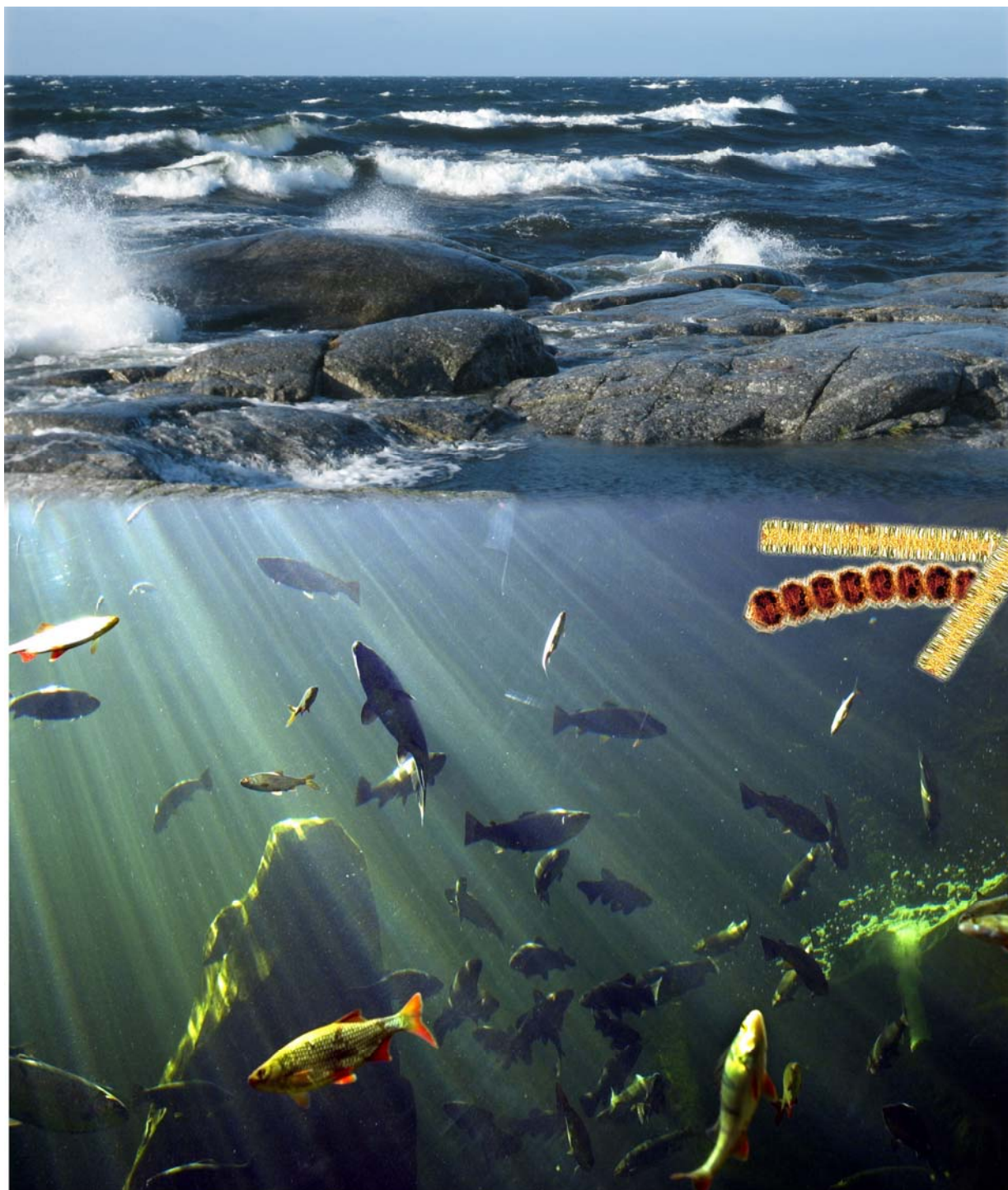


TOWARDS FAVOURABLE STATUS OF BALTIC SEA BIODIVERSITY

Draft HELCOM Overview 2007



**2nd Stakeholder Conference on
the HELCOM Baltic Sea Action Plan**

Helsinki, Finland, 6 March 2007

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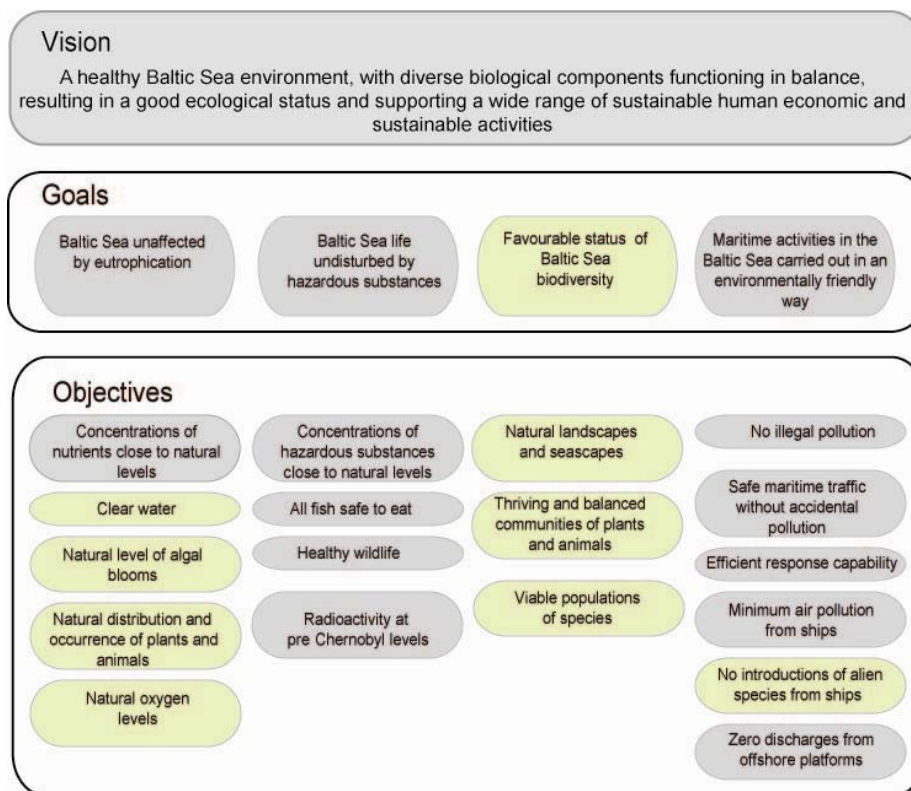
TOWARDS A FAVOURABLE STATUS OF BALTIC SEA BIODIVERSITY

Preface

The aim of this concise overview is not to provide a comprehensive assessment on the status of biodiversity and nature protection in the Baltic Sea but it is a first attempt to outline an indicator-based biodiversity assessment

- *to show how ecological objectives could be used as basic assessment tools when assessing the favourable status of land and seascapes, communities and species, and*
- *to stimulate discussion on the development of targets and indicators in the HELCOM Baltic Sea Action Plan (BSAP).*

For the implementation of the ecosystem approach, HELCOM has adopted a system of vision, strategic goals and ecological objectives. Even if the Baltic Sea Action Plan is developed as under four separate thematic areas, including nature conservation, the aim to protect biodiversity is central to all themes and to the system as a whole.



The HELCOM system of vision, strategic goals and ecological objectives

The specific **strategic goal** for the protection of biodiversity is to reach a “favourable conservation status of Baltic Sea biodiversity”. This means that biodiversity is restored and maintained and all elements of the marine food-webs, to the extent that they are known, occur at normal abundance and diversity. The **ecological objectives** related to this goal are divided into landscape/seascape level, community level and species level, reflecting the Convention on Biological Diversity (CBD), in which the assessment is focused on variability “within species”, “between species” and “of ecosystems”.

In order to make the ecological objectives operational, concrete short-, middle- and long-term **targets** should be set and the progress toward these followed with **indicators**. Currently, both targets and indicators are being developed for all objectives.

This report is based on existing information collected by HELCOM and other organisations as well as on scientific literature. The results concerning the Baltic Sea Protected Areas (BSPA) network are based on the information submitted by the Contracting Parties to the HELCOM BSPA Database (<http://bspa.helcom.fi>).

EXECUTIVE SUMMARY

The following tables give a general overview how the favourable status of the Baltic Sea biodiversity and nature conservation has been assessed in this document.

The status is categorised using flounder smileys.



indicates a favourable status or a positive trend,



an unfavourable status or a negative trend while



is neutral or no trend.



refers to big gaps in information

NATURAL LANDSCAPES AND SEASCAPES		
TARGET	INDICATOR	STATUS
By 2010, to have an ecologically coherent and well-managed network of coastal and offshore BSPAs, Natura 2000 areas and Emerald sites in the Baltic Sea By 2010, the short-term target is to have, when justified, a minimum of 10% of each Baltic Sea sub-region to be covered by BSPAs, Natura 2000 and Emerald sites	Designated BSPAs, Natura 2000 and Emerald site areas as a percentage of total sub-region areas	
	Percentage of important migration and wintering areas for birds within the Baltic Sea area which are covered by the BSPAs, Natura 2000 and Emerald sites	
	Number of BSPAs protecting threatened and/or declining species (for each species separately)	

What has been achieved so far?

The network of Baltic Sea Protected Areas (BSPAs) includes 78 officially notified and designated sites, established according to HELCOM Recommendation 15/5. About two thirds of these BSPA sites have a management plan or a management plan is under preparation. HELCOM has also identified important new sites as potential candidates for future BSPAs. In addition to the BSPAs a number of other protected areas have been established in the Baltic Sea including Natura 2000 sites required by the EU Habitats and Birds Directives and Emerald sites launched by the Council of Europe. Further, many of the important bird areas outside these networks are protected by national legislation. Note that Contracting Parties can notify their Natura 2000 and Emerald sites as BSPAs without any additional measures.

The 2003 joint HELCOM/OSPAR Ministerial Meeting reaffirmed commitments to establish a network of well managed marine protected areas (MPAs) by 2010. This network should be ecologically coherent together with the Natura 2000 network. HELCOM and OSPAR have adopted in 2003 a joint Work Programme to ensure that this work is done consistently across their maritime areas. HELCOM has adopted main criteria for evaluation of the ecological coherence of the BSPA network, a complete assessment will be conducted during the next few years.

Where are the gaps?

