

HELCOM Red list of threatened and declining species of lampreys and fishes of the Baltic Sea



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Helsinki Commission
Baltic Marine Environment Protection Commission

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HELCOM Red list of threatened and declining species of lampreys and fishes of the Baltic Sea



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Table of Contents

1	Introduction	6
2	Species and area covered	7
2.1	Species covered	7
2.2	Area covered	7
3	National Red Lists	8
4	IUCN Red List categories	9
5	Threats	14
6	HELCOM/OSPAR criteria	15
6.1	Global and local importance	15
6.2	Rarity and sensitivity	16
6.3	Keystone species	17
6.4	Decline categories	17
6.5	Suggested procedure for the application of the criteria (OSPAR/HELCOM)	19
7	Examples for Red List classification and priority assessment under HELCOM criteria	20
7.1	Cod (<i>Gadus morhua</i>)	20
7.2	European eel (<i>Anguilla anguilla</i>)	20
	Acknowledgements	22
	References	23
	Annexes	24
	Annex 1: HELCOM Priority List of Threatened and Declining Species of Fishes	
	Annex 2: HELCOM List of Threatened and Declining Species of Fishes based on IUCN Classification	
	Annex 3: HELCOM Red List of Threatened and Declining Fish Species based on national lists	

1 Introduction

There are a number of threatened and declining species of fish in the Baltic Sea area, several of which have either local, regional or global importance.

Since the mid 1990s several HELCOM Contracting States have published national red lists of threatened and declining fish species. Subsequently it was agreed (HELCOM 2004) that a joint HELCOM Red List of threatened and declining species of the Baltic Sea areas was urgently needed.

The second BSRP/HELCOM Coastal Fish Monitoring Workshop (Helsinki, Finland, 2005) started to produce a HELCOM List of Threatened and Declining Fish and Lamprey Species. It was agreed that the following items are included in the HELCOM list:

- A **HELCOM Priority List** of Threatened and Declining Species of Lampreys and Fishes;
- A HELCOM List of Threatened and Declining Species of Lampreys and Fishes using **IUCN Red List criteria**;
- A synopsis of **national Red Lists** for fishes of the Contracting Parties to HELCOM.

This report provides also criteria and background information for the three attached lists.



Platichthys flesus

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2 Species and area covered

2.1 Species covered

Only species known to occur naturally in the Baltic Sea are listed in this report. Introduced species which are not autochthonous to the Baltic Sea area are also listed but not considered as threatened.

The taxonomy mainly follows Kottelat (1997), Fricke (1999) and FishBase (www.fishbase.org) and the English names used follow Wheeler et al. (2004) and FishBase (www.fishbase.org).

2.2 Area covered

The List of Threatened and Declining Species of Lampreys and Fishes of the Baltic Sea covers the whole HELCOM Convention area (http://www.helcom.fi/helcom/en_GB/aboutus/) and Skagerrak. In the list, the distribution of each species is indicated under the heading "Distribution". Regions are abbreviated according to Figure 1. If a species only occasionally occurs in an area as a migrant, the abbreviation is given in *italics*.

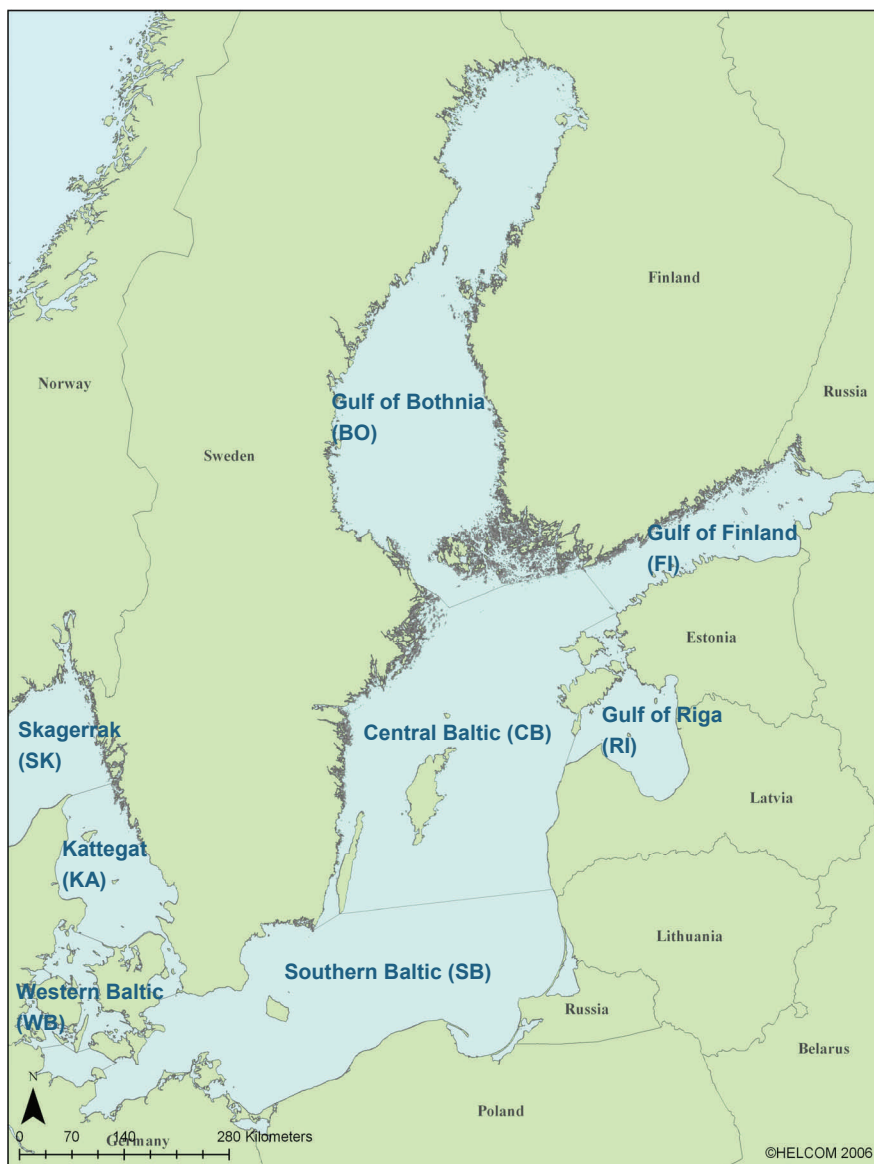


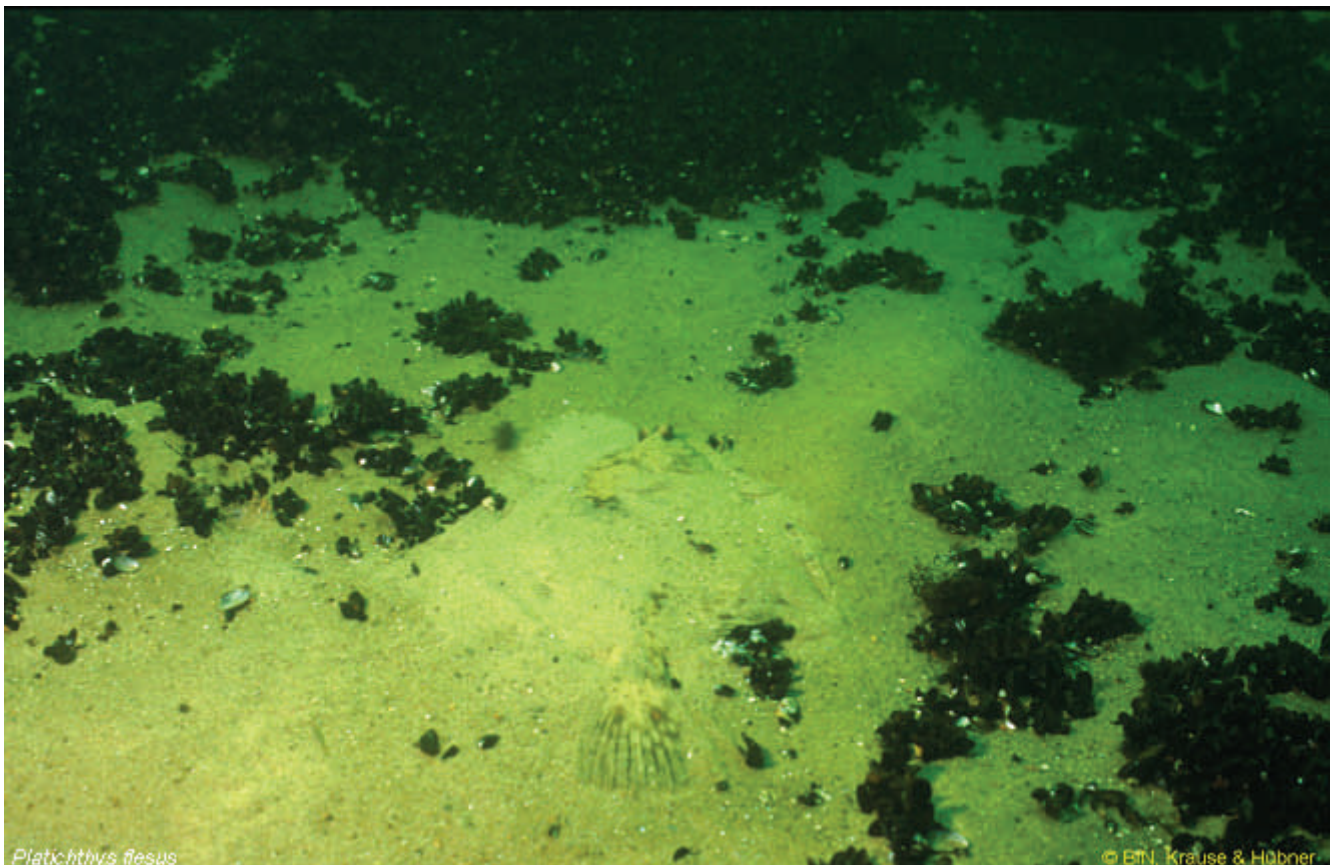
Figure 1. Regions covered by the HELCOM List of Threatened and Declining Species of Lampreys and Fishes of the Baltic Sea and their abbreviations.

3 National Red Lists

A draft version of the present list was commented by specialists from Estonia, Finland, Latvia, Lithuania, Poland and Sweden. Participants from the Contracting States were requested to provide the most actual versions of their national Red Lists of lampreys and fishes as a database for evaluation.

The present document includes the following national Red Lists:

- Denmark: Berg (1998)
- Estonia: Anonymous (1995, 2005a)
- Finland: Rassi et al. (2001)
- Germany: Fricke et al. (1996, 2007 (in prep))
- Latvia: Information by fish specialists during the second BSRP/HELCOM Coastal Fish Monitoring Workshop
- Lithuania: Balevicius (1992), amended by Repecka (2003)
- Poland: Głowaciński (2001)
- Russia: Anonymous (2001b, 2002, 2004)
- Sweden: Gärdenfors (2000, 2005); Kullander (2004)
- General: George (2003: elasmobranchs)



4 IUCN Red List categories

The second BSRP/HELCOM Coastal Fish Monitoring Workshop, agreed that the List of Threatened and Declining Species of Lampreys and Fishes of the Baltic Sea area should be provided using IUCN Red List criteria (Anonymous, 2001a).

The categories are defined as follows:

Regionally Extinct (RE)

A taxon is Regionally Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be made over a time frame appropriate to the taxon's life cycle and life form.

Extinct in the Wild (EW)

A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalised population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be made over a time frame appropriate to the taxon's life cycle and life form.

Critically Endangered (CR)

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see below), and it is therefore considered to be facing an extremely high risk of extinction in the wild.

Endangered (EN)

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see below), and it is therefore considered to be facing a very high risk of extinction in the wild.

Vulnerable (VU)

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable (see below), and it is therefore considered to be facing a high risk of extinction in the wild.

Near Threatened (NT)

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

Least Concern (LC)

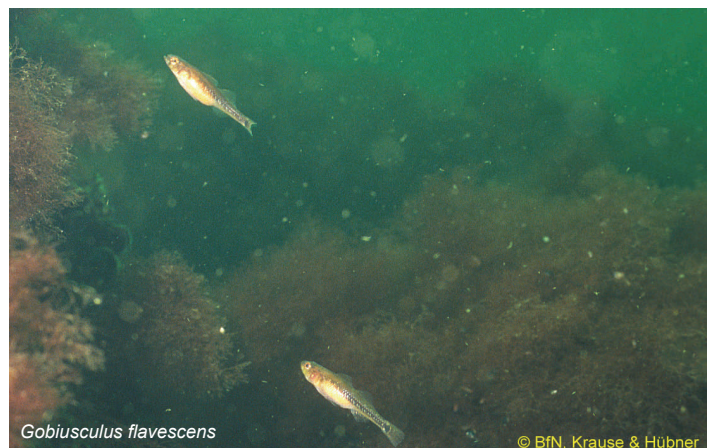
A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

Data Deficient (DD)

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

Not Evaluated (NE)

A taxon is Not Evaluated when it has not yet been evaluated against the criteria.



Gobiusculus flavescens

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For marine fishes, an additional criterion is used herein ('Threatened migrant'), which is not included in the IUCN Red List criteria, but which has been used in several national red lists. It is defined as follows:

Threatened Migrant (TM)

A taxon is a Threatened Migrant when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see below), and it is therefore considered to be facing a very high risk of extinction in the wild. However, in the case of a threatened migrant, the species occurs in HELCOM area only as a straggler, and the main threat occurs outside HELCOM area. Some threatened migrants have extremely wide distribution ranges and are stragglers throughout their ranges.

The criteria A to E are defined by IUCN as follows (Anonymous, 2001a):

Critically Endangered (CR)

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing an extremely high risk of extinction in the wild:

A. Reduction in population size based on any of the following:

1. An observed, estimated, inferred or suspected population size reduction of $\geq 90\%$ over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following:

- (a) direct observation
- (b) an index of abundance appropriate to the taxon
- (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
- (d) actual or potential levels of exploitation
- (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.

2. An observed, estimated, inferred or suspected population size reduction of $\geq 80\%$ over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

3. A population size reduction of $\geq 80\%$, projected or suspected to be met within the next 10 years or

three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1.

4. An observed, estimated, inferred, projected or suspected population size reduction of $\geq 80\%$ over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:

1. Extent of occurrence estimated to be less than 100 km², and estimates indicating at least two of a-c:

- a. Severely fragmented or known to exist at only a single location.
- b. Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.
- c. Extreme fluctuations in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) number of locations or subpopulations
 - (iv) number of mature individuals.

