

Technical and Legal Nature Conservation Requirements for New Spatial Planning Instruments in the German Exclusive Economy Zone

- **Partial results of an research an development project, commissioned by the Federal Agency for Nature Conservation –**

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Introduction

The amendment to the German Spatial Planning Law includes a positive response to a long-time demand for a better and, especially, earlier control of spatial utilisation in the German Exclusive Economic Zone (EEZ) in the North and Baltic Seas. The amended law now provides a legal basis for federal spatial planning in the maritime area extending from the boundary of the national coastal sea (the twelve nautical mile zone, which is under state control) out to the seaward limit of the continental shelf. The future maritime regime in this area must address not only other utilisation claims e.g. the securing and extraction of raw materials, etc. but also, intensively, matters of maritime conservation. Commissioned by the Federal Agency for Nature Conservation with funding from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, the research project participants the Berlin University of Technology (TU), Prof. Rainer Wolf, Rüdiger Nebelsieck and OECOS Environmental Planning have developed both legal and technical requirements and criteria to prepare and operationalise the interests of maritime conservation for the spatial planning process (TU BERLIN *et al.*, 2006).

Within the context of the research and development process, the following issues have therefore been drafted:

- Which legal bases and possibilities exist for the integration of conservationist goals and principles into a maritime spatial planning regime?
- Which technical interests and conservationist objectives should be pursued with reference to the EEZ?
- How can these interests of maritime conservation be incorporated into the establishment process for spatial planning via planning input from conservationist sources?

The Requirements and Criteria for the Conservation of Nature

In this paper, only the technical aspects of maritime conservation are to be addressed in the context of spatial planning. This involves particularly the transformation of the basic ecological information and the corresponding assessment criteria into legal planning categories of the spatial planning system.

Protected assets of the marine environment and their technical operationalisation for spatial planning

In the following section, the subjects of the maritime environment which are relevant to the spatial planning system are to be introduced, with a focus on the marine

environment in its characteristics and its significance. The goal is to develop, using the existing information, criteria for nature conservation, with the aid of which recommendations for key concepts can be drafted and goals (priority interests) and principles (provisional interests) of maritime conservation developed for a spatial planning system in the EEZ. The following tables, based on the approach devised by KÖPPEL *et al.* (2004), show a complete overview of the criteria and a possible assignment to corresponding spatial planning categories. The categories Priority and Provisional Areas largely correspond to the categories common in “on-shore” spatial planning, with their requirements and their binding effects. Maritime conservation refers to the compartments:

- a) Landscape scenery
- b) Geological and hydro-morphological structures, and abiotic protected assets
- c) Biotope types and characteristic benthos species
- d) Bird migration
- e) Resting and seabirds
- f) Ocean fish and migrating fish species (especially Habitat Directive)
- g) Marine mammals
- h) ...and the corresponding habitats.

The significance for nature conservation and the resulting assignment of particular protected assets of the maritime environment to certain spatial planning categories depends on their qualitative characteristics. By way of example, the following tables show an excerpt from the research report with the technical criteria of nature conservation, together with a possible assignment to the corresponding spatial planning categories.

Biotope types and characteristic benthos species (c)

In addition to the requirements for habitat types and species in the sea derived from the Habitat Directive, such other pertinent international and national legal structures as OSPAR, HELCOM, the Red List, etc. provide a wide range of mandates for the protection of valuable, rare or endangered habitat types and species, especially the benthos. The relevant criteria for ascertaining nature-conservation significance include e.g. the number of Red List species in the endofauna, the occurrence of characteristic and indicator species, and the functional significance of biotope types, e.g. for networking (cf. e.g. RACHOR, NEHMER 2003; BOEDECKER *et al.* 2001; or KNUST *et al.* 2003). Another qualifying characteristic is the substratum type of the respective seabed areas. The substratum types “alluvial fine sediment” to “fine sediment-sands”, which can also be indicators of the occurrence of endangered benthos species, should be emphasised. Moreover, other qualification criteria can also be applied, provided the corresponding data are available. These include e.g. the absolute number of occurring species and taxa in certain areas, the biomass (per species and area), or the characteristics of the benthos communities (e. g. dominance behaviour, abundance stability, or food types). Areas which can be defined more precisely via these criteria are to be secured for the marine environment in the spatial planning structure as priority or provisional areas – in accordance with their respective significance for the conservation of nature.