In order to assess the ecological coherence of the network of marine protected areas – BSPA, Natura 2000, and Emerald sites, relevant information of all of them should be combined for further

analysis and to identify need of further designations. Among other things, information on the quality and distribution of marine landscapes is needed.

Broad scale marine zoning is a management tool that has been used around the world and could be developed in the Baltic Sea to protect biological diversity of the marine environment and sensitive marine resources from overuse and to separate conflicting uses. The seeds of such a zoning system can be seen in the existing spatial controls such as routing measures for maritime traffic, various protected areas and fisheries closures.

Let's join forces to reach the targets

Establishment of protected areas alone is not sufficient to attain “natural landscapes and seascapes” –actions to reach the HELCOM objectives under the goal “Baltic Sea unaffected by eutrophication” are of major importance.

In order to enhance the protection of coastal and offshore areas, including the coastal strip, by reducing conflicting human activities, a broad scale spatial zoning template could be jointly developed, and subsequently tested nationally as contribution to the HELCOM work on integrated coastal zone management.

At national level the first action to facilitate the analysis of ecological coherence of the network of marine protected areas should be the designation of already established marine Natura 2000 and Emerald sites as BSPAs. In addition the necessary missing information on their marine Natura 2000 and Emerald sites should be submitted to the HELCOM BSPA Database.





Designation of additional BSPAs with special attention to inclusion of new marine BSPAs outside territorial waters (within EEZ) should be done in order to reach the 10% and 30% area targets.

To fulfil the requirements of good governance (cf. HELCOM Recommendation 15/5) the Contracting Parties should finalize management plans, or measures, and routines for their BSPAs, according to the HELCOM BSPA Planning and management: Guidelines and tools.

In order to evaluate the effectiveness of the network of marine protected areas in covering marine underwater landscapes, such marine landscapes should be identified and mapped.



Juha-Markku Leppänen, HELCOM

THRIVING AND BALANCED COMMUNITIES OF PLANTS AND ANIMALS		
TARGET	INDICATOR	STATUS
By 2021, the spatial distribution of the habitat forming species extend close to their natural range	Percentage of all potentially suitable substrates (seafloor) covered by characteristic and healthy habitat forming communities specific for each Baltic Sea sub-region	
By 2021, threatened and/or declining marine biotopes/habitats have largely recovered in the Baltic Sea area	Abundance and distribution of rare, threatened and/or declining marine and coastal biotopes/habitats included in the HELCOM lists of threatened and/or declining species and habitats of the Baltic Sea area	
No new introduction of invasive and alien species to prevent adverse alteration of the ecosystem	Number of newly introduced invasive and alien aquatic species in the Baltic Sea	
	Number of established invasive and alien aquatic species in the Baltic Sea	

What has been achieved so far?

All the Contracting Parties to HELCOM have signed the Bern Convention, which is a binding international legal instrument aiming at conservation of wild flora and fauna and their natural habitats. The established BSPA, as well as the Natura 2000 and Emerald sites aim at protecting habitats and biotopes of the Baltic Sea. In addition HELCOM has identified the Baltic biotopes and habitats that are threatened and/or declining.

Information on invasive and alien species in the Baltic Sea has been well assessed including information on their vectors. The International Convention for the Control and Management of Ships' Ballast Water and Sediments has been adopted by IMO and the Contracting Parties to HELCOM are planning joint steps for its implementation.

Where are the gaps?

As diffuse transboundary pressures, such as eutrophication are crucial to the state of underwater habitats and biotopes the establishment of protected areas is a necessary, but insufficient action to protect these. Pressures such as eutrophication must be addressed in order to attain a favourable status of coastal, pelagic and benthic habitats and biotopes.

The few habitats and biotopes known for certain to be threatened and/or declining are not covered adequately by the existing network of marine protected areas. No comprehensive information on distribution and abundance of rare, threatened and/or declining marine and coastal biotopes/habitats exists.














Let's join forces to reach the targets

Eutrophication is the main reason for the current deviations from the targets for biotopes/habitats.

In order to properly assess the status of plant and animal communities, the distribution of underwater habitats and habitat forming species should be mapped.

HELCOM should develop and adopt a new updated regional HELCOM Red lists of Baltic habitats/biotopes and biotope complexes.

Ratification of the IMO Ballast Water Convention is a step towards decreasing transfer of invasive and alien species. In addition, HELCOM should establish a co-operation on biological invasions with the Black Sea Commission and the Caspian Sea Environment Programme. Such activities are necessary in order to reduce the risk of species introductions beyond the IMO BWC requirements.

VIAIBLE POPULATIONS OF SPECIES		
TARGET	INDICATOR	STATUS
<p>As the short-term target, decrease in number of threatened and/or declining species and as the long-term target to ensure a favourable status of all species</p> <p>Populations of all commercially exploited fish species are within safe biological limits</p>	Number of threatened and/or declining species	
	Abundance of Baltic seal species compared to the safe biological limit (limit reference level) as defined by HELCOM SEAL	 Ringed seal
		 Harbour and grey seals
	Abundance and distribution of Baltic harbour porpoise	
	Number of rivers with population of Baltic sturgeon	
	Spawning stock biomass of eastern Baltic cod and autumn-spawning herring compared to the precautionary level (Bpa) as advised by ICES and/or defined by the EC management plans	 Cod
		 Herring
	Fishing mortality level of eastern Baltic cod and autumn-spawning herring compared to the precautionary level (Fpa) as advised by ICES and/or defined by the EC management plans	 Cod
		 Herring
	<p>Bycatch rate in the “Baltic stock” of harbour porpoises does not exceed two individuals per year¹</p> <p>By 2015, bycatch of seals and waterbirds is significantly reduces</p> <p>By 2015, discards of fish and bycatches are close to zero</p>	Numbers of discards and bycatch of fish, marine mammals and waterbirds
Number of entangled and drowned marine mammals and water birds		
<p>By 2015, as the short-term goal, to reach production of wild salmon at least 80 %, or 50 % of the best estimate of potential production, and within safe genetic limits, based on a inventory and classification of Baltic salmon rivers</p>	Number of salmon rivers with viable stocks	
	Trend of salmon smolt production in wild salmon rivers	 Gulf of Bothnia
		 Gulf of Finland

¹ Based on the 2002 ASCOBANS Recovery Plan for Baltic Harbour Porpoises (Jastarnia Plan)

What has been achieved so far?

HELCOM has adopted recommendations to protect harbour porpoises, seals (including general management principles) and wild salmon.

ASCOBANS² has a comprehensive plan (Jastarnia Plan) for the protection of harbour porpoise, supported by HELCOM.

Banning of hunting of seals and the decrease in organic pollutants have made the increase in seal populations possible. The HELCOM *ad hoc* Seal Expert Group is currently quantifying Limit Reference Levels and Target Reference Levels for population sizes of seal species. Similar levels will be developed for seal distribution and health status. The Group is also assisting harmonisation of National Management Plans for the cross-boundary Baltic Sea Seal Management Units.

HELCOM has adopted a priority list of threatened and/or declining species and a complete Red list for fish and lamprey species. The network of marine protected areas, including seal sanctuaries protects threatened and/or declining species.

Reproduction of white-tailed eagle has improved owing to the decrease in organic pollutants.

A programme aiming at reintroducing sturgeon, the only recently extinct Baltic species, has started in the southern Baltic (Germany and Poland) but no introductions have been made so far.

The joint IBSFC³ and HELCOM actions to protect wild salmon has resulted in an increase in wild salmon production and 37 salmon rivers have smolt production.

The reformed EC Common Fisheries Policy (CFP) of 2002 opened for long-term approach to fisheries management, including the establishment of multi-annual recovery plans for stocks outside safe biological limits. The EC has proposed a multi-annual plan for the cod stocks in the Baltic Sea.

Under the EU CFP, a number of Regional Advisory Councils (RACs), including the Baltic RAC, were established to give a possibility to Stakeholders, also environmental organisations, to comment - among other things - on draft total allowable catches (TACs) to be agreed by the Council. HELCOM has an observer status in the Baltic RAC.

Where are the gaps?

Information on abundance and distribution of rare species is scarce but the network of marine protected areas does not protect all species known to be threatened and/or declining.

Estimates of fish catch are uncertain and predominantly based on logbooks and landing declarations, hampering sound management. Estimates of bycatches and entangled and drowned animals in fishing gears are incomplete.

A proper dialogue between the environmental and fisheries sectors is lacking.

Let's join forces to reach the target

HELCOM has no mandate to manage fisheries in the Baltic Sea but has the responsibility to ensure that fishery is conducted in a sustainable way. This can be reached through appropriate long-term management of Baltic Sea fisheries as provided by the EC Common Fisheries Policy and the bilateral fisheries agreement between the EC and the Russian Federation.

HELCOM should agree on a strategy for stakeholder dialogue in order to avoid potential, and mitigate existing, conflicts between fisheries and the protection of priority species. This has to be done in fora such as the Baltic RAC.

HELCOM should investigate the effects of existing and potential spatial and/or temporal closures of fisheries to protect important areas for fish and also wintering sites of sea birds. Competent bodies (EC and Russia) could establish additional areas of this kind where scientifically justified. Areas and periods closed for fishing are included in the EC's strategy for ensuring sustainable fisheries.

HELCOM should develop and adopt a complete regional HELCOM Red list of Baltic species by 2011.

² Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas

³ International Baltic Sea Fishery Commission

Work on management plans and management measures for Baltic seals, taking into account the safe biological limits and the ecosystem capacity, is already ongoing.

HELCOM should develop a monitoring system for entangled and drowned marine mammals and water birds on the basis of obligatory bycatch reporting by fishermen. The EC should then be addressed to set up the monitoring.

Germany and Poland have started the re-introduction programme for Baltic sturgeon but the programme should be completed and extended to all potential rivers.

The Contracting Parties should develop national management plans in order to ensure sustainable management of seals, other threatened and/or declining species and also fish species whose regulation falls within national competence.

Each Contracting Party should designate, where scientifically justified, spatial and/or temporal closed areas for coastal fisheries in order to protect important areas for fish species close to or outside safe biological limits and important wintering sites for sea birds. The areas should be created, protected and managed in conformity with EC Common Fisheries Policy.

The Contracting Parties should also safeguard more weak wild salmon rivers populations in the Baltic Sea region than is done today and reintroduce salmon in potential salmon rivers.



