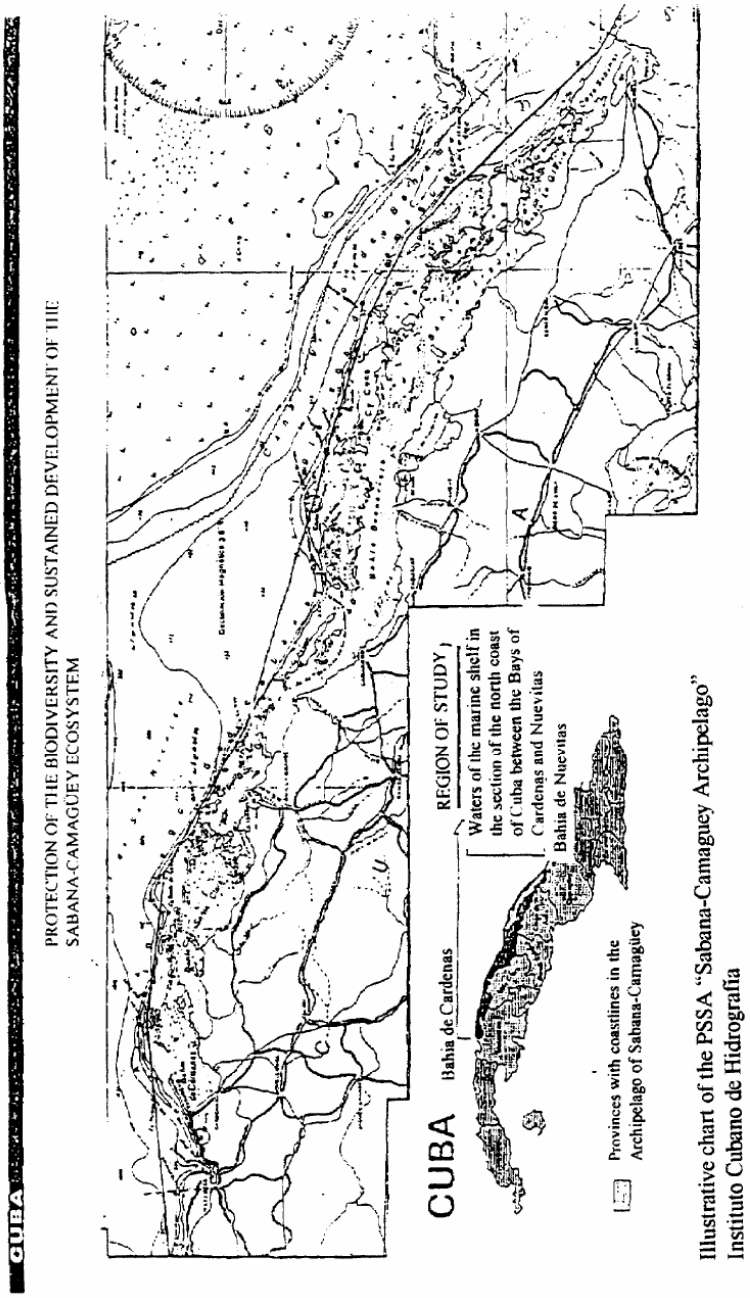
Prohibitions:

Any discharge into the sea, of oil, oily mixtures, noxious liquid substances, garbage or harmful substances from vessels of any type or size.

Any discharge of oil or oily mixtures from cargo tanks, including cargo pumps, from petrol tankers and from engine-room bilge areas, mixed with cargo waste.

Dumping at sea of the following types of garbage from ships of any type of size: 1) Plastics, synthetic fishing lines and nets, plastic garbage bags; 2) loose stowage materials, packing materials and coverings; 3) paper, rags, glass, metal, bottles, ceramics or similar materials.

Ships should avoid discharging ballast water or discharging and reloading while transiting waters under the jurisdiction of the Sabana-Camaguey Archipelago (regulation A.774(18): Guidelines for preventing the introduction of unwanted aquatic organisms and pathogens from ships' ballast water and sediment discharges).