Table: Operationalisation of Interests of Biotope-Type Protection in Spatial Planning Categories

Possible Criteria for the Determination of the Assignment	Examples for Assignment to Spatial Planning Categories			
	Priority Area Also: goal formulation in writing	Provisional Area Also: formulation of fundamental principles in writing	Investigation Provision/ Investigation Requirement Basic formulation in writing of an investigation provision	Other
Biotope Types Rarity, endangerment and protected status of species (Red-List) Occurrences of characteristic and indicator species Functional significance of the community Seafloor substratum type present Number of the occurring relevant species and taxa Biomass (per species and area) Characteristics of the benthos communities e.g. dominance behaviour, abundance-stability, food types	Functionally significant networking habitats Extensive and undisturbed areas with rare and (Red-List) endangered benthos species and biotope types	Smaller areas with rare benthos communities and biotope types Networking habitats and extended undisturbed areas with rare benthos habitats and biotope types with uncertain information		

Bird Migration (d)

The habitat protection law applicable in the EEZ contains goals which are not completely covered by the certification of maritime protected areas under § 38 of the Federal Nature Conservation Law. This follows e.g. from the fact that the Birds Directive and the Habitat Directive require not only the establishment of a coherent NATURA 2000 Network, but also general protective measures. Article 5 of the Birds Directive requires e.g. measures for the creation of general regulations for the protection of all bird species which fall under Type 1. The Birds Directive also refers explicitly, separately and in technical terms to migratory birds. In this respect, not only the certification of protected areas in the spatial planning system is required; bird migration, too, must be secured in the context of the spatial planning system. Moreover, Germany has a special role due to its very great numbers of migratory birds – e.g. up to ten million in the Helgoland Bight, and those travelling along the so-called Baltic Sea bird migration line.

Technically, the so-called broad-band bird migration over the Helgoland Bight (North Sea) is distinguished from the more strongly corridor-oriented bird migration which takes place over the Baltic Sea. It should be noted, moreover, that in addition to this primary north-south migration activity, there is also an east-west migration pattern, which is however hard to quantify as precisely or to define in terms of area. In the broad-band migration over the North Sea, a seaward decrease of migration density can be observed. Most prominently, there is a belt off the coast of Schleswig-Holstein about 80-100 km from the coast and barrier-island line (KNUST *et al.* 2003), and a boundary line passing from Blåvands Huk, Denmark, at a 45° angle to the Dutch island of Texel. There are two migration routes of particular significance in the Baltic Sea: one passing over the German island of Fehmarn and the Danish Island of Lolland (cf. e.g. KOOP 2004), the other from the German island of Rügen to the southern Swedish region of Scania (cf. e.g. ALERSTAM 1990.)

That already covers the conservationist criteria relevant to bird migration which are to be applied in the framework of spatial planning. Areas of concentration, with proven principle migration routes, are available as criteria. In addition, the protected status, the rarity, the degree of endangerment, and the sensitivity of certain migratory bird species are relevant. Moreover, the criterion of the number of migratory individuals in the more narrowly defined area can be used, and the relationship of migratory individuals to the total numbers of a population may be taken to document spatial planning significance. Finally, the variety of the species community migrating through an area provides information about its significance.

Inasmuch as principle bird migration route areas can be demonstrated over the North and Baltic Seas, these must be considered priority areas. On the basis of climatically or weather-related events (e.g. drift due to wind, etc.), fluctuations of the bird migration routes eastward or westward are possible, especially over the Baltic Sea. These fluctuations should also be taken into account by conservationist institutions when defining the corresponding reservation claims for incorporation into the spatial planning system. If, in addition to these routes, particular separate migration routes for individual species can be ascertained with a demonstrably higher share of the total number of individuals of a population, the category of a reservation area could under certain circumstances be proposed. Other proven major migration activities, especially by endangered species, must also be discussed in this context.

