

## DO WE NEED PROTECTED AREAS IN THE BALTIC?

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Among the most important tasks for institutions dealing with the conservation of nature seem to be those which concern the complex protection of the natural resources of the Baltic Sea. The most significant of them include the protection of marine areas, within the range of national parks, and the establishment of marine protected regions. Coastal lagoons, estuaries and other coastal wetlands are among the richest biotopes on earth, with very high productivity and great biodiversity. Therefore, the beginning of wide-ranging discussions in the international arena, regarding methods of nature conservation in the Polish zone of the Baltic, is of great importance. Six marine areas have been proposed for inclusion in the protected regions of the Baltic Sea:

- Vistula Spit Landscape Park
- Redlowo Cape
- Puck Bay
- Slowinski Park Narodowy
- Slupsk Bay
- Wolinski National Park

Only international co-ordination and co-operation can enable scientists and experts from many disciplines to find a reasonable solution for the protection of the marine ecosystems which belong to all of us.

### **Proposals for Baltic Sea Protected Areas**

Since the end of the 1980's, many documents have been issued by international bodies dealing with the conservation of nature (resolutions of the IV World Congress for the Conservation of Nature - September 1987, Colorado, USA; XVII Meeting of the International Union for the Conservation of Nature, IUON - February 1988, San Jose, Costa Rica; IV Congress of National Parks and Protected Areas - February 1992, Caracas, Venezuela). They have included applications for the implementation of activities aimed at protection of the seas.

In the Baltic Sea, not only particular species, but also whole biocenoses and biotopes, are threatened with devastation. The degradation of this environment has led to the destruction of some flora and fauna species, as well as marine habitats and ecological areas. Furthermore, the natural biodiversity of the Baltic ecosystem is decreasing.

The establishment of a system of Baltic Sea Protected Areas (BSPA) was acknowledged as one of the activities to rescue the living resources of the Baltic. A working Group of the EU-Nature (Helcom) is in charge of international co-ordination. Stock-taking and delineation of valuable regions, with regard to their nature value, was initiated in each country.

This is a new task for Polish legislation. Polish regulations concerning the conservation of nature and environmental protection have no legal basis which would allow the setting up of special protected areas in a scheme such as that prescribed by the Helcom Recommendation. According to Polish legal procedure, the creation of new institutions needs to be preceded by a full specification, an analysis and an assessment of many aspects, which form the future legal status of the institutions. At the current stage of discussion, these aspects could be presented as the problems of BSPA and the Polish coastal zone. These problems include establishing, defining, regulating, managing, formulating a protective plan and providing expenses for the establishment and maintenance of a protected region.

The following recommendations constitute the EU-Nature guidelines for the delineation of Baltic Sea Protected Areas (BSPA):

- the aim of the establishment of BSPA is the protection of the Baltic Sea biological resources through the protection of species, natural habitats and the processes which rule this ecosystem

- regions of great biodiversity, areas threatened with the extinction of a particular species, or even whole units of vegetation and animals, endemic habitats, spawning and breeding grounds, feeding and relaxing grounds for a migratory species as well as unique and most typical elements of a biotic environment, should be protected
- areas less affected by human or natural activity, which are representative of a region

In the protected regions economic activity has to be developed carefully. Protected areas should be unpolluted and the area of a protected region should exceed 5,000 hectares.

