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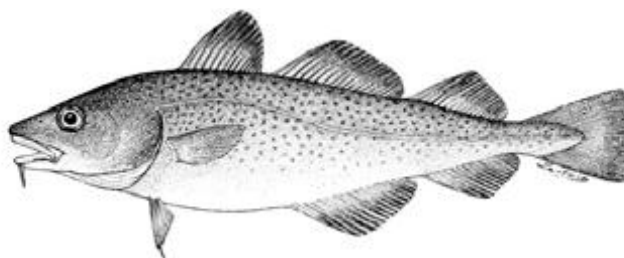
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## MSC SUSTAINABLE FISHERIES CERTIFICATION

### Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod

#### Public Comment Draft Report



**May 2011**

**Prepared For:**

Erzeugergemeinschaft der Nord und Ostseefischer GmbH

**Prepared By:**

Food Certification International Ltd



## Public Comment Draft Report

May 2011

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## Glossary of Terms

ACOM	ICES Advisory Committee
ACFA	ICES Advisory Committee on Fisheries and Aquaculture
B <sub>msy</sub>	Stock biomass at maximum sustainable yield
B <sub>pa</sub>	Precautionary reference point for spawning stock biomass
B <sub>lim</sub>	Limit biomass reference point, below which recruitment is expected to be impaired.
CFP	Common Fisheries Policy
CR	Council Regulation
EC	European Commission
ETP	Endangered, threatened and protected species
EU	European Union
F	Fishing Mortality
F <sub>msy</sub>	Target reference point for fishing mortality that is expected to drive the stock to levels consistent with B <sub>msy</sub> . F <sub>msy</sub> is used as Target Reference Point for the assessment of the Eastern Baltic Cod in the absence of biomass reference points.
F <sub>lim</sub>	Limit reference point for fishing mortality that is expected to drive the stock to the biomass limit
F <sub>pa</sub>	Precautionary reference point of fishing mortality expected to maintain the SSB at the precautionary reference point
FAM	MSC's Fisheries Assessment Methodology
FAO	United Nations Food and Agriculture Organisation
HCR	Harvest Control Rule
ICES	International Council for the Exploration of the Sea
ITQ	Individual Transferable Quota
MCS	Monitoring, Control and Surveillance
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
NGO	Non-Governmental Organisation
P1	MSC Principle 1
P2	MSC Principle 2
P3	MSC Principle 3
PI	MSC Performance Indicator
PO	Producer Organisation
RAC	Regional Advisory Council

RSW	Refrigerated Sea Water
SSB	Spawning Stock Biomass
TAC	Total Allowable Catch
VMS	Vessel Monitoring System
VPA	Virtual Population Analysis

## Summary

- » This report provides details of the MSC assessment process for the **Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod** fishery on behalf of Erzeugergemeinschaft der Nord und Ostseefischer GmbH. The assessment process began in November 2009 and was concluded **TO BE DETERMINED**
- » A comprehensive programme of stakeholder consultations were carried out as part of this assessment, complemented by a full and thorough review of relevant literature and data sources.
- » A rigorous assessment of the wide ranging MSC Principles and Criteria was undertaken by the assessment team and a detailed and fully referenced scoring rationale is provided in the assessment tree provided in **Appendix 3** of this report.
- » The **target Eligibility Date** for this assessment is 4th February 2011
- » The assessment team for this fishery assessment comprised of Mr Nick Pfeiffer, who acted as team leader and Principle 2 specialist; Dr Paul Medley who was responsible for evaluation of Principle 1, Prof. Sten Sverdrup-Jensen who was responsible for evaluation of Principle 3 and also Dr Antonio Hervás and Ms Fiona Nimmo who contributed as expert advisors.
- » This assessment covers nominated fishing vessels with membership of Erzeugergemeinschaft der Hochsee- und Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fishing cod in the Eastern Baltic Sea (ICES areas 25 – 32) using otter trawl (demersal, semi-pelagic and pelagic/mid-water) and Seine nets (fly shooting) for Eastern cod stocks.
- » This assessment report covers a single target species, but assesses two different methods of capture. As a result there are 4 separate 'Units of Certification' and resulting scores for:
  - › Seine nets
  - › Demersal otter trawl
  - › Pelagic trawl
  - › Semi-pelagic trawl

For the purposes of scoring, these three trawl methods of capture will be grouped together under the heading 'Otter trawl'.
- » Landings by Erzeugergemeinschaft der Nord- und Ostseefischer GmbH member vessels using any other type of fishing gears are NOT covered by this certification.
- » The Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic Sea cod fishery is an important year round fishery (except for seasonal closures). Fishing is entirely within the Baltic Sea, targeting the Eastern and Western Baltic cod stocks. This report evaluated ONLY the Eastern Baltic cod fishery

## Recommendation

On completion of the assessment and scoring process, the assessment team concluded that **Erzeugergemeinschaft der Nord- und Ostseefischer GmbH otter trawl (demersal, semi-pelagic and pelagic/mid-water) and seine net fisheries for Eastern Baltic cod be certified according to the Marine Stewardship Council Principles and Criteria for Sustainable Fisheries.**



## Rationale & Client strengths

- » There are a number of areas which reflect positively on the fishery:
  - › The stock status can be defined as sustainable; there is a high degree of certainty that the stock is above the point where recruitment would be impaired and stock biomass is consistent with  $B_{MSY}$ .
  - › The available evidence suggests that the fishery is not causing negative impacts on either retained species or ETP species. Management strategies to ensure that the fishery will not cause any negative impact of retained species are in place.
  - › The management system which governs the operation of the fleet and exploitation of the resource has been found to be robust, supported by fair consultation and comprehensive monitoring control and surveillance.
  - › Furthermore, recent and on-going improvements in the management system, increase confidence in its ability to deliver long term sustainable fisheries.

## Conditions, Recommendations & Client weaknesses

- » However, a number of criteria which contribute to the overall assessment score scored less than the unconditional pass mark, and therefore trigger a binding condition to be placed on the fishery, which must be addressed in a specified timeframe (within the 5 year lifespan of the certificate). Full explanation of these conditions is provided in **Section 8.3** of the report, but in brief, the areas covered by these conditions are:
  - › In relation to Principle 1 – Information and Monitoring
    - › There are two conditions raised for against Otter trawl and Seine nets (fly shooting) fisheries as a result of this PI not achieving the best practice score (80).
  - › In relation to Principle 2 - Habitat
    - › A Condition is raised for Otter trawl and Seine nets (fly shooting) in relation to habitat impacts. Fishing with demersal mobile gears is associated with damage to sensitive seabed habitats and non-target benthic communities. The conditions require improvements in understanding the risk of impact of demersal trawl on the habitats; in particular Natural 2000 designated sites.
- » In addition, the assessment team made a number of recommendations. As these are not the result of a failure to meet the unconditional pass mark, they are non-binding; however in the opinion of the assessment team, they would make a positive contribution to ongoing efforts to ensure the long term sustainability of the fishery. Details of these recommendations are provided in **Section 8.4** of this report.

For interested readers, the report also provides background to the target species and fishery covered by the assessment, the wider impacts of the fishery and the management regime, supported by full details of the assessment team, a full list of references used and details of the stakeholder consultation process.

FCI Ltd confirm that this fishery is within scope.

## 1. Introduction

This report details the background, justification and results of Food Certification International (FCI) Ltd's assessment of the **Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod**, carried out by FCI to the standard of the Marine Stewardship Council (MSC) Sustainable Fisheries Programme.

### 1.1 Scope

First and foremost, the purpose of this report is to provide a clear and auditable account of the process that was undertaken by the team of FCI assessors. The report aims to provide clear justification for the assessment scores that have been attributed to the fishery and identify the sources of information that have been used to support these. This should enable subsequent surveillance or even re-certification teams to rapidly pin-point where the key challenges lie within the fishery, and to quickly highlight any changes which may affect the overall sustainability of the fishery.

In order to provide useful background and information for a wider readership it is also useful to provide a more qualitative account of the fishery in question. However, it should be reiterated that although the assessment is *evidence based*, no primary research has been undertaken to inform this report. Instead the assessment relies on the information placed before the assessment team by the client, key relevant stakeholders identified by the assessment team and by any other stakeholders who wish to participate in the process.

The report is therefore not intended to comply with the standard editing norms expected for scientific journals. Instead it is intended that the report should be sufficiently clear and unambiguous to be reviewed by fisheries specialists, whilst remaining sufficiently accessible to provide insight for interested readers throughout the supply chain – including consumers. This is a challenging balance to strike, without alienating either readership.

### 1.2 Report Structure

Early report sections provide the reader with a clear comprehension of the nature of the fishery, enabling a broader understanding of the issues debated by the team when scoring the fishery. For the purposes of precision, this begins with a description of the unit of certification, before expanding to outline some further background information, including details of the Erzeugergemeinschaft der Nord und Ostseefischer GmbH, the fleet, fishing operations and gear and the species itself.

Subsequent sections are then broadly aligned to the 3 MSC principles<sup>1</sup>, which form the basic structure of the assessment, namely:

- » **Principle 1:** Target stock status and harvest controls (summarised in **Section 3**)
- » **Principle 2:** Wider impacts of fishery operations (summarised in **Section 4**)
- » **Principle 3:** The management system (summarised in **Section 5**)

Later sections of the report explain the procedures used to score the fishery, give details of the assessment team and present the outcome of the team's deliberations. Finally the report provides a statement of the team's recommendations as to whether or not this fishery should go forward for certification to the standard of the Marine Stewardship Council, together with any conditions recommended.

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<sup>1</sup> Further information on the contents of the MSC principles and criteria are contained in **Appendix 1**.

### 1.3 Inspections & Consultations

The full assessment process commenced in November 2009, in August 2010 three members of the assessment team, supported by an FCI staff member undertook a site visit to Germany, visiting Rostock and Sassnitz. This enabled a scheduled programme of consultations to take place with key stakeholders in the fishery – including skippers, scientists, fishery protection officers, NGOs, fishery managers and technical support staff.

A complete list of those stakeholders interviewed in the fishery can be found in **Section 6.3** of this report.