Table: Operationalisation of the Interests of Bird Migration in Spatial Planning Categories

Possible Criteria for the Determination of the Assignment	Examples for Assignment to Spatial Planning Categories			
	Priority Area Also: goal formulation in writing	Provisional Area Also: formulation of fundamental principles in writing	Investigation Provision/ Investigation Requirement Basic formulation in writing of an investigation provision	Other
<p>Bird Migration</p> <p>Existence of principle migration areas and areas of concentration</p> <p>Protected status, rarity, degree of endangerment, sensitivity of migratory bird species</p> <p>Number of migratory individuals of a species in the area concerned in relation to the total number of migratory individuals of that species in the German maritime areas of the North or Baltic Sea</p> <p>Species variety of the migratory bird community</p>	<p>Proven principle migration areas over the North and Baltic Seas</p>	<p>Provisional zones to the east and/or west of the principle migration areas due to shift of annual migration routes eastward/ westward.</p> <p>For at least one migratory species in the area: very high share of the total number of the individuals of the species in the German maritime areas of the North or Baltic Sea</p> <p>Major migratory activities proven; high share of endangered species</p>		<p>How to deal with area of medium significance for bird migration?</p>

The present assignment of criteria for the conservation of nature and their characteristics to corresponding spatial planning categories has the nature of a recommendation. Moreover, it has only been possible to present two examples here. For the other above-mentioned protected assets of the marine environment, reference is made to the Research Report. With the aid of the overview of criteria compiled there, the Federal Agency for Nature Conservation has been able to draft a nature-conservation planning proposal, and to further concretise the characteristics derived here of the basis of research theory. However, it is necessary to emphasise in conclusion that this operating procedure, which in principle functions according to the methods and categories of the “on-shore” spatial planning system, can only partially meet the requirements of this fundamentally low-use and barrier-free natural area of the German EEZ, which is to be preserved as a natural space. In addition to the clear certification of priority and provisional areas for marine conservation, the demand for its preservation as a natural space must be fully integrated into the spatial planning model as a guiding principle. Moreover, when other utilisation claims are established, the demands of the conservation of nature must be taken into account separately.

Recommendations for the goals and principles of maritime spatial planning from the view of the conservation of nature

Based on the interests of marine conservation ascertained for the spatial planning system of the EEZ, the present section will develop and compile overarching recommendations for a maritime spatial planning system:

The EEZ is part of a large and coherent natural area. The natural biotic relationships encompass the seabed, the water column, the sea surface and the airspace above it. The ecological interrelationships of conditions and effects are largely determined by the water temperature, the salt content, the tides and the conditions of the currents, the wind and the waves. They form the habitat for the plants and animals. The marine natural area of the EEZ is characterised by very few spatially structural formations. There are no significant landmarks. Various habitats are only identifiable on a large scale. The marine habitat is characterised by openness and barrier-freedom. The sea is a habitat for many highly mobile species. Their conditions of life are increasingly affected by anthropogenic activity and societal utilisation claims.

The urgent goal of the spatial planning system for the EEZ, in coordination with international agreements (e.g. CBD, OSPAR, HELCOM) and EU law, is to restrict the various impairments of the natural area due to anthropogenic intervention and utilisation, and to promote measures to increase biodiversity and make a contribution toward the improvement of the natural conditions of life.

Spatial planning measures must be applied to ensure that:

- the natural spatial structure of the maritime areas is heeded;
- untouched and undisturbed habitats are secured; and
- the rearing, rest, and retreat areas of protection-worthy species are preserved from disruptive utilisation forms.

The Exclusive Economic Zone as a whole is to be protected and developed as a natural area, with the respective typical, natural conditions of its subordinate natural areas and the exchange relationships and interactions. It must be ensured that a representative diversity of species, populations and habitats is preserved and developed in these subordinate natural areas. The same applies for the viability and functionability of the natural area. The spatial planning system also has to contribute to the protection of species diversity outside the protected marine areas. Particularly threatened species must be given special consideration. The particular protection requirements of the marine biotic environment must be considered in the spatial planning structure of the EEZ.

The natural habitats are to be protected from destruction. The exchange between the abiotic and biotic foundations of the world of marine life must be ensured. The insularisation of habitats must be avoided. Protection-worthy habitats must be secured via spatial planning measures. They must be given priority over other forms of utilisation.

