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## ENVIRONMENTAL GUIDELINES FOR PORTS

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# ENVIRONMENTAL GUIDELINES FOR PORTS

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## 1. INTRODUCTION

Coastal areas are subject to large-scale human activities. This phenomenon is not new, but has existed from the very beginning of civilization. One of the reasons is that the transport by sea was preferred to other less developed or non-existent means of transport in the past. Sea voyages provided the easiest way of travelling and trading with people from other parts of the Mediterranean Sea, Europe and later all over the world. Another reason was that coastal areas enabled many economic activities not present in other regions. Today, the situation has not changed much. Many business and other activities were removed to inland because of improved transport but coastal areas are not losing their role. The major part of international trade uses maritime transport to move goods from different parts of the world. Solely in the European Union (EU) a 90% of its international trade is carried out by sea. In the past, the sea was mostly important for transport and trade-related activities, but recently it has gained new roles. One of the most important is tourism, which is highly developed and situated near the seashores.

All described activities have significant adverse impacts on coastal and estuary areas, which are one of the most productive ecosystems in the world. They are of the great importance for wildlife, especially for migrating birds and fish. They also offer a wide sequestration, detoxification of polluted waters and supply of food and energy resources. However, strong economic and commercial interests are a serious threat to these areas. One of the most important stakeholders is the port sector with its need for expansion to satisfy a growing international trade and production.

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## 2. MEASURES TO PREVENT DETERIORATION OF COASTAL ZONES

At present, the society is aware of the adverse impacts of past human activities in coastal and estuary areas as well as their consequences for the future. However, there is also a need for economic development. The state of good environmental protection as well as economic growth and development can be reached only by adequate planning and engagement of all stakeholders which are in some way affected. The most important step on this way is to create legal certainty to define qualitative and quantitative parameters of activities in coastal and estuary zones where port facilities and infrastructure are to be built. Many coastal and estuary areas are part of Natura 2000, which represents special protected areas for birds and special protection areas of conservation for species other than birds and habitats. These areas protected by the Habitats Directive cover a total area of more than 45,000 km<sup>2</sup> of the EU territory and are one of the main tools to prevent rapid global decline in biodiversity and to restore habitats and natural systems.

To overcome problems of activities in estuaries and coastal zones, European Commission issued in January 2011 a Guidance document with a title ‘The implementation of the Birds and Habitats Directives in estuaries and coastal zones with particular attention to port development and dredging’, a document many times referred as the ‘Environmental Guidelines for Ports’ or just ‘Guidance document’.<sup>2</sup> This is not the first European Commission guidance document implementing Birds and Habitats Directives, but unlike other guidelines tries to explain in one integral way the application of the EU environmental legislation related to port development and the management of coastal and estuary areas, especially in light of their importance as access-routes for seagoing ships.

The main part of the guidelines explains how to implement the Birds and Habitats Directives, mostly in areas where port sector is present or tries to expand itself. These directives are not the only documents to be applied in relation to activities in coastal and estuary areas for the needs of the port sector. Of similar importance are: The Water Framework Directive 2000/60/EC (WFD) and The Marine Strategy Framework Directive 2008/56/EC (MSFD). According to the WFD, coastal and estuary waters are identified as transitional or coastal water bodies. Because the coastal and estuary waters are only part of waters referred to in the

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<sup>2</sup> Available at [http://ec.europa.eu/environment/nature/natura2000/management/docs/guidance\\_doc.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/guidance_doc.pdf).

WFD, there is a frequent geographical overlap between Natura 2000 and WFD water bodies in estuarine and coastal ecosystems. Because the WFD is not the only directive which regulates habitats in water areas, it contains a provision which defines that if the conservation objectives of the Habitats Directive are more stringent than the requirements of the WFD then those of the former will apply<sup>3</sup>. The MSFD, on the other hand, deals with ecosystems services in marine areas. It establishes a framework for the protection and restoration of marine ecosystems. According to this directive, Member States are obliged to take the necessary measures to achieve or maintain a good environmental status by the year 2020. The geographical scope of the MSFD overlaps with the WFD in coastal waters. The MSFD environmental status only applies in the latter insofar as particular aspects of the environmental status of the marine environment are not already addressed through that of the WFD. The MSFD does not apply to transitional waters such as estuaries.