The scoring of the fishery against the MSC principles and criteria took place in Göteborg (Sweden) from 27<sup>th</sup> to the 29<sup>th</sup> August 2010.

## 2. The Fishery

### 2.1 The Unit of Certification

Prior to providing a description of the fishery it is important to be clear about the precise extent of certification. The MSC Guidelines to Certifiers specify that the unit of certification is **“The fishery or fish stock (biologically distinct unit) combined with the fishing method / gear and practice (= vessel(s) and / or individuals pursuing the fish of that stock)”**.

This clear definition is useful for both clients and assessors to categorically state what is included, and what is not. This is also crucial for any repeat assessment visits, or if any additional vessels are wishing to join the certificate at a later date. The units of certification for the fishery under consideration are as set out below:

<b>Species:</b>	Cod (Gadus morhua)
<b>Stock:</b>	Eastern Baltic European cod
<b>Geographical area:</b>	ICES subdivisions 25-32
<b>Harvest method:</b>	Seine nets
<b>Client Group:</b>	The only eligible vessels will be vessels that are members of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH. A register of vessels is presented in Table 2.1.

<b>Species:</b>	Cod (Gadus morhua)
<b>Stock:</b>	Eastern Baltic European cod
<b>Geographical area:</b>	ICES subdivisions 25-32
<b>Harvest method:</b>	Demersal otter trawl
<b>Client Group:</b>	The only eligible vessels will be vessels that are members of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH. A register of vessels is presented in Table 2.1.

<b>Species:</b>	Cod (Gadus morhua)
<b>Stock:</b>	Eastern Baltic European cod
<b>Geographical area:</b>	ICES subdivisions 25-32
<b>Harvest method:</b>	Pelagic trawl
<b>Client Group:</b>	The only eligible vessels will be vessels that are members of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH. A register of vessels is presented in Table 2.1.

<b>Species:</b>	Cod (Gadus morhua)
<b>Stock:</b>	Eastern Baltic European cod
<b>Geographical area:</b>	ICES subdivisions 25-32
<b>Harvest method:</b>	Semi-pelagic trawl
<b>Client Group:</b>	The only eligible vessels will be vessels that are members of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH. A register of vessels is presented in Table 2.1.

## 2.2 Erzeugergemeinschaft der Nord und Ostseefischer GmbH

The client for this certification is the Erzeugergemeinschaft der Nord und Ostseefischer GmbH.

### 2.2.1 Organisational Structure & Role

Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Producers Organisation was founded in 1964 for the processing of fish. The office is based in the German coastal town of Cuxhaven and comprises a Managing Director and Secretary. Since 1998, the Producer Organisation also operates its own fishing fleet of vessels and markets its catch. It offers a broad range of species and fishes for saithe, herring, cod, haddock, flounders, hake, ling and plaice.

Members of the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Producers Organisation (PO) pay an agreed fee based on turnover for landed catches to the PO. In return the PO arranges selling of the catches and fulfils a wide region if additional services and tasks on behalf of its members.

As of 2011 the PO has 120 members who are located in the ports of Cuxhaven, Sassnitz, Fehmarn, Travemünde and Kiel. The Unit of Certification includes 52 vessels.

From each port two fishermen are elected as representatives in general meetings where board decisions are made. In addition a 'quota board' has been established which also has representatives of two fishermen from each port. This 'quota board' decides each year about quota swap within the PO and with external parties.

Quotas are distributed individually on each ship by the Bundesanstalt für Landwirtschaft und Ernährung (BLE) (Federal Agency for Agriculture and Food). Only at a shareholder meeting can it be decided to apply for a joint catch license to be issued to the PO. In this case the PO distributes the quotas individually on each ship of their members. The PO therefore undertakes this quota management on behalf of the BLE for its members and this has been common practice for many years.

On behalf of the BLE the PO is entitled to issue or withdraw catch licenses. The PO therefore has responsibility to stop the fishery in the case where quotas have been fished out.

### 2.2.2 Code of Conduct

In conjunction with the MSC-certification of Eastern Baltic cod the members of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH landing Eastern Baltic cod are committed to follow a Code of Conduct. This Code of Conduct includes (but is not limited to) the working procedures which are presented in the box overleaf.

## Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Code of Conduct

- EU-regulation 1226/2009 must to be followed.
- Members shall carry out measures to avoid unwanted bycatch. If unwanted bycatch (i. e. flounder, plaice) occurs, it has to be retained on board and the fishing area has to be changed.
- Discards in the fishery of Baltic cod, if any, have to be recorded separately from the logbook. Records shall be given to the P.O.
- In order to avoid discards, the P.O. bought three new omega mesh gauge for its members. Mesh sizes shall be voluntarily chosen higher than required by the EU in the fishery of Baltic cod.
- Minimum mesh size shall be 125 mm.
- If the proportion of discards reaches 10 % or more, the fishing area has to be changed by at least 5 miles.
- If high grading is undertaken, the management and quota advisory board (Quotenbeirat) of the P.O. is authorized to withdraw the fishing license for at least 2 months.
- All fishing vessels being part of the certification are obliged to take scientist from the vTI Rostock on board. This shall be individually agreed with the vTI.
- The shareholders appoint three to four fishing vessels to take part in a CCTV-project. The vessels shall be finally nominated in agreement with the vTI.
- All fishing vessels / companies are obliged to record the grid square when they fish. In future in addition the exact positions where fishing gear was dropped and hauled inboard shall be noted in the logbook.
- Each member commits itself to inform the P.O. when it catches 95 % of its quota in order to avoid overfishing.
- By signing this code of conduct, members accept that the P.O. is carrying out the quota management for its members. Swaps / transfers / redistribution of quotas can only be done after authorization of the quota advisory board or board of management. Members concerned receive revised catch licenses after acceptance from the board(s).
- Within 48 hours after landing its catches, the members / marketers have to provide logbook and invoice of 1<sup>st</sup> sale of the catch landed to the P.O.
- Marketers ensure that prior sale the all catches are properly classified and weighed.
- All regulations, whether national or international, shall be adhered to.
- In case members fail to comply with aforementioned rules, the management or advisory board can raise a penalty of 2.500,00 Euro if the failure is proven.

## 2.3 Fishing Fleet & Fishing Method

There are 52 vessels which are included on this certificate, as presented in **Table 2.1**.

All certified vessels are members of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH and have signed up to the association's Code of Conduct. There are 2 different gear types covered in this assessment report; Otter trawl and Seine nets (fly shooting). Details of each are set out below.

**Table 2.1: List of Erzeugergemeinschaft assessment member vessels**

#	Name	Fishery reg.	#	Name	Fishery reg.
1	Antares	SAS 211	27	Tümmeler	Bur6
2	Westbank	SAS 110	28	Marianne	Bur11
3	Christin-Bettina	SAS111	29	Niobe	Bur17
4	Liebe	SH 8	30	Christin-Aline	SK9
5	Jens-Otto	ECKE43	31	Tümmeler	SK14
6	J. v. Cölln	NC308	32	Christa	ECKE3
7	Seewolf	NC309	33	Birthe	STEI 1
8	Susanne	NC120	34	Schwalbe	ECKE15
9	Helgoland	NC302	35	Hanseat	GOT10
10	Helle Charlotte	SC18	36	Neptun	GOT11
11	Victoria	NC 315	37	Pionier	GOT1
12	Pillau	SAS 103	38	Manuela H.	SO3
13	Crampas	SAS 107	39	Charlotte	SO7
14	Blauwal	SAS295	40	Anke	TRA4
15	Eishai	SAS317	41	Christiane	SO1
16	Sternhai	SAS 320	42	Janne	SK 10
17	Meteor	SB3	43	Christoph	TRA 9
18	Andrea	SB4	44	Nimmersatt	BUR 28
19	Falkland	SB5	45	Falke	BUR 5
20	Silbermöwe	SB6	46	Columbus	BUR 7
21	Lina	SB7	47	Perseus	SB 10
22	Janine	SB8	48	Hoffnung	SB 16
23	Inge-Lore	SB9	49	Jan Bella II	WUL 3
24	Stefanie	SB11	50	Kirsten II	ECKE 4
25	Kurfürst	SB12	51	Kulle Christoph	SK 30
26	Condor	SB14	52	Sonja	SK 7

Source: client

An up-to-date vessel list is available Vessel Link.

### 2.3.1 Otter Trawl

Three forms of otter trawl are under assessment: demersal, semi-pelagic and pelagic/mid-water.

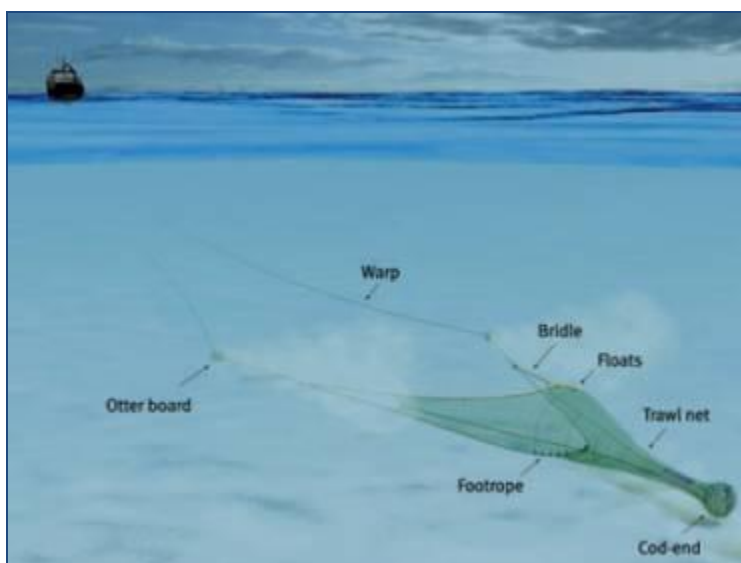
The demersal or bottom otter trawl is a towed fishing gear designed and rigged to have bottom contact during fishing, towed by large trawl vessels, typically in excess of 15m. A demersal trawl is a cone-shaped net consisting of a body, closed by a codend and with lateral wings extending forward from the opening. The two towing warps lead from the vessel to the otter boards which act as

paravanes to maintain the horizontal net opening. These boards typically weigh between 0.5–1 t and drag across the seabed (with potential to disrupt seabed structure and habitat). The boards are joined to the wing-end by the bridles which herd fish into the path of the net. The net opening is framed by a floating headline and ground gear designed according to the bottom condition to maximise the capture of demersal target species, whilst protecting the gear from damage. Mostly rock hopper gears are used.