Herring. Riku Lumiaro, FIMR

Importance of biodiversity

Biodiversity determines the resilience, or the ability to adapt to changing circumstances, of ecosystems. Reduced diversity of genes, species and biotopes leads to ecosystems which are more vulnerable to the effects of natural variability and stochastic events. They also lose their buffering capacity against large-scale human disturbance, e.g. climate change. Many of the Baltic species are genetically distinct from their marine or freshwater source populations and can not be replaced once driven to extinction.

A diverse and well functioning marine ecosystem is necessary to maintain future sustainable use of the Baltic Sea. Socio-economic values emerging from the Baltic ecosystem, linked to recreational, cultural and aesthetic aspects of our sea, are important to man and form a part of our joint natural heritage.

Many of the ecological objectives under the other three strategic goals, pertaining to eutrophication, hazardous substances and maritime activities, are also relevant to biodiversity. The favourable status of biodiversity cannot be reached without having e.g. “natural oxygen levels”, a “natural level of algal blooms”, a “natural distribution and occurrence of plants and animals”, “healthy wildlife”, and “no introduction of alien species”.

Biodiversity of the Baltic Sea

The Baltic Sea is one of the largest brackish water bodies on in the world. Relatively few animal and plant species have been able to adapt to the brackish water environment compared to marine and freshwater ecosystems. However, there is a unique combination of marine and freshwater species acclimatised in the Baltic Sea. The amount of marine species decreases towards north and north-east while the trend in freshwater species is the opposite. Many of the Baltic species are genetically distinct from their marine or freshwater source populations.

The naturally low number of species in the Baltic Sea underlines the importance of the well-being of populations of all native organisms. As there is very little functional redundancy⁴ in the Baltic Sea ecosystem, many Baltic Sea species can be treated as keystone species⁵. The removal of just one species can have more of an impact here than in areas with high functional redundancy. Although only one species, the sturgeon (*Acipenser sturio*), has become extinct in the Baltic Sea in recent history, there have been observed reductions in the abundance, range and distribution of several other species.

Quantitative definitions of biodiversity –difficult but obligatory for EC members

The process of setting quantitative target values for biodiversity topics is not only going on within HELCOM but also necessary to fulfil the requirements of the EC Habitats Directive (43/92/EEC). The overall objective of the Directive is to achieve and maintain favourable conservation status (FCS) for all habitats and species of Community interest and to contribute towards maintaining biodiversity of natural habitats and of wild fauna and flora in the European territory of the Member States. In simple words FCS can be described as a situation where a habitat type or species is prospering (in both quality and extent/population) and with good prospects to do so in future as well.

In the obligatory reporting of the Habitats Directive, Favourable Conservation Status should be assessed in the context of clear, measurable reference values or Favourable Reference Values (FRV). Three types of such FRVs are to be defined: Favourable Reference Areas (FRA) for habitats, Favourable Reference Populations (FRP) for species and finally Favourable Reference Ranges (FRR) for both species and habitats. The Habitats Directive reporting guidelines acknowledge that in many cases delineating FRVs is quite difficult, but that in these cases expert

⁴ Functional redundancy refers to species that share the same function in the ecosystem and thus can replace one another to some extent

⁵ A keystone species can be defined as a species that plays a large or critical role in supporting the integrity of its ecological community and whose role in maintaining ecosystem function is greater than would be predicted based on its abundance.

judgement has to be used as a starting point. The initial FRVs devised by expert judgement will have to be improved with better understanding and further data, e.g. as a result of monitoring. However, for all Favourable Reference Values it is possible to carry out an assessment of Conservation Status by setting the FRV 'greater than present day value'.

According to guidelines the reporting should be done on a bioregional scale, even if also more detailed information can be included. Collection of information related to e.g. mobile marine species should be shared between neighbouring Member States to avoid potential double counting of populations and provide better judgements on range. Considering this strong emphasis on regional co-operation, there is a clear need for joint regional Baltic Sea efforts, e.g. the HELCOM BIO biodiversity assessment activity within HELCOM.

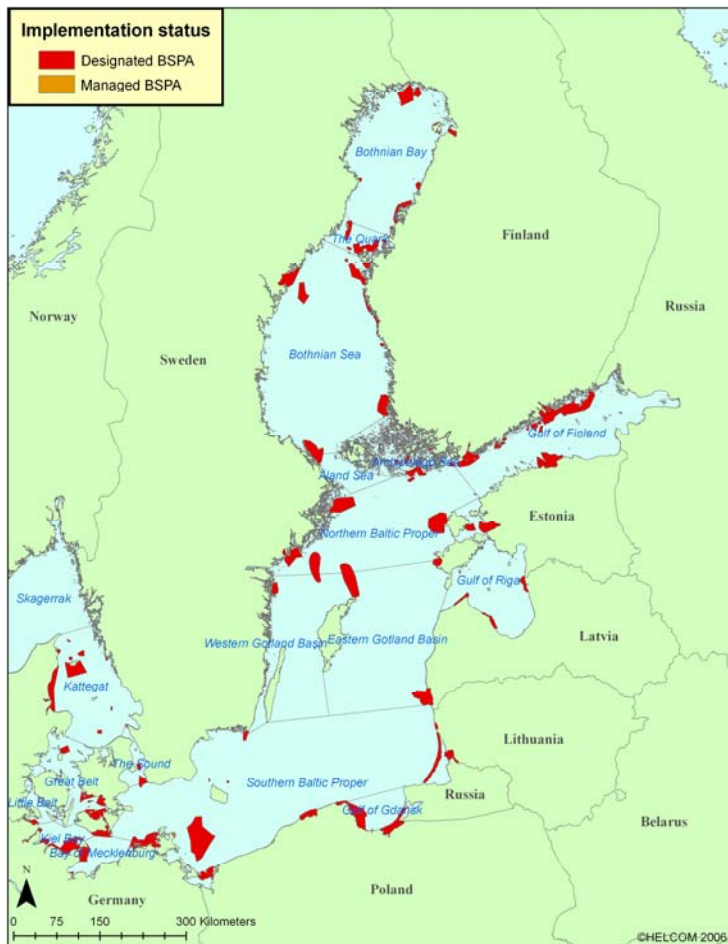


Juha-Markku Leppänen, HELCOM

NATURAL LANDSCAPES AND SEASCAPES

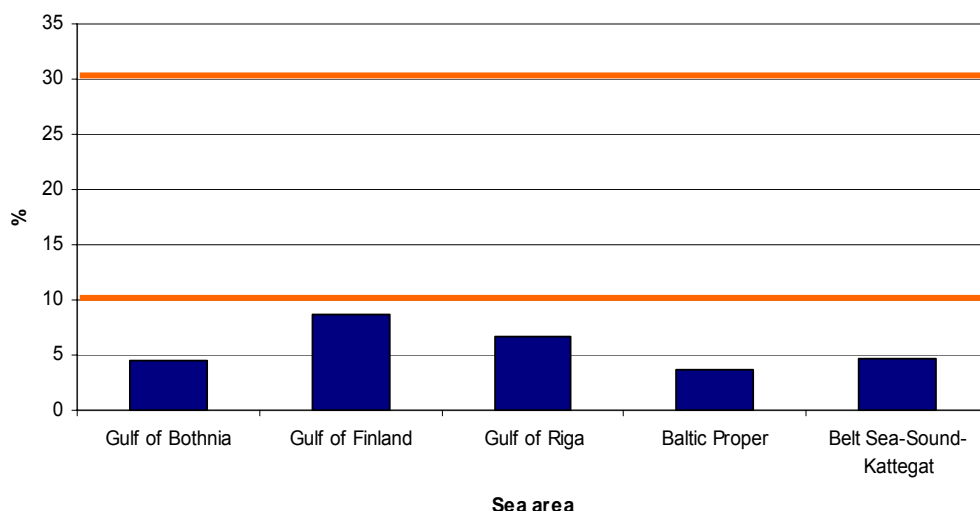
This objective aims at maintaining and restoring natural marine, coastal, and adjacent terrestrial landscapes. It addresses the overall functioning and resilience of marine ecosystems and their services, the regenerative capacity of natural resources and their sustained availability for human use, as well as the characteristic features and aesthetic values of coastal and marine landscapes. This includes restoring and maintaining sea floor integrity at a level that the functions of the ecosystems are safeguarded.

These targets can be achieved through the completion of an ecologically coherent and well-managed network of coastal and offshore BSPAs, Natura 2000 areas and Emerald sites. The 2003 joint HELCOM/OSPAR Ministerial Meeting set 2010 as a deadline for the completion of the network. It should be noted that the ecological coherence is a concept which is presently without a solid definition, therefore analysing ecological coherence and giving comprehensive results is difficult.



78 officially notified and designated Baltic Sea Protected Areas.

Designated BSPAs, Natura 2000 and Emerald site areas as a percentage of total sub-region areas



The percentage of BSPAs, including reported Natura and Emerald sites of each sub-region of the Baltic Sea. Note: for the Baltic Proper and Belt Sea-Sound-Kattegat area information is missing for five (four from Germany and one from Russia) and two sites (Germany), respectively.

The network of Baltic Sea Protected Areas (BSPAs) includes 78 officially notified and designated sites, established according to HELCOM Recommendation 15/5. The majority (89%) of the notified and designated sites are terrestrial or coastal within the territorial waters. Only Denmark and Germany have designated sites that are situated entirely in offshore EEZ waters (one site for each). Denmark and Lithuania have two sites, and Sweden one site that is partly situated within their EEZ.

