

**Agenda Item 6 Assessment reports, HELCOM Indicator Fact Sheets,
Species/biotopes Fact Sheets and working practices**

Document code: 6/1

Date: 24.4.2009

Submitted by: Secretariat

FACT SHEET ON *CLUPEA HARENGUS MEMBRAS*, BALTIC HERRING (CLUPEIDAE)

The last meeting of HELCOM HABITAT (10/2008) approved in principle the publication of the fish fact sheets after incorporation of comments made by Finland and Sweden. The meeting requested Contracting Parties to check the revised fish fact sheets and provide possible comments to the Secretariat. The meeting mandated the Secretariat to resolve any contradictory comments with relevant Parties and agreed that non-problematic fish fact sheets be published on the HELCOM website upon incorporation of amendments.

After the last HABITAT meeting several commenting rounds via e-mail have taken place to revise the Fact Sheet on the Baltic herring. The problem arises from a basic disagreement of the taxonomic status of the Baltic herring and its several populations. To resolve the case the Secretariat has made a compromise proposal together with Finland and Sweden, to focus on the Baltic herring (*C. h. membras*) as a subspecies and discuss within the fact sheet about the different populations, such as autumn-spawning and spring-spawning populations and about populations in specific areas.

The Meeting is invited to agree on the text of the Fact Sheet and make the sheet publicly available on the HELCOM web site as soon as possible.

Clupea harengus membras, Baltic herring (Clupeidae)

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1. Description of the habitat/autecology of the species

The Baltic herring is a pelagic species, spending the day close to the sea floor and the night near the surface. Light is an important factor controlling its vertical distribution. It schools in coastal waters, with complex feeding and spawning migrations. Spawning occurs from spring to autumn and eggs are deposited on hard substrates or on plants. The species is a facultative zooplanktivorous-filter feeder, i.e. it can switch to filter-feeding if the food density and particle size is appropriate. Herrings mainly feed on planktonic copepods. Other characteristics are schooling, silvery sides, excellent hearing, and very fast escape response (Froese & Pauly, 2005).

2. Distribution (past and present)

The Baltic herring is distributed all over the Baltic Sea.

The Baltic herring *Clupea harengus membras* is often considered as a subspecies of the Atlantic herring *Clupea harengus*. Baltic herring as a subspecies includes several populations in different parts of the Baltic Sea. Some of the populations are autumn-spawning and some spring-spawning. The autumn-spawning populations may predominate in the western and southern Baltic Sea, but autumn-spawning herrings occur also in the northern parts such as in the Bothnian Sea. The spring-spawning populations live mainly in the eastern and northern parts of the sea basin. Thus, there is wide overlap in the distribution.

While some scientists have defined the spring and autumn-spawning populations as sibling species of the Baltic herring (e.g. Ojaveer 1981, Ojaveer et al. 2003), others have shown these to be environmentally flexible phenotypes depending on the nutritional condition of individuals (Anokina 1971, Aneer 1985, Parmanne 1990, Rajasilta 1992, Hognestad 1995, Hulme 1995). Genetic variation of the Baltic herring appears to be low (Jørgensen et al. 2005, Johannesson & André 2006).

3. Importance (sub-regional, Baltic Sea-wide, global)

Baltic herring is very likely genetically distinct from the North Sea herring and is therefore considered as of special importance in the HELCOM area. Different populations probably reflect adaptations to local environmental conditions and therefore also have special importance.

4. Status of threat/decline

The different Baltic herring populations in the Baltic Sea face different anthropogenic pressures and therefore also show different status. In general, the biomass of individuals has decreased from 1990's probably due to declined salinities and consequent change in their diet.

The autumn-spawning Baltic herring populations are threatened in the western parts of the HELCOM area, and have been declining significantly without signs of recovery. The decline of the autumn-spawning Baltic herring started during the 1940's and 1950's at a time when fishing induced mortality was low compared to the situation today. Hence, the main reason for the decline may be oceanographic influences rather than fishing pressure. In a HELCOM assessment, the autumn-spawning Baltic herring is classified as endangered (EN) according

to IUCN criteria in the western HELCOM area and as a HELCOM high priority species/subspecies (HELCOM, 2007). It was listed as critically endangered (CR) by Germany. The autumn-spawning Baltic herring is not considered threatened in Finland and Sweden.

The Baltic herring populations in the Gulf of Finland and the Bothnian Bay have been low for a couple of decades probably due to high fishing pressure, whereas the ones in the Bothnian Sea and the Gulf of Riga thrive well. In the Kattegat, where the population is heavily dependent on migration from the western Baltic Sea, the population has declined from 1990's due to high fishing pressure. (ICES, 2008)

5. Threat/decline factors

The Baltic herring is a target species for fisheries and is caught also as by-catch in pelagic and demersal fisheries. The southern autumn-spawning populations are threatened by fisheries. Eutrophication degrades spawning habitats of the species in littoral areas all over the Baltic Sea.

6. Options for improvement

The declined populations of the Baltic herring would benefit from temporal fisheries bans and marine protected areas in the spawning areas in the southern parts of the Baltic Sea and particularly of improved quality of spawning habitats in the whole sea area. However, the spawning areas of the autumn-spawning populations are poorly known.

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