Instruments to monitor gear performance are common in modern bottom otter trawling. Such instruments monitor geometry (door distance, vertical opening, bottom contact, trawl symmetry), trawl depth water temperature and the weight of catch in the trawl is also closely monitored (catch sensors) to give an indication of the appropriate moment to haul.

**Figure 2.1: Vessel image / gear configuration for demersal trawl**

a)



Source: Galbraith & Rice 2004

**Figure 2.2: Typical otter trawling vessel**



Source: client

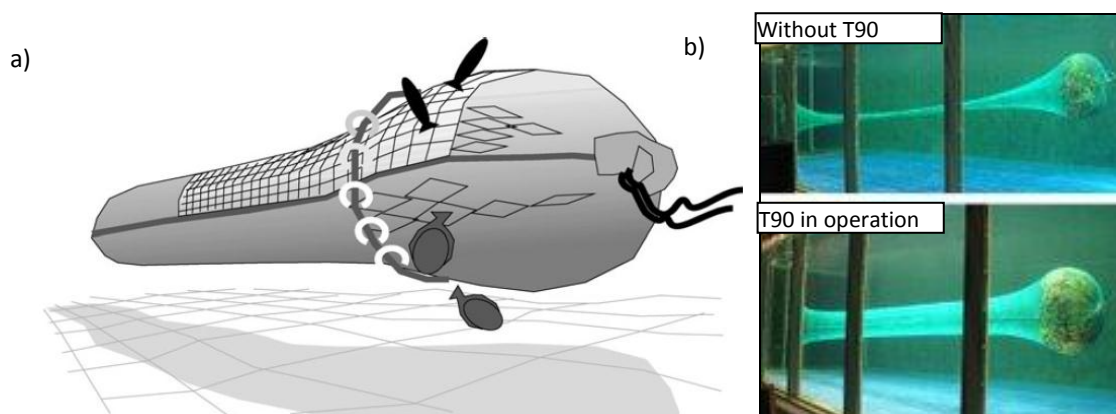
Within the Baltic the position of cod within the water column is dependent on a number of environmental conditions including vertical stratification of both salinity and oxygen levels.



Elsewhere cod is predominately a demersal species targeted by demersal otter trawls, however in the Baltic cod often move up into the centre of the water column. As a result fishermen operate their gear at various heights within the water column. The gear itself is essentially the same with the same otter boards and net, but minor adjustments are made to control its position within the water column.

Minimum mesh sizes for demersal otter trawlers operating in the Baltic are set at 105mm and the gear must be fitted with either a Bacoma exit window (**Figure 2.3 a**) or a T90 codend and extension piece (**Figure 2.3 b**; shown in operation in the bottom figure).

**Figure 2.3: (a) The design of the BACOMA window codend (Suuronen et al., 2007) (b) T90 codend shown in lower picture (Hansen, 2008)**



Source: Suuronen et al., 2007 and Hansen, 2008

### 2.3.2 Seine nets (fly shooting)

Fly shooting, also known as Scottish seine or fly dragging is considered to be a cross between traditional Danish seining and otter trawling (as described above).

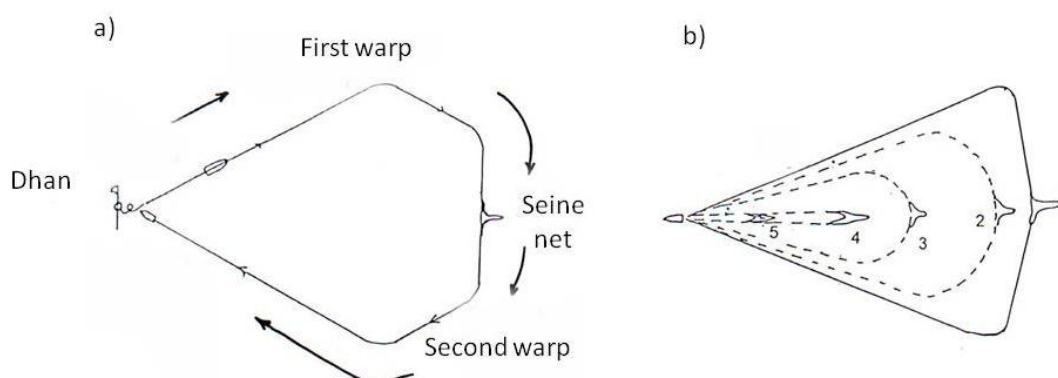
Fly shooting is a ground fishing method for demersal fish where there the warps and net (conical net with two long wings and no otter boards) are laid out from a large dhan buoy (which is not anchored as per Danish seine).

In order to surround the proposed fishing spot, the vessel steams a roughly triangular shaped course, firstly away from the dhan to one side of the spot paying out the first warp as it steams. The vessel then pays out net whilst passing astern of the fishing spot and finally returning to the dhan whilst paying out a second length of warp. When the vessel is back at the beginning of the first arm it moves / steams forward while the ropes and the net are pulled in. This action means that the net is, to a certain extent, trawled along the seabed.

Hauling of the net is slow at first, with the two net warps herding fish towards the path of the net as they close. As hauling proceeds, winch speed increases and the net begins to move in the direction of tow, with the lateral wings of the net increasingly acting to herd the fish. When the ropes are nearly closed haul speed increases again enabling the net to capture the remaining fish in its path. Finally the net is brought alongside the ship (or ships stern depending on vessel configuration) to allow the cod end to be craned / winched aboard and emptied.

Although fly shooting gear is generally lighter than trawl gear, with neither heavy trawl doors nor clump weight, the gear is robust and strong to withstand abrasion over the seabed. The seine nets are generally made up from the same twisted polyethylene twines used by the demersal trawl fleet, with a weighted ground rope which may be supplemented by light rubber discs or bobbins for rougher ground.

Figure 2.4: Typical Fly shooting setting (a) and hauling (b) process



Source: FAO Gear type Factsheet

Figure 2.5: Typical fly shooting vessel



Source: client

## 2.4 Target species

The target species for the fishery under certification is Eastern Baltic cod (*Gadus morhua*) (German: Dorsch). As indicated initially, this report does not intend to provide a scientifically comprehensive description of the species. Interested readers should refer to sources that have been useful in compiling the following summary description of the species. These include:

- » Fishbase: <http://www.fishbase.org>
- » ICES. 2010a. ICES. 2010. Report of the Baltic Fisheries Assessment Working Group (WGBFAS), 15 -22 April 2010, ICES Headquarters, Copenhagen. . 621 pp.

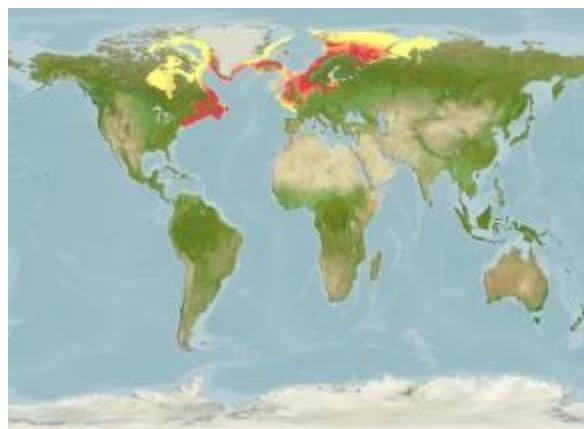
### 2.4.1 Geographic Range

Cod is a benthopelagic species (0 – 600m, but typically 40-80m in the Eastern Baltic Sea), which is widely distributed in a variety of habitats in Northern temperate waters (**Figure 2.6**), from the

shoreline down to the continental shelf and from the arctic polar front to a latitude of around 45°N (up to 20°C).

In the Baltic cod there are two distinguished cod stocks; the Western and Eastern Baltic cod stocks distributed in ICES subdivisions 22-24 and 25-32, respectively (**Figure 2.10**). The Eastern Baltic cod is biologically distinct from the Western Baltic cod. The stock separation is maintained primary through differences in spawning areas, spawning time and egg characteristics.

**Figure 2.6: Global distribution of Atlantic cod**



Source: [www.fishbase.com](http://www.fishbase.com)

## 2.4.2 Lifecycle

Spawning and recruitment success of cod in the Eastern Baltic Sea depend at great extent of environmental conditions. Spawning is confined to deep areas where salinities are sufficiently high to allow egg fertilisation and to keep fertilised eggs float and sufficient oxygen content in deep saline water layer is crucial to egg survival. Favourable conditions for reproduction of cod occur during periods of inflow saline water from the North Sea through the Danish Straits. Reduction of the North Sea water inflow can cause depletion of oxygen in the near-bottom water of the deeps.

Two productivity periods can be distinguished for cod in the Eastern Baltic Sea due to the variability in the pattern of water inflow from the North Sea; a high productivity period which occurred from the mid 70's to mid 80's and a low productivity period which started in the mid 80's and lasted until the mid 90's. During the high productivity period spawning was observed in Bornholm, Gdansk and Gotland Deep. However, unfavorable hydrographic conditions caused a reduction in spawning areas and spawning and viable larvae have been confined to the Bornholm Deep since the mid 80s. Since year 2003 recruitment into the fishery has improved significantly owing in great extent to favorable conditions for spawning and recruitment.

Successful larval development to adult stage depends on food availability. Larvae cod feeding include nauplii and copepodite stages of copepods. Copepods *Pseudocalanus elongates*, inhabits the water with higher salinity and are the preferable food for cod larvae. The effect of salinity on the abundance of *Pseudocalanus elongates* is a determinant factor in the cod larvae survival and recruitment success.

Adult stages of cod feed mostly on sprat and herring and juvenile cod suffer also from cannibalism. The extent of cannibalism might differ depending on predator abundance and juvenile concentration, which depend upon the habitat volume occupied and the overall abundance of cod.