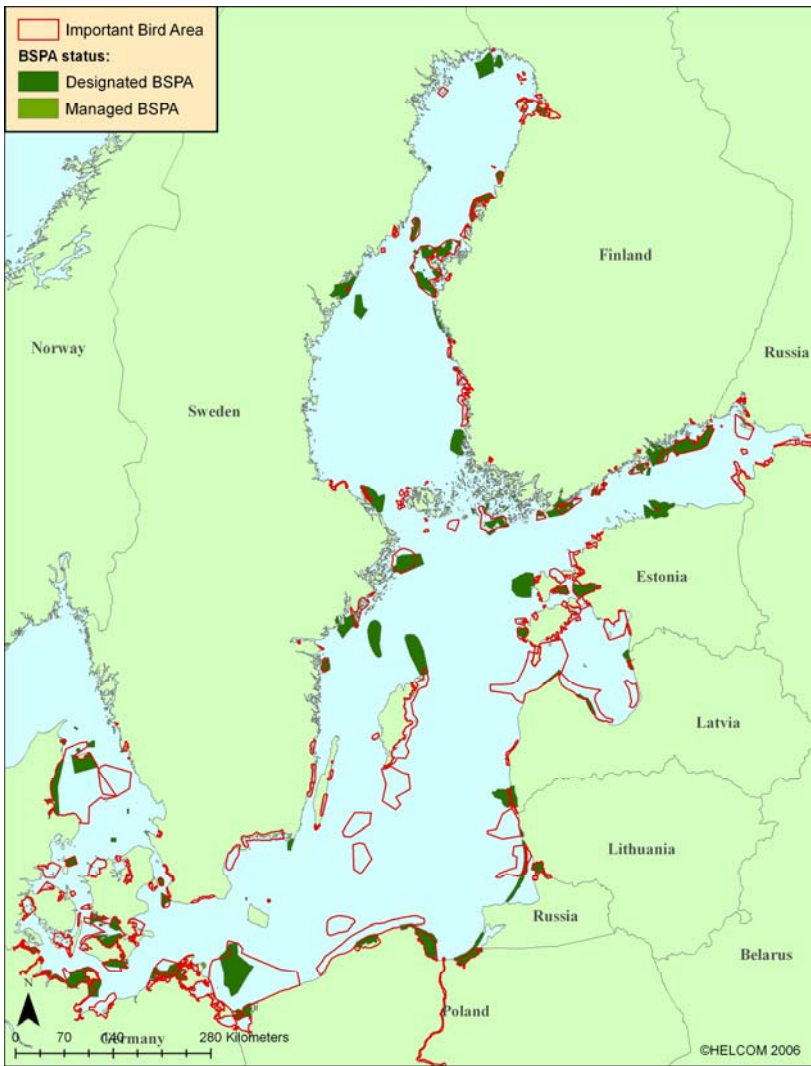
HELCOM Recommendation 15/5 urges countries to establish and implement management plans for each BSPA and also evaluate and review their effectiveness. The requirement of “sustainable use of natural resources as an important contribution to ensure ample provident protection of environment and biodiversity” included in the Recommendation requires clear management of the sites. Only about one third of the present BSPA sites have a management plan, and one third has one under preparation.

The HELCOM short term target “by 2010, the short-term target is to have, when justified, a minimum of 10% of each Baltic Sea sub-region to be covered by BSPAs, Natura 2000 and Emerald sites” has not been reached in any sub-region. However information on non-terrestrial surface area (islets and open water) is missing for five sites in the Baltic Proper (four in Germany and one in Russia), and for two sites in the Belt Sea-Sound-Kattegat (in Germany).

At the moment almost all, 99%, of the officially designated BSPAs are also Natura 2000 sites. A comparison between the HELCOM BSPA database and the EUNIS Database (<http://eunis.eea.europa.eu/>) shows that several marine Natura 2000 sites have not been designated as BSPAs. The total area of the BSPA network does not reach the 2012 target of 10% even though all the sites in the HELCOM BSPA Database would be designated.

Based on the current, albeit incomplete information on the sites and the network, the BSPA network does not at present fulfil the criteria for an ecologically coherent network. However, even if incomplete, the notified and designated BSPAs and other sites (including e.g. BSPAs proposed by Recommendation 15/5) is a good basis for a network of areas protecting representative ecosystems, biotopes, habitats and species. Information on these sites is available from the HELCOM BSPA Database.

Percentage of important migration and wintering areas for birds within the Baltic Sea area which are covered by the BSPAs, Natura 2000 and Emerald sites



Important Bird Areas (IBAs) and officially notified and designated Baltic Sea Protected Areas (BSPAs). Total number of IBAs: 227, total number of designated BSPAs: 78.

In total 227 Important Bird Areas (IBAs) are defined in the Baltic Sea by Bird Life International. Of these 227 sites, only 31 are totally and 14 partly covered by BSPAs. However, information on how the IBAs are protected by other means, has not been assessed. This includes sites protected by national legislation or other means (e.g. private protected areas).

Number of BSPAs protecting threatened and/or declining species

According to the latest compilation by HELCOM (2006), populations of several plant and animal species are declining or the species are threatened and are thus in need of special protection (cf. Annex 1).

Currently 30 species of the 61 listed as threatened and/or declining are included in the protection objectives of the BSPA network as shown in the table below and in more detail in Annex 1⁶.

Number of species by group in the HELCOM list of threatened and/or declining species and habitats/biotopes of the Baltic Sea Area and number of these species protected within the officially notified sites and number of sites.

Species group	Number of threatened and declining species	Number of species present in the BSPAs	Number of BSPAs where the species exist
Algae	10	2	4
Vascular plants	4	2	7
Invertebrates	7	0	0
Fish	23	9	15
Birds	13	13	57
Mammals	4	4	33
Total	61	30	

The BSPA network aims to protect all bird and mammal species listed by HELCOM as threatened and/or declining. Other species groups are not that well represented in the protection objectives of the existing BSPAs. In general, the majority of the species protected by the BSPA network are terrestrial, or birds. Protection of marine species, habitats and biotopes is inadequate by the present though "marine values" are among the most frequent selection criteria. In majority of the BSPAs, the protection of important submerged habitat building species has not been the basis of designation.

⁶ Note: the BSPA Database includes information on species from 63 sites only, although there are 78 officially designated BSPAs in the network.

THRIVING AND BALANCED COMMUNITIES OF PLANTS AND ANIMALS

Thriving and balanced communities of plants and animals are essential for the favourable status of the Baltic Sea biodiversity. This includes the well-known bladder wrack and eelgrass biotopes of the coastal zone but also other less well known biotopes, as well as other types of communities such as the free-floating organisms of the open sea.

Changes in the structure of communities have cascading effects on their associated species and the ecological function of the ecosystem. For example, changes in plankton communities can have effects on entire food chains and eutrophication fuelled blooms also affect other pelagic and benthic communities.

Introduction of non-native species is another threat to the Baltic biodiversity which is difficult to manage by the available methodology. Ballast water treatment may be one way to stop the present influx of alien species.

The aim of this HELCOM ecological objective is that habitats, including associated species, show a distribution, abundance and quality in line with prevailing physiographic, geographic and climatic conditions.

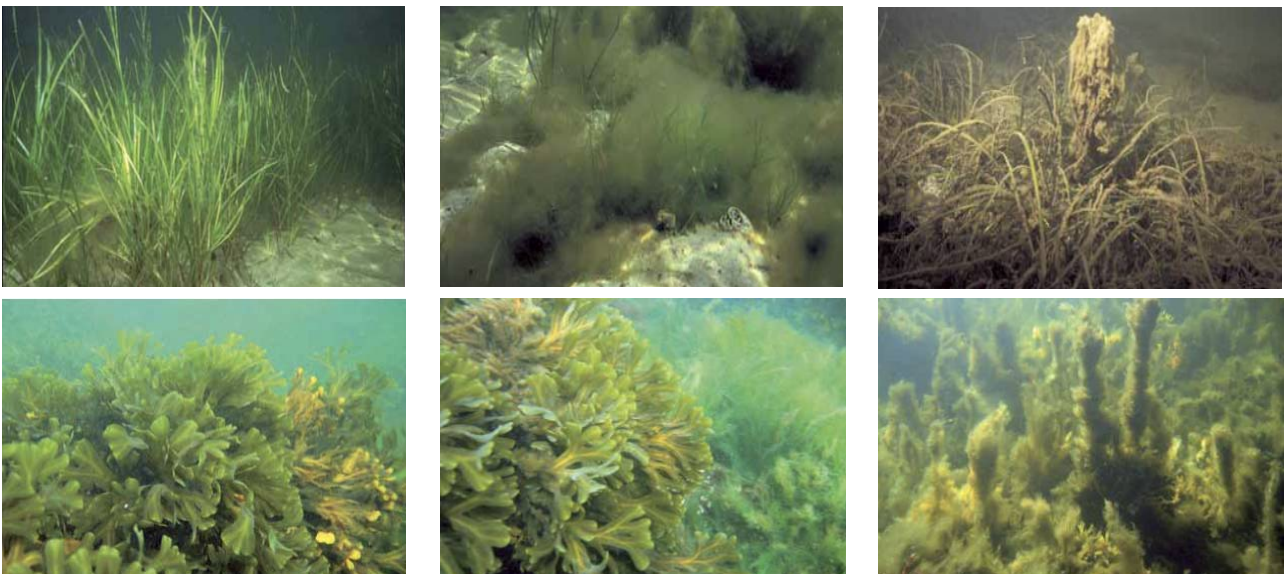
Bladder wrack, eelgrass, stonewort and mussel beds

Percentage of all potentially suitable substrates (sea floor) covered by characteristic and healthy habitat forming communities of bladder wrack, eelgrass, blue mussel and stoneworts

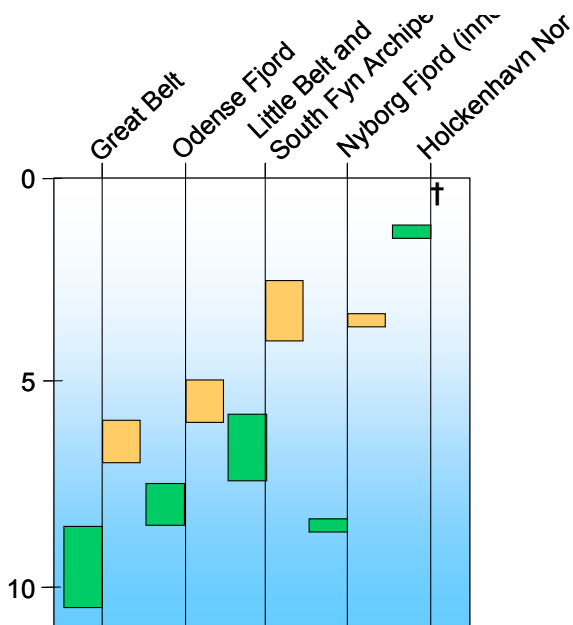
While all species and habitats are of HELCOM interest, initial focus in the assessments will be on major habitat forming species, i.e. bladder wrack (*Fucus vesiculosus*), eelgrass (*Zostera marina*), blue mussel (*Mytilus trossulus*, *Mytilus edulis*) and stoneworts (Charales).

During the last decades, the occurrence of both bladder wrack and eelgrass has declined dramatically mainly due to the effects of eutrophication: decreasing water transparency, increasing sedimentation and increasing amounts of fast growing filamentous algae (e.g. Berger et al. 2003, Boström et al. 2002 and references therein). Due to the increase in turbidity of water, bladder wrack and eelgrass are not able to grow at as great depths as before. The shallower growing depths make bladder wrack belts more susceptible to physical disturbances, e.g. ice scouring.