2. Area of occupancy estimated to be less than 10 km², and estimates indicating at least two of a-c:

- a. Severely fragmented or known to exist at only a single location.
- b. Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.
- c. Extreme fluctuations in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) number of locations or subpopulations
 - (iv) number of mature individuals.

C. Population size estimated to number fewer than 250 mature individuals and either:

1. An estimated continuing decline of at least 25% within three years or one generation, whichever is longer, (up to a maximum of 100 years in the future) OR
2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a-b):

(a) Population structure in the form of one of the following:

- (i) no subpopulation estimated to contain more than 50 mature individuals, OR
- (ii) at least 90% of mature individuals in one subpopulation.

(b) Extreme fluctuations in number of mature individuals.

D. Population size estimated to number fewer than 50 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 50% within 10 years or three generations, whichever is the longer (up to a maximum of 100 years).

Endangered (EN)

A taxon is Endangered when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing a very high risk of extinction in the wild:

A. Reduction in population size based on any of the following:

1. An observed, estimated, inferred or suspected population size reduction of $\geq 70\%$ over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following:

- (a) direct observation
- (b) an index of abundance appropriate to the taxon
- (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
- (d) actual or potential levels of exploitation
- (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.

2. An observed, estimated, inferred or suspected population size reduction of $\geq 50\%$ over the last 10 years or three generations, whichever is the longer, where the reduction or its

causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

3. A population size reduction of $\geq 50\%$, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1.

4. An observed, estimated, inferred, projected or suspected population size reduction of $\geq 50\%$ over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:

1. Extent of occurrence estimated to be less than 5000 km², and estimates indicating at least two of a-c:

- a. Severely fragmented or known to exist at no more than five locations.
- b. Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.

- c. Extreme fluctuations in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) number of locations or subpopulations
 - (iv) number of mature individuals.

2. Area of occupancy estimated to be less than 500 km², and estimates indicating at least two of a-c:

- a. Severely fragmented or known to exist at no more than five locations.
- b. Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat

- (iv) number of locations or subpopulations
- (v) number of mature individuals.

c. Extreme fluctuations in any of the following:

- (i) extent of occurrence
- (ii) area of occupancy
- (iii) number of locations or subpopulations
- (iv) number of mature individuals.

C. Population size estimated to number fewer than 2500 mature individuals and either:

1. An estimated continuing decline of at least 20% within five years or two generations, whichever is longer, (up to a maximum of 100 years in the future) OR

2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a-b):

(a) Population structure in the form of one of the following:

- (i) no subpopulation estimated to contain more than 250 mature individuals, OR
- (ii) at least 95% of mature individuals in one subpopulation.

(b) Extreme fluctuations in number of mature individuals.

D. Population size estimated to number fewer than 250 mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 20% within 20 years or five generations, whichever is the longer (up to a maximum of 100 years).

Vulnerable (VU)

A taxon is Vulnerable when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing a high risk of extinction in the wild:

A. Reduction in population size based on any of the following:

1. An observed, estimated, inferred or suspected population size reduction of $\geq 50\%$ over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are:

clearly reversible AND understood AND ceased, based on (and specifying) any of the following:

- (a) direct observation
- (b) an index of abundance appropriate to the taxon
- (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat

- (d) actual or potential levels of exploitation
- (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.

2. An observed, estimated, inferred or suspected population size reduction of $\geq 30\%$ over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

3. A population size reduction of $\geq 30\%$, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1.

4. An observed, estimated, inferred, projected or suspected population size reduction of $\geq 30\%$ over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1.

B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both :

1. Extent of occurrence estimated to be less than 20,000 km², and estimates indicating at least two of a-c:

- a. Severely fragmented or known to exist at no more than 10 locations.
- b. Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.



Perca fluviatilis

- c. Extreme fluctuations in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) number of locations or subpopulations
 - (iv) number of mature individuals.

2. Area of occupancy estimated to be less than 2000 km², and estimates indicating at least two of a-c:

- a. Severely fragmented or known to exist at no more than 10 locations.
- b. Continuing decline, observed, inferred or projected, in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) area, extent and/or quality of habitat
 - (iv) number of locations or subpopulations
 - (v) number of mature individuals.
- c. Extreme fluctuations in any of the following:
 - (i) extent of occurrence
 - (ii) area of occupancy
 - (iii) number of locations or subpopulations
 - (iv) number of mature individuals.

C. Population size estimated to number fewer than 10,000 mature individuals and either:

1. An estimated continuing decline of at least 10% within 10 years or three generations, whichever is longer, (up to a maximum of 100 years in the future)
OR

2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a-b):

- (a) Population structure in the form of one of the following:
 - (i) no subpopulation estimated to contain more than 1000 mature individuals, OR
 - (ii) all mature individuals are in one subpopulation.

(b) Extreme fluctuations in number of mature individuals

D. Population very small or restricted in the form of either of the following:

- 1. Population size estimated to number fewer than 1000 mature individuals.
- 2. Population with a very restricted area of occupancy (typically less than 20 km²) or number of locations (typically five or fewer) such that it is prone to the effects of human activities or stochastic

events within a very short time period in an uncertain future, and is thus capable of becoming Critically Endangered or even Extinct in a very short time period.

E. Quantitative analysis showing the probability of extinction in the wild is at least 10% within 100 years.

The categories used in the HELCOM List of Threatened and Declining Species of Lampreys and Fishes of the Baltic Sea are listed in Table 1.

Table 1. IUCN Categories used in HELCOM List of Threatened and Declining Species of Lampreys and Fishes of the Baltic Sea.

Abbreviation	Category
RE	Regionally Extinct
CR	Critically endangered
EN	Endangered
VU	Vulnerable
TM	Threatened migrant
NT	Near threatened
LC	Least concern
DD	Data deficient
NE	Not evaluated
RA	Rare



5 Threats

In order to assist in defining measures to support threatened and declining species of lampreys and fishes in the HELCOM area, the main threats are listed for each species. These threats are defined in Table 2.

Table 2. Main threats for threatened and declining species of lampreys and fishes in the HELCOM area.

Threat abbreviation	Description	Definition
FIT	Fishery (target species)	A species that is commercially exploited as a target species.
FIB	Fishery (bycatch)	A species that is not regularly commercially exploited, but frequently caught as bycatch in fisheries.
HAB	Habitat loss	A species that is threatened by a loss of its habitat (silted sand bottoms due to eutrophication, disappearing seagrass beds, etc.).
EUT	Eutrophication/pollution	A species that is threatened by effects of eutrophication (nutrient-rich water, oxygen deficiency, etc.), or various effects of organic or inorganic pollution, such as oil spills, various chemicals, hormones etc.
CON	Construction/weirs in rivers	An anadromously or catadromously migrating species that is threatened inland by construction measures in rivers, e.g. weirs, dams.
AQU	Aquaculture/introduction	A species that is threatened by aquaculture or introduction (change of genetics; competition by introduced species).



6 HELCOM/OSPAR criteria

6.1 Global and local importance

The HELCOM criteria for global and local importance is compatible with the OSPAR criteria (BSRP/HELCOM, 2005). The OSPAR criteria (Anonymous, 2000) include a classification of species according to global and regional importance. Global importance is the importance of the OSPAR area for a species in a global context (high proportion of the species at any time of the life cycle occurring in OSPAR area). Local importance is the importance of the regions for a species where a high proportion of the total population

of a species within the OSPAR area for any part of its life cycle is restricted to a small number of locations in the OSPAR Area.

In an adaptation to HELCOM, the criteria are defined as given in Table 3. The guidance on the selection criteria in Table 3 is adapted from OSPAR (Anonymous, 2000, Annex 1). For marine fishes, proportion values often need to be roughly estimated, as detailed assessments may be wanting. Scientific judgement is always essential for classification.

Table 3. HELCOM definitions for global importance and local importance and guidance on the selection criteria for global and local importance of species.

Global importance	Description	HELCOM definition	Guidance
X	Global importance	Global importance of the HELCOM area for a species. Importance on a global scale, of the HELCOM area, for the species is when a high proportion of a species at any time of its life cycle occurs in the HELCOM area.	'High proportion' is considered to be more than 75%, when known.
~	No global importance	Not as described under "global importance."	
Local importance	Description	HELCOM definition	Guidance
X	Local importance	Importance within the HELCOM area, of the regions for the species where a high proportion of the total population of a species within the HELCOM area for any part of its life cycle is restricted to a small number of locations in the HELCOM area.	'High proportion' is considered to be 90% of the population in a small number of locations of 50km x 50km grid squares. This is dependent on scientific judgement regarding natural abundance, range or extent and adequacy of recording. A different scale may be needed for different taxa.
~	No local importance	Not as described under "local importance."	

6.2 Rarity and sensitivity

The OSPAR criteria for the selection of species further include an assessment of rarity, threats and sensitivity (Anonymous, 2000, Annex 1). The definitions for rarity and sensitivity and a

guidance on the selection criteria adapted for HELCOM is provided in Table 4 (following Anonymous, 2000).

Table 4. HELCOM definitions for rarity and sensitivity and guidance for selection criteria of rarity and sensitivity for species.

Rarity	Description	Definition	Guidance
X	Rare	A species is rare if the total population is small. In case of a species that is sessile or of restricted mobility at any time of its life cycle, a species is rare if it occurs in a limited number of locations in the HELCOM Area, and in relatively low numbers. In case of a highly mobile species, the total population size will determine rarity.	'A limited number of locations' could be in a small number of 50km x 50km grid squares, but a different scale may be needed for different taxa. This is dependent on scientific judgement regarding natural abundance, range or extent and adequacy of recording.
~	Not rare	Not as described above.	
Sensitivity			
XX	Very sensitive species	A 'very sensitive' species is very easily adversely affected by a human activity, and/or if affected is expected only to recover over a very long period, or not at all.	A 'very long period' may be considered to be more than 25 years and 'long period' in the range of 5 to 25 years. Sensitivity to human activities is measured by a) life history characteristics and b) by dependence on other specific ecological attributes e.g. restricted / specific habitat requirements.
X	Sensitive species	A 'sensitive' species is easily adversely affected by a human activity, and/or if affected is expected to recover in a long period.	
~	Less sensitive species	Not as described above.	
?	Not known	Not known	

6.3 Keystone species

A further criterion used for selection of species is keystone species (Anonymous, 2000, Annex 1). HELCOM has defined keystone species as “a species which has a controlling influence on a community”. In this paper keystone species is indicated with “X” and non keystone species with “~”.

6.4 Decline categories

An important selection criterion for species that is used to finally classify priorities is “decline” (Anonymous, 2000, Annex 1). Decline, as defined by OSPAR, means an observed or indicated significant decline in numbers, extent or quality (quality refers to life history parameters).

The decline may be historic, recent or current. ‘Significant’ need not be in a statistical sense. Decline parameters are listed in Table 5 and guidance on decline is provided in Table 6.

Table 5. HELCOM categories of decline.

Decline abbreviation	Description
Prob.	Probable decline
Stable	Stable population
Signif.	Significant decline
Signif./reg.	Regional significant decline
Sev.	Severe decline
Ext.	Species extinct in HELCOM Area
Not known	Data deficiency

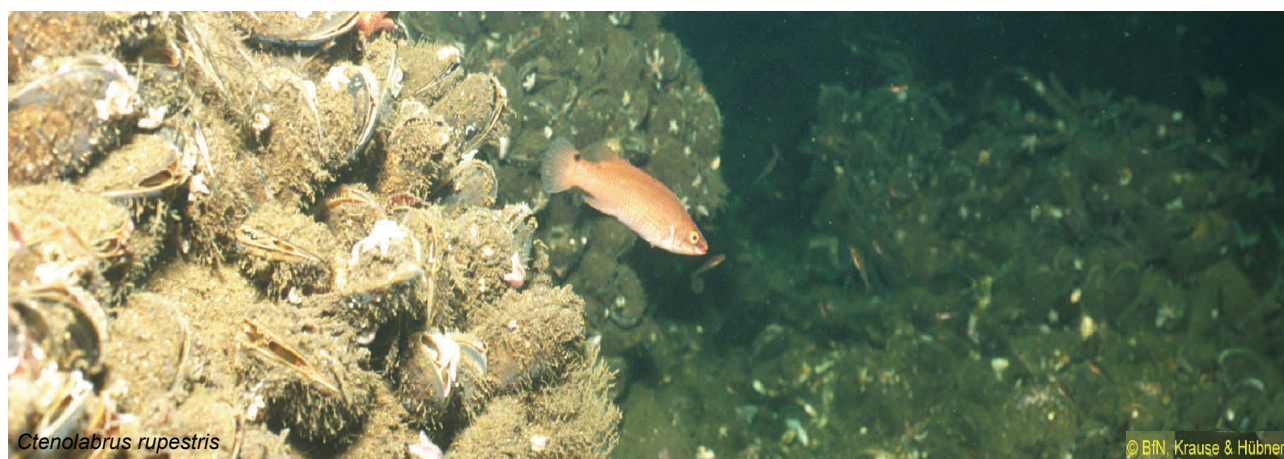


Pomatoschistus minutus

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Table 6. Guidance on decline as a selection criterion for species.

Abbeviation	Criterion	Guidance
Ext.	Extirpated	<p>A population of a species formerly occurring in the maritime area is defined as extirpated:</p> <ul style="list-style-type: none"> • if it was still occurring in the area at any time during the last 100 years. • and if there is a high probability, or it has been proved, that the last individuals have since died or moved away. • or if surveys in the area have repeatedly failed to record a living individual in its former range and/or known or expected habitats at appropriate times (taking into account diurnal, seasonal, annual patterns of behaviour) for at least 10 years.
Sev.	Severely declined	<p>A population of species occurring in the maritime area is defined as severely declined</p> <ul style="list-style-type: none"> • if individual numbers show an extremely high and rapid decline in the area over an appropriate time frame, or the species has already disappeared from a major part of its former range in the area. • or if individual numbers are at a severely low level due to a long continuous and distinct general decline in the past.
Signif.	Significantly declined	Means a considerable decline in number, extent or quality beyond the natural variability and in an appropriate frame for that species.
Signif./reg.	Regional significant decline	Significant decline in two or more HELCOM sub-regions, but not in its whole distribution range within the HELCOM area.
Prob.	Probable decline	High probability of a significant decline in number, extent or quality in the future.