## 2.5 Catches & Landings

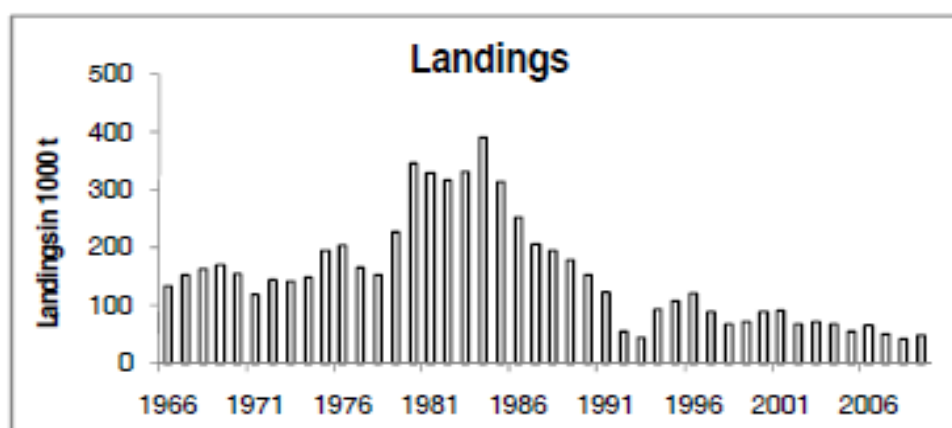
### 2.5.1 Landing patterns and trends

Total landings of Eastern Baltic cod, by fleets of all nationalities and all ICES subdivisions was approximately 48,400 tonnes in 2009. The historic trend in landings is presented in **Figure 2.7**. Trends in landings represent at some extent the high and low productivity period at which the stock population has been subject to. Landings increased from 135,000 tonnes to the highest observed landings levels in the mid-80's of almost 400,000 tonnes. After the mid 80's a steep decrease in landings was experienced and the lowest landings were recorded in the early 90's. Landings in the 1990's and 2000's have remained stable at low levels compared to landings experienced during high productivity time period. Unreported landings have been identified to be significant during periods from 1993-1996 and 2000-2007 and therefore landings are only minimum estimates.

Historically, official landings have been higher than the agreed TAC (**Figure 2.8**) and TAC has been set higher than scientific advice. This pattern in the exploitation of the stock contributed significantly to the unsustainable exploitation of the stock until the introduction of the long term management plan in 2008. Since 2008 official landings corresponded to the set TAC and TACs have been set following scientific advice and harvest control rules introduced in 2008.

**Figure 2.9** shows percentage of landings by country, calculated as the percentage from the total catches landed in years 1998-2009. Germany accounted for 3% of the overall landings during the last 10 years. Poland, Sweden and Denmark accounted for the highest catches with 25%, 18 % and 13% of the overall landings, respectively. The proportion of the total catches landed by Germany increased to 7.57% in year 2009. Unallocated landings were significantly high accounting for 20% of the overall landings. It is important to note that unallocated landings figures are based on working group estimates and that they are only minimum estimates.

**Figure 2.7: Historic trend in landings of Eastern Baltic cod in ICES subdivisions 25-32**



Source: ICES, 2010

Figure 2.8: Cod in Subdivisions 25-32. Single stock exploitation boundaries (advice), management and landings.

Year	ICES Advice	Predicted landings corresp. to advice	Agreed TAC <sup>1</sup>	ICES landings (25–32)	ICES landings (22–32)
1987	Reduce towards $F_{max}$	245		207	236
1988	TAC	150		194	223
1989	TAC	179	220	179	198
1990	TAC	129	210	153	171
1991	TAC	122	171	123	140
1992	Lowest possible level	-	100	55 <sup>2</sup>	73 <sup>2</sup>
1993	No fishing	0	40	45 <sup>2</sup>	66 <sup>2</sup>
1994	TAC	25	60	93 <sup>2</sup>	124 <sup>2</sup>
1995	30% reduction in fishing effort from 1994	-	120	108 <sup>2</sup>	142 <sup>2</sup>
1996	30% reduction in fishing effort from 1994	-	165	122	173
1997	20% reduction in fishing mortality from 1995	130	180	89	132
1998	40% reduction in fishing mortality from 1996	60	140	67	102
1999	Proposed $F_{pa}$ (= 0.6)	88	126	73	115
2000	40% reduction in F from 96–98 level	60	105	89 <sup>2</sup>	128
2001	Fishing mortality of 0.30	39	105	91 <sup>2</sup>	126
2002	No fishing	0	76	68 <sup>2</sup>	92
2003	70% reduction in F	See option table	75	69 <sup>2</sup>	94
2004	90% reduction in F	< 13.0	45.4	68 <sup>2</sup>	*
2005	No fishing	0	42.8	55 <sup>2</sup>	*
2006	Develop Management plan	< 14.9	49.2	66 <sup>2</sup>	*
2007	No fishing	0	44.3	51 <sup>2</sup>	*
2008	No fishing	0	42.3 <sup>3</sup>	42 <sup>2</sup>	*
2009	Limit (total) landings to 48 600 t	≤ 48.6	49.38 <sup>3</sup>	48 <sup>2</sup>	*
2010	Follow management plan	56.8	56.1 <sup>3</sup>		
2011	See scenarios	-			

Weights in '000 t.

<sup>1</sup> For total Baltic until and including 2003.

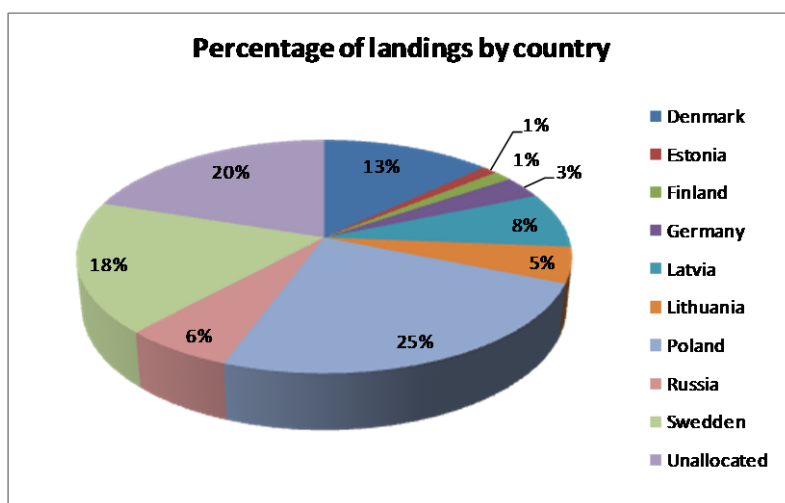
<sup>2</sup> The reported landings in 1992–1995 and 2000–2008 are likely to be minimum estimates due to incomplete reporting.

<sup>3</sup> TAC is calculated as EU + Russian autonomous quotas.

\* Separate management for western and eastern Baltic cod since 2004

Source: ICES, 2010

Figure 2.9: Percentage of landings by country calculated as the percentage of the total landings of years 1998-2009.

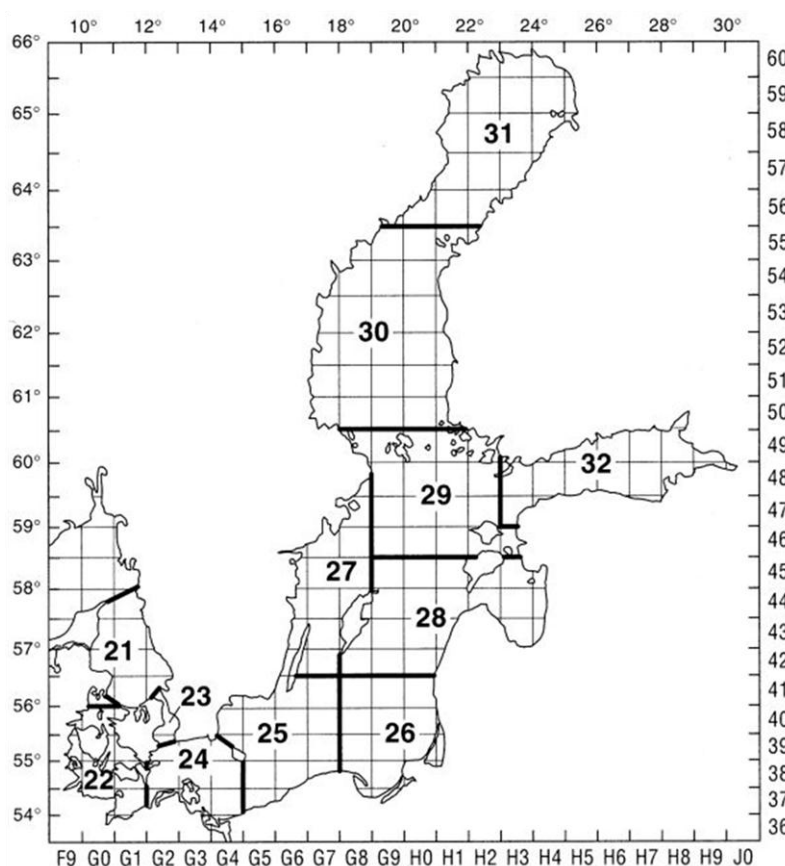


Source: ICES, 2010

### 2.5.2 Catching Areas and Landing ports

The main fishing area for cod for the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fleet is in ICES Subdivision 25 (Figure 2.10), which accounts for the majority of the landings and 100% of landings in 2009.