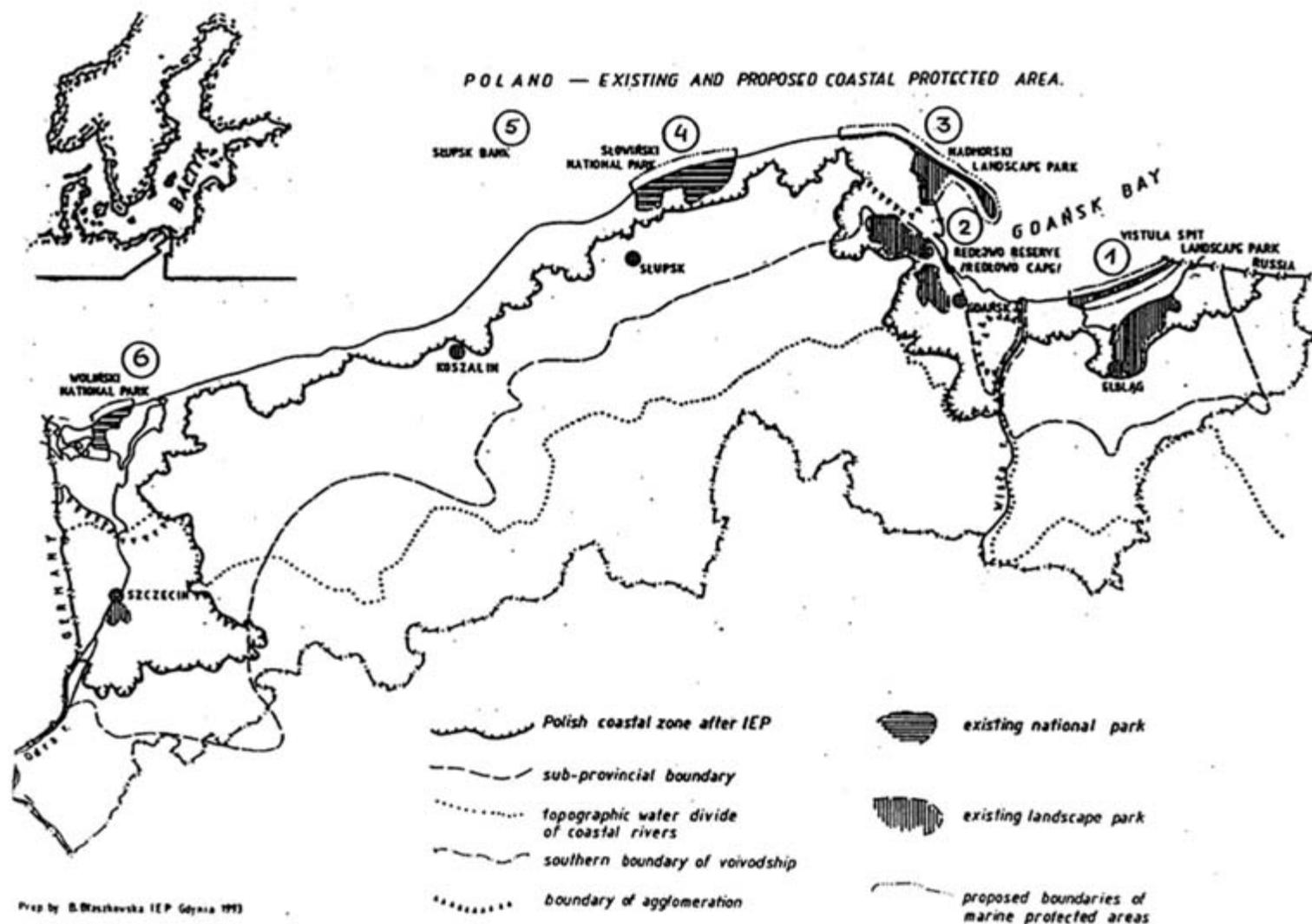
A meeting of 150 nature conservation experts took place in Nyköping, Sweden, in June 1993. They worked out a schedule for further activities within the range of protected areas in Europe. Quite a large part of the debate was taken up by the discussion of a programme for the conservation of Baltic Sea natural resources. A list of the most valuable marine areas, taking into account their biological importance, was made. A ten-member Polish delegation at the meeting consisted of representatives from the Ministry of Environmental Protection, Natural Resources and Forestry, Management Boards of Seaside National Parks, Polish science and non governmental organisations. The Polish party suggested a list of six regions of great biological worth to be included in the System of Baltic Sea Protected Areas.

The following aspects were taken into account when selecting the Polish protected marine areas: An extension of the limits of the existing objective of protecting natural resources in seaside zones was agreed as the top priority step. These regions could be classified according to value, in order of their biological importance. The protection of an ecoton zone in the coastal part of a littoral, and an ecoton zone in an open sea beach, should also be kept in mind. The necessity to assign criteria to determine the limits of protected areas, made it necessary to accept a 10 m bathymetrical contour as a limit. A characterisation of suggested protected areas is presented in Figure 1.

For the Vistula Spit Landscape Park<sup>1</sup> 12,300 hectares is proposed, with a maximum depth of 10 m, a coast line of about 63 km, and a seaward boundary, of 66 km. The feature of the Vistula Lagoon waters is the variability of salinity - from 2 to 6‰. There is a poor influx of river water, which is greatly influenced by the sea. It freezes in winter. The bottom consists of sand and mud, with differentiated aquatic vegetation. The rich bottom flora is a substrate for the spring race herring spawning. It is also the hatching and feeding ground for numerous birds. On the open sea side are sandy beaches. The danger for the area is eutrophication, as a result of pollution from the Vistula, and uncontrolled fishing.