6.5 Suggested procedure for the application of the criteria (OSPAR/ HELCOM)

For marine fish, OSPAR Model 1 ('Conservation Cube' approach; Anonymous, 2000, Annex 5) has proven to be adequate to classify species to priority categories. The OSPAR procedure has been adopted for the HELCOM List of Threatened and Declining Species and is described as follows:

The 'Conservation Cube' approach for species (developed by BirdLife International)

Beginning with a list of all species, the selection criteria 'localness', 'rarity' and 'sensitivity' are used together to establish whether a species should be considered to be on a 'red', 'amber' or 'green' list (Figures 2-4). Where a species is considered to be a 'keystone species' then the probability of being red listed increases. The criteria 'decline' is then used as the final selector to establish whether a species is listed as a low, medium or high priority for conservation action. The criterion 'sensitivity to human impacts' is used to inform what conservation action may be appropriate (in effect 'ranking' species

on the list). Finally, those species which are of 'global importance' are 'starred' in a similar fashion to habitats and species listed in the EU Habitats Directive. Testing the criteria will help to refine the priorities used in the decline table.

All species		
<i>Localness (0 or 1), Rarity (0 or 1), Sensitivity (0, 1 or 2)</i>		
RED SPECIES	AMBER SPECIES	GREEN SPECIES
<i>Decline</i>		
HIGH PRIORITY	MEDIUM PRIORITY	LOW PRIORITY

Figure 2. Application scheme for 'Conservation Cube' approach for the selection of species. Species are first grouped by localness, rarity and sensitivity (considering keystone species) into red, amber and green lists; they are then grouped by decline into high, medium and low priorities (Anonymous, 2000, Annex 5).

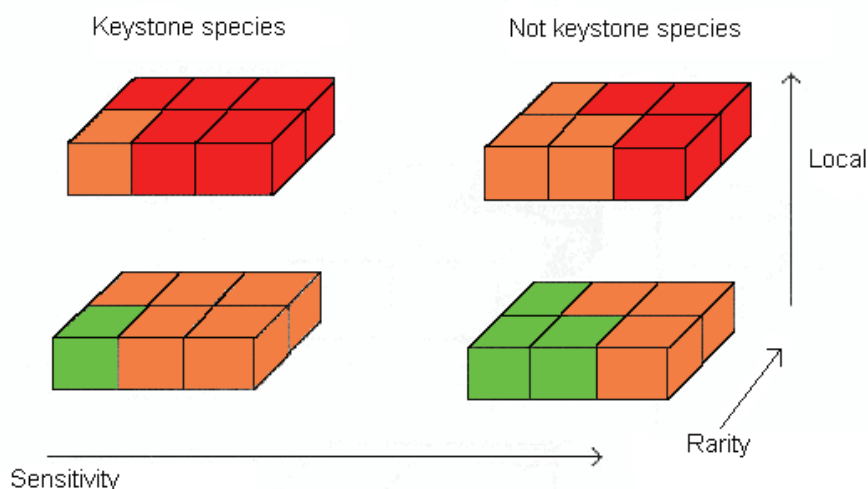


Figure 3. Application of the 'Conservation Cube' approach for the selection of species. Step 1. Grouping of species by localness, rarity and sensitivity (considering keystone species) into red, amber and green lists (Anonymous, 2000, Annex 5).

DECLINE						
Habitat	Prob.	Stable	Signif.	Sev.	Ext.	Not known
GREEN	M	L	L	H	H	L
AMBER	M	M	H	H	H	M
RED	H	H	H	H	H	H

Figure 4. Application of the 'Conservation Cube' approach for the selection of species. Step 2. Grouping of species grouped by decline into high (H), medium (M) and low (L) priorities.

7 Examples for Red List classification and priority assessment under HELCOM criteria

7.1 Cod (*Gadus morhua*)

Cod (*Gadus morhua*) is a commercially exploited species that is at present relatively common in parts of the Baltic Sea. Due to the special hydrographic conditions of the Baltic Sea, recruitment does not occur regularly. Baltic Sea stocks of cod probably depend to a high degree on supply from Skagerrak and Kattegat. In the latter areas, as well as in the North Sea, cod stocks have severely declined in recent years; cod is classified on the Swedish Red List (Gärdenfors, 2005) as endangered. From Canadian research, we know that cod stocks do not recover after a massive decline, even under a long-term moratorium preventing fisheries on this species (Anonymous, 2005). Cod is today threatened throughout its range. OSPAR has listed cod as a high priority species.

Cod is threatened by fisheries (as a target species), eutrophication and habitat loss. Due to a long term decline in the area and severe threats, the species is classified as endangered under IUCN criteria. The Baltic Sea cod is considered to be a keystone species, as other species like sea birds (e.g. cormorants) depend on it as a major food item. It is also of global importance, as one of the last remaining large populations of the species, due to a massive decline in the species outside the area. Cod is not considered rare at the moment, though the reproductively active part of the population may well be. This leads to listing cod on the red list of species. The decline in

the Baltic Sea is conservatively classified as probable, though stocks were definitively much higher 100 years ago. However, in Swedish waters cod is declining in all areas, and the spawning stock biomass has declined by at least 60% between 1990 and 2004 (H. Svedäng, Fiskeriverket, Sweden, personal communication, 16 Feb. 2005). As a result, cod is listed as a **high priority species** under HELCOM criteria.

7.2 European eel (*Anguilla anguilla*)

European eel has an unusual life history. It is a species that migrates catadromously and spawns in the tropical Atlantic between northern Brazil and the Sargasso Sea. European eel larvae follow the Gulf Stream and arrive in Europe as glass eels. The migration towards Europe takes 7-8 months. Arriving in the Bay of Biscay, European eel larvae are regularly collected and introduced into many streams and rivers. European eel is relatively long-lived; the generation time is 12 years in the North Sea drainages and continental Europe, but 17-20 years in Scandinavia and around most of the Baltic Sea (Dekker, 2003, 2004; H. Wickström, Swedish Board of Fisheries, Institute of Freshwater Research, Drottningholm, Sweden, personal communication, 11 Feb. 2005).

Though European eel is still relatively abundant in many areas (due to introduction), it is affected by



Gadus morhua

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severe threats. European eel is commercially heavily exploited, though catches in many areas have considerably decreased. European eels on their spawning migration are also caught as bycatch in trawl fisheries. Most eels never reach the ocean on their spawning migration, as they have to pass turbines and are often injured or killed. European eels are also affected by eutrophication and pollution, as their scaleless skin is very sensitive to chemicals. Specimens with ulcers are frequently found in lower reaches of rivers. In recent years, eels have been massively affected by parasites; this may reflect general health problems.

European eel is neither considered as of global or local importance in the HELCOM area according to HELCOM definitions, and cannot be considered rare at the moment. However, it is considered to be a keystone species as it used to be dominant in interstitial habitats, and several bird species use eel as a food source, which may also influence eel abundance (e.g. cormorants). European eel is considered to be highly sensitive due to the threats explained above. Under HELCOM priority assessment, European eel classifies as an **amber species**.

In step 2, decline criteria are applied. For European eel, a massive decline of glass larvae supply coming into European waters was observed during the last 25 years. It has been estimated that less than 1% of the former numbers of recruit arrive in Europe today (Dekker, 2004; H. Wickström, personal communication, 11 Feb. 2005). This decline has occurred during the past 25 years (since 1980), meaning in only 2 generations of European eel. There are no signs of improved recruitment since

the worst year of 2001. That means that the stock will continue to decrease for at least one generation. The severity of the situation of

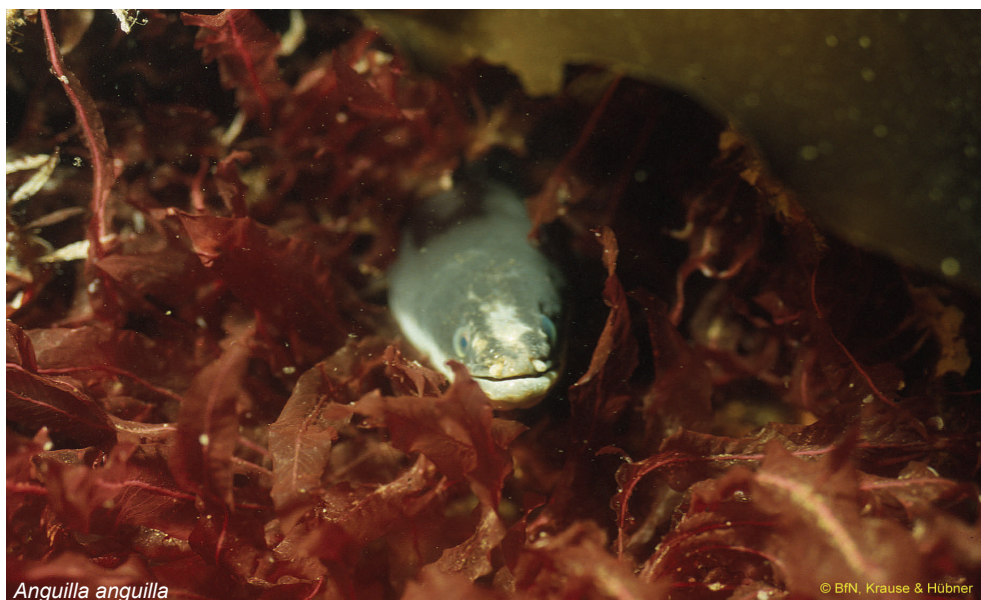
European eel is often not realized by fishermen, fishery managers and even scientists (H. Wickström, personal communication, 11 Feb. 2005). The main problem is the long time lag between recruitment (glass eel) and maturity (silver eels).

In Sweden, a decline of 90% in European eel recruitment has been observed during the past 60 years (3 generations) or often even in a shorter time. Those recruitment series are derived from the amounts of ascending young eels in a series of Swedish rivers.

The application of the decline criterion (amber species with a significant or severe decline) leads under HELCOM criteria to a **high priority** classification.

If the massive decline continues (and there is no indication of an improvement of the situation), European eel is expected to be extinct within 2 generations. Therefore, it is considered critically endangered in the Swedish National Red List (CR). Eel is facing an extremely high risk of extinction in the wild according to IUCN criteria, and therefore a classification as **critically endangered (CR)** follows for the IUCN version of the HELCOM List of Threatened and Declining Species of Lampreys and Fishes of the Baltic Sea.

It should be noted that understanding the severe situation of the European eel, the European Inland Fisheries Advisory Commission (EIFAC) and the Food and Agriculture Organisation of the United Nations (FAO) have recently called for urgent action to protect this highly threatened species.



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References

- Anonymous, 1995. Red data book of Latvia – fish, reptiles and amphibians. Salaspils (Latvian Academy of Science).
- Anonymous, 2000. Criteria for the selection of species and habitats which need to be protected. In: OSPAR Convention for the Protection of the Marine Environment of the North-east Atlantic. Working Group on Impacts on the Marine Environment (IMPACT). Brest: 15-19 November 1999. Summary Record IMPACT 1999, IMPACT 99/15/1, Annex 6 (Ref. §4.5b). Agreement 2000-03. Copenhagen/London /OSPAR), 18 pp.
- Anonymous, 2001a. IUCN Red List categories and criteria. Version 3.1. London (IUCN). Also available as World Wide Web Publication, http://www.redlist.org/info/categories_criteria2001.html
- Anonymous, 2001b. Red Book of the Russian Federation. Moscow.
- Anonymous, 2002. Red Book of Nature of the Leningrad District. Leningrad.
- Anonymous, 2004. Red Book of Nature of St. Petersburg. St. Petersburg.
- Anonymous, 2005a. Red data book of Estonia. World Wide Web Publication, http://www.zbi.ee/punane/liiqid/selgroogsed_e.html
- Anonymous, 2005c. Underwater world. Groundfish. Atlantic Cod. Fisheries and Oceans Canada, Ottawa, Ontario. Homepage, 16 June 2005. http://www.dfo-mpo.gc.ca/zone/underwater_sous-marin/atlantic/acod_e.htm
- Balevicius, K. et al. (eds.) 1992. Lietuvos raudonoji knyga (Red Data Book of Lithuania). Vilniusc (Lietuvos Respublikos aplinkos apsaugos departamentas).
- Berg, S. 1998. 7.15. Ferskvandsfisk. P. 165-169. In: Stoltze, M. & Pihl, S. (eds.) 1998. Rødliste 1997 over planter og dyr i Danmark. København (Miljø- og Energiministeriet, Danmarks Miljøundersøgelser eg Skov- og Naturstyrelsen), 220 pp.
- BSRP/HELCOM, 2005. Minutes of the Second BSRP/HELCOM Coastal Fish Monitoring Workshop. Paragraph 2.7. 7 pp. and Annexes. [http://sea.helcom.fi/dps/docs/documents/Monitoring%20and%20Assessment%20Group%20\(MONAS\)/BSRP-HELCOM%20Coastal%20Fish%20Monitoring%202005/Minutes%20of%20the%20Second%20Workshop%20Meeting.pdf](http://sea.helcom.fi/dps/docs/documents/Monitoring%20and%20Assessment%20Group%20(MONAS)/BSRP-HELCOM%20Coastal%20Fish%20Monitoring%202005/Minutes%20of%20the%20Second%20Workshop%20Meeting.pdf)
- Dekker, W. 2003. On the distribution of European eel (*Anguilla anguilla*) and its fisheries. Canadian Journal of Fisheries and Aquatic Sciences, 60(7): 787-799.
- Dekker, W. 2004. Slipping through our hands. Population dynamics of the European eel. Amsterdam (Universiteit van Amsterdam), Akademisch Proefschrift, 188 pp. Also available as World Wide Web Publication: <http://www.diadfish.org/doc/these%202004/Dekker-Thesis-eel.pdf>
- Fricke, R. 1999. Annotated checklist of the marine and estuarine fishes of Germany, with remarks on their taxonomic identity. Stuttgarter Beiträge zur Naturkunde, (A) 587: 1-67.
- Fricke, R., Rechlin, O., Winkler, H., Bast, H.-D.O. & Hahlbeck, E. 1996. Rote Liste und Artenliste der Rundmäuler und Meeresfische des deutschen Meeres- und Küstenbereichs der Ostsee. Schriftenreihe für Landschaftspflege und Naturschutz, 48: 83-90.
- Fricke, R. et al. 2007 (in prep). Rote Liste der Fische der Ostsee.
- Gärdenfors, U (ed). 2000. The 2000 red list of Swedish species. Uppsala (ArtDatabanken).
- Gärdenfors, U (ed). 2005. The 2005 red list of Swedish species. Uppsala (ArtDatabanken).
- George, M.R. 2003. Die Ost- und Nordsee als Lebensraum für Haie, Rochen und Chimären. Meer und Museum, 17: 15-24.
- Głowaciński, Z. 2001. Polska czerwona księga zwierząt. Kręgowce. Polish Red Data Book of animals. Vertebrates. Warszawa (Państwowe Wydawnictwo Rolnicze i Leśne, 328.
- HELCOM 2004: Minutes of the sixth meeting of nature protection and biodiversity group (HELCOM HABITAT 6/2004). Paragraphs 5.1-5.4. 12 pp and Annexes. [http://sea.helcom.fi/dps/docs/documents/Nature%20Protection%20and%20Biodiversity%20Group%20\(HABITAT\)/HABITAT%206,%202004/FINAL%20MINUTES.pdf](http://sea.helcom.fi/dps/docs/documents/Nature%20Protection%20and%20Biodiversity%20Group%20(HABITAT)/HABITAT%206,%202004/FINAL%20MINUTES.pdf)
- Kottelat, M. 1997. European freshwater fishes. An heuristic checklist of the freshwater fishes of Europe (exclusive of the former USSR), with an introduction for non-systematists and comments on Nomenclature and conservation. Biologia, Zoology, 52, Supplement 5: 1-271.
- Kullander, S.O. 2004. Check list of Swedish fresh water fishes. Ichthyological Information, Swedish Museum of Natural History, World Wide Web electronic publication, 15 Nov. 2004: <http://www2.nrm.se/ve/pisces/swedfish.shtml.en>
- Rassi, P., Alanen, A., Kanerva, T. & Mannerkoski, I. (eds.) 2001: Suomen laijen uhanalaisuus 2000. Helsinki.
- Repecka R., 2003. The species composition of the ichthyofauna in the Lithuanian economic zone of the Baltic Sea and the Curonian Lagoon and its changes in recent years.
- Wheeler, A.C., Merrett, N.C. & Qigley, D.T.G. 2004. Additional records and notes for Wheeler's (1992) List of the Common and Scientific Names of Fishes of the British Isles. Journal of Fish Biology, 65 (B): i-iii + 1-40.