Figure 2.10: Map of the Baltic Sea showing ICES subdivisions (22-24 and 25-32 for the western and Eastern Baltic cod, respectively) and finer subdivisions used to report landings



Source: [www.ices.dk](http://www.ices.dk)

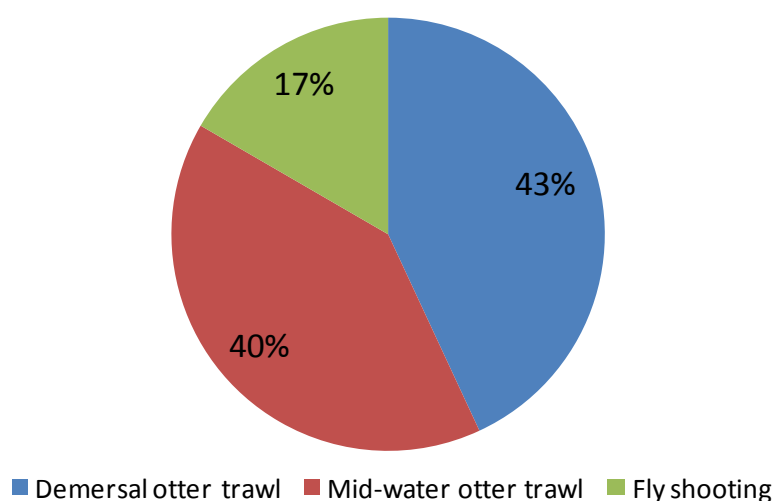


The majority of cod landings are taken by demersal otter trawl (43%) and mid-water otter trawl (40%), with 17% of landings by fly shooting (by one vessel: Prüfung KAS), see **Figure 2.11**. In 2009 trawling effort was focussed in ICES rectangles 39G5 and 38G5, while fly shooting was almost exclusively undertaken in 39G6 (**Figure 2.12**).

The majority of cod landings by the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fleet are into fishing ports shown in **Figure 2.13**. The most important port for cod landings by the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fleet is Sassnitz (56% by weight) followed by Nexø and Simrishamn each with 13% of the landings.

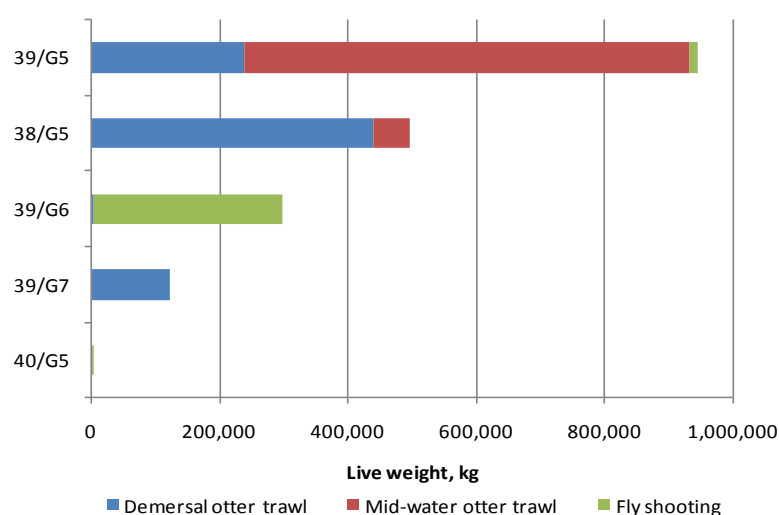
**Figure 2.14** indicated that seasonally cod landings by the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fleet peak during April to June. This is corroborated by data collated for 2010 from January to June.

**Figure 2.11: Percentage of landings by Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Fleet per gear type**



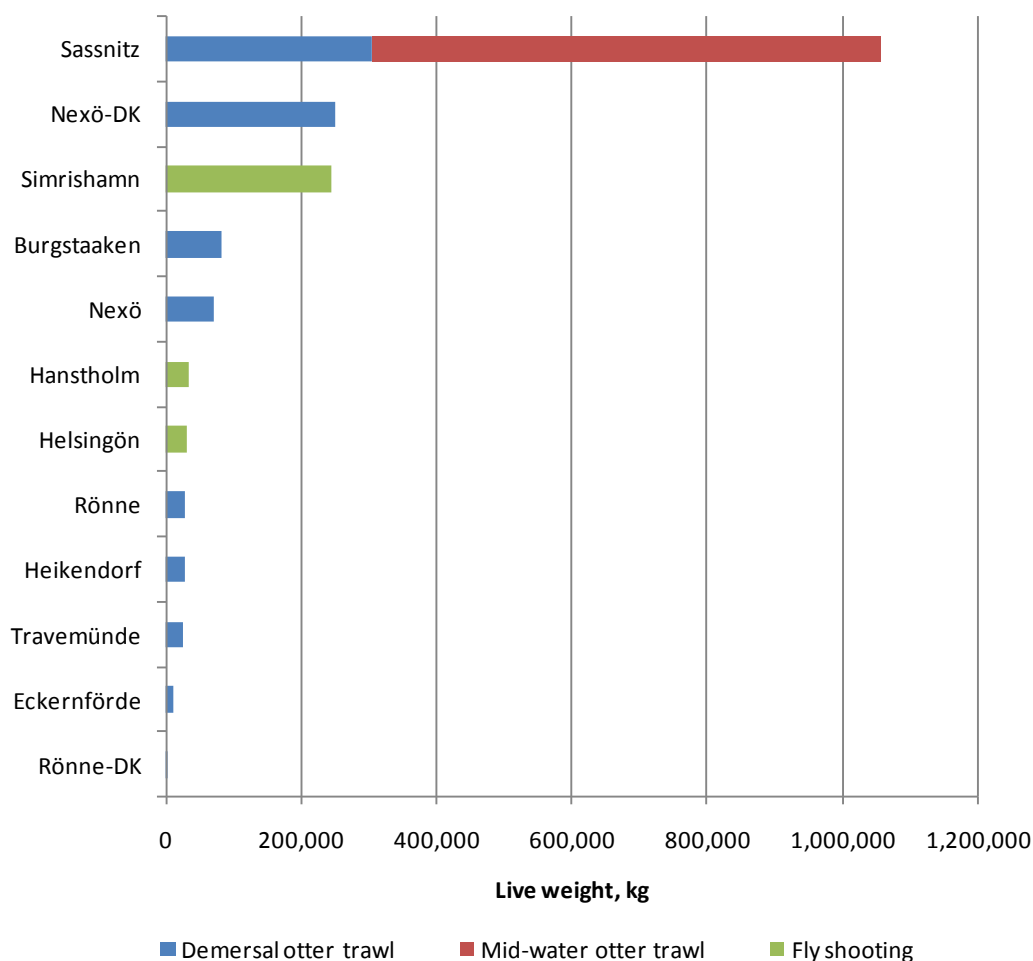
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**Figure 2.12: Cod landings by Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Fleet per ICES rectangle in 2009**



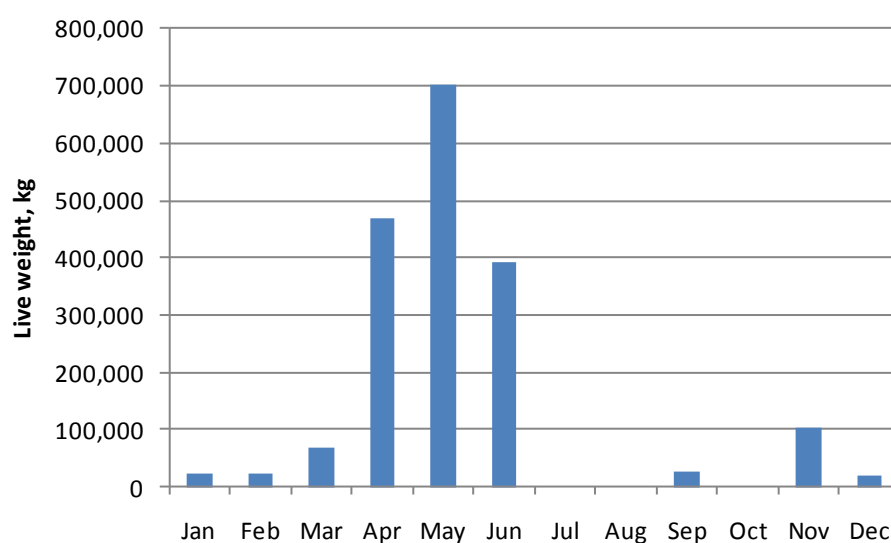
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**Figure 2.13: Landings of cod by the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Fleet by port in 2009**



Date source: client

**Figure 2.14: Seasonality of cod landings by the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Fleet in 2009**



Date source: client



### 3. Target Stock Status & Harvest Controls (P1)

Principle 1 of the Marine Stewardship Council standard states that:

*A fishery must be conducted in a manner that does not lead to over fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.*

Principle 1 covers all fishing activity on the entire Eastern Baltic cod stock - not just the fishery undergoing certification. However, the fishery under certification would be expected to meet all management requirements, such as providing appropriate data and complying with controls, therefore demonstrably not adding to problems even if the problems will not cause the certification to fail.

In the following section the key factors which are relevant to Principle 1 are outlined. The primary sources of information on this section are:

- » ICES. 2010a. ICES. 2010. Report of the Baltic Fisheries Assessment Working Group (WGBFAS), 15 -22 April 2010, ICES Headquarters, Copenhagen. . 621 pp.
- » ICES 2010b. 8.42. Cod in Subdivision 25-32. Book 8. ICES Advice 2010

#### 3.1 Status of the Stock

The MSC standard requires the stock to be at a level which maintains high productivity and has low probability of recruitment overfishing. To measure the stock status in relation to the MSC standard the current status of the stock is assessed relative to the target and limit reference points (FAM v2).

During the ICES benchmark assessment workshop January 2009 (ICES, 2009), it was decided that biomass reference points (BRPs) were to be removed due to a major shift on environmental conditions for spawning and recruitment (**see Section 3.2** for further details on reference points). A recent integrated ecosystem assessment (ICES CM 2008/BCC: 04) shows a major shift in food web composition and in environmental drivers in the Central Baltic basin. The productivity of the Eastern Baltic Ecosystem can be described by high and a low productivity time periods, dominated by the North Sea water inflows to the Baltic Sea.

In the absence of explicit BRPs, fishing mortality-based reference points are used to manage the stock (ICES 2010a; ICES 2010b). Temporal trends in stock biomass, fishing mortality and recruitment estimates are used to advice on the level productivity of the stock.