CUBA
PROTECTION OF THE BIODIVERSITY AND SUSTAINED DEVELOPMENT OF THE SABANA-CAMAGÜEY ECOSYSTEM
CUBA
Bahia de Cardenas
REGION OF STUDY
Waters of the marine shelf in the section of the north coast of Cuba between the Bays of Cardenas and Nuevitas
Bahia de Nuevitas
Provinces with coastlines in the Archipelago of Sabana-Camagüey
Illustrative chart of the PSSA "Sabana-Camaguey Archipelago"
Instituto Cubano de Hidrografía

1.7 Resolution A.672(16)

RESOLUTION A.672(16)

Adopted on 19 October 1989

GUIDELINES AND STANDARDS FOR THE REMOVAL OF OFFSHORE INSTALLATIONS AND STRUCTURES ON THE CONTINENTAL SHELF AND IN THE EXCLUSIVE ECONOMIC ZONE

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution,

BEARING IN MIND article 60 of the United Nations Convention on the Law of the Sea, 1 982, which prescribes that any installations or structures which are abandoned or disused shall be removed to ensure safety of navigation, taking into account any generally accepted international standards established in this regard by the competent International organization, and that such removal shall also have due regard to fishing, protection of the marine environment and the rights and duties of other States,

BEARING IN MIND ALSO that the International Maritime Organization is the competent Organization to deal with this subject,

HAVING CONSIDERED the draft guidelines and standards approved by the Maritime Safety Committee at its fifty-seventh session which were developed in co-operation with the Marine Environment Protection Committee,

1 . ADOPTS the Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone set out in the Annex to the present resolution;

2. RECOMMENDS that Member Governments take into account the aforesaid Guidelines and Standards when making decisions regarding the removal of abandoned or disused installations or structures.

ANNEX

GUIDELINES AND STANDARDS FOR THE REMOVAL OF OFFSHORE

INSTALLATIONS AND STRUCTURES ON THE CONTINENTAL

SHELF AND IN THE EXCLUSIVE ECONOMIC ZONE

1 GENERAL REMOVAL REQUIREMENT

1.1 Abandoned or disused offshore installations or structures on any continental shelf or in any exclusive economic zone are required to be removed, except where non-removal or partial removal is consistent with the following guidelines and standards.

1.2 The coastal State having jurisdiction over the installation or structure should ensure that it is removed in whole or in part in conformity with these guidelines and standards once it is no longer serving the primary purpose for which it was originally designed and installed, or serving a subsequent new use, or where no other reasonable justification cited in these guidelines and standards exists for allowing the installation or structure or parts thereof to remain on the sea-bed. Such removal should be performed as soon as reasonably practicable after abandonment or permanent disuse of such installation or structure.

1.3 Notification of such non-removal or partial removal should be forwarded to the Organization.

1.4 Nothing in these guidelines and standards is intended to preclude a coastal State from imposing more stringent removal requirements for existing or future installations or structures on Its continental shelf or In its exclusive economic zone.

× GUIDELINES

2.1 The decision to allow an offshore installation, structure, or parts thereof, to remain on the sea-bed should be based, in particular, on a case-by-case evaluation, by the coastal State with jurisdiction over the installation or structure, of the following matters:

.1 any potential effect on the safety of surface or subsurface navigation, or of other uses of the sea;

.2 the rate of deterioration of the material and its present and possible future effect on the marine environment:

.3 the potential effect on the marine environment, including living resources;

.4 the risk that the material will shift from its position at some future time;

.5 the costs, technical feasibility, and risks of injury to personnel associated with removal of the installation or structure,. and

.6 the determination of a new use or other reasonable Justification for allowing the installation or structure or parts thereof to remain on the sea-bed.

2.2 The determination of any potential effect on safety of surface or subsurface navigation or of other uses of the sea should be based on: the number, type and draught of vessels expected to transit the area in the foreseeable future; the cargoes being carried in the area; the tide, current, general hydrographic conditions and potentially extreme climatic conditions; the proximity of designated or customary sea lanes and port access routes" the aids to navigation in the vicinity; the location of commercial fishing areas; the width of the available navigable fairway; and whether the area is an approach to or In straits used for international navigation or routes used for international navigation through archipelagic waters.

2.3 The determination of any potential effect on the marine environment should be based upon scientific evidence taking into account: the effect on water quality; geological and hydrographic characteristics; the presence of endangered or threatened species; existing habitat types; local fishery resources; and the potential for pollution or contamination of the site by residual products from, or deterioration of, the offshore installation or structure.

2.4 The process for allowing an offshore installation or structure, or parts thereof, to remain on the sea-bed should also include the following actions by the coastal State with ific official authorization identifying the

jurisdiction over the installation or structure: special

conditions under which an Installation or structure, or parts thereof, will be allowed to remain on the sea-bed; the drawing up of a specific plan, adopted by the coastal State, to monitor the accumulation and deterioration of material left on the sea-bed to ensure there is no subsequent adverse impact on navigation, other uses of the sea or the marine environment; advance notice to mariners as to the specific position, dimensions, surveyed depth and markings of any installations or structures not entirely removed from the seabed. and advance notice to appropriate hydrographic services to allow for timely revision of n@autical charts.