Annexes

Annex 1: HELCOM Priority List of Threatened and Declining Species of Fishes

Annex 2: HELCOM List of Threatened and Declining Species of Fishes based on IUCN Classification

Annex 3: HELCOM List of Threatened and Declining Fish Species based on National Red Lists

Annex 1: HELCOM Priority List of Threatened and Declining Species of Fishes

a) High priority species

Family	Species	English name	Baltic distribution	HELCOM Status 2005	Global importance	Local importance	Rarity	Sensitivity	Keystone species	HELCOM List	Decline	Comments
Petromyzontidae	<i>Lampetra fluviatilis</i> *	European river lamprey	SK,KA,WB,SB,CB,RI,FI,BO	high priority	x	~	~	x	x	red	Signif./reg	
Petromyzontidae	<i>Petromyzon marinus</i>	Sea lamprey	SK,KA,WB,SB,CB,RI,FI	high priority	~	x	x	xx	~	red	Signif.	
Hexanchidae	<i>Hexanchus griseus</i>	Bluntnose sixgill shark	SK,KA,WB	high priority	~	~	x	xx	~	amber	Signif.	
Lamnidae	<i>Lamna nasus</i>	Porbeagle	SK,KA,WB,SB,CB	high priority	~	~	x	xx	~	amber	Signif.	
Cetorhinidae	<i>Cetorhinus maximus</i>	Basking shark	SK,KA	high priority	~	~	x	xx	~	amber	Signif.	
Scyliorhinidae	<i>Galeus melanostomus</i>	Blackmouth catshark	SK,KA,WB	high priority	~	~	x	x	~	amber	Signif.	
Scyliorhinidae	<i>Scyliorhinus canicula</i>	Small-spotted catshark	SK,KA	high priority	~	x	~	x	~	amber	Signif.	
Triakidae	<i>Galeorhinus galeus</i>	Tope shark	SK,KA	high priority	~	x	x	x	~	red	Signif.	
Squalidae	<i>Squalus acanthias</i>	Piked dogfish	SK,KA,WB,SB	high priority	~	~	x	xx	~	amber	Signif.	
Alopiidae	<i>Alopias vulpinus</i>	Thintail thresher	SK,KA,WB	high priority	~	~	x	xx	~	amber	Signif.	
Rajidae	<i>Amblyraja radiata</i>	Thorny skate	SK,KA,WB	high priority	~	~	x	x	~	amber	Signif.	
Rajidae	<i>Dipturus batis</i>	Blue skate	SK,KA,WB	high priority	~	~	x	xx	~	amber	Signif.	
Rajidae	<i>Raja clavata</i>	Thornback ray	SK,KA,WB	high priority	~	~	x	x	~	amber	Signif.	
Rajidae	<i>Raja montagui</i>	Spotted ray	SK, KA	high priority	~	x	x	x	~	red	Signif.	
Squatinaidae	<i>Squatina squatina</i>	Angelshark	SK,KA	high priority	~	x	x	x	~	red	Signif.	
Acipenseridae	<i>Acipenser oxyrinchus</i>	Baltic sturgeon	SK,KA,WB,SB,CB,RI,FI,BO	high priority	~	x	x	xx	x	red	Ext.	Synonym in the area: <i>Acipenser sturio</i>
Acipenseridae	<i>Acipenser sturio</i>	Sturgeon	SK,KA	high priority	~	~	x	xx	x	amber	Ext.	
Anguillidae	<i>Anguilla anguilla</i>	European eel	SK,KA,WB,SB,CB,RI,FI,BO	high priority	~	x	~	xx	x	red	Signif.	See comments in attached Word Document
Clupeidae	<i>Alosa alosa</i>	Allis shad	SK, KA,WB,SB,CB	high priority	~	x	x	xx	~	red	Signif.	
Clupeidae	<i>Alosa fallax</i> *	Twaite shad	SK,KA,WB,SB,CB,RI,FI,BO	high priority	x	~	~	x	x	red	Signif./reg	Local populations genetically distinct
Clupeidae	<i>Clupea harengus</i> subsp. *	Autumn-spawning herring	WB,SB,CB	high priority	x	~	x	x	x	red	Signif.	
Salmonidae	<i>Salmo salar</i> *	Atlantic salmon	SK,KA,WB,SB,CB,RI,FI,BO	high priority	x	~	~	xx	x	red	Signif.	
Coregonidae	<i>Coregonus balticus</i> *	Baltic houting	SK,KA,WB,SB,CB,RI,FI,BO	high priority	x	~	~	x	x	red	Signif./reg	Synonym: <i>Coregonus lavaretus</i> , migratory
Coregonidae	<i>Coregonus maraena</i>	Maraena	RI,FI,BO	high priority	~	~	~	x	x	amber	Signif.	Synonym: <i>Coregonus lavaretus</i> , stationary
Coregonidae	<i>Coregonus pallasii</i> *	Pallas's houting	FI,BO	high priority	x	~	~	x	~	amber	Signif.	
Syngnathidae	<i>Syngnathus acus</i>	Greater pipefish	SK,KA	high priority	~	~	x	x	~	red	Signif.	
Gadidae	<i>Gadus morhua</i>	Atlantic cod	SK,KA,WB,SB,CB,RI,FI	high priority	~	x	~	xx	x	red	Prob.	Global importance due to massive decline outside Baltic; see comments in attached Word Document
Gadidae	<i>Pollachius pollachius</i>	Pollack	SK,KA,WB,SB,FI	high priority	~	~	~	x	x	amber	Signif.	
Lumpenidae	<i>Lumpenus lampretæformis</i>	Snakeblenny	SK,KA,WB,SB,CB,RI,FI	high priority	~	~	x	xx	x	red	Signif.	
Sebastidae	<i>Sebastes marinus</i>	Ocean perch	SK,KA	high priority	~	x	~	x	x	red	Signif.	
Sebastidae	<i>Sebastes viviparus</i>	Norway redfish	SK,KA	high priority	~	x	~	x	x	red	Signif.	
Zeidae	<i>Zeus faber</i>	John Dory	SK,KA	high priority	~	~	x	xx	~	amber	Signif.	
Scombridae	<i>Thunnus thynnus</i>	Northern bluefin tuna	SK,KA,WB,SB	high priority	~	~	x	xx	x	red	Signif.	
Scophthalmidae	<i>Hippoglossus hippoglossus</i>	Atlantic halibut	SK,KA,WB	high priority	~	~	~	x	x	amber	Signif.	

b) Medium priority species

Family	Species	English name	Distribution	HELCOM Status 2005	Global importance	Local importance	Rarity	Sensitivity	Keystone species	HELCOM List	Decline	Comments
Carcharhinidae	<i>Prionace glauca</i>	Blue shark	SK,KA,WB	medium priority	~	~	x	xx	~	amber	Prob.	
Somniosidae	<i>Somniosus microcephalus</i>	Greenland shark	SK,KA	medium priority	~	~	x	x	~	amber	No known	
Etmopteridae	<i>Etmopterus spinax</i>	Velvet belly lantern shark	SK,KA	medium priority	~	~	x	x	~	amber	No known	
Rajidae	<i>Leucoraja fullonica</i>	Shagreen ray	SK,KA,WB	medium priority	~	~	x	xx	~	amber	Prob.	
Dasyatidae	<i>Dasyatis pastinaca</i>	Common stingray	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Torpedinidae	<i>Torpedo marmorata</i>	Spotted torpedo	KA	medium priority	~	~	x	xx	~	amber	Prob.	
Chimaeridae	<i>Chimaera monstrosa</i>	Rabbit fish	SK,KA	medium priority	~	~	x	x	~	amber	Not known	
Clupeidae	<i>Clupea harengus membras</i> *	Spring-spawning herring	SK,KA,WB,SB,CB,RI,FI,BO	medium priority	x	~	~	~	x	amber	Not known	Subspecies structure not fully understood
Clupeidae	<i>Sprattus sprattus balticus</i> *	Baltic sprat	SK,KA,WB,SB,CB,RI,FI,BO	medium priority	x	~	~	~	x	amber	Stable	
Engraulidae	<i>Engraulis encrasicolus</i>	European anchovy	SK,KA,WB,SB,CB	medium priority	~	~	~	x	x	amber	Not known	
Cobitidae	<i>Cobitis taenia</i> *	Spined loach	SK,KA,WB,SB,CB,RI,FI	medium priority	x	~	~	x	~	amber	Not known	Local populations genetically distinct
Salmonidae	<i>Salmo trutta</i>	Trout	SK,KA,WB,SB,CB,RI,FI,BO	medium priority	~	~	~	x	x	amber	Signif./reg.	
Coregonidae	<i>Coregonus albula</i>	Vendace	FI,BO	medium priority	~	~	~	x	x	amber	Prob.	
Osmeridae	<i>Osmerus eperlanomarinus</i>	Marine smelt	SK,KA,WB,SB,CB,RI,FI,BO	medium priority	~	~	~	x	x	amber	Prob.	Synonym: <i>Osmerus eperlanus</i> , migratory; Synonym: <i>Osmerus eperlanus schonfoldi</i>
Osmeridae	<i>Osmerus eperlanus</i>	European smelt	SB,CB,RI,FI,BO	medium priority	~	~	~	x	x	amber	Stable	Synonym: <i>Osmerus eperlanus</i> , stationary
Lophiidae	<i>Lophius budegassa</i>	Black-bellied angler	SK,KA,WB,SB,CB,RI,FI,BO	medium priority	~	~	x	x	~	amber	Not known	
Syngnathidae	<i>Nerophis lumbriciformis</i>	Worm pipefish	SK,KA	medium priority	~	x	~	x	~	amber	Not known	
Merlucciidae	<i>Merluccius merluccius</i>	European hake	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Gadidae	<i>Melanogrammus aeglefinus</i>	Haddock	SK,KA,WB	medium priority	~	~	~	x	x	amber	Prob.	
Gadidae	<i>Merlangius merlangus</i>	Whiting	SK,KA,WB,CB	medium priority	~	~	x	x	~	amber	Prob.	
Gadidae	<i>Micromesistius poutassou</i>	Blue whiting	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Gadidae	<i>Pollachius virens</i>	Pollock	SK,KA,WB,CB,BO	medium priority	~	~	x	x	~	amber	Prob.	
Gadidae	<i>Trisopterus esmarkii</i>	Norway pout	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Gadidae	<i>Trisopterus luscus</i>	Pouting	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Gadidae	<i>Trisopterus minutus</i>	Poor cod	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Lotidae	<i>Molva dypterygia</i>	Blue ling	SK,KA	medium priority	~	~	x	x	~	amber	Prob.	
Lotidae	<i>Phycis blennoides</i>	Greater forkbeak	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Lotidae	<i>Raniceps raninus</i>	Tadpole-fish	SK,KA,WB,SB	medium priority	~	~	x	x	~	amber	Prob.	
Lotidae	<i>Rhinonemus cimbricus</i>	Four-bearded rockling	SK,KA,WB,SB,CB,RI,FI	medium priority	~	~	x	x	~	amber	Prob.	
Cottidae	<i>Cottus gobio</i> *	Miller's thumb	SB,CB,FI,BO	medium priority	x	~	~	x	~	amber	Not known	Local populations genetically distinct
Cottidae	<i>Cottus poecilopus</i> *	Alpine bullhead	CB,RI,FI,BO	medium priority	x	~	~	x	~	amber	Not known	Local populations genetically distinct
Moronidae	<i>Dicentrarchus labrax</i>	European seabass	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Echeneidae	<i>Remora remora</i>	Common remora	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Sparidae	<i>Boops boops</i>	Bogue	SK,KA	medium priority	~	~	x	x	~	amber	Prob.	
Sparidae	<i>Pagellus bogaraveo</i>	Blackspot seabream	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Sparidae	<i>Pagellus erythrinus</i>	Common pandora	SK,KA	medium priority	~	~	x	x	~	amber	Prob.	
Sparidae	<i>Spondyliosoma cantharus</i>	Black seabream	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Sciaenidae	<i>Argyrosomus regius</i>	Meagre	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Mullidae	<i>Mullus surmuletus</i>	Striped red mullet	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.	
Labridae	<i>Labrus mixtus</i>	Cuckoo wrasse	SK,KA	medium priority	~	~	x	x	~	amber	Prob.	