##### 3.1.1 Trends in stock biomass, recruitment and fishing mortality

**Figure 3.1** shows historical trends in stock biomass. The total and spawning stock biomass increased by the end of the 1970's due to the extremely abundant year classes formed in the late 70's and early 80's (**Figure 3.2**) and the favourable reproduction conditions in the southern and central Baltic Sea (ICES, 2010a). The spawning stock declined from the historically highest level around 650,000 t during 1982-1983 to the extremely low level in 1992 of 93,000 t. The result of the decline was a result of an increase of fishing effort, causing an increase in fishing mortality (**Figure 3.3**), and decreasing reproductive success due to limited inflow of oxygenated, saline water from the North Sea. Since the mid 1980s successful cod reproduction has only been observed in the southern spawning areas (Bornholm Deep) due to unfavorable environmental conditions (lack of inflow North Sea oxygenated and saline water into the Baltic Sea). As a consequence of this, since 1987 all year classes have been below the long term average (**Figure 3.2**). After 1992, the SSB increased and in 1995 was close to 240,000 t. Subsequently however, SSB has decreased due to reduced recruitment and fishing mortality above the precautionary limits (**Figure 3.3**).

During the late 1990s and early 2000s recruitment levels remained constant meaning that the stock size fluctuations have depended largely of variations in fishing mortality. The increase in SSB experienced since year 2005 is strongly related to the decrease trend in fishing mortality experienced since year 2004. In addition, appearance of strong year classes in years 2003 and 2005 and higher recruitment abundance in later years resulted in a rapid increase trend of the SSB to 294,000 t in 2010.

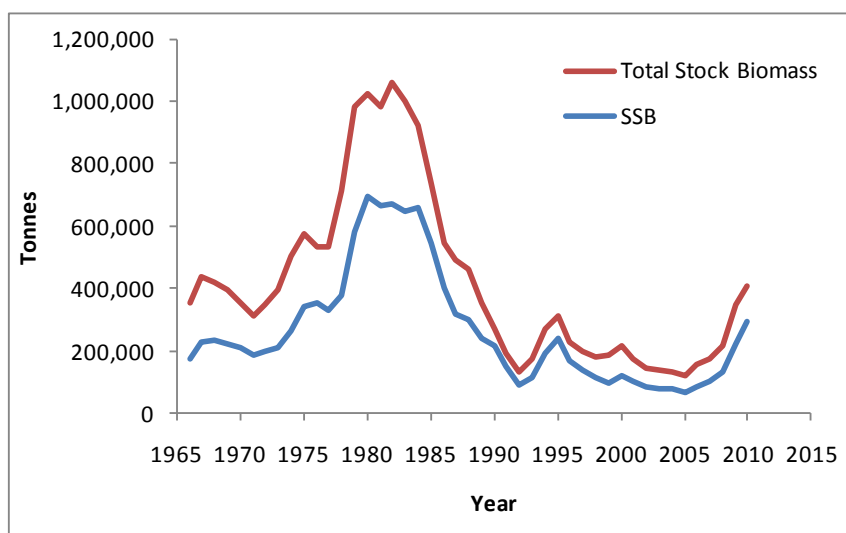
### 3.1.2 Stock productivity and likelihood of recruitment overfishing

In spite of the absence of applicable biomass reference points (BRPs), the relationship between SSB and recruitment indicates that at current spawning stock sizes there is a high degree of certainty that the stock is above the point where recruitment would be impaired (due to fishing). Recruitment overfishing occur when the adult population is fished at a rate at which the number and size of the adult population is reduced to a point that the stock does not have the reproductive capacity to replenish itself.

Current fishing mortality estimated at  $0.23 \text{ y}^{-1}$  for 2009 and predicted to be at  $0.17 \text{ y}^{-1}$  for 2010 is well below  $F_{\text{MSY}}$  indicating that the likelihood that the current rate of fishing will cause recruitment overfishing is very low. At current fishing mortality, the level of SSB depends of recruitment success and not vice versa.

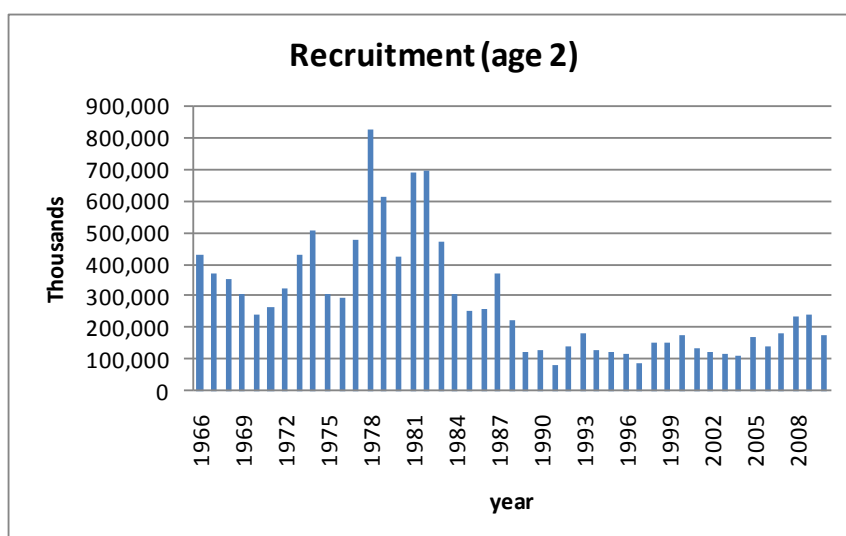
Present SSB estimate (SSB2010 = 294,000 t) is considered to be above any candidate of SSB for full reproduction capacity.  $F_{\text{MSY}}$  was estimated at  $0.3 \text{ y}^{-1}$  and is defined as the fishing mortality that would give the Maximum Sustainable Yield.  $F_{\text{MSY}}$  was estimated based on stochastic simulations (see **section 3.2**) and its closeness to  $F_{\text{max}}$  (ICES, 2010b). Stochastic simulations predicted long term SSB around 240,000 t (WKREFBAS, 2008). Current SSB levels compared to projected long term yields when fishing at  $F_{\text{MSY}}$  form the basis for considering that current SSB is above any candidate for full reproductive capacity.

**Figure 3.1: Historical stock biomass trend**



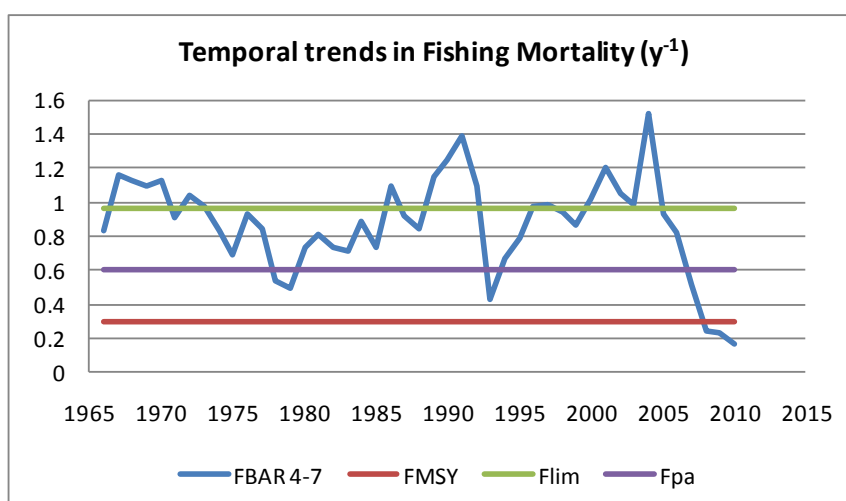
Data source: ICES, 2010b

Figure 3.2: Historical recruitment trend



Data source: ICES, 2010b

Figure 3.3: Historical fishing mortality trend compared to fishing mortality based reference points



Data source: ICES, 2010b

### 3.2 Reference Points

In this section reference points used for managing the fishery are presented. The Eastern Baltic cod stock was managed using biomass reference points until year 2007. Since the implementation of the multi-annual management plan introduced in 2008, biomass reference points were removed due to a major shift on environmental conditions for spawning and recruitment (ICES, 2008a).

An integrated ecosystem assessment (ICES CM 2008/BCC: 04) showed a major shift in food web composition and in environmental drivers in the Central Baltic basin. The productivity of the Eastern Baltic Ecosystem can be described by high and a low productivity time periods, dominated by the North Sea water inflows to the Baltic Sea. In 2007, discussion on the estimation of Biomass Limit reference Points ( $B_{LIM}$  and  $B_{PA}$ ) focused on the separation into two different time periods (high and low productivity) for recruitment and on the methodology to derive reference points under that such environmental driven situation (WKREF, 2007). The preferred methodology would have been to

include the main environmental drivers in to the estimation procedure and to estimate reference points dependent on levels of variables characterising environmental regimes. This could not be achieved at the time of the workshop on reference points in years 2007 and 2008 (WKREF, 2007; WKREFBAS, 2008). It was concluded that biomass reference points for cod could not be estimated without considering changes in the biomass of its prey (sprat) and the environmental conditions for spawning and recruitment. During the benchmark assessment workshop January 2009 (ICES WORKROUND, 2009) this conclusion was accepted and biomass reference points were deleted because the relation between SSB and recruitment has altered and depends on the environmental conditions.

### 3.2.1 Fishing mortality-based reference points used for the management of the stock

In the absence of applicable biomass reference points, fishing mortality-based reference points are used to manage the Eastern Baltic cod stock.

#### $F_{MSY}$

In 2010 ICES introduced the MSY approach in their advice for conservation and management and with it  $F_{MSY}$  was defined for the Eastern Baltic cod stock.  $F_{MSY}$  can be defined as the fishing mortality at which the stock fluctuate around  $B_{MSY}$  in the long term and equilibrium conditions.  $F_{MSY}$  was estimated at  $0.3 \text{ y}^{-1}$  based on stochastic simulations (WKREF, 2007; WKREFBAS, 2008) carried out by the *ad hoc* Group on Long term Advice (AGLTA, 2005).

