

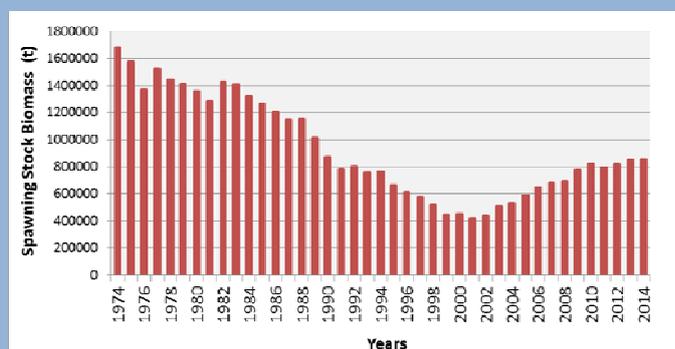
# Policy brief #4

## HERRING

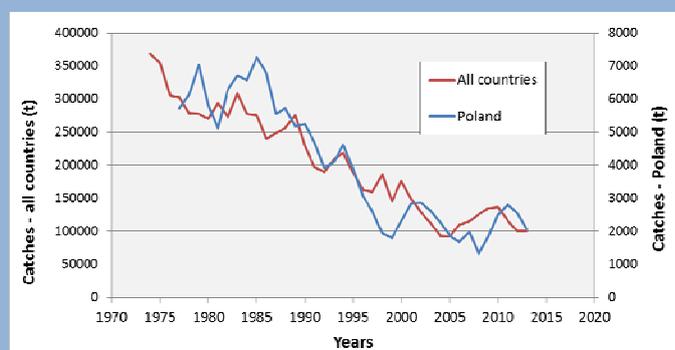
### Towards a sustainable management of coastal spawning grounds

Herring is one of the most important pelagic species in the Baltic Sea. It has not only a crucial role in the marine food chain, but also has a long tradition as food fish and commodity in the Baltic region. The size of herring fish stocks and herring spawning biomass have declined drastically over the last few decades in many areas of the South Baltic Sea.

Especially the coastal habitats where the herring returns to spawn are of high economic interest and under pressure of various human activities. To manage these conflicted areas in a sustainable and holistic way is a big challenge, as the claims and interests of many stakeholders have to be balanced.



Spawning Stock Biomass (SSB) of central Baltic herring (excluding Gulf of Riga herring)



Catches of the central Baltic herring (excluding Gulf of Riga herring)

**The objective of the HERRING project** is to improve the consideration of coastal spawning area management in order to foster a sustainable and integrated management of the South Baltic Sea area. To achieve this, the project aims to analyse the drivers and impacts of human uses in three case study areas that represent important spawning areas of the central Baltic stock. Secondly, the project aims to analyse the multi-level institutions and management instruments that govern the use and protection of coastal spawning habitats.

#### Vistula Lagoon - Interactions of human uses and herring spawning grounds

Successful herring recruitment requires appropriate conditions which enable spawning itself, successful egg survival and hatching, and growth and survival of larvae. One of the key elements is the occurrence of the proper substrate. Moreover, the hydrological /environmental parameters as water temperature, oxygen content, salinity, and low concentrations of contaminants are very important as well. Vistula Lagoon conditions, even not optimal, are providing a suitable environment for herring spawning and survival. The current favorable situation may change in future if anthropogenic pressures cause further degradation. Agriculture in the lagoon's drainage area is one of the major threats for the future of the herring spawning grounds in the Vistula Lagoon as it is the main source of nutrients reaching the lagoon waters and causing high level of eutrophication. The other sectors like fisheries, marine transportation, tourism, dredging, and industry are of relatively low intensity in this area. However, we may expect the rapid increase in tourism in future. Significant changes in environmental conditions may cause not only lower herring recruitment due to the lower survival of eggs and larvae but also a decrease in spawning migration intensity. Both will have significant, negative consequences for herring fisheries in the Vistula Lagoon.

## Present management structure in the herring spawning areas

The Vistula Lagoon is divided by the state border between Poland and Russia (Kaliningrad Oblast). In fact it is a border between EU and non-EU countries. Moreover, according to the current administrative division the Polish part of the lagoon waters and surrounding areas are managed by two voivodships: Pommeranian and Warmian-Mazurian. None of those factors facilitate the successful management of the region, in contrary, it creates many challenges for administration in both countries. Various institutions in Poland are contributing to the management of the lagoon environment but in the context of the herring spawning grounds protection the following ones are the most important: Maritime Office in Gdynia, Sea Fisheries Inspectorate in Gdynia, Voivodship Inspectorate of Environmental Protection in Olsztyn (Branch in Elblag), Regional Directorates for Environmental Protection in Gdańsk and Olsztyn. An important, indirect role in the management of the herring spawning grounds are playing NGOs as e.g. Fisheries Local Action Groups (FLAGs).

## SWOT analysis of herring spawning grounds in the Vistula Lagoon

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Vistula Lagoon is one of the most important herring spawning grounds in this part of the Baltic Sea.</li> <li>• Sheltered spawning areas with high productivity and high water temperature supporting growth rate of herring larvae.</li> <li>• Herring is an important target fish for local fisherman community.</li> <li>• Low economic activity in the lagoon, which prevents spawning areas degradation.</li> <li>• Polish–Russian Commission for the Management of Fish Resources in Vistula Lagoon - well established and regularly meeting international body.</li> </ul>	<ul style="list-style-type: none"> <li>• High internal potential for eutrophication and contamination - large drainage area and limited exchange with the Gulf of Gdansk.</li> <li>• Limited areas with a proper spawning substrate - the area covered by plants with submersible leaves is limited.</li> <li>• A common opinion within the local community is that herring spawning grounds do not require any special protecting activities.</li> <li>• Low price for herring - low resource protection awareness.</li> <li>• Increasing tourism - potential conflict for space and natural resources.</li> <li>• Fishing quotas - existing herring quotas are not adjusted to the high variability in spawning migration intensity conditions.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Climate change - on average the winter severity will be lower including a shorter ice coverage period.</li> <li>• European funding - EC is actively supporting the development of the scientific basis for the policy implementation through various financial mechanisms.</li> <li>• The existing international environmental regulations - Helsinki Convention strong and proactive, Baltic Sea Action Plan, Natura 2000 area, Water Framework Directive.</li> </ul>	<ul style="list-style-type: none"> <li>• Climate change threat of increased intensity of more extreme weather conditions. Higher temperature during summer times may increase the blue-green blooms intensity and oxygen deficits.</li> <li>• Transboundary issues between EU and Non-EU countries - different legal systems and priorities.</li> <li>• Natura 2000 area - designation as a N2K area creates various limitations to human activities that could help in herring fishery support.</li> <li>• Large catchment area - agriculture sector influence.</li> </ul>

## Recommendations

- Increase the awareness of the possible effects of human activities on herring spawning grounds in local society and among relevant stakeholders.
- Support the herring fishery and herring as a fish product.
- Implement precautionary approach to reduce the effects of human activities on herring spawning grounds.
- Improve the cooperation and flow of information among institutions responsible, at different level, for the management of herring spawning grounds areas.
- Increase the cooperation with Russia in activities affecting the condition of the Vistula Lagoon environment (research, environment protection, and resources management).
- Establish research program to describe (to map) the distribution of herring spawning grounds along Polish coast, including Vistula Lagoon.