3 STANDARDS

The following standards should be taken into account when a decision is made regarding the removal of an offshore installation or structure.

3.1 All abandoned or disused installations or structures standing in less than 75 m of water and weighing less than 4,000 tonnes in air, excluding the deck and superstructure, should be entirely removed.

3.2 All abandoned or disused installations or structures emplaced on the sea-bed on or after 1 January 1998, standing in less than 1 00 m of water and weighing less than 4,000 tonnes in air, excluding the deck and superstructure, should be entirely removed.

3.3 Removal should be performed in such a way as to cause no significant adverse effects upon navigation or the marine environment. Installations should continue to be marked in accordance with IALA recommendations prior to the completion of any partial or complete removal that may be required. Details of the position and dimensions of any installations remaining after the removal operations should be promptly passed to the rei-evant national authorities and to one of the world charting hydrographic authorities. The means of removal or partial removal should not cause a significant adverse effect on living resources of the marine environment, especially threatened and endangered species.

3.4 The coastal State may determine that the installation or structure may be left wholly or partially in place where:

.1 an existing installation or structure, including one referred to in paragraphs 3.1 or 3.2, or a part thereof, will serve a new use if permitted to remain wholly or partially In place on the sea-bed (such as enhancement of a living resource); or

.2 an existing installation or structure, other than one referred to in paragraphs 3.1 and 3.2, or part thereof, can be left there without causing unjustifiable interference with other uses of the sea.

3.5 Notwithstanding the requirements of paragraphs 3.1 and 3.2, where entire removal is not technically feasible or would involve extreme cost, or an unacceptable risk to personnel or the marine environment, the coastal State may determine that it need not be entirely removed.

3.6 Any abandoned or disused installation or structure, or part thereof, which projects above the surface of the sea should be adequately maintained to prevent structural failure. In cases of partial removal referred to in paragraphs 3.4,2 or 3.5, an unobstructed water column sufficient to ensure safety of navigation, but not less

than 55 m, should be provided above any partially removed installation or structure which does not project above the surface of the sea.

3.7 Installations or structures which no longer serve the primary purpose for which they were originally designed or installed and are located in approaches to or in straits used for international navigation or routes used for international navigation through archipelagic waters, in customary deep-draught sea lanes, or In, or immediately adjacent to, routeing systems which have been adopted by the Organization should be entirely removed and should not be subject to any exceptions.

3.8The coastal State should ensure that the position, surveyed depth and dimensions of material from any 'Installation or structure which has not been entire y removed from the sea-bed are indicated on nautical charts and that any remains are, where necessary, properly marked with aids to navigation.The coastal State should also ensure that advance notice of at least 1 20 days is issued to advise mariners and appropriate hydrographic services of the change in the status of the installation or structure.

3.9Prior to giving consent to the partial removal of any installation or structure, the coastal State should satisfy itself that any remaining materials will remain on location on the sea-bed and not move under the influence of waves, tides, currents, storms or other foreseeable natural causes so as to cause a hazard to navigation.

3.1 0 The coastal State should identify the party responsible* for maintaining the aids to

if they are deemed necessary to mark the position of any obstruction to navigation, and for monitoring the condition of remaining material. The coastal State should also ensure that the responsible party* conducts periodic monitoring, as necessary, to ensure continued compliance with these guidelines and standards.

3.11 The coastal State should ensure that legal title to installations and structures which have not been entirely removed from the sea-bed is unambiguous and that responsibility for maintenance and the financial ability to assume liability for future damages are clearly established.

3.12 Where living resources can be enhanced by the placement on the sea-bed of material from removed installations or structures (e.g. to create an artificial reef), such material should be located well away from customary traffic lanes, taking into account these guidelines and standards and other relevant standards for the maintenance of marltime safety.

3.13 On or after 1 January 1998, no Installation or structure should be placed on any continental shelf or In any exclusive economic zone unless the design and construction of the Installation or structure is such that entire removal upon abandonment or permanent disuse would be feasible.

3.14 Unless otherwise stated, these standards should be applied to existing as well as future installations or structures.

* The phrase "party responsible" refers to any juridical or physical person identified by the coastal State for a purpose mentioned in the above paragraph 3.10.

Source: http://www.imo.org (visited June 2005).