After the EU has rejected twice its proposal for a Port Services Directive<sup>4</sup>, the Commission prepared the Communication on a European Ports Policy (Ports Policy Communication)<sup>5</sup>, emphasizing more economic than environmental aspects of the ports. Only the chapter ‘Expanding capacity while respecting the environment’ actually addresses such issues as: ensuring adequate waste facilities<sup>6</sup>, proper management of water bodies and sediments<sup>7</sup> and improving air emissions<sup>8</sup>. The chapter describes basic orientations of the EU on this field, but fails to elaborate on specific problems in this area. According to the Ports Policy Communication regarding the management of water bodies and sediments, ports located along rivers or estuaries should be actively involved with other stakeholders in the consultation on river basin management issues in the context of drafting the river basin management plans required by the WFD. The same also applies to maritime ports along the coastline in respect of the quality of coastal waters, sediment drift along the coast and the use

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<sup>3</sup> 4(2) FWD.

<sup>4</sup> Proposal for a Directive of the European Parliament and of the Council on Market Access to Port Services – COM (2001) 35 final – 2001/0047(COD); Proposal for a Directive of the European Parliament and of the Council on Market Access to Port Services – 2004/0240 (COD).

<sup>5</sup> COM (2007) 616.

<sup>6</sup> Ports Policy Communication, 2.2.

<sup>7</sup> Ibid, 2.2.

<sup>8</sup> Ibid, 2.3

of waterfronts. In this respect, the Ports Policy Communication addresses the question of adequate planning and engagement of all stakeholders related to activities in the coastal and estuary zones. All these questions, including dredging as one of the most frequent activities for the maintenance or building of port facilities and infrastructure, are defined in the Guidance document ‘The implementation of the Birds and Habitats Directives in estuaries and coastal zones’ (hereinafter: the Guidance document) which provides very detailed pieces of information and orientation to all stakeholders

### **3. MAIN ISSUES OF THE GUIDANCE DOCUMENT FOR PORTS**

The content of the Guidance document is not compulsory. Its main aim is to clarify issues related to the application of the EU law to port development projects and to address legal uncertainty regarding the interpretations of the Birds and Habitats Directives. The guidelines are based on the compromise to achieve conservation goals of Natura 2000 and economic goals in the mode that prevention is better than compensation. These goals could only be achieved by adequate planning of activities and evaluation of all impacts in coastal zones and estuaries for the needs of port facilities and infrastructure. In order to harmonize different interests, all stakeholders should be included in defining the extent of the activities. These are only few aims or recommendations of the Guidance document, but there are many other similar guidelines<sup>9</sup>. The Guidance document emphasizes the maintenance of navigation

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<sup>9</sup> Key recommendations of the Guidance document are:

- According to the ‘working with nature’ concept, the design of plans or projects should be always based on mutually beneficial strategies with a view to achieving dual goals of both Natura 2000 conservation objectives and socio-economic objectives.
- Damage prevention or avoidance measures should always be preferred to compensation of damages.
- Pre-assessments should always be included to evaluate the potential for impact of a plan or project on Natura 2000 sites. This is necessary to decide whether a plan or project is likely to have significant effects on a Natura 2000 site and whether an »appropriate assessment« in the sense of Article 6(3) of the habitats Directive is required.
- Through and timely consultation with all stakeholders is always recommended in order to prevent any further disputes during the project permitting process.
- Maintenance of ports and navigation access should be dealt with in the context of integrated management plans for the entire waterway or the affected Natura 2000 site. Capital dredging operations should be designed as a part of sustainable dredging and sediment management schemes.

access and dredging, which can be a part of maintenance process or necessary activities for building new port facilities or infrastructure.

### **3.1. Planning and project processes according to the Guidance document**

The Guidance document emphasizes an integrated planning. This planning includes several forms like: management plans, spatial planning, integrated spatial planning, etc. Every phase of the planning process should be based on cooperation and public participation

Management plans are recommended for Natura 2000 areas and not mandatory under the Habitats –Directive, but can be successfully applied to any activities in the Natura 2000 areas. The aim of these plans is to find transparent conservation objectives and to develop measures or enhance the natural values in line with the system's processes. A management plan creates opportunities to reconcile sustainable economic development, safety issues and nature conservation.

The Guidance document for Natura 2000 also addresses management plans for ports:

- Integrated management plans should be established for Natura 2000 areas, especially for areas close to port areas and related waterways.
- Port and waterway authorities should be actively involved in the setting up of management plans for Natura 2000 areas near ports and related waterways.
- Strategic plans, port plans, WFD river basin management plans and Natura 2000 management plans should be coordinated and where possible integrated to create win-win situations for all the stakeholders.