Ammodytidae	<i>Ammodytes marinus</i>	Lesser sandeel	SK,KA,WB,SB	medium priority	~	~	~	x	x	amber	Not known
Ammodytidae	<i>Ammodytes tobianus</i>	Small sandeel	SK,KA,WB,SB,CB,RI,FI	medium priority	~	~	~	x	x	amber	Prob.
Ammodytidae	<i>Gymnammodytes semisquamatus</i>	Smooth sandeel	SK,KA	medium priority	~	~	x	x	~	amber	Prob.
Trachinidae	<i>Echiichthys vipera</i>	Lesser weaver	SK,KA	medium priority	~	~	x	x	~	amber	Not known
Stichaeidae	<i>Chirolophis ascanii</i>	Yarrell's blenny	SK,KA	medium priority	~	~	x	x	~	amber	Prob.
Callionymidae	<i>Callionymus maculatus</i>	Spotted dragonet	SK,KA	medium priority	~	~	x	x	~	amber	Prob.
Gobiidae	<i>Lebetus scorpioides</i>	Diminutive goby	SK,KA	medium priority	~	x	x	?	~	amber	Prob.
Gobiidae	<i>Pomatoschistus pictus</i>	Painted goby	SK,KA	medium priority	~	x	?	x	~	amber	Prob.
Scombridae	<i>Auxis rochei</i>	Bullet tuna	SK,KA	medium priority	~	~	x	xx	~	amber	Prob.
Scombridae	<i>Euthynnus alletteratus</i>	Little thunny	SK,KA	medium priority	~	~	x	xx	~	amber	Prob.
Scombridae	<i>Orcynopsis unicolor</i>	Plain bonito	SK,KA	medium priority	~	~	x	xx	~	amber	Prob.
Scombridae	<i>Scomber scombrus</i>	Atlantic mackerel	SK,KA,WB,SB,CB,RI,FI	medium priority	~	~	~	x	x	amber	Prob.
Xiphiidae	<i>Xiphias gladius</i>	Swordfish	SK,KA,WB,CB,RI,FI	medium priority	~	~	x	x	~	amber	Prob.
Bramidae	<i>Brama brama</i>	Atlantic pomfret	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.
Bramidae	<i>Pterycombus brama</i>	Atlantic fanfish	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.
Bramidae	<i>Taractes asper</i>	Rough pomfret	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.
Bramidae	<i>Taractichthys longipinnis</i>	Bigscale pomfret	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.
Centrolophidae	<i>Centrolophus niger</i>	Blackfish	SK,KA	medium priority	~	~	x	x	~	amber	Prob.
Bothidae	<i>Arnoglossus laterna</i>	Scaldfish	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.
Scophthalmidae	<i>Lepidorhombus whiffiagonis</i>	Megrim	SK,KA	medium priority	~	~	x	x	~	amber	Prob.
Scophthalmidae	<i>Phrynorhombus norvegicus</i>	Norwegian topknot	SK,KA	medium priority	~	~	x	x	~	amber	Prob.
Scophthalmidae	<i>Zeugopterus punctatus</i>	Topknot	SK,KA	medium priority	~	~	x	x	~	amber	Prob.
Pleuronectidae	<i>Glyptocephalus cynoglossus</i>	Witch	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.
Pleuronectidae	<i>Hippoglossoides platessoides</i>	American plaice	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.
Pleuronectidae	<i>Limanda limanda</i>	Dab	SK,KA,WB,SB,CB,RI,FI	medium priority	~	~	x	x	~	amber	Prob.
Pleuronectidae	<i>Microstomus kitt</i>	Lemon sole	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.
Pleuronectidae	<i>Platichthys flesus</i>	Flounder	SK,KA,WB,SB,CB,RI,FI	medium priority	~	~	~	x	x	amber	Stable
Pleuronectidae	<i>Pleuronectes platessa</i>	European plaice	SK,KA,WB,SB,CB,RI,FI	medium priority	~	~	x	x	~	amber	Prob.
Soleidae	<i>Monochirus luteus</i>	Solenette	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.
Soleidae	<i>Solea solea</i>	Common sole	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.
Molidae	<i>Mola mola</i>	Ocean sunfish	SK,KA,WB	medium priority	~	~	x	x	~	amber	Prob.

c) Low priority species

Family	Species	English name	Baltic distribution	HELCOM Status 2005	Global importance	Local importance	Rarity	Sensitivity	Keystone species	HELCOM List	Decline	Comments
Myxiniidae	<i>Myxine glutinosa</i>	Hagfish	SK,KA,WB	low priority	~	~	x	?	~	green	Prob.	
Congridae	<i>Conger conger</i>	European conger	SK,KA	low priority	~	~	~	?	~	green	Not known	
Cyprinidae	<i>Abramis ballerus</i>	Zope	SB,CB	low priority	~	~	~	~	~	green	Signif./reg.	
Cyprinidae	<i>Abramis bjoerkna</i>	White bream	SB,CB,RI,FI	low priority	~	~	~	~	~	green	Stable	
Cyprinidae	<i>Abramis brama</i>	Carp bream	SB,CB,RI,FI	low priority	~	~	~	~	~	green	Stable	
Cyprinidae	<i>Alburnus alburnus</i>	Bleak	SB,CB,RI,FI	low priority	~	~	~	~	x	green	Signif./reg.	
Cyprinidae	<i>Aspius aspius</i>	Asp	SB,CB,RI,FI	low priority	~	~	~	x	~	green	Signif./reg.	
Cyprinidae	<i>Barbus barbus</i>	Barbel	SB,CB	low priority	~	~	~	x	~	green	Signif.	
Cyprinidae	<i>Carassius carassius</i>	Crucian carp	SB,CB,RI,FI	low priority	~	~	~	~	~	green	Stable	
Cyprinidae	<i>Gobio albipinnatus</i>	White-finned gudgeon	SB	low priority	~	~	~	~	~	not evaluated	not assessed	introduced species
Cyprinidae	<i>Gobio gobio</i>	Gudgeon	SB,CB,RI,FI	low priority	~	~	~	~	~	green	Prob.	
Cyprinidae	<i>Leuciscus cephalus</i>	European chub	SB,CB,RI,FI	low priority	~	~	~	~	~	green	Stable	
Cyprinidae	<i>Leuciscus idus</i>	Ide	SB,CB,RI,FI	low priority	~	~	~	~	~	green	Stable	
Cyprinidae	<i>Pelecus cultratus</i>	Ziege	SB,CB,RI,FI	low priority	~	~	~	x	~	green	Signif./reg.	
Cyprinidae	<i>Phoxinus phoxinus</i>	Eurasian minnow	CB,RI,FI,BO	low priority	~	~	~	x	~	green	Signif./reg.	
Cyprinidae	<i>Rutilus rutilus</i>	Roach	SB,CB,RI,FI	low priority	~	~	~	~	x	green	Stable	
Cyprinidae	<i>Scardinius erythrophthalmus</i>	Rudd	SB,CB,RI,FI	low priority	~	~	~	~	x	green	Stable	
Cyprinidae	<i>Tinca tinca</i>	Tench	SB,CB,RI,FI	low priority	~	~	~	~	~	green	Stable	
Cyprinidae	<i>Vimba vimba</i>	Vimba	SB,CB,RI,FI,BO	low priority	~	~	~	x	~	green	Signif./reg.	
Cobitidae	<i>Misgurnus fossilis</i>	Weatherfish	RI	low priority	~	~	x	?	~	not evaluated	Not known	
Salmonidae	<i>Oncorhynchus mykiss</i>	Rainbow trout	SB,CB,RI,FI,BO	low priority	~	~	~	~	~	not evaluated	not assessed	introduced species
Esocidae	<i>Esox lucius</i>	Northern pike	SB,CB,RI,FI,BO	low priority	~	~	~	x	~	green	Stable	
Lophiidae	<i>Lophius piscatorius</i>	Angler	SK,KA,WB,SB,CB,RI,FI,BO	low priority	~	~	~	x	~	green	Not known	
Lotidae	<i>Ciliata mustela</i>	Fivebeard rockling	SK,KA	low priority	~	~	~	?	~	green	Not known	
Lotidae	<i>Ciliata septentrionalis</i>	Northern rockling	SK,KA,WB	low priority	~	~	~	?	~	green	Not known	
Lotidae	<i>Gaidropsarus vulgaris</i>	Three-bearded rockling	SK,KA	low priority	~	x	~	?	~	green	Not known	
Lotidae	<i>Lota lota</i>	Burbot	SB,CB,RI,FI,BO	low priority	~	~	~	x	~	green	Signif./reg.	
Lotidae	<i>Molva molva</i>	Ling	SK,KA,WB	low priority	~	~	~	x	~	green	Signif./reg.	
Belonidae	<i>Belone belone</i>	Garpike	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	~	~	green	Stable	
Scomberesocidae	<i>Scomberesox saurus</i>	Atlantic saury	SK,KA,WB	low priority	~	~	x	?	~	green	Prob.	
Zoarcidae	<i>Zoarces viviparus</i>	Viviparous blenny	SK,KA,WB,SB,CB,RI,FI,BO	low priority	~	~	~	~	~	green	Stable	
Gasterosteidae	<i>Gasterosteus aculeatus</i>	Three-spined stickleback	SK,KA,WB,SB,CB,RI,FI,BO	low priority	~	~	~	~	x	green	Stable	
Gasterosteidae	<i>Pungitius pungitius</i>	Nine-spined stickleback	WB,SB,CB,RI,FI,BO	low priority	~	~	~	~	~	green	Stable	
Gasterosteidae	<i>Spinachia spinachia</i>	Sea stickleback	SK,KA,WB,SB,RI,CB,FI	low priority	~	~	~	x	~	green	Signif./reg.	
Syngnathidae	<i>Entelurus aequoreus</i>	Snake pipefish	SK,KA,WB,SB,CB,RI,FI,BO	low priority	~	~	~	x	~	green	Signif./reg.	
Syngnathidae	<i>Nerophis ophidion</i>	Straightnose pipefish	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	x	~	green	Signif./reg.	
Syngnathidae	<i>Syngnathus rostellatus</i>	Nilsson's pipefish	SK,KA	low priority	~	x	~	~	~	green	Stable	
Syngnathidae	<i>Syngnathus typhle</i>	Broad-nosed pipefish	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	x	~	green	Signif./reg.	
Triglidae	<i>Eutrigla gurnardus</i>	Grey gurnard	SK,KA,WB	low priority	~	~	~	~	~	green	Stable	
Triglidae	<i>Trigla lucerna</i>	Tub gurnard	SK,KA,WB	low priority	~	~	~	~	~	green	Not known	

Cottidae	<i>Cottus koshewnikowi</i>	Spiny bullhead	RI,FI,BO	low priority	~	~	~	x	~	green	Not known	Local populations genetically distinct
Cottidae	<i>Micrenophrys lilljeborgi</i>	Normy bullhead	SK,KA	low priority	~	~	x	?	~	green	Not known	
Cottidae	<i>Myoxocephalus scorpius</i>	Shorthorn sculpin	SK,KA,WB,SB,CB,RI,FI,BO	low priority	~	~	~	x	~	green	Signif./reg.	
Cottidae	<i>Taurulus bubalis</i>	Longspined bullhead	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	x	~	green	Signif./reg.	
Cottidae	<i>Triglops murrayi</i>	Moustache sculpin	SK,KA	low priority	~	~	x	?	~	green	Not known	
Cottidae	<i>Trigloopsis quadricornis</i>	Fourhorn sculpin	SB,CB,RI,FI,BO	low priority	~	~	~	x	~	green	Signif./reg.	
Cyclopteridae	<i>Cyclopterus lumpus</i>	Lumpsucker	SK,KA,WB,SB,CB,RI,FI,BO	low priority	~	~	~	x	~	green	Signif./reg.	
Liparidae	<i>Liparis liparis</i>	Striped seasnail	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	x	~	green	Signif.	
Liparidae	<i>Liparis montagui</i>	Montagu's seasnail	SK,KA,WB	low priority	~	~	~	x	~	green	Signif.	
Agonidae	<i>Agonus cataphractus</i>	Hooknose	SK,KA,WB,SB,CB	low priority	~	~	~	~	~	green	Stable	
Percidae	<i>Gymnocephalus cernuus</i>	Ruffe	SB,CB,RI,FI,BO	low priority	~	~	~	~	~	green	Stable	
Percidae	<i>Perca fluviatilis</i>	European perch	WB,SB,CB,RI,FI,BO	low priority	~	~	~	~	~	green	Stable	
Percidae	<i>Sander lucioperca</i>	Zander	SB,CB,RI,FI,BO	low priority	~	~	~	~	~	green	Stable	Synonym: <i>Stizostedion lucioperca</i>
Carangidae	<i>Trachinotus ovatus</i>	Derbio	SK,KA,WB	low priority	~	~	x	?	~	green	Prob.	
Carangidae	<i>Trachurus trachurus</i>	Atlantic horse mackerel	SK,KA,WB	low priority	~	~	~	~	~	green	Stable	
Labridae	<i>Centrolabrus exoletus</i>	Rock cook	SK,KA	low priority	~	x	~	?	~	green	Not known	
Labridae	<i>Ctenolabrus rupestris</i>	Goldsinny wrasse	SK,KA,WB,SB	low priority	~	~	~	~	~	green	Stable	
Labridae	<i>Labrus bergylta</i>	Ballan wrasse	SK,KA,WB,SB	low priority	~	~	~	x	~	green	Prob.	
Labridae	<i>Symphodus melops</i>	Corkwring wrasse	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	x	~	green	Signif./reg.	
Mugilidae	<i>Chelon labrosus</i>	Thicklip grey mullet	SK,KA,WB,CB,BO	low priority	~	~	x	?	~	green	Not known	
Mugilidae	<i>Liza aurata</i>	Golden grey mullet	SK,KA,WB	low priority	~	~	x	?	~	green	Not known	
Mugilidae	<i>Liza ramada</i>	Thinlip mullet	SK,KA,WB	low priority	~	~	x	?	~	green	Not known	
Ammodytidae	<i>Hyperoplus lanceolatus</i>	Great sandeel	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	x	~	green	Not known	
Trachinidae	<i>Trachinus draco</i>	Greater weever	SK,KA,WB	low priority	~	~	~	x	~	green	Signif./reg.	
Anarhichidae	<i>Anarhichas lupus</i>	Wolf-fish	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	x	~	green	Signif.	
Pholidae	<i>Pholis gunnellus</i>	Rock gunnel	SK,KA,WB,SB,CB,RI,FI,BO	low priority	~	~	~	x	~	green	Signif./reg.	
Callionymidae	<i>Callionymus lyra</i>	Common dragonet	SK,KA,WB	low priority	~	~	~	x	~	green	Not known	
Gobiidae	<i>Aphia minuta</i>	Transparent goby	SK,KA,WB	low priority	~	~	~	~	~	green	Stable	
Gobiidae	<i>Buenia jeffreysi</i>	Jeffrey's goby	SK,KA	low priority	~	x	x	?	~	amber	Not known	
Gobiidae	<i>Crystallogobius linearis</i>	Crystal goby	SK,KA	low priority	~	x	~	?	~	green	Not known	
Gobiidae	<i>Gobius niger</i>	Black goby	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	~	~	green	Stable	
Gobiidae	<i>Gobiusculus flavescens</i>	Two-spotted goby	SK,KA,WB,CB,RI,FI	low priority	~	~	~	~	x	green	Stable	
Gobiidae	<i>Lesueurigobius friesii</i>	Fries's goby	SK,KA	low priority	~	x	~	?	~	green	Not known	
Gobiidae	<i>Neogobius melanostomus</i>	Round goby	SB	low priority	~	~	~	~	~	not evaluated	not assessed	introduced species
Gobiidae	<i>Pomatoschistus microps</i>	Common goby	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	~	x	green	Stable	
Gobiidae	<i>Pomatoschistus minutus</i>	Sand goby	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	~	x	green	Stable	
Scophthalmidae	<i>Psetta maxima</i>	Turbot	SK,KA,WB,SB,CB,RI,FI	low priority	~	~	~	x	~	green	Not known	
Scophthalmidae	<i>Scophthalmus rhombus</i>	Brill	SK,KA,WB	low priority	~	~	~	x	~	green	Not known	
Pleuronectidae	<i>Liopsetta glacialis</i>	Arctic flounder	CB	low priority	~	?	x	?	~	green	Not known	