Long-term data on depth distributions has revealed marked declines in the depth limits of bladder wrack (Torn et al. 2005).



Changes in eelgrass (upper row) and bladder wrack density and epiphyte biomass with increasing eutrophication. Pictures by Nanna Rask (Funen County) and Georg Martin (University of Tartu).



Depth distribution of eelgrass in Danish waters in 1908 (green boxes) and in 1996-98 (yellow boxes). The cross in the Holckehavn site means that eelgrass has disappeared completely (redrawn from Madsen et al. 2001).

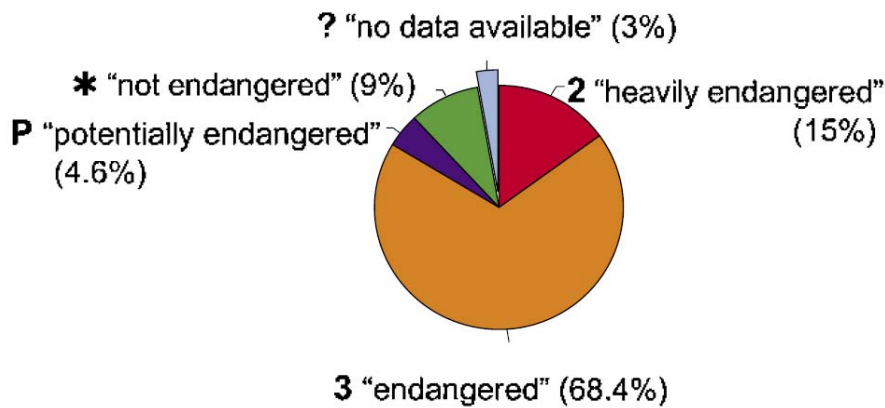
Monitoring and modelling are both required in order to assess how the target “percentage of all suitable substrate covered by typical and healthy habitat forming communities of bladder wrack, eelgrass, blue mussel and stoneworts” has been reached. Modelling can estimate the extent of potential growth areas by combining known environmental variables in a spatial context. Monitoring is needed to obtain information on present distribution of these habitat-forming species. Currently, information on the changes of bladder wrack and eelgrass is available only locally.

Although signs of recovery have recently been observed in the occurrence of bladder wrack in some areas (Nilsson et al. 2004), both bladder wrack and eelgrass communities currently deviate from the HELCOM Objective of “natural distribution and occurrence of plants and animals” and the communities are neither thriving nor balanced. Seagrass beds are considered heavily endangered in all sub-regions of the Baltic Sea except in the Bothnian Bay, the Quark and the Finnish waters of the Bothnian Sea and the Gulf of Finland. Bladder wrack is listed as threatened and/or declining in south-eastern Gulf of Finland, in the Gulf of Gdansk and Kiel Bight by HELCOM (2006). Eelgrass is listed threatened and/or declining in the south-western Baltic Sea including the Belts, the Sound and the Kattegat.

Abundance and distribution of rare, threatened and/or declining marine and coastal biotopes/habitats included in the HELCOM lists of threatened and/or declining species and habitats of the Baltic Sea area

Comprehensive information on abundance and distribution of rare, threatened and/or declining marine and coastal biotopes/habitats included in the HELCOM lists of threatened and/or declining species and habitats of the Baltic Sea area does not exist. However, based on expert judgements, threats to marine biotopes/habitats can be estimated (Annex 2).

The overall assessment of the threats to the marine and coastal biotopes of the Baltic Sea area (HELCOM 1998) gives cause for concern: the majority of all biotopes is rated as endangered or heavily endangered. This result clearly reflects the heavy adverse impacts that human activities have on coastal and marine biodiversity, although no biotope or biotope complex is rated as “completely destroyed” or “immediately threatened”. According to the HELCOM list of threatened and/or declining species and habitats/biotopes of the Baltic Sea Area (HELCOM 2006), heavily endangered or endangered habitats and biotopes exist in all subdivisions of the Baltic Sea (Annex 2).



Percentage of different threat categories for the biotopes of the Baltic Sea, the Belt Sea and the Kattegat.

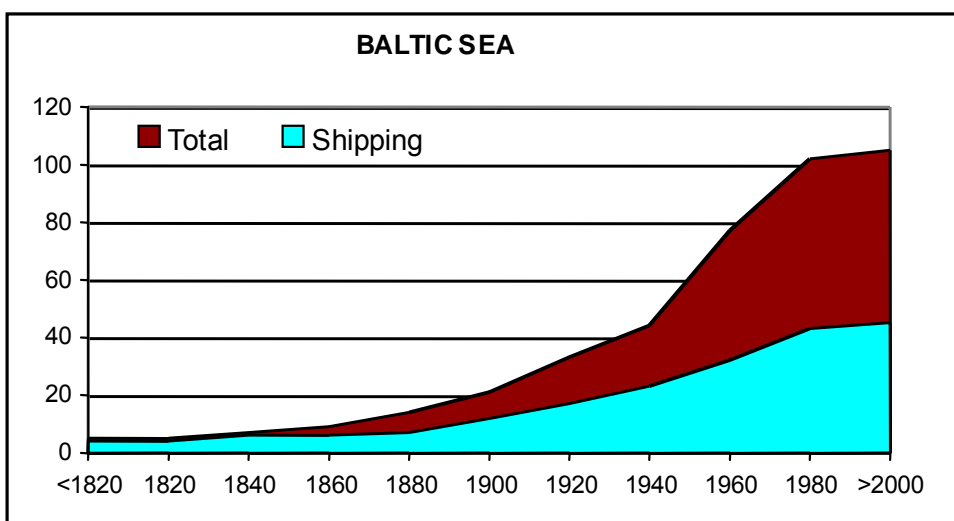
Number of newly introduced alien aquatic species in the Baltic Sea

Number of established invasive and alien aquatic species in the Baltic Sea

More than 105 invasive and alien species have been recorded in the Baltic Sea, most of them having being introduced during the last 100 years and with shipping as the main vector. Some 60-70 species have established reproducing populations in the Baltic or at least in some parts of it (Baltic Sea Alien Species Database 2005). It is clear that so far the HELCOM objective "no introduction of alien species" has not been reached.

Alien species may change the native food web and some are known as ecosystem engineers, which cause substantial habitat modifications. It is not only the environment being at risk, also economical and human health issues have been reported, e.g. during harmful algal blooms and human consumption of contaminated seafood. The ctenophore jellyfish *Mnemiopsis leidyi*, which wiped out fish populations in the Black Sea during the 1980s-1990s, has been observed in the Southern Baltic during autumn 2006. If this species establishes itself in the Baltic Sea this can mean considerable losses for fisheries, in addition to being catastrophic for the ecosystem. Tourism is potentially threatened by harmful algal blooms.

The Baltic Sea countries have international obligations to address the invasive alien species problem, principally according to the 1992 Convention on Biological Diversity and, concerning marine areas, the 2004 International Convention for the Control and Management of Ships' Ballast Water and Sediments by IMO.



Cumulative number of first records of invasive and alien species in the Baltic Sea (105 species, based on Baltic Sea Alien Species Database, 2005) and the share of ship-mediated introductions since the early 1800s.

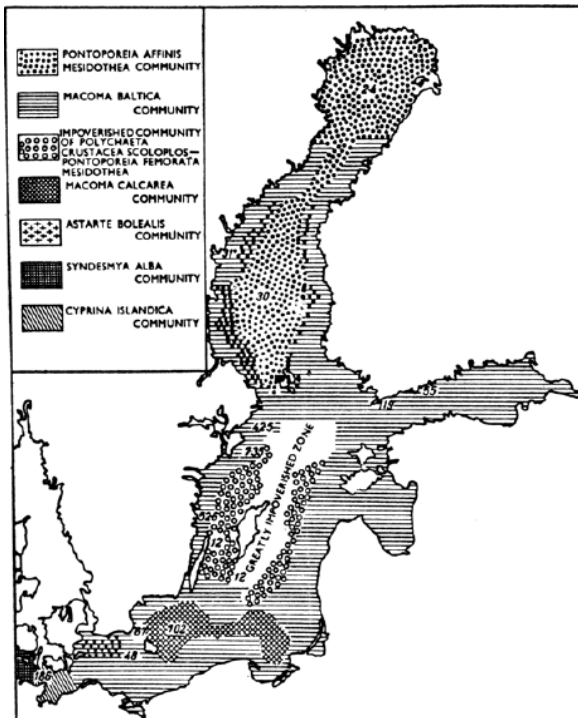
Additional indicators for thriving and balanced communities of plants and animals

Bottom fauna communities

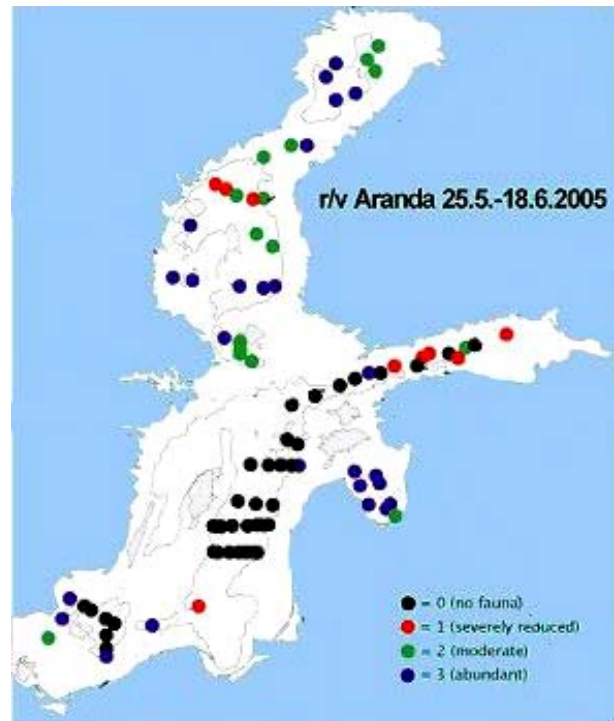
Macrozoobenthic communities are central elements of the Baltic Sea ecosystem and provide excellent indicators of environmental health.