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- In case of any remaining minor scientific uncertainties regarding the effects of a plan, a project or related mitigation or compensatory measures, the measures should include a pre-defined and validated scheme to monitor the actual impacts and a framework to adapt the mitigation and compensation measures to the actual impacts.

- Recurring maintenance activities necessary to facilitate port operations and navigational access should be integrated into the management plans and designated in a way that they are not detrimental to the conservation of the site.

Spatial planning and integrated management, based on prospective and proactive approaches, help implementing conservation measures on the sites and provides better legal certainty for port development projects. Each spatial planning should be carried out at the appropriate level and in cooperation with competent national, regional or local authorities. When speaking about planning it should be emphasized integrated spatial planning. An integrated spatial planning should anticipate all possible difficulties and adverse environmental impacts as well as avoid any potential conflicts and delays in project development. Thus many paradoxes, conflicts, and ultimately competition for space can be resolved before the beginning of a project.

Very important advantage of good environmental planning is that it reduces difficulties for consent if project managers and a permitting authority can rely on those overcharging plans during a decision-making process based on pre-assessment or appropriate assessments that have been carried out at the spatial level. Land use planning is an integral part of obtaining permissions from competent authorities, in which different claims of utilization are subject to an evaluation process. The process should be carried out on a solid and well substantiated base that includes all necessary information, both on nature conservation objectives and on ports and port-related development objectives.

Port and waterway authorities should take part in spatial planning. They should aim for efficient land use by optimising space allocation of port industrial activities and facilitating the optimal use of different transport modes, such as shipping, inland navigation and rail. Their cooperation is necessary when certain areas are used or not used for port and waterway activities on a temporary basis.

Port authorities should establish a dialogue with all the stakeholders and public authorities before the beginning of the project with potential impact on the coastal and estuary areas. In this respect, developers of new projects should pre-assess the effects of the development and consult the competent nature conservation authorities on whether the plan is likely to have significant negative effects on the integrity of Natura 2000 area or its conservation. Planning authorities should also consult with competent public authorities, non-governmental

organisations and other stakeholders. Special consideration needs to be given to plans and projects that will have an impact across national borders.

When balancing environmental benefits and economic requirements, the interpretation based on the view that environmental policy objectives always take precedence over economic policy objectives is wrong. The balance means that environmental benefits cannot be favoured to the detriment of economic interests and vice versa.

One of the crucial factors for adequate assessment of balance between different elements is an early integrated planning and development of integrated projects. The most important document for development of projects is the position paper ‘Working with Nature’ issued in 2008 by PIANC, the World Association for Waterborne Transport Infrastructure which promotes a proactive and integrated approach, with emphasis on:

- Achieving project objectives in an ecosystem context rather than assessing the consequences of a predefined project design,
- Identifying mutually beneficial solutions rather than simply minimising environmental impact,
- Considering project objectives from the environmental perspective rather than from the perspective of technical design. However, this approach should be applied early in a project to allow greater flexibility. A proactive approach such as ‘Working with Nature’ should not only be applied at a project level but also to a development of strategic plans and programmes (see integrated planning).

Damages cannot always be avoided with activities supporting port facilities and port infrastructure. For such cases equitable compensation should be provided for. Compensatory measures must be feasible and operational in protecting the overall coherence of the Natura 2000 network. The estimated timescale and any maintenance action required to enhance performance should be specified as early as possible in a project. Compensatory measures should ensure the continuity of the ecological processes, especially for maintaining the overall coherence of the Natura 2000 network. All technical, legal or financial provisions, necessary for the implementation of compensatory measures should be completed before the

implementation of a plan or project to prevent any unforeseen delays that may hinder the effectiveness of the measures.

### **3.2. Dredging**

Dredging may cause serious problems for ports near Natura 2000 areas but can be solved in a very efficient way. Ports generally use two types of dredging: a) capital dredging and b) maintenance dredging.