Annex 2: HELCOM List of Threatened and Declining Species of Fishes based on IUCN Classification

a) List of Threatened Species

Family	Species	English name	Baltic distribution	Baltic status 2005	Threats	Comments
Petromyzontidae	<i>Lampetra fluviatilis</i>	European river lamprey	SK,KA,WB,SB,CB,RI,FI,BO	EN	EUT,CON	Only SW Baltic; NT in N Baltic
Petromyzontidae	<i>Petromyzon marinus</i>	Sea lamprey	SK,KA,WB,SB,CB,RI,FI	EN	EUT,CON	Status VU in SW, CR requested by PL,FI,ES
Hexanchidae	<i>Hexanchus griseus</i>	Bluntnose sixgill shark	SK,KA,WB	CR	FIB	
Lamnidae	<i>Lamna nasus</i>	Porbeagle	SK,KA,WB,SB,CB	CR	FIB	
Cetorhinidae	<i>Cetorhinus maximus</i>	Basking shark	SK, KA	EN	FIB	
Scyliorhinidae	<i>Galeus melanostomus</i>	Blackmouth catshark	SK,KA,WB	EN	FIB	
Scyliorhinidae	<i>Scyliorhinus canicula</i>	Small-spotted catshark	SK,KA	EN	FIB,FIT	
Triakidae	<i>Galeorhinus galeus</i>	Tope shark	SK,KA	EN	FIB	
Carcharhinidae	<i>Prionace glauca</i>	Blue shark	SK,KA,WB	TM	FIB	
Etmopteridae	<i>Etmopterus spinax</i>	Velvet belly lantern shark	SK,KA	VU	FIB, HAB	
Somniosidae	<i>Somniosus microcephalus</i>	Greenland shark	SK,KA	VU	FIB	
Squalidae	<i>Squalus acanthias</i>	Piked dogfish	SK,KA,WB,SB	CR	FIB,FIT	
Alopiidae	<i>Alopias vulpinus</i>	Thintail thresher	SK,KA,WB	CR	FIB	
Rajidae	<i>Amblyraja radiata</i>	Thorny skate	SK,KA,WB	EN	FIB,EUT,HAB	
Rajidae	<i>Dipturus batis</i>	Blue skate	SK,KA,WB	CR	FIB,EUT,HAB	
Rajidae	<i>Leucoraja fullonica</i>	Shagreen ray	SK,KA,WB	TM	FIB,EUT,HAB	
Rajidae	<i>Raja clavata</i>	Thornback ray	SK,KA,WB	EN	FIB,EUT,HAB	
Rajidae	<i>Raja montagui</i>	Spotted ray	SK, KA	EN	FIB,EUT,HAB	
Dasyatidae	<i>Dasyatis pastinaca</i>	Common stingray	SK,KA,WB	TM	FIB,EUT	
Torpedinidae	<i>Torpedo marmorata</i>	Spotted torpedo	KA	TM	FIB,EUT,HAB	
Squatinae	<i>Squatina squatina</i>	Angelshark	SK,KA	EN	FIB,EUT,HAB	
Acipenseridae	<i>Acipenser oxyrinchus</i>	Baltic sturgeon	SK,KA,WB,SB,CB,RI,FI,BO	RE	FIB,FIT,CON,HAB	Synonym in the area: <i>Acipenser sturio</i>
Acipenseridae	<i>Acipenser sturio</i>	Sturgeon	SK,KA	RE	FIB,FIT,CON,HAB	
Chimaeridae	<i>Chimaera monstrosa</i>	Rabbit fish	SK,KA	VU	FIB, HAB	
Anguillidae	<i>Anguilla anguilla</i>	European eel	SK,KA,WB,SB,CB,RI,FI,BO	CR	FIT,EUT,CON,HAB	
Clupeidae	<i>Alosa alosa</i>	Allis shad	SK, KA,WB,SB,CB	CR	FIT,FIB,CON,EUT,HAB	
Clupeidae	<i>Alosa fallax</i>	Twaite shad	SK,KA,WB,SB,CB,RI,FI,BO	EN	FIB,CON,HAB	
Clupeidae	<i>Clupea harengus</i> subsp.	Autumn-spawning herring	WB,SB,CB	EN	FIT	
Cyprinidae	<i>Abramis ballerus</i>	Zope	SB,CB	VU	CON,EUT	
Cyprinidae	<i>Alburnus alburnus</i>	Bleak	SB,CB,RI,FI	VU	CON,EUT	LC in N Baltic (ES,FI)
Cyprinidae	<i>Aspius aspius</i>	Asp	SB,CB,RI,FI	VU	CON,EUT	
Cyprinidae	<i>Barbus barbus</i>	Barbel	SB,CB	EN	CON,EUT	
Cyprinidae	<i>Gobio gobio</i>	Gudgeon	SB,CB,RI,FI	NT	CON,EUT	LC in SW
Cyprinidae	<i>Pelecus cultratus</i>	Ziege	SB,CB,RI,FI	VU	CON,EUT,FIB	
Cyprinidae	<i>Phoxinus phoxinus</i>	Eurasian minnow	CB,RI,FI,BO	VU	EUT,CON	VU on request by FI
Cyprinidae	<i>Vimba vimba</i>	Vimba	SB,CB,RI,FI,BO	VU	CON,EUT	LC in N Baltic (ES)
Cobitidae	<i>Cobitis taenia</i>	Spined loach	SK,KA,WB,SB,CB,RI,FI	VU	EUT,HAB	
Salmonidae	<i>Salmo salar</i>	Atlantic salmon	SK,KA,WB,SB,CB,RI,FI,BO	EN	FIT,AQU,EUT,CON,HAB	
Salmonidae	<i>Salmo trutta</i>	Trout	SK,KA,WB,SB,CB,RI,FI,BO	VU	FIT,EUT,CON,HAB	LC in SW
Coregonidae	<i>Coregonus albula</i>	Vendace	FI,BO	VU	EUT,FIB,FIT	LC in SW
Coregonidae	<i>Coregonus balticus</i>	Baltic houting	SK,KA,WB,SB,CB,RI,FI,BO	VU	EUT,FIB	Synonym: <i>Coregonus lavaretus</i> , migratory

Coregonidae	<i>Coregonus maraena</i>	Maraena	RI,FI,BO	VU	EUT,FIB,FIT,CON	Synonym: <i>Coregonus lavaretus</i> , stationary
Coregonidae	<i>Coregonus pallasii</i>	Pallas's houting	FI,BO	VU	EUT,FIB,FIT,CON	
Osmeridae	<i>Osmerus eperlanomarinus</i>	Marine smelt	SK,KA,WB,SB,CB,RI,FI,BO	VU	EUT,FIB,CON	VU as request by ES; Synonym: <i>Osmerus eperlanus</i> , migratory; Synonym: <i>Osmerus eperlanus schonfoldi</i>
Lophiidae	<i>Lophius budegassa</i>	Black-bellied angler	SK,KA,WB,SB,CB,RI,FI,BO	VU	EUT,HAB,FIB	
Gasterosteidae	<i>Spinachia spinachia</i>	Sea stickleback	SK,KA,WB,SB,RI,CB,FI	VU	EUT,HAB	
Syngnathidae	<i>Entelurus aequoreus</i>	Snake pipefish	SK,KA,WB,SB,CB,RI,FI,BO	VU	HAB	
Syngnathidae	<i>Nerophis ophidion</i>	Straightnose pipefish	SK,KA,WB,SB,CB,RI,FI	VU	HAB	LC in SW
Syngnathidae	<i>Nerophis lumbriciformis</i>	Worm pipefish	SK,KA	VU	HAB	
Syngnathidae	<i>Syngnathus acus</i>	Greater pipefish	SK,KA	EN	HAB	
Syngnathidae	<i>Syngnathus typhle</i>	Broad-nosed pipefish	SK,KA,WB,SB,CB,RI,FI	VU	HAB	CR in PL
Macrouridae	<i>Coryphaenoides rupestris</i>	Roundnose grenadier	SK,KA	VU	FIB, HAB	
Gadidae	<i>Gadus morhua</i>	Atlantic cod	SK,KA,WB,SB,CB,RI,FI	EN	FIT,EUT,HAB	
Gadidae	<i>Melanogrammus aeglefinus</i>	Haddock	SK,KA,WB	VU	FIT,FIB	
Gadidae	<i>Pollachius pollachius</i>	Pollack	SK,KA,WB,SB,RI,FI	EN	FIT,FIB	
Lotidae	<i>Molva molva</i>	Ling	SK,KA,WB	VU	FIT,FIB	
Lumpenidae	<i>Lumpenus lampretæformis</i>	Snakeblenny	SK,KA,WB,SB,CB,RI,FI	CR	EUT	LC in SK,KA
Sebastidae	<i>Sebastes marinus</i>	Ocean perch	SK,KA	EN	FIT	
Sebastidae	<i>Sebastes viviparus</i>	Norway redfish	SK,KA	EN	FIT	
Cottidae	<i>Cottus gobio</i>	Miller's thumb	SB,CB,FI,BO	VU	EUT	
Cottidae	<i>Cottus poecilopus</i>	Alpine bullhead	CB,RI,FI,BO	VU	EUT	
Cottidae	<i>Myoxocephalus scorpius</i>	Shorthorn sculpin	SK,KA,WB,SB,CB,RI,FI,BO	VU	EUT,FIB,HAB	VU requested by ES, LC in SW,DE
Cottidae	<i>Taurulus bubalis</i>	Longspined bullhead	SK,KA,WB,SB,CB,RI,FI	VU	EUT,FIB,HAB	VU requested by ES (now EX in ES)
Cottidae	<i>Trigloporus quadricornis</i>	Fourhorn sculpin	SB,CB,RI,FI,BO	VU	EUT?	
Cyclopteridae	<i>Cyclopterus lumpus</i>	Lumpsucker	SK,KA,WB,SB,CB,RI,FI,BO	VU	EUT,HAB	VU requested by ES
Liparidae	<i>Liparis liparis</i>	Striped seasnail	SK,KA,WB,SB,CB,RI,FI	EN	EUT,HAB	
Liparidae	<i>Liparis montagui</i>	Montagu's seasnail	SK,KA,WB	EN	EUT,HAB	
Zeidae	<i>Zeus faber</i>	John Dory	SK,KA	EN	FIB	
Moronidae	<i>Dicentrarchus labrax</i>	European seabass	SK,KA,WB	TM	EUT,HAB,FIB	
Labridae	<i>Labrus bergylta</i>	Ballan wrasse	SK,KA,WB,SB	EN	EUT,HAB	
Labridae	<i>Labrus mixtus</i>	Cuckoo wrasse	SK,KA	EN	EUT,HAB	
Labridae	<i>Symphodus melops</i>	Corkwring wrasse	SK,KA,WB,SB,CB,RI,FI	VU	EUT,HAB	LC in SK,KA
Trachinidae	<i>Trachinus draco</i>	Greater weever	SK,KA,WB	VU	EUT,HAB,FIB	
Anarhichidae	<i>Anarhichas lupus</i>	Wolf-fish	SK,KA,WB,SB,CB,RI,FI	EN	FIB	
Ammodytidae	<i>Ammodytes marinus</i>	Lesser sandeel	SK,KA,WB,SB	DD	EUT,HAB	
Ammodytidae	<i>Ammodytes tobianus</i>	Small sandeel	SK,KA,WB,SB,CB,RI,FI	VU	EUT,HAB,FIB	VU requested by ES
Gobiidae	<i>Pomatoschistus pictus</i>	Painted goby	SK,KA	VU	EUT,HAB	
Scombridae	<i>Auxis rochei</i>	Bullet tuna	SK,KA	TM	FIT,FIB	
Scombridae	<i>Euthynnus alletteratus</i>	Little thunny	SK,KA	TM	FIT,FIB	
Scombridae	<i>Orcynopsis unicolor</i>	Plain bonito	SK,KA	TM	FIT,FIB	
Scombridae	<i>Scomber scombrus</i>	Atlantic mackerel	SK,KA,WB,SB,CB,RI,FI	VU	FIT,FIB	
Scombridae	<i>Thunnus thynnus</i>	Northern bluefin tuna	SK,KA,WB,SB	CR	FIT,FIB	
Scophthalmidae	<i>Hippoglossus hippoglossus</i>	Atlantic halibut	SK,KA,WB	EN	FIT,FIB	
Xiphiidae	<i>Xiphias gladius</i>	Swordfish	SK,KA,WB,CB,RI,FI	TM	FIB	
Centrolophidae	<i>Centrolophus niger</i>	Blackfish	SK,KA	TM	FIB	