The deeper water soft bottom communities are exposed to hypoxic disturbance events due to eutrophication and the hydrographic characteristics of the Baltic Sea. Macrozoobenthic communities are severely degraded throughout the Baltic Proper and the Gulf of Finland and biomass is below the long-term average. The once-abundant bivalves *Astarte* and *Arctica islandica* have nearly disappeared from Baltic Sea proper bottoms. Further, populations of the amphipod *Monoporeia affinis* have crashed in Gulf of Bothnia and the invasive polychaete *Marenzelleria viridis* has spread. Due to these changes the structure of food webs has been changed in the Baltic deep basins.

The present state of bottom fauna communities is far from the HELCOM ecological objective “natural distribution and occurrence of plants and animals” and especially the communities below the halocline are neither thriving nor balanced.



Baltic zoobenthic softbottom communities in 1950s (Zenkevitch 1963).

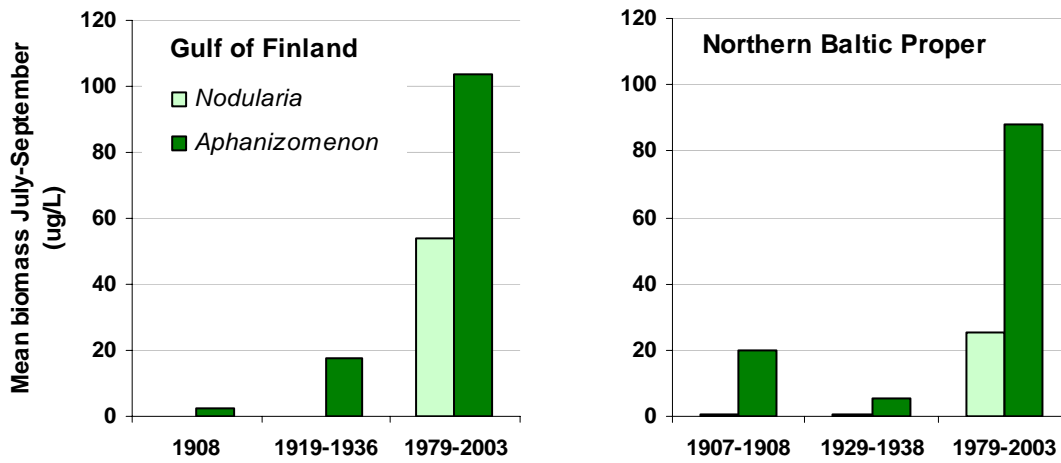


State and trends of macrozoobenthic communities in open sea areas of the Baltic Sea in 2005 (Laine and Norkko 2005).

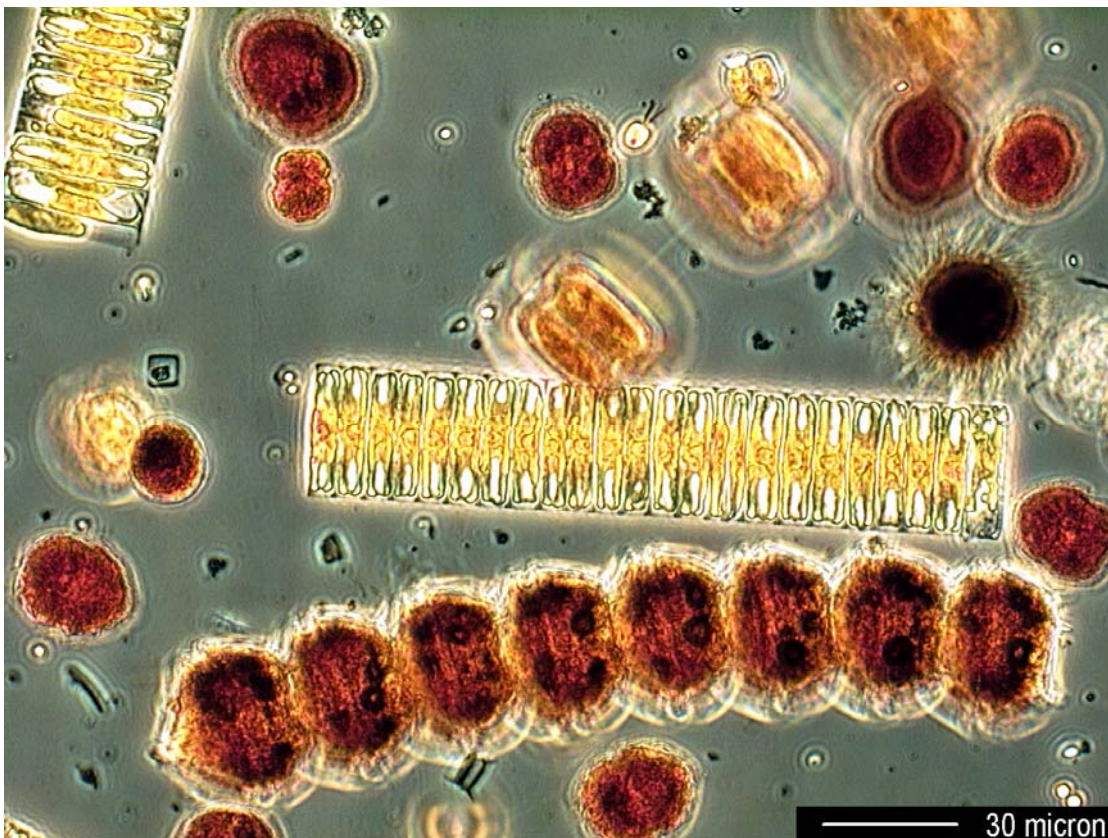
The phytoplankton community and algal blooms

Under the goal for eutrophication, HELCOM has the ecological objective “natural level of algal blooms”, which is valid for the biodiversity goal also. This includes phytoplankton species which have fundamental effects on the whole food web as primary producers.

As an example, mean late summer biomass of the bloom-forming cyanobacteria (blue-green algae) *Nodularia spumigena* and *Aphanizomenon* sp. in the Gulf of Finland and the Northern Baltic Proper have increased several-fold since the first half of the 20th century. Currently, the phytoplankton communities deviate from the HELCOM objective “balanced communities of plants and animals” and “natural level of algal blooms”.



Mean late summer biomasses of *Nodularia spumigena* and *Aphanizomenon* sp. Data for the years 1907-1938 were recalculated from units of 100 µm/L in Finni et al. (2001, Table 4) to biovolume units (µm³) using the biovolumes for *Aphanizomenon* sp. and *Nodularia spumigena* (size class 2), respectively, in Olenina et al. (2006). The biovolumes were then converted to biomasses (µg/L) assuming one cyanobacterial µm³ weighs 10⁻⁶ µg. Data for 1979-2003 from Suikkanen et al. (2007, Table 3).



Spring bloom phytoplankton. Seija Hällfors, FIMR

VIABLE POPULATIONS OF SPECIES

A viable population consists of a successfully breeding, healthy population that is able to maintain itself and perform its functional role in the community and ecosystem. The population trends of certain species, such as seals, white-tailed eagle, salmon and cod, are well known due to long-term studies, and can be used as indicators of the health of wildlife.

HELCOM has the general aim to have a favourable conservation status of plants and animals in the Baltic Sea and that they occur at normal abundance and diversity. This requires improved abundance and distribution of rare, threatened and/or declining marine animal and plant species in intact habitats. Actions needed to reach this target include addressing nutrient and hazardous substances inputs, maritime issues such as the threat of oil spills, introduction of alien species and fisheries. The HELCOM target is to reach this state by 2021.

Number of threatened and/or declining species

According to the latest compilation by HELCOM (2006, cf. Annex 1), populations of 61 plant and animal species are declining or the species are threatened and are thus in need of special protection. Since the list is the first of its kind compiled by HELCOM, it does not provide information on changes in the number of species threatened or declining.

Changes in bird populations in the Baltic Sea are a relatively well-known due to the active networks of birdwatchers. HELCOM HABITAT 5 (2003) made a simple summary indicating the trends in numbers of breeding waterbirds in the Baltic Sea between 1985 and 2002. The HELCOM list of threatened and/or declining species contains 13 birds of which seven were assessed by HELCOM HABITAT 5 as follows:

Species	Overall trend in 1985-2002
Velvet scoter	Decrease 1-5%
Red-breasted merganser	Relatively stable
Caspian tern	Unknown
Sandwich tern	Decrease 5-10%
Little tern	Decrease 1-5%
Lesser black-backed gull	Decrease 1-5%
Black guillemot	Unknown

White-tailed eagle was considered endangered in the beginning of 1980s due to reproduction failures linked to DDT and PCBs. Today the species does not belong in the HELCOM list of threatened and/or declining species. Protection of the white-tailed eagle is included in the objectives of 30 BSPA sites.

Abundance of Baltic seal species compared to the safe biological limit (limit reference level) as defined by HELCOM SEAL

The Baltic seal populations consist of grey (*Halichoerus grypus*), ringed (*Phoca hispida*), and harbour seals (*Phoca vitulina*). Two genetically distinct harbour seal populations occur in the Baltic Sea in the Kalmarsund region and in the Southwestern Baltic, respectively. There are no sub-regional grey seal populations in the Baltic Sea, and genetic investigations indicate low or no diversification between ringed seal sub-populations.