Capital dredging is used mostly for building new facilities or infrastructure. Such type of dredging has a significant adverse impact on environment with all possibilities to destroy ecosystem's balance. It may reverse the trend of estuarine infilling and affect the equilibrium state of estuary. This occurs because deepening an estuary may permit a salt wedge intrusion to travel further upstream, increase shoreline wave action, change tidal range and tidal currents, and suspend sediment load and sedimentation. Maintenance dredging is mostly designated to keep a certain area of port or other areas necessary for economic exploitation. It is periodic or continuous activity necessary to maintain the navigable depth in an estuary or on an open coast.

In general, the main difference between capital dredging and maintenance dredging is that the former brings the major changes, whereas the latter only prevents the system from returning to its original state.

Dredging is not always detrimental to environment. In some circumstances dredged material can be put to beneficial use, such as increasing sediment to beaches or conserving estuaries, although adequate care needs to be taken to avoid smothering of important subtidal organisms. Recent studies have shown that dredging with well-thought relocation plan can help rebuild valuable morphological structures inside estuaries with interesting environmental benefits.

The assessment of dredging operations and disposal of dredged material in marine environments is regulated under international conventions, e.g. London Convention, OSPAR, HELCOM, the Barcelona and Bucharest Conventions.

The Guidance document contains Guidelines for capital and maintenance dredging.

If capital dredging could have a significant adverse impact on a Natura 2000 area, it should be subject to an appropriate assessment according to Article 6(3) of the Habitats Directive. Wise use of dredging and relocation strategies should help mitigate adverse effects and where possible restore or develop valuable morphological structures. Dredging and sediment relocation strategies should be designed in a way that their potential positive effects are maximized.

Maintenance dredging should include only activities not affecting the integrity of Natura 2000 areas or their conservation objectives. Maintenance activities should be included in integrated Natura 2000 management plans, equivalent management plans or river basin management plans, to make sure that they are being assessed and reviewed in a structured manner in the overall context of the conservation of the sites. Operations of maintenance in or near Natura 2000 areas should be specifically designed for each estuary or coastal zone and underpinned by monitoring scheme that enables detection and timely correction of unforeseen adverse affects on conservation objectives.

### ***3.2.1. Dredging in the Port of Koper***

The Port of Koper, the only international cargo port in the Republic of Slovenia, is situated near the river Rižana and subject to accumulation of river material in the sea over a long period of time. Main consequence of described situation is that regular maintenance dredging is necessary. While dredging and structure of dredged material are not problematic, the deposit of dredged material causes many problems. In the past, the material was used for drainage works and filling of the sea and areas close to shores to make new piers and other port facilities. This process is mostly finished today and only few spaces in the port are available for the storage of dredged material.

This situation requires a plan for the management of dredged material. Since the dredged material cannot be used for creating new port capacities or deposited in estuaries or coastal areas in a friendly way, activities are in progress to export it from the port.

Construction industry and other sectors are in evident need of silt, but dredged silt from the Port of Koper cannot be exported from the port unprocessed. Salt is fortunately the only element which needs to be separated from the silt, as the dredges from the port contain no dangerous materials or substances. Many plans were made to enable export of silt and many methods were studied to separate salt from silt. At the end of the project, salt separation was performed. First cycle of salt separation is washing with the water from a sewage plant. After that cycle silt is washed with the water from the river Rižana. Finally, the sediments are dried in drying filter presses. The final product is free of salt and can be used for rehabilitation of quarries, closing of dumping grounds with watertight layer or preparing watertight layers for future disposal facilities. In Venice silt material is even used for brick production.

For the Port of Koper the Guidance document (Environmental Guidelines for Ports) is mostly useful as a legal and technical support, especially for planning and projecting of maintenance dredging and port expansion in general, in order to prevent deterioration of coastal zone which is located near the river Rižana. However, the environmental impacts of dredging in the Port of Koper are not as harmful as in other ports.

#### **4. CONCLUSIONS**

Many European ports are situated in environmentally sensitive places where each human activity can destroy the balance of close ecosystems. From this point of view, the activities in these places should be well thought of. The EU has adopted many laws to regulate these activities. However, the environmental regulations are dispersed and not intended specifically for ports. From this respect, the Guidance document provides an important step forward although its content is not compulsory. It contains several technical instructions regarding planning of activities in environmentally sensitive places, such as coastal areas and estuaries, with the emphasis on prevention of irreversible or irreparable damage to the environment. The Guidance document also offers a legal framework for addressing such activities. Concentration of all described information related to the ports in one document is welcome because it resolves many uncertainties from the past and as such it may facilitate sustainable port expansion projects also in the (Northern) Adriatic.