b) List of Species not threatened

Family	Species	English name	Baltic distribution	Baltic status	Comments
Myxinidae	<i>Myxine glutinosa</i>	Hagfish	SK,KA,WB	DD	
Clupeidae	<i>Sprattus sprattus balticus</i>	Baltic sprat	SK,KA,WB,SB,CB,RI,FI,BO	LC	
Engraulidae	<i>Engraulis encrasicolus</i>	European anchovy	SK,KA,WB,SB,CB	LC	
Congridae	<i>Conger conger</i>	European conger	SK,KA	DD	
Clupeidae	<i>Clupea harengus membras</i>	Spring-spawning herring	SK,KA,WB,SB,CB,RI,FI,BO	LC	Considered by some as VU; removed to LC due to comments by ES,BFAFi(D)
Cyprinidae	<i>Abramis bjoerkna</i>	White bream	SB,CB,RI,FI	LC	
Cyprinidae	<i>Abramis brama</i>	Carp bream	SB,CB,RI,FI	LC	
Cyprinidae	<i>Carassius carassius</i>	Crucian carp	SB,CB,RI,FI	LC	
Cyprinidae	<i>Gobio albipinnatus</i>	White-finned gudgeon	SB	NE	Found occasionally in Oder Haff/Germany; introduced from Danube Basin
Cyprinidae	<i>Leuciscus cephalus</i>	European chub	SB,CB,RI,FI	LC	
Cyprinidae	<i>Leuciscus idus</i>	Ide	SB,CB,RI,FI	LC	
Cyprinidae	<i>Rutilus rutilus</i>	Roach	SB,CB,RI,FI	LC	
Cyprinidae	<i>Scardinius erythrophthalmus</i>	Rudd	SB,CB,RI,FI	LC	
Cyprinidae	<i>Tinca tinca</i>	Tench	SB,CB,RI,FI	LC	
Cobitidae	<i>Misgurnus fossilis</i>	Weatherfish	RI	DD	Found occasionally in Gulf of Riga.
Argentinidae	<i>Argentina silus</i>	Greater argentine	SK,KA	LC	
Salmonidae	<i>Oncorhynchus mykiss</i>	Rainbow trout	SB,CB,RI,FI,BO	NE	Introduced species.
Osmeridae	<i>Osmerus eperlanus</i>	European smelt	SB,CB,RI,FI,BO	LC	Synonym: <i>Osmerus eperlanus</i> , stationary form
Esocidae	<i>Esox lucius</i>	Northern pike	SB,CB,RI,FI,BO	LC	
Lophiidae	<i>Lophius piscatorius</i>	Angler	SK,KA,WB,SB,CB,RI,FI,BO	DD	
Merlucciidae	<i>Merluccius merluccius</i>	European hake	SK,KA,WB	RA	
Gadidae	<i>Merlangius merlangus</i>	Whiting	SK,KA,WB,CB	RA	
Gadidae	<i>Micromesistius poutassou</i>	Blue whiting	SK,KA,WB	RA	
Gadidae	<i>Pollachius virens</i>	Pollock	SK,KA,WB,CB,BO	RA	
Gadidae	<i>Trisopterus esmarkii</i>	Norway pout	SK,KA,WB	RA	
Gadidae	<i>Trisopterus luscus</i>	Pouting	SK,KA,WB	RA	
Gadidae	<i>Trisopterus minutus</i>	Poor cod	SK,KA,WB	RA	
Lotidae	<i>Ciliata mustela</i>	Fivebeard rockling	SK,KA	DD	
Lotidae	<i>Ciliata septentrionalis</i>	Northern rockling	SK,KA,WB	DD	
Lotidae	<i>Gaidropsarus vulgaris</i>	Three-bearded rockling	SK,KA	DD	
Lotidae	<i>Lota lota</i>	Burbot	SB,CB,RI,FI,BO	LC	
Lotidae	<i>Molva dypterygia</i>	Blue ling	SK,KA	RA	
Lotidae	<i>Phycis blennoides</i>	Greater forkbeak	SK,KA,WB	RA	
Lotidae	<i>Raniceps raninus</i>	Tadpole-fish	SK,KA,WB,SB	RA	
Lotidae	<i>Rhinonemus cimbricus</i>	Four-bearded rockling	SK,KA,WB,SB,CB,RI,FI	RA	
Belonidae	<i>Belone belone</i>	Garpike	SK,KA,WB,SB,CB,RI,FI	LC	
Scomberesocidae	<i>Scomberesox saurus</i>	Atlantic saury	SK,KA,WB	RA	
Zoarcidae	<i>Zoarces viviparus</i>	Viviparous blenny	SK,KA,WB,SB,CB,RI,FI,BO	LC	NT in SW?
Gasterosteidae	<i>Gasterosteus aculeatus</i>	Three-spined stickleback	SK,KA,WB,SB,CB,RI,FI,BO	LC	
Gasterosteidae	<i>Pungitius pungitius</i>	Nine-spined stickleback	WB,SB,CB,RI,FI,BO	LC	
Syngnathidae	<i>Syngnathus rostellatus</i>	Nilsson's pipefish	SK,KA	LC	
Triglidae	<i>Eutrigla gurnardus</i>	Grey gurnard	SK,KA,WB	LC	
Triglidae	<i>Trigla lucerna</i>	Tub gurnard	SK,KA,WB	DD	
Cottidae	<i>Cottus koshewnikowi</i>	Spiny bullhead	RI,FI,BO	LC	

Cottidae	<i>Micrenophrys lilljeborgi</i>	Normy bullhead	SK,KA	DD	
Cottidae	<i>Triglops murrayi</i>	Moustache sculpin	SK,KA	DD	
Agonidae	<i>Agonus cataphractus</i>	Hooknose	SK,KA,WB,SB,CB	LC	
Percidae	<i>Gymnocephalus cernuus</i>	Ruffe	SB,CB,RI,FI,BO	LC	
Percidae	<i>Perca fluviatilis</i>	European perch	WB,SB,CB,RI,FI,BO	LC	
Percidae	<i>Sander lucioperca</i>	Zander	SB,CB,RI,FI,BO	LC	Considered as VU by LA, but ES disagrees; in general, LC seems to be appropriate; Synonym: <i>Stizostedion lucioperca</i>
Echeneidae	<i>Remora remora</i>	Common remora	SK,KA,WB	RA	
Carangidae	<i>Trachinotus ovatus</i>	Derbio	SK,KA,WB	RA	
Carangidae	<i>Trachurus trachurus</i>	Atlantic horse mackerel	SK,KA,WB	LC	RA in WB
Sparidae	<i>Boops boops</i>	Bogue	SK,KA	RA	
Sparidae	<i>Pagellus bogaraveo</i>	Blackspot seabream	SK,KA,WB	RA	
Sparidae	<i>Pagellus erythrinus</i>	Common pandora	SK,KA	RA	
Sparidae	<i>Spondyliosoma cantharus</i>	Black seabream	SK,KA,WB	RA	
Sciaenidae	<i>Argyrosomus regius</i>	Meagre	SK,KA,WB	RA	
Mullidae	<i>Mullus surmuletus</i>	Striped red mullet	SK,KA,WB	RA	
Labridae	<i>Centrolabrus exoletus</i>	Rock cook	SK,KA	LC	
Labridae	<i>Ctenolabrus rupestris</i>	Goldsinny wrasse	SK,KA,WB,SB	LC	
Mugilidae	<i>Chelon labrosus</i>	Thicklip grey mullet	SK,KA,WB,CB,BO	RA	
Mugilidae	<i>Liza aurata</i>	Golden grey mullet	SK,KA,WB	RA	
Mugilidae	<i>Liza ramada</i>	Thinlip mullet	SK,KA,WB	RA	
Ammodytidae	<i>Gymnammodytes semisquamatus</i>	Smooth sandeel	SK,KA	RA	
Ammodytidae	<i>Hyperoplus lanceolatus</i>	Great sandeel	SK,KA,WB,SB,CB,RI,FI	DD	
Pholidae	<i>Pholis gunnellus</i>	Rock gunnel	SK,KA,WB,SB,CB,RI,FI,BO	LC	VU requested by ES (EX in ES)
Trachinidae	<i>Echiichthys vipera</i>	Lesser weaver	SK,KA	RA	
Stichaeidae	<i>Chirolophis ascanii</i>	Yarrell's blenny	SK,KA	RA	
Callionymidae	<i>Callionymus lyra</i>	Common dragonet	SK,KA,WB	LC	RA in WB
Callionymidae	<i>Callionymus maculatus</i>	Spotted dragonet	SK,KA	RA	
Gobiidae	<i>Aphia minuta</i>	Transparent goby	SK,KA,WB	LC	
Gobiidae	<i>Buenia jeffreysi</i>	Jeffrey's goby	SK,KA	RA	
Gobiidae	<i>Crystallogobius linearis</i>	Crystal goby	SK,KA	DD	
Gobiidae	<i>Gobius niger</i>	Black goby	SK,KA,WB,SB,CB,RI,FI	LC	
Gobiidae	<i>Gobiusculus flavescens</i>	Two-spotted goby	SK,KA,WB,CB,RI,FI	LC	
Gobiidae	<i>Lebetus scorpioides</i>	Diminutive goby	SK,KA	RA	
Gobiidae	<i>Lesueurigobius friesii</i>	Fries's goby	SK,KA	DD	
Gobiidae	<i>Neogobius melanostomus</i>	Round goby	SB,CB,FI	NE	widespread in Gulf of Gdansk/Poland to Mecklenburg-Vorpommern/Germany, introduced alien species from Black Sea
Gobiidae	<i>Pomatoschistus microps</i>	Common goby	SK,KA,WB,SB,CB,RI,FI	LC	
Gobiidae	<i>Pomatoschistus minutus</i>	Sand goby	SK,KA,WB,SB,CB,RI,FI	LC	
Bramidae	<i>Brama brama</i>	Atlantic pomfret	SK,KA,WB	RA	
Bramidae	<i>Pterycombus brama</i>	Atlantic fanfish	SK,KA,WB	RA	
Bramidae	<i>Taractes asper</i>	Rough pomfret	SK,KA,WB	RA	
Bramidae	<i>Taractichthys longipinnis</i>	Bigscale pomfret	SK,KA,WB	RA	
Bothidae	<i>Arnoglossus laterna</i>	Scaldfish	SK,KA,WB	RA	
Scophthalmidae	<i>Lepidorhombus whiffiagonis</i>	Megrim	SK,KA	RA	
Scophthalmidae	<i>Phrynorhombus norvegicus</i>	Norwegian topknot	SK,KA	RA	
Scophthalmidae	<i>Psetta maxima</i>	Turbot	SK,KA,WB,SB,CB,RI,FI	DD	NT in S Sweden, LC in CB

Scophthalmidae	<i>Scophthalmus rhombus</i>	Brill	SK,KA,WB	DD	RA in WB
Scophthalmidae	<i>Zeugopterus punctatus</i>	Topknot	SK,KA	RA	
Pleuronectidae	<i>Glyptocephalus cynoglossus</i>	Witch	SK,KA,WB	RA	
Pleuronectidae	<i>Hippoglossoides platessoides</i>	American plaice	SK,KA,WB	RA	
Pleuronectidae	<i>Limanda limanda</i>	Dab	SK,KA,WB,SB,CB,RI,FI	RA	
Pleuronectidae	<i>Liopsetta glacialis</i>	Arctic flounder	CB	DD	
Pleuronectidae	<i>Microstomus kitt</i>	Lemon sole	SK,KA,WB	RA	
Pleuronectidae	<i>Platichthys flesus</i>	Flounder	SK,KA,WB,SB,CB,RI,FI	LC	
Pleuronectidae	<i>Pleuronectes platessa</i>	European plaice	SK,KA,WB,SB,CB,RI,FI	RA	
Soleidae	<i>Monochirus luteus</i>	Solenette	SK,KA,WB	RA	
Soleidae	<i>Solea solea</i>	Common sole	SK,KA,WB	RA	
Molidae	<i>Mola mola</i>	Ocean sunfish	SK,KA,WB	RA	

Annex 3: HELCOM List of Threatened and Declining Fish Species based on National Red Lists

a) List of Threatened Species

Family	Species	English name	DE 1996	DE 2006 MS	DK 1998	ES 2005	FI 2000	LA 1995	LI 1992	LI 2005	PL 2004	RU 2001	RU 2002	RU 2004	SW 2004	SW 2005	George, 2003, pers. comm. 2004
Petromyzontidae	<i>Lampetra fluviatilis</i>	European river lamprey	CR	CR			NT				VU				EN	NT	
Petromyzontidae	<i>Petromyzon marinus</i>	Sea lamprey	CR	CR					EN	EN	EN	EN	EN	EN	EN	EN	
Hexanchidae	<i>Hexanchus griseus</i>	Bluntnose sixgill shark		TM													CR
Cetorhinidae	<i>Cetorhinus maximus</i>	Basking shark															EN
Lamnidae	<i>Lamna nasus</i>	Porbeagle	TM	TM													CR EN
Scyliorhinidae	<i>Galeus melanostomus</i>	Blackmouth catshark		TM													
Scyliorhinidae	<i>Scyliorhinus canicula</i>	Small-spotted catshark															DD
Triakidae	<i>Galeorhinus galeus</i>	Tope shark															DD EN
Carcharhinidae	<i>Prionace glauca</i>	Blue shark	TM	TM													
Etmopteridae	<i>Etmopterus spinax</i>	Velvet belly lantern shark															VU
Somniosidae	<i>Somniosus microcephalus</i>	Greenland shark															VU
Squalidae	<i>Squalus acanthias</i>	Piked dogfish		TM													EN CR
Alopiidae	<i>Alopias vulpinus</i>	Thintail thresher	TM	TM													
Rajidae	<i>Amblyraja radiata</i>	Thorny skate		TM													EN
Rajidae	<i>Dipturus batis</i>	Blue skate		TM													CR CR
Rajidae	<i>Leucoraja fullonica</i>	Shagreen ray		TM													TM
Rajidae	<i>Raja clavata</i>	Thornback ray		TM													VU CR
Rajidae	<i>Raja montagui</i>	Spotted ray															
Dasyatidae	<i>Dasyatis pastinaca</i>	Common stingray	TM	TM													
Torpedinidae	<i>Torpedo marmorata</i>	Spotted torpedo															
Squatinae	<i>Squatina squatina</i>	Angelshark															
Acipenseridae	<i>Acipenser oxyrinchus</i>	Baltic sturgeon	EX	EX	EX	EX	EX	EX	EX	EX	EX	EN	EN	EN	RE (EX)	RE (EX)	
Acipenseridae	<i>Acipenser sturio</i>	Sturgeon													RE (EX)	RE (EX)	
Chimaeridae	<i>Chimaera monstrosa</i>	Rabbit fish															VU
Anguillidae	<i>Anguilla anguilla</i>	European eel	EN	CR											LC	CR	
Clupeidae	<i>Alosa alosa</i>	Allis shad		CR	EN										NA	NA	
Clupeidae	<i>Alosa fallax</i>	Twaite shad	EX	CR	EN					DD	EN	EN	EN	EN	NA	NA	
Clupeidae	<i>Clupea harengus</i> subsp.	Autumn-spawning herring	EN	CR													
Cyprinidae	<i>Abramis ballerus</i>	Zope	TM	EN						EX			EN	EN	LC		
Cyprinidae	<i>Alburnus alburnus</i>	Bleak	EN	EN											LC		
Cyprinidae	<i>Aspius aspius</i>	Asp	EN	LC		NE	VU						EN	EN	VU	VU	
Cyprinidae	<i>Barbus barbus</i>	Barbel	EX	EX													
Cyprinidae	<i>Gobio gobio</i>	Gudgeon		LC											NT	LC	
Cyprinidae	<i>Pelecus cultratus</i>	Ziege	CR	CR							NT				NA	NA	
Cyprinidae	<i>Phoxinus phoxinus</i>	Eurasian minnow															
Cyprinidae	<i>Vimba vimba</i>	Vimba	EN	EN			NT						EN	EN	LC	DD	
Cobitidae	<i>Cobitis taenia</i>	Spined loach	EN	EN	VU	NE	EN								NT	LC	
Cobitidae	<i>Misgurnus fossilis</i>	Weatherfish									DD						
Salmonidae	<i>Salmo salar</i>	Atlantic salmon	EN	EN	EN	EN	EN				TM	CR			VU	LC/EN (Gullspång stock)	
Salmonidae	<i>Salmo trutta</i>	Trout	EN	VU	RA	VU	EN					EN	EN	EN	LC		
Coregonidae	<i>Coregonus albula</i>	Vendace			RA	NT									LC		