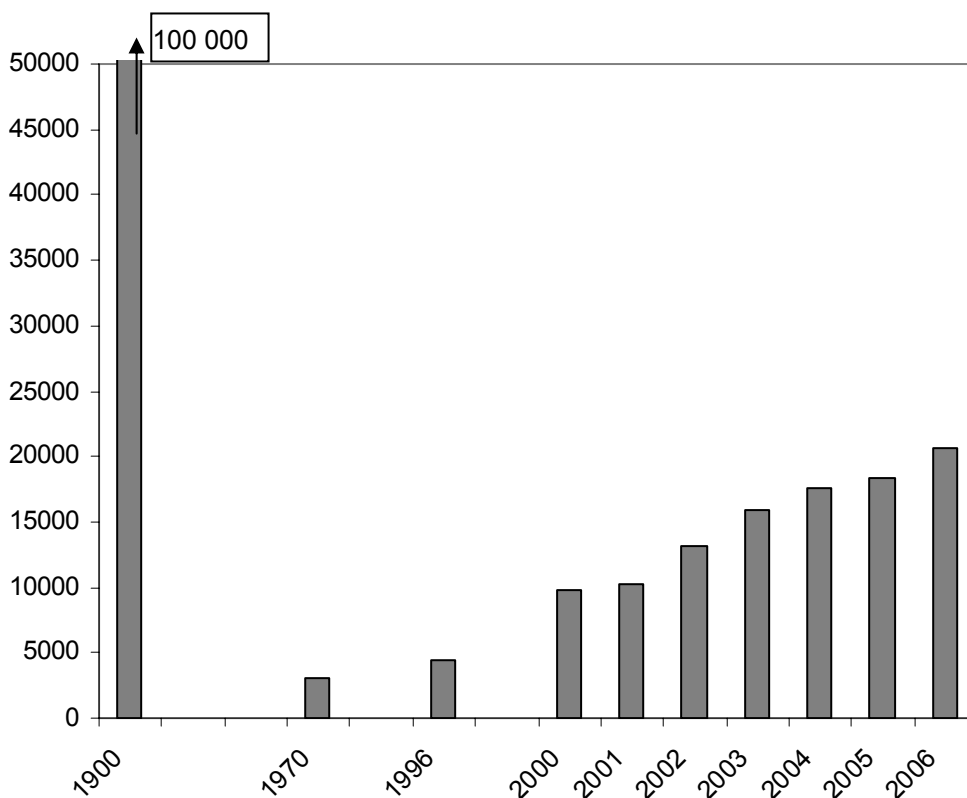
The majority of ringed seals (75%) live in the Bothnian Bay, ca. 15% in the Gulf of Riga. A small amount of ringed seals exists in the Archipelago Sea (Helle 1980a, Helle & Stenman 1990, Härkönen et al. 1998, Miettinen et al. 2005, Stenman et al. 2005b). Ringed seals are highly dependent on ice during the breeding and moulting. Most of the grey seals inhabit the sea area north of 58°N (passing through the northern tip of Gotland)

Seal populations in the Baltic declined markedly due to excessive hunting pressure during the first half of the 20th century. In addition to hunting, the seal populations have been exposed to a

considerable contaminant load (mainly PCB and DDT) since the 1960s. As a result of a ban of hunting, the abundance of Baltic seals is generally increasing since their lowest levels in the 1960s - beginning of the 1980s.

In the early 20th century the Kattegat-Skagerrak harbour seal population was about 18000 individuals, in the late 1960s only about 1500 seals (Harding 2000). After the banning of hunting the population increased exponentially at a rate of 11% per year until 1987, when the population size was estimated to be about 9000 (Heide-Jørgensen et al. 1992b). In 1988 an epizootic disease reduced the population to about 3500 animals. In the autumn of year 2000 the seal stock exceeded the size it had before the disease outbreak and was estimated to be about 16000.

In the beginning of the 20th century, the grey seal population amounted to ca. 100 000 individuals, in 1970s-1980s only 2 000-4 000. The current grey seal population size of is estimated to be over 20000 individuals (international counting in 2006) and above the safe biological limit. Grey seals in the northern part of the Baltic Sea are today showing a reproductive rate comparable to a healthy population (Helle et al 2005).



Population change of grey seals in the Baltic Sea since the beginning of 1900s (Source: Finnish Game and Fisheries Research Institute). Preliminary analyses based on genetic modelling suggest the Limit Reference Level to be in the vicinity of 10000 seals, but considerable additional work is required to determine more precise LRLs for different species and management units of seals taking into account differences in demography and habitats (HELCOM SEAL 1/2006).

In the beginning of the 20th century, the ringed seal population amounted to ca. 200000 individuals, in 1970s-1980s to only 5000. According to the latest comprehensive seal counting in 1996, the size of ringed seal population was 5600-6000 individuals (Härkönen et al. 1998). Currently, the ringed seal populations are below the safe biological limit. The annual increase of the population in the Bothnian Bay is ca. 5%, which is half of the increase rate estimated for a stable population (Härkönen et al. 1998). The other populations (Bothnia Sea, Archipelago Sea, Gulf of Finland and Gulf of Riga) are expected to increase even slower. Reproduction failures are considered to be the main reason for the slow increases. Since ringed seal reproduction is highly dependent on ice, the projected decrease of ice cover due to climate change pose a future threat to the ringed seal (HELCOM 2007).

Predation pressure by seals on fish such as herring and salmon are potentially important in the northern Baltic Sea (ICES 2006). The impact of seal predation on the herring in the Bothnian Sea have been investigated and found to have very limited impact on stock dynamics at present.

Trend of abundance and distribution of Baltic harbour porpoise

The only toothed whale (cetacean) encountered in the Baltic on a regular basis is the harbour porpoise (*Phocoena phocoena*).

At the beginning of the 20th century, 10000-20000 porpoises lived in the Baltic Proper, their distribution ranging as far as the eastern Gulf of Finland and the Bothnian Bay. Currently, the population in the Baltic Proper is estimated to number only some 600 individuals and the species is very rare in the northern and easternmost parts of the Baltic Sea. In Skagerrak and Kattegat, however, there are about 36000 individuals, and this population is important on a European scale.

Today, fisheries bycatch represents a major threat to the recovery of the Baltic harbour porpoises. The annual bycatch of harbour porpoise is roughly estimated as 7-10 individuals. According to ICES (2006) fisheries bycatches amount to 0.5–0.8% of the porpoise population in the south-western part of the Baltic Marine Area each year, as well as 1.2% of the porpoise population in the Kiel and Mecklenburg Bays and inner Danish waters (Kock and Behnke 1996). Estimates of the harbour porpoise population are uncertain, however, and the number of porpoises by-caught in fisheries is probably underestimated. The loss of porpoises to fishery in the Baltic Marine Area may be too high to sustain the population (ICES 1997).

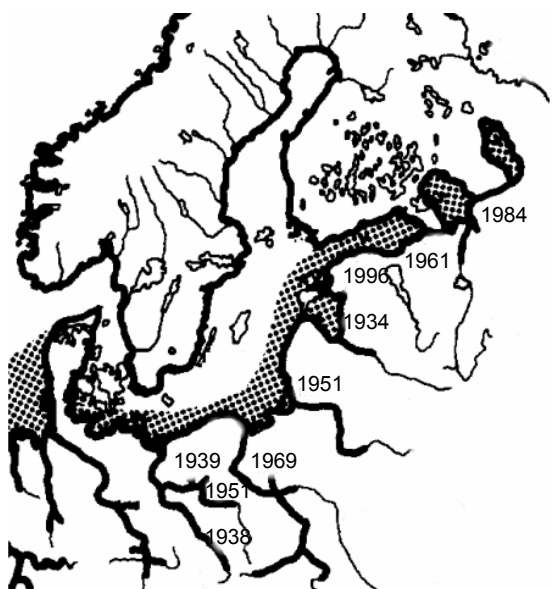
HELCOM Recommendation 17/2, adopted in 1996, gives priority to changing fishing practices in order to prevent accidental bycatch of harbour porpoises. Also further research on factors affecting the distribution and abundance of harbour porpoise is recommended. The protection of harbour porpoises in EU waters is now improved by the decision of the EU Council of Ministers on stepwise reduction in the use of driftnets from 1 January 2005 until complete prohibition by 1 January 2008, the compulsory use of acoustic deterrent devices (“pingers”) on fishing nets, and the monitoring of by-catches through an observer scheme.

Plans to further study the genetic composition of the harbour porpoise populations together with ASCOBANS (Agreement on the Conservation of Small Cetaceans of the Baltic and North Sea) have been made by HELCOM.

Number of rivers with populations of Baltic sturgeon

Common sturgeon (*Acipenser sturio*) is the only species known to become extinct in the Baltic Sea in recent history.

Germany is leading the reintroduction of sturgeon into the Baltic Sea. Currently one joint reintroduction project between Poland and Germany is running in the Odra river system.



Historic distribution of sturgeon in the Baltic Sea; the shaded area represents the zone of main distribution, the spawning rivers (e.g., Odra, Vistula, Nemunas, Daugava) and the uppermost point of migration is indicated by the solid lines; the most recent records are indicated by the annotated year

(Source: HELCOM 2002: Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea Area, 1994-1998; Back-ground Document (BSEP 82b) p. 167; map after Holcik 1989.)

Spawning stock biomass of eastern Baltic cod and autumn-spawning herring compared to the precautionary level (Bpa) as advised by ICES and/or defined EC management plans

Fishing mortality level of eastern Baltic cod and autumn-spawning herring compared to the precautionary level (Fpa) as advised by ICES and/or defined EC management plans

Fish is an important component of the Baltic ecosystem and fish stocks need to be harvested sustainably in order to obtain a Baltic Sea in good environmental status.

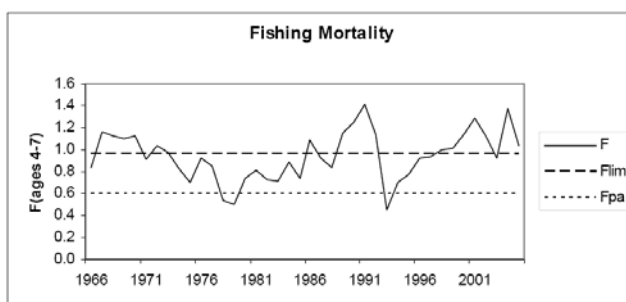
For member countries of the EC, the fishing sector is the responsibility of the community, placing fisheries policy outside the jurisdiction of individual nation states. As eight out of nine of HELCOM Contracting Parties are members of the EC, any aims to safeguard viable fish stocks in the Baltic must address the EC. Negotiations between Russia and EC on the Baltic Sea fisheries quotas are conducted within the framework of a new bilateral fisheries agreement expected to enter into force in the course of 2007.

The reformed EC Common Fisheries Policy of 2002 enabled a long-term approach to fisheries management, in contrast to the total allowable catches (TACs) set year-by-year. Such plans include the establishment of multi-annual recovery plans for stocks outside safe biological limits and of multi-annual management plans for other stocks. Areas and periods closed for fisheries are an important part of the European Commission's strategy for ensuring sustainable fisheries in the Baltic. Such measures not only reduce fishing effort, but also facilitate control and help prevent undeclared landings. The EC CFP should in general ensure the implementation of the Ecosystem Approach to Fisheries.