The *ad hoc* Group performed simulations to derive range of sustainable fishing mortalities for the Eastern Baltic cod. Stochastic simulations assumed that the stock recruitment relationship (based on data for the low productivity period 1987-2001) is represented by a hockey-stick model with a breakpoint at 160,000 t and recruitment around 174,000 million individuals. The model implies that recruitment is constant (with a predefined stochastic variation) at SSBs greater than 160,000 t and there is no environmental effect on recruitment in the modelling, except for an assumed low recruitment level based upon the recent environmental conditions. The simulations included implementation errors (i.e. un-reported landings and discards). AGLTA estimated fishing mortalities of 0.3-0.4 as candidate long-term fishing mortalities to achieve high long term yields and minimising the probability of SSB failing below 160,000 t (former  $B_{LIM}$  used until year 2007 ) (AGLTA, 2005).

WKREFBAS (2008) concluded that AGLTA estimates were still appropriate for describing the long-term dynamics of the stock and investigating long term fishing mortalities. The use of biomass reference points was considered redundant, as current estimates of  $B_{pa}$  and  $B_{lim}$  were elaborated under ecological circumstances which have been acknowledged as very different from the current situation. This conclusion was accepted and biomass reference points were removed (ICES WKROUND, 2009).  $F = 0.3 \text{ y}^{-1}$  was adopted as  $F_{target}$  in the multiannual management plan and as  $F_{MSY}$  in ICES advice for year 2010.

#### $F_{LIM}$ and $F_{PA}$

The Advisory Committee of Fisheries Management (ACFM) in 1998 estimated a precautionary Fishing Mortality Reference Point at  $F_{pa} = 0.6$ , defined as the 5% percentile of  $F_{med}$  derived from a stochastic stock recruitment relationship covering years-classes 1966-1995.

The Limit Fishing Mortality Reference Point ( $F_{LIM}$ ) was set to 0.96 determined as  $F_{med}$ , which correspond to the 50-percentile from a ratio of observed SSB and subsequent recruitment. The fishing mortality limit ( $F_{LIM} = 0.96$ ) under the current harvest control rule does not appear to have any purpose. Instead the precautionary fishing mortality rate is used as a precautionary trigger point to ensure that recruitment overfishing does not occur.

During the benchmark assessment workshop January 2009 (ICES, 2009) it was recommended that present  $F_{LIM}$  and  $F_{PA}$  should be removed and only fishing mortalities in the range of 0.3-0.4 as

calculated by AGLTA (2005) should be kept. In the same time  $F_{LIM}$  and  $F_{PA}$  have been recalculated on the same basis as in 1998 based on recent assessments:  $F_{LIM} = 0.8$  as  $F_{med}$  and  $F_{PA} = 0.63$  as 5<sup>th</sup> percentile of  $F_{med}$ . However, WGBFAS 2009 concluded that former reference points should be maintained because they are related to EU management plan.

**Table 3.1: Fishing mortality-based reference points**

Type	Value	Technical basis
$F_{MSY}$	0.3	Based on stochastic simulations and close to $F_{max}$
$F_{target}$	0.3	EU management plan based on stochastic simulations
$F_{LIM}$	0.96	$F_{med}$
$F_{PA}$	0.6	5 <sup>th</sup> percentile of $F_{med}$

Source: ICES, 2010b

### 3.3 Harvest Strategy

A multi-annual management plan was agreed for the Eastern Baltic cod September 2007 and implemented in January 2008. The management plan combines total allowance catch (TAC) and effort control management system (TAE). These management tools are set corresponding to a gradual reduction in fishing mortality by 10% per year until the stock recovers to the target  $F$  at 0.3  $y^{-1}$  (Further details on the decision rules contained in the multi-annual management are presented in **Section 3.5**).

Bastardie *et al.* (2009) carried out a management strategy evaluation (MSE) of the multi-annual management plan for cod in the Eastern Baltic Sea. The MSE was reviewed by three independent scientists (Review Group on Cod Management Plans, 2009). The MSE concluded that this management plan is in accordance with the precautionary approach under the following conditions: (i) the current settings of the assessment model are maintained (especially the shrinkage on  $F$  at 0.5); (ii) the effort reduction in the year is fully complied; (iii) biological parameters are assumed stationary on a long term basis. (iv) The exploitation pattern remains constant (v) the observation error added in the management procedure remains in the range of magnitude tested.

Due to under-estimation of the forecasted SSB from conservative assessment setting,  $F$  have decreased more than the annual 10% reduction and has been rapidly able to reach fishing mortalities below the  $F_{target}$ . Below  $F$  at 0.6, a TAC constrain of 15% applies and is the main controlling measure limiting utilization of the cod resource. The evaluation is most sensitive to assumptions about implementation error; i.e. TAC and effort overshoot.

In addition to direct control on TAC and TAE, indirect effort controls thorough periodic fishing closures are also included in the management plan combined with technical measures. These include:

- » Indirect effort control measure:
  - › A seasonal closure during 1 July to 31 August to protect spawning fish. A closure of a central part of the main spawning area in the Bornholm Deep has been implemented and enforced during the main spawning seasons since the mid-1990s for all fisheries.
  - › Since 2006, area closures have been enforced from 1 May to 31 October for all fisheries in specific areas of the Bornholm Deep, the Gotland Basin, and the Gdansk Deep
- » Technical conservation measures:
  - › High-grading has been prohibited since 1st January 2010 in all Baltic fisheries.

- › A Bacoma codend with a 120 mm mesh was introduced by the former International Sea Fishery Commission in 2001 in parallel to an increase in diamond mesh size to 130 mm in traditional cod ends. The expected effect of introducing the Bacoma 120 mm exit window was nullified by compensatory measures in the industry. This was to some extent explained by the mismatch between the selectivity of the 120 mm Bacoma trawl and the minimum landing size. In October 2003, the regulation was changed to a 110 mm Bacoma window. This was expected to enhance the compliance and to be in better accordance with the minimum landing size, which was changed from 35 to 38 cm in the same year. 1st of March 2010 the Bacoma 120 mm was re-introduced along with a extended Bacoma window (5.5 m), to further decrease discard and the minimum landing size was kept at 38 cm.

### 3.4 Harvest Control Rule and Tools

The intention is to set TACs following well-defined, agreed harvest control rules. ICES have evaluated cod harvest control rules and concluded that they are consistent with the precautionary approach (see **Section 3.3**). The procedure for setting the TACs for the Eastern Baltic cod is as follow (EU Council regulation 1098/2007, article 4-6):

1. The Council shall adopt the TAC that, according to a scientific evaluation carried out by the Scientific, Technical and Economic Committee for Fisheries (STECF), is the higher of:
  - a. the TAC that would result in a 10% reduction in the fishing mortality rate in its year of application compared to the fishing mortality rate estimated for the preceding year;
  - b. the TAC that would result in the level of fishing mortality rate of 0.3 on ages 4 to 7 years.
2. Where the application of paragraph 1 would result in a TAC that exceeds the TAC for the preceding year by more than 15%, the Council shall adopt a TAC which is 15% greater than the TAC of that year.
3. Where the application of paragraph 1 would result in a TAC that is more than 15% below the TAC of the preceding year, the Council shall adopt a TAC which is 15% less than the TAC of that year.
4. Paragraph 3 shall not apply where a scientific evaluation carried out by the STECF shows that the fishing mortality rate in the year of application of the TAC will exceed a value of 0.6 per year for the ages 4 to 7 years.

Article 8 of the EC Council regulation 1098/2007 set the rules for the allocation of days at sea, mechanism established in the management plan to directly control fishing effort:

1. Where the fishing mortality rate for one of the cod stocks concerned has been estimated by the STECF to be at least 10 % higher than  $F_{target} = 0.3$ , the total number of days shall be reduced by 10 % compared to the total number of days allowed in the current year.
2. Where the fishing mortality rate has been estimated by the STECF to be less than 10 % above  $F_{target} = 0.3$ , the total number of days shall be equal to the total number of days allowed in the current year, multiplied by  $F_{target} = 0.3$  divided by the fishing mortality rate estimated by STECF.

Under the current stock status ( $F_{current} < F_{target}$ ) the TAC 15% constraint is the main tool to control exploitation rate.



## 3.5 Information and Stock Assessment

### 3.5.1 Overview

Stock assessment use a Virtual Population Analysis model to estimate fishing mortality and spawning stock size for determination of stock status and application of the harvest control rule. These models require catch-at-age, abundance indices as data and estimates of maturity-at-age, weight-at-age and natural mortality as input parameters. These data are obtained from landings reports, scientific surveys and catch sampling.

Uncertainties in stock assessment are mainly due to problems with under-reporting, discarding and age-reading.

### 3.5.2 Total Catch Data

Landings by species are routinely reported. These constitute the official landings reported by the relevant government management authorities. However, substantial underreported of catches occurred in 1993-1996, and also from 2000 to 2007 bringing uncertainty to the assessment of the stock. Estimates of the amount of misreporting are available from the national industries and control agencies and indicated that total catches during 2000-2007 were about 32-45% higher than reported figures. By nature this information is highly uncertain. There are indications that unreported landings decreased significantly in years 2008 and 2009 due to a more stringent enforcement of fishing control (Copenhagen declaration on combating unreported cod fishery in the Baltic Sea, 2007). Available information suggests that unreported landings in 2009 were only 6% of the reported landings. However this estimation is likely to be only minimum estimates and information on un-reported landings remains uncertain (ICES, 2010a; ICES, 2010b).

Another source of mortality is fish discards. The most abundant age group discarded was age group 3 with estimates of 37% of age 3 cod discarded for year 2009. 14 % of discards is from passive gears; the rest is from the active gears. This is a change compared to last year back towards the long run trend where the passive gears constituted approximately 30% (2000- 2008) of the total discard. The variation in discard figures from year to year must be taken with caution because of the general low sampling intensity of particularly fixed gears. Although, a sampling program for the estimation of discard mortality has been in operation since year 2004, the season and area coverage of discard sampling still requires improvement (ICES, 2010a; ICES, 2010b). The lack of a robust sampling program for discards adds uncertainty to the assessment of the stock status.

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### 3.5.3 Age, Length, Weight and Maturity Composition

Age, lengths and weights are routinely sampled from all countries fishing the Eastern Baltic cod stock. Age, length and weight are routinely sampled within the abundance surveys. These are used to estimate composition of the stock rather than catch.