Sandbanks, reefs, block structures and sea-grass meadows are special habitats. Their impairment or destruction must fundamentally be avoided in the entire EEZ, even outside especially protected maritime areas. Also, the habitats of endangered benthos animal and plant species and important bird migration corridors outside the

protected maritime areas must be protected against any utilisation that might impair these habitats or functions.

The existing information on the impacts of human intervention into the natural biotic relationships of the EEZ is incomplete and contains many gaps. The spatial planning system takes that into account in that it makes the improvement of firm knowledge the prerequisite for the extensification and intensification of utilisation of the EEZ. As a prerequisite for the advance of knowledge, uncertain information situations in overall spatial plans and programs must always be ascertained. Spatially significant utilisation should in principle be approved only for areas about which there is adequate knowledge to permit assessment of the ecological consequences. The limitation of the existing knowledge must be one of the factors taken into account in risk assessments. A monitoring process covering the entire EEZ must be implemented to ensure that the bases for scientific decision-making are constantly evaluated and improved.

Throughout the EEZ, economic utilisation is to be designed and spatially organised in such a way that the natural foundations of life are secured, both for current and future generations. Spatial planning measures must be used to contribute toward ensuring that living resources are permanently protected. The non-living resources can only be used if spatial provision for the protection of the marine biotic communities is made. Disruptive projects must be spatially separated from one another. Marine areas should be taken over for projects only to the extent necessary for the attainment of the project goals, and in a manner compatible with the protection of the world of marine life. At sea, too, the principle of thrifty use of areas must be followed.

Priority and reservation claims for maritime utilisation must be oriented towards comprehensible demand prognoses. The environmental impacts of utilisation should be monitored in order to be able to avert early unforeseen disadvantageous effects of project implementation. More environmentally benign alternatives must always be taken into consideration.

Projects and facilities should be concentrated in areas that are compatible with the requirements of nature conservation for the EEZ as a natural area. In order to preserve low-use areas of the open seascape, utilisation, especially maricultures and sand and gravel quarrying, should be concentrated in site-specific manner wherever possible. The introduction of materials to the sea which could impair the natural habitat must be avoided. Ocean dumping of excavated material may be done only in areas intended for that purpose.

The spatial planning of the EEZ must seek to ensure as much as possible that impairment of the abiotic parameters of the marine environment is generally avoided in spatially significant projects and measures. In the Baltic Sea, the areas referenced to the so-called "submergence belt" must be especially heeded. The existing anthropogenic load must be taken into account overall.

The sea is a natural space, and not a place for permanent stationary utilisation. The natural area must therefore be developed in such a way that temporary stationary utilisation not do permanent damage to the EEZ as a natural area. Stationary projects should be authorised only temporarily, so that they avoid barrier formation, and so that their proper dismantlement is guaranteed. The EEZ should in principle only be

open to stationary utilisation that requires the maritime area as a resource or site, and does not counteract the interests of marine conservation of the environment.

Impacts must be minimised as far as technically possible, even outside protected maritime areas. They should be carried out only during periods that are compatible with marine life communities. Unavoidable damage to the natural area must be compensated for. The restoration of the natural area after completion of utilisation must be ensured. Here, the “polluter-pays” principle must apply.

As stipulated by European Community law, fisheries must be carried out sustainably, and special catch-protection areas established in order to secure the regeneration of the fish populations. Especially in the protected maritime areas, impairment of the habitat functions of the sea through fishery must be prevented. Even outside the protected maritime areas, by-catch must be limited to a minimum.

When laying submarine cables and pipelines, natural habitats must be considered, as required under the international law of the sea. Cables and pipelines must be combined on environmentally and spatially appropriate corridors. A focused and coordinated connection with lines within the twelve nautical mile zone must be the preferred alternative.

Cumulative effects, as might e.g. result from the combination of several parallel utilisations, and which, in sum, must be classified as constituting a considerable environmental impact, must be ascertained. Appropriate measures of impact avoidance, reduction and management must be provided.

In conclusion, the fact that the Federal Republic of Germany is implementing a spatial planning system in the German Exclusive Economic Zone is very much to be welcomed. That will permit an overall planning and coordination of utilisation claims, with which the interests of maritime conservation, too, can be considered, with the aid of the appropriate information on the conservation of nature.

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