The second place proposed for protection is Redlowo Cape.<sup>2</sup> The marine area is approximately 482 hectares with a maximum depth of 10 to 11 m, and a coastline of 2.6 km. The second boundary, is 6 km. In this area there is a sandy bed with numerous fields of stones. The coastline is an active, abraded cliff, fully exposed to strong waves. Salinity is about 7‰. It is the habitat of many species of molluscs and crustaceans. There are numerous meadows in *Zostera marina*, inhabited by differentiated ichthyofauna. The region is a wintering site for birds such as ducks, coots and swans. The greatest danger for this area is the impact of communal sewage. Technical shoreline protection, in the form of concrete sea walls, is important.

The Puck Bay Landscape Park<sup>3</sup> covers 23,500 hectares, with a depth of 10 to 11 m, a coastline of 123.5 km and a seaward boundary of 90 km. The main internal part of Puck Bay (Puck Lagoon) is of estuarine nature. The salinity does not exceed 7‰. The main characteristic of this basin, with an area of about 130 km<sup>2</sup>, is its shallowness. The average depth is between 3 and 3.5 m. It freezes over during the winter and has numerous sandy shoals. The Puck Lagoon habitat is one of the most differentiated in this part of the Baltic; it is the spawning site for fifty species of ichthyofauna, which takes place throughout almost the whole year. Sandy beaches predominate along the Hel Peninsula. To protect the area we need to, first, strengthen the shores, and control traffic which is now very heavy, and then take action against water pollution and poaching.



**Figure 1.** Poland - Existing and Proposed Coastal Protected Area

Another proposed area to be protected is Slowinski National Park<sup>4</sup> with an area of 6,670 hectares a maximum depth of 10 m a coastline of 33 km, and a sea boundary of 36.7 km. In this area the greater part of the sea bed consists of fine sand where many molluscs and crustaceans live, especially shrimp Crangon, as well as juvenile bottom fish.

The Slupsk Bank<sup>5</sup> covers 2,850 hectares with a maximum depth of 15 m and a sea boundary of 58 km. There is mid-water lifting of the sea bed to 8 m, surrounded by depths of up to 35 m on the south, and in the Bornholm Deep and Slupsk Furrow slopes, down to over 90 m. Salinity is 7-10%. It is totally influenced by Baltic open sea waters, usually thermally homogenic. The sea bed substrates consist of gravel and coarse sand, with numerous fields of stones. The autumn race herring spawning grounds are situated around it.

The Wolinski National Park<sup>6</sup>, has a marine area of 2,600 hectares and a lagoon area of 3,000 hectares, with a maximum depth of 10 to 11 m in the marine area and 1.5 m in the lagoon area, a coastline of 14.6 and 15 km, a sea boundary of 18.3 km and a lagoon boundary of 11 km. The inshore stretch of water of the Pomorska Bay has a salinity of 7%, and a transparency of between 1.5 and 4.5 m.

Abraded cliffs are a characteristic element of the landscape, 3/4 m from the shore; the sea bed is stony with patches of clay and numerous aggregations of mussels (*Mytilus edulis*). The inshore waters are the wintering grounds for numerous birds. The portion of the Szczecin Lagoon, which is proposed for protection, contains extensive shallows, up to 1.5 m deep. This area is heavily polluted by the River Odra, and the continuous eutrophication of the Szczecin Lagoon. Unfortunately, poaching and over-fishing of certain species continues.

## Conclusions and Recommendations

- In Poland, only government organisations and research institutes are interested in the issue of marine environmental protection. The country needs a wider audience of non-scientific societies to be aware of, and respond to, the problems of conservation.

- Ecological education has not been successful. It should, therefore, be improved in order to change people's mentality and prepare the new generation to adopt a more pro-ecological point of view.
- The problem of low funds for environmental protection is one of the biggest and the most urgent remaining to be solved.
- Action should be taken now, since present protection cannot overcome the preceding degradation of marine coastal areas.
- Much more effort has to be invested in research projects concerning environmental protection, since some of the present expertise is based on obsolete data.
- International co-operation of experts from different disciplines is needed to solve these problems.

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