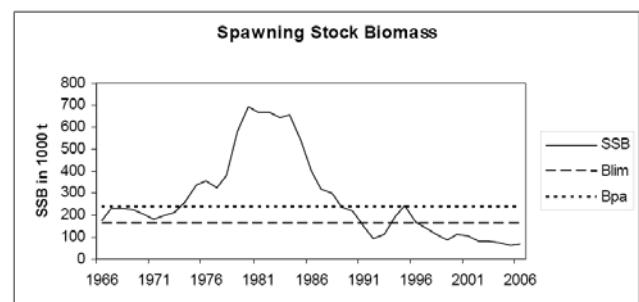
Cod

In the Baltic, hydrographic-climatic variability and heavy fishing during the past 10–15 years have led to a weakening cod recruitment, to generated favourable recruitment conditions for sprat and thus increased sprat predation on early life stages of cod (ICES 2006 and references therein).

The stock of eastern Baltic cod is presently at historical low levels and there is no indication of an increase in the spawning stock biomass (SSB). Based on estimates of SSB and fishing mortality ICES (2006) classifies the stock as suffering of reduced reproductive capacity and of being harvested unsustainably. ICES advice that fishery should be closed for eastern Baltic cod in 2007.



Fishing mortality of eastern Baltic cod (adapted from ICES 2006).



Spawning stock biomass (SSB) of cod in the Baltic Sea, excluding the Sounds and the Kattegat (adapted from ICES 2006).

In order to recover the heavily depleted Baltic cod stocks a multi-annual plan for the cod stocks in the Baltic Sea was proposed by the EC in July 2006 (Anon. 2006). However, the plan is still under discussion and has not been adopted. In this proposed plan the EC proposes targets of fishing mortality rates of 0.6 for Western Baltic cod and 0.3 for Eastern Baltic cod. These mortality rates are to be reached with yearly 10% reductions until these target levels are reached.

Herring

In the absence of defined biomass reference points ICES cannot fully evaluate the state of the stock herring stocks. According to ICES (2006), the SSB has decreased steadily since the mid-1970s. Since 1999 it has stabilised at a low level, and may be currently increasing. Based on the most recent estimates of fishing mortality, ICES classifies the herring stock to be harvested sustainably.

Trend of salmon smolt production in wild salmon rivers

The populations of Atlantic salmon (*Salmo salar*) in the Baltic Sea are genetically unique, both within the Baltic and especially compared to Atlantic populations. Wild salmon populations spawned in at least 60 rivers in the middle of the 19th century, but today the majority of Baltic rivers are unsuitable for salmon due to damming, mainly for hydroelectric power production. Also the M74 -syndrome, a reproduction disorder found in the sea-run Baltic salmon, has caused major reductions in smolt production in the northern parts of the Baltic, especially in the 1990s. Salmon fry are raised in artificial hatcheries and then released to compensate for the loss of their natural spawning areas. However, large-scale restocking practices cause a risk of genetic homogenisation of the Baltic salmon populations (ICES 2006).

Estimates indicate that wild salmon production increased over the period 1995-2001 by one million individuals, raising the annual yield of juvenile wild salmon from 0.3 million to over 1.3 million. To evaluate the state of the stock, ICES (2006) uses the current smolt production relative to the 50% level of the natural production capacity on a river-by-river basis. This objective is likely to be met for several large rivers in the northern Baltic Sea area. In the rivers of the Gulf of Finland and the southern Baltic Sea, the condition of the wild stocks is poor.

Drafting of a similar multi-annual plan for Baltic salmon stocks as for Baltic cod has been planned as salmon stocks are diminishing despite increasing smolt production.

Number of salmon rivers with viable stocks

Currently 37 of 69 potential salmon rivers have wild smolt production.

Numbers of discards and bycatch of fish, seals and waterbirds and number of entangled and drowned marine mammals and water birds

The total bycatch of fish in the Baltic fisheries is presently unknown but the major fisheries for cod, herring, and sprat seem to have low bycatches (ICES 2000). The less important smaller fisheries can have a high proportion of bycatch (HELCOM 2002). It is currently impossible to come up with quantitative accounts of the bycatch of cod in sprat and herring fishery. These fisheries use small-meshed trawls in cod spawning areas (ICES advice to IBSFC request on closed areas 2004b).

According to ICES (2006), fishing nets, in particular set nets, have caused considerable mortality for long-tailed ducks (*Clangula hyemalis*), velvet scoters (*Melanitta fusca*), eiders (*Somateria mollissima*), and black scoters (*Melanitta nigra*). There are also reports of guillemot and razorbill (*Alca torda*) mortality in the driftnet fishery for salmon (HELCOM 2003).

Seals have been recorded caught in fyke nets, set nets, and salmon driftnets, but although the recorded data almost certainly underestimate the total number of by-caught seals, the added mortality does not appear to restrain the seal populations from increasing (Helander and Härkönen, 1997).




Annex 1

The 30 species of the 61 listed in the HELCOM list of threatened and/or declining species and habitats/biotopes of the Baltic Sea area that are reported to be protected within the current BSPA network. Information on sub-regions where a species is under threat and/or decline is based on the same list. Contracting States reported the species, and the number of BSPAs is based on information in the BSPA Database.

Species	Sub-region where under threat and/or decline	Contracting State reported species	No of BSPAs where reported	Remarks
ALGAE				
<i>Fucus vesiculosus</i>	F*,L,N	SE	3	*Not in FI waters
<i>Chara horrida</i>	D,E,F,H, I, K, M	SE	1	
VASCULAR PLANTS				
<i>Hippuris tetraphylla</i>	A,B,C*,D,E,F	FI	5	*Status not clear in SE
<i>Alisma wahlenbergii</i>	A,B,C,F	FI	4	
FISH				
<i>Lampetra fluviatilis</i>	K,L,M,N,O,P,Q,R	EE,FI,LV,PL	9	
<i>Salmo salar</i>	A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R	EE,LV,PL	5	
<i>Coregonus spp.</i>	A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R	EE,FI	5	
<i>Cottus gobio</i>	F,G,H,I,J,K,L,M	EE,FI,LV	5	Not in FI and SE waters
<i>Clupea harengus subsp.</i>	J,K,L,M,N,O,P	DK,LV,PL,SE	4	
<i>Cobitis taenia</i>	C*,D*,F,G,H,I,J,K,L,M,N,O,P,Q,R	EE,LV,PL	4	*Not in FI waters
<i>Petromyzon marinus</i>	A*,B*,C*,D*,E*,F*,G,H,J,K,L,M,N,O,P,Q,R	DK,PL	3	*Occurs temporarily in FI
<i>Alosa fallax</i>	A*,B*,C*,D*,E*,F*,G,H,J,K,L,M,N,O,P,Q,R	EE,PL	3	*Occurs temporarily in FI
<i>Alosa alosa</i>	I,J,K,L,M,N,O,P,Q,R	PL	2	
BIRDS				
<i>Sterna caspia</i> (breeding)	A,B,C,D,E,F,G,H,I,K	EE,FI,PL,SE	28	
<i>Melanitta fusca</i> (breeding)	E	DK,FI,SE	23	
<i>Sterna albifrons</i>	A,E,G,I,J,K,L,M,N	DK,EE,FI,LV,PL,SE	22	
<i>Podiceps auritus</i> (wintering)	K,L	EE,FI,LV,PL,SE	19	
<i>Gavia stellata</i> (wintering)	K,L	EE,FI,LV,PL,SE	15	
<i>Larus fuscus fuscus</i> (breeding)	A,B,C,D,E,F,G,H,I	DK,FI	15	
<i>Sterna sandvicensis</i>	K,L,M,N	DK,PL,SE	14	
<i>Cephus grylle</i> (breeding/wintering)	Breeding: B*,C*,D*,E* Wintering: K	DK,FI,SE	14	*Not in FI waters
<i>Gavia arctica</i> (wintering)	K,L	FI,SE	12	
<i>Tadorna tadorna</i> (breeding)	K,L,M	FI	10	
<i>Mergus serrator</i> (breeding)	G,M	DK,FI,SE	9	
<i>Calidris alpina schinzii</i> (breeding)	A,B,C,D,E,F,K,L,M,N	EE,FI,PL	6	
<i>Polysticta stelleri</i> (wintering)	K	FI	5	
MAMMALS				
<i>Halichoerus grypus balticus</i>	J,K,L,M	DK,EE,FI,PL,SE	23	
<i>Phoca hispida botnica</i>	A*,B*,C*,D*,E*,F*,G*,H*	EE,FI,SE	9	*Not in FI waters
<i>Phoca vitulina vitulina</i>	K,L,M,N,O,P	DK,SE	6	
<i>Phocoena phocoena</i>	C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R	PL,SE	5	

A=Bothnian Bay, B=The Quark, C=The Bothnian Sea, D=Åland Sea, E=Archipelago Sea, F=Gulf of Finland, G=Gulf of Riga, H=The Northern Baltic Proper, I=Western Gotland Basin, J=Eastern Gotland Sea, K=The Southern Baltic Proper, L=The Gulf of Gdansk, M=Bay of Mecklenburg, N=Kiel Bay, O=Little Belt, P=Great Belt, Q=The Sound, R=Kattegat

Initial list of threatened and/or declining habitats/biotopes of the Baltic Sea Area (HELCOM 2006).

* denotes regional occurrence,  heavily endangered,  endangered  potentially endangered.

Name	Bothnian Bay	The Quark	The Bothnian Sea	Åland Sea	Archipelago Sea	Gulf of Finland	Gulf of Riga	The Northern Baltic Proper	Western Gotland Basin	Eastern Gotland Sea	The Southern Baltic Proper	The Gulf of Gdansk	Bay of Mecklenburg	Kiel Bay	Little Belt	Great Belt	The Sound	Kattegat	Remarks
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
Offshore (deep) waters below the halocline			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Shell gravel bottoms											*	*	*	*	*	*	*	*	
Seagrass beds			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Not "heavily endangered" in Finnish waters
Macrophyte meadows and beds	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Gravel bottoms with Ophelia species													*	*	*	*	*	*	
Sandbanks which are slightly covered by sea water all the time	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Estuaries	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Mudflats and sandflats not covered by seawater at low tide	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Not in Finnish waters
Coastal lagoons	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Large shallow inlets and bays	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Reefs	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Not in Finnish waters
Submarine structures made by leaking gases (Bubbling Reefs)																		*	
Baltic esker islands with sandy, rocky and shingle beach vegetation and sublittoral vegetation	*	*	*	*	*	*		*			*				*	*	*	*	Not in Finnish waters/territory
Boreal Baltic narrow inlets (Fjords)	*	*	*	*	*	*		*	*		*								Not in Finnish waters
Maerl beds																		*	
Sea pens and burrowing megafauna communities																		*	

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