Coregonidae	<i>Coregonus balticus</i>	Baltic houting	EN	VU	RA	EN	(VU)											(LC)
Coregonidae	<i>Coregonus maraena</i>	Maraena				NT	(VU)											LC
Coregonidae	<i>Coregonus pallasii</i>	Pallas's houting					VU											LC
Osmeridae	<i>Osmerus eperlanomarinus</i>	Marine smelt																NE
Lophiidae	<i>Lophius budegassa</i>	Black-bellied angler	?	EN														
Gasterosteidae	<i>Spinachia spinachia</i>	Sea stickleback	EN	EN														
Syngnathidae	<i>Entelurus aequoreus</i>	Snake pipefish		TM														
Syngnathidae	<i>Nerophis ophidion</i>	Straightnose pipefish		LC														
Syngnathidae	<i>Nerophis lumbriciformis</i>	Worm pipefish																
Syngnathidae	<i>Syngnathus acus</i>	Greater pipefish		EN														
Syngnathidae	<i>Syngnathus typhle</i>	Broad-nosed pipefish		VU				CR										
Macrouridae	<i>Coryphaenoides rupestris</i>	Roundnose grenadier																VU
Gadidae	<i>Gadus morhua</i>	Atlantic cod		EN														EN
Gadidae	<i>Melanogrammus aeglefinus</i>	Haddock		EN														NT
Gadidae	<i>Pollachius pollachius</i>	Pollack		TM														EN
Lotidae	<i>Lota lota</i>	Burbot	EN	VU														LC
Lotidae	<i>Molva molva</i>	Ling		RA														VU
Lumpenidae	<i>Lumpenus lampretaeformis</i>	Snakeblenny	CR	CR			NE											
Sebastidae	<i>Sebastes marinus</i>	Ocean perch																
Sebastidae	<i>Sebastes viviparus</i>	Norway redfish																NT
Cottidae	<i>Cottus gobio</i>	Miller's thumb		EX	EX	NT			EN	EN	EN							LC
Cottidae	<i>Cottus poecilopus</i>	Alpine bullhead			RA			NT										LC
Cottidae	<i>Myoxocephalus scorpius</i>	Shorthorn sculpin		DD														
Cottidae	<i>Taurulus bubalis</i>	Longspined bullhead		DD		NE												
Cottidae	<i>Trigloporus quadricornis</i>	Fourhorn sculpin	VU	EX		NE												NT LC
Cyclopteridae	<i>Cyclopterus lumpus</i>	Lumpsucker		EN		NE												
Liparidae	<i>Liparis liparis</i>	Striped seasnail	EN	EN		NE		VU										
Liparidae	<i>Liparis montagui</i>	Montagu's seasnail	EN	CR														
Zeidae	<i>Zeus faber</i>	John Dory																
Moronidae	<i>Dicentrarchus labrax</i>	European perch	TM	EN														
Labridae	<i>Labrus bergylta</i>	Ballan wrasse	EN	CR														
Labridae	<i>Labrus mixtus</i>	Cuckoo wrasse																
Labridae	<i>Symphodus melops</i>	Corkwring wrasse	CR	CR														
Trachinidae	<i>Trachinus draco</i>	Greater weever	VU	EN														
Anarhichidae	<i>Anarhichas lupus</i>	Wolf-fish		CR														
Ammodytidae	<i>Ammodytes marinus</i>	Lesser sandeel	?	EN														
Ammodytidae	<i>Ammodytes tobianus</i>	Small sandeel		DD														
Pholidae	<i>Pholis gunnellus</i>	Rock gunnel		LC														
Gobiidae	<i>Pomatoschistus pictus</i>	Painted goby	TM	EN														
Scombridae	<i>Auxis rochei</i>	Bullet tuna																
Scombridae	<i>Euthynnus alletteratus</i>	Little thunny																
Scombridae	<i>Orcynopsis unicolor</i>	Plain bonito		TM														
Scombridae	<i>Scomber scombrus</i>	Atlantic mackerel		VU														
Scombridae	<i>Thunnus thynnus</i>	Northern bluefin tuna	TM	EX														
Scophthalmidae	<i>Hippoglossus hippoglossus</i>	Atlantic halibut		TM														EN
Xiphiidae	<i>Xiphias gladius</i>	Swordfish	TM	EN														
Centrolophidae	<i>Centrolophus niger</i>	Blackfish																

b) List of Species not Threatened

Family	Species	English name	DE 1996	DE 2006 MS	DK 1998	ES 2005	PL 2004	RU 2001	RU 2002	RU 2004	SW 2004	SW 2005 MS
Myxinidae	<i>Myxine glutinosa</i>	Hagfish	?	DD								
Clupeidae	<i>Sprattus sprattus balticus</i>	Baltic sprat		LC			LC					
Engraulidae	<i>Engraulis encrasicolus</i>	European anchovy		RA								
Congridae	<i>Conger conger</i>	European conger		RA								
Clupeidae	<i>Clupea harengus membras</i>	Spring-spawning herring		LC		VU	VU					
Cyprinidae	<i>Abramis bjoerkna</i>	White bream		LC			LC				LC	
Cyprinidae	<i>Abramis brama</i>	Carp bream		LC			LC				LC	
Cyprinidae	<i>Carassius carassius</i>	Crucian carp		LC			LC				LC	
Cyprinidae	<i>Gobio albipinnatus</i>	White-finned gudgeon										
Cyprinidae	<i>Leuciscus cephalus</i>	European chub		RA					EN	EN	NT	LC
Cyprinidae	<i>Leuciscus idus</i>	Ide		LC							LC	
Cyprinidae	<i>Rutilus rutilus</i>	Roach		LC			NT				LC	
Cyprinidae	<i>Scardinius erythrophthalmus</i>	Rudd		LC			LC				LC	
Cyprinidae	<i>Tinca tinca</i>	Tench		LC			LC				LC	
Osmeridae	<i>Osmerus eperlanus</i>	European smelt		LC			LC				LC	
Salmonidae	<i>Oncorhynchus mykiss</i>	Rainbow trout					LC					
Esocidae	<i>Esox lucius</i>	Northern pike		LC			LC				LC	
Lophiidae	<i>Lophius piscatorius</i>	Angler		DD								
Merlucciidae	<i>Merluccius merluccius</i>	European hake		RA								
Gadidae	<i>Merlangius merlangus</i>	Whiting		EN								
Gadidae	<i>Micromesistius poutassou</i>	Blue whiting		RA								
Gadidae	<i>Pollachius virens</i>	Pollock		RA								
Gadidae	<i>Trisopterus esmarkii</i>	Norway pout		RA								
Gadidae	<i>Trisopterus luscus</i>	Pouting		RA								
Gadidae	<i>Trisopterus minutus</i>	Poor cod		RA								
Lotidae	<i>Ciliata mustela</i>	Fivebeard rockling										LC
Lotidae	<i>Ciliata septentrionalis</i>	Northern rockling		RA								
Lotidae	<i>Gaidropsarus vulgaris</i>	Three-bearded rockling									NA	NA
Lotidae	<i>Molva dypterygia</i>	Blue ling										
Lotidae	<i>Phycis blennoides</i>	Greater forkbeak		RA								
Lotidae	<i>Raniceps raninus</i>	Tadpole-fish		RA								
Lotidae	<i>Rhinonemus cimbricus</i>	Four-bearded rockling		DD								
Belonidae	<i>Belone belone</i>	Garpike		LC			LC					
Scomberesocidae	<i>Scomberesox saurus</i>	Atlantic saury		RA								
Zoarcidae	<i>Zoarces viviparus</i>	Viviparous blenny		LC			LC					NT
Gasterosteidae	<i>Gasterosteus aculeatus</i>	Three-spined stickleback		LC			LC				LC	
Gasterosteidae	<i>Pungitius pungitius</i>	Nine-spined stickleback		LC			LC				LC	
Syngnathidae	<i>Syngnathus rostellatus</i>	Nilsson's pipefish		LC								
Triglidae	<i>Eutrigla gurnardus</i>	Grey gurnard		VU								
Triglidae	<i>Trigla lucerna</i>	Tub gurnard		DD								
Cottidae	<i>Cottus koshewnikowi</i>	Spiny bullhead									DD	LC
Cottidae	<i>Micrenophrys lilljeborgi</i>	Normy bullhead										

Cottidae	<i>Triglops murrayi</i>	Moustache sculpin				DD
Agonidae	<i>Agonus cataphractus</i>	Hooknose	DD		LC	
Percidae	<i>Gymnocephalus cernuus</i>	Ruffe	LC		LC	LC
Percidae	<i>Perca fluviatilis</i>	European perch	LC		LC	LC
Percidae	<i>Sander lucioperca</i>	Zander	LC		LC	LC
Echeneidae	<i>Remora remora</i>	Common remora	RA			
Carangidae	<i>Trachinotus ovatus</i>	Derbio	RA			
Carangidae	<i>Trachurus trachurus</i>	Atlantic horse mackerel	DD			
Sparidae	<i>Boops boops</i>	Bogue				
Sparidae	<i>Pagellus bogaraveo</i>	Blackspot seabream	DD			
Sparidae	<i>Pagellus erythrinus</i>	Common pandora				
Sparidae	<i>Spondylisoma cantharus</i>	Black seabream	EX			
Sciaenidae	<i>Argyrosomus regius</i>	Meagre	RA			
Mullidae	<i>Mullus surmuletus</i>	Striped red mullet	RA			
Labridae	<i>Centrolabrus exoletus</i>	Rock cook				LC
Labridae	<i>Ctenolabrus rupestris</i>	Goldsinny wrasse	LC			
Mugilidae	<i>Chelon labrosus</i>	Thicklip grey mullet	LC	RA	RA	
Mugilidae	<i>Liza aurata</i>	Golden grey mullet	RA			
Mugilidae	<i>Liza ramada</i>	Thinlip mullet	RA			
Ammodytidae	<i>Gymnammodytes semisquamatus</i>	Smooth sandeel				
Ammodytidae	<i>Hyperoplus lanceolatus</i>	Great sandeel	DD	NE		
Trachinidae	<i>Echiichthys vipera</i>	Lesser weaver				
Stichaeidae	<i>Chirolophis ascanii</i>	Yarrell's blenny				LC
Callionymidae	<i>Callionymus lyra</i>	Common dragonet	RA			
Callionymidae	<i>Callionymus maculatus</i>	Spotted dragonet				
Gobiidae	<i>Aphia minuta</i>	Transparent goby	DD			
Gobiidae	<i>Buenia jeffreysi</i>	Jeffrey's goby				
Gobiidae	<i>Crystallogobius linearis</i>	Crystal goby				
Gobiidae	<i>Gobius niger</i>	Black goby	LC			
Gobiidae	<i>Gobiusculus flavescens</i>	Two-spotted goby	LC			
Gobiidae	<i>Lebetus scorpioides</i>	Diminutive goby				DD
Gobiidae	<i>Lesueurigobius friesii</i>	Fries's goby				
Gobiidae	<i>Neogobius melanostomus</i>	Round goby			LC	
Gobiidae	<i>Pomatoschistus microps</i>	Common goby	LC			
Gobiidae	<i>Pomatoschistus minutus</i>	Sand goby	LC			
Bramidae	<i>Brama brama</i>	Atlantic pomfret	TM			
Bramidae	<i>Pterycombus brama</i>	Atlantic fanfish	TM			
Bramidae	<i>Taractes asper</i>	Rough pomfret	TM			
Bramidae	<i>Taractichthys longipinnis</i>	Bigscale pomfret	TM			
Bothidae	<i>Arnoglossus laterna</i>	Scaldfish	DD			
Scophthalmidae	<i>Lepidorhombus whiffiagonis</i>	Megrim				
Scophthalmidae	<i>Phrynorhombus norvegicus</i>	Norwegian topknot				
Scophthalmidae	<i>Psetta maxima</i>	Turbot	VU		LC	NT
Scophthalmidae	<i>Scophthalmus rhombus</i>	Brill	DD		LC	
Scophthalmidae	<i>Zeugopterus punctatus</i>	Topknot	DD			
Pleuronectidae	<i>Glyptocephalus cynoglossus</i>	Witch	RA			
Pleuronectidae	<i>Hippoglossoides platessoides</i>	American plaice	DD			

Pleuronectidae	<i>Limanda limanda</i>	Dab	VU	VU
Pleuronectidae	<i>Liopsetta glacialis</i>	Arctic flounder		
Pleuronectidae	<i>Microstomus kitt</i>	Lemon sole	RA	
Pleuronectidae	<i>Platichthys flesus</i>	Flounder	LC	LC LC
Pleuronectidae	<i>Pleuronectes platessa</i>	European plaice	EN	LC
Soleidae	<i>Monochirus luteus</i>	Solenette	RA	
Soleidae	<i>Solea solea</i>	Common sole	EN	
Molidae	<i>Mola mola</i>	Ocean sunfish	TM	



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