There are long standing problems with aging inconsistencies in this stock. Otoliths from cod in the Eastern Baltic generally do not show well-defined seasonal growth zones. In 2007 a new research project DECODE was started with the aim to resolve age reading inconsistencies between countries based on otolith weight analysis. This research is on-going at present and still this methodology for aging is not being applied for the assessment of the cod stock.

Maturity data have been obtained from surveys. The database on sex-specific maturity ogives, sex ratios and number sampled at age per Subdivision was updated in 1998 and 1999, but not

subsequently. Therefore although information on maturity data is available it cannot be said that it is of high quality.

### **3.5.4 Abundance Indices**

#### ***Surveys***

Stock abundance indices are available from Baltic international Trawl Surveys (BITS) conducted in 1st quarter of the year since year 1991 annually and additionally in 4th quarter since year 2001. Sweden, Denmark, Germany, Latvia, Poland, Russia, and Lithuania participate with research vessels. The surveys have been internationally coordinated since year 2001, when a standardised trawl was introduced among all countries. As a result of this, surveys abundance indices are divided in two time periods which cannot be compared. To overcome this, inter-comparison trials were made before the new gear was implemented as the survey standard gear and the results have been used to estimate conversion factors among gears.

#### ***Commercial CPUE***

CPUE from the commercial Danish fleet is used as a tuning fleet for the assessment of the stock. Danish CPUE standardisation which accounts for factor affecting both relative abundance and fishing efficiency provides a reliable estimate of abundance indices.

### **3.5.5 Other information**

A constant natural mortality of 0.2 is assumed for all years and ages.

A good time series of Ichthyoplankton surveys exist from the spawning area in the Bonholm Basin. This time series, based on German and Polish surveys during the spawning period is considered comprehensive and allow estimation of the average daily egg production indices and the seasonal egg production. These time series have been used to validate Baltic cod egg production.

### **3.5.6 Stock Assessment Model**

The analytical assessment for Baltic cod is based on catch-at-age data, using commercial CPUE series and two survey abundance indices. Available estimates of un-allocated landings (i.e. un-reported landings and discards) are included in the assessment.

The main analytical model is the Extended Survivors Analysis (XSA) variant of Virtual Population Analysis. Virtual Population Analysis uses catch-at-age data to back-calculate the size of each age group. The XSA variant is a simple approach to fitting this type of model and is widely used by ICES for a number of stocks.

Uncertainties in the assessment are mainly due to problems with under-reporting, discarding and age-reading. The estimate of fishing mortality (main estimator for the management of the fishery) is uncertain because of the uncertainty of the level of the total landings in 2009. However, retrospective patterns are not significant and stock estimates are consistent among years.

Sampling error is not accounted for in the current stock assessment method. Estimation of catch at age is based on sampling of catches. The error in the estimates caused by sampling can be considerable even if the total catch is known. The estimation of the abundance indices from surveys will also be affected by sampling error. The effect of not taking sampling error into account when fitting models to data may introduce bias in the resulting estimates.

Alternatives to the XSA model are applied to Eastern Baltic cod. These were in a stochastic state space model (SAM) and a variant on the VPA approach (TISVPA). Comparison of stock assessment models gave similar stock estimates using XSA and SAM. The working group decided to use them as a final estimation. The use of alternative models is welcomed since it adds robustness to the assessment outcome.



## 4. Environmental Elements (P2)

Principle 2 of the Marine Stewardship Council standard states that:

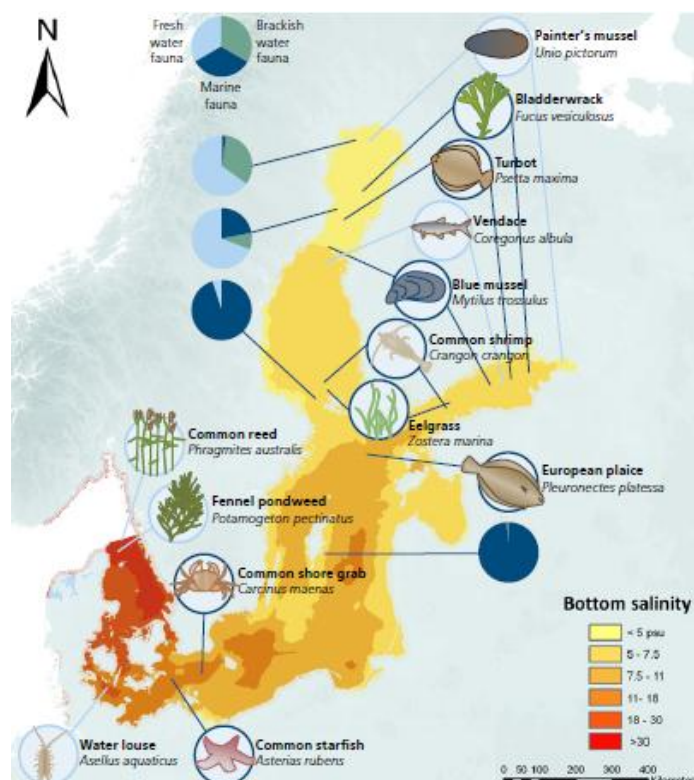
*Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent ecologically related species) on which the fishery depends.*

The following section of the report highlights some of the key characteristics of the fishery under assessment with regard to its wider impact on the ecosystem.

The Baltic Sea is a semi-enclosed brackish water area and is the second largest ecosystem of this type in the world, after the Black Sea. It is characterized by a persistent vertical stratification of its water layers, and a residence (turnover) time for full exchange of its water mass estimated at 25-30 years. These features greatly increase the susceptibility of the Baltic Sea to the accumulation of pollutants. The Baltic comprises three deep basins: the Arkona Deep inside the entrance to the Baltic Sea and the Bornholm Deep and Gotland Deep farthest which are in the Eastern Baltic. Saltier, heavier and oxygen rich water from the North Sea enters the Baltic Sea through the shallow, narrow entrance of the Danish Straits and propagates along the deeper regions, while a counter current of freshwater flows outwards at the surface. This results throughout most of the sea in two essentially vertically stratified parts of the water column, which rarely mix. This stratification significantly limits the passage of oxygen from the surface into the deeper waters (Thulin and Andrushaitis, 2003).

The distribution of species within the Baltic (**Figure 4.1**) is determined by the extent to which marine species can tolerate freshwater (from west to east) and freshwater species can tolerate salinity (from east to west and north to south).

**Figure 4.1: Distribution limits of some marine (dark blue) and freshwater (light blue) species due to salinity, including bottom salinity**



Source: HELCOM, 2010

## 4.1 Retained species

Retained species are those that have been caught and landed while the vessel has been targeting cod. The cod fishery within the Eastern Baltic is extremely selective with landings over 99.9% by volume target species and therefore an almost negligible level of retained species within the catch (**Table 4.1**). Species that are on rare occasions caught and landed together with cod include flounder, plaice and whiting.

**Table 4.1 Live weight (kg) of species landed in conjunction with the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod fishery in 2009 by trawl (demersal and midwater) and fly shooting**

	Otter trawl		Fly shooting	
	Kg	%	Kg	%
Cod	1,556,035	99.13%	310,614	99.06%
Cod (research)	300	0.02%		0.00%
Cod roe	9,433	0.60%	2,594	0.83%
Cod liver	1,742	0.11%		0.00%
Plaice	380	0.02%	310	0.08%
Turbot	40	0.00%		0.00%
Flounder	1,550	0.10%	0	0.00%
Mixed	0	0.00%	30	0.01%
Whiting	152	0.01%		0.00%
Total	1,569,631	100.00%	313,548	100.00%
<b>Total cod</b>	<b>1,567,510</b>	<b>99.86%</b>	<b>313,208</b>	<b>99.89%</b>

Data source: client

### 4.1.1 Otter trawl (demersal and midwater)

The position of cod within the water column is dependent on a number of environmental conditions including vertical stratification of both salinity and oxygen levels. Elsewhere cod is predominately a demersal species targeted by demersal otter trawls, however in the Baltic cod often move up into the centre of the water column. As a result fishermen operate their gear at various heights within the water column. The gear itself is essentially the same with the same otter boards and net, but minor adjustments are made to control its position within the water column.

Nets have a mesh size of  $\geq 105\text{mm}$  and are fitted with either a Bacoma window (of 120mm square mesh) or a T90 codend and extension piece. Some fishermen prefer the T90 configuration when targeting cod midwater, while others will use Bacoma for both demersal and mid water.

The Eastern Baltic cod trawl fishery is selective with cod constituting 99.86% of the catch by weight. Extremely small proportions of flounder (0.1% by volume), plaice (0.02%) and whiting (0.01%) are taken. There are no main retained species within this fishery. The volume of plaice and turbot landed are considered negligible. It has been assessed that flounder is more appropriately included within the bycatch (discard) component of the Principle 2 assessment, since this species is discarded (albeit in small quantities) more frequently than it is landed.

It is therefore assessed that there are no retained species within this fishery.

### 4.1.2 Seine nets (fly shooting)

There is one Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Seine net (fly shooting) vessel currently targeting cod in the Eastern Baltic. Landing statistics show that it is exceptionally

selective with cod constituting 99.89% of the total catch by volume. It is therefore assessed that landings of retained species by Seine nets (fly shooting) are negligible in both size and impact.

## 4.2 Bycatch (including discarding)

All units of certification have in place measures that are specifically designed to reduce or eliminate discarding within fisheries. The recent European ban on high grading, which came into force on 1st January 2010, acts to minimise discarding across all Baltic fisheries, although level of enforcement is unknown.

The fisheries for cod in Eastern Baltic has very little bycatch of other species although there is a large discard of juvenile cod. Discarding of undersize cod is not considered under Principle 2 since it has already been taken into account under Principle 1 target species. Discarding of flounder is known to occur and will be assessed under this component for both otter trawl and Seine nets (fly shooting).

Summary statistics based on observer coverage for the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod fleet provided to the assessment team suggest that 13% of the total catch by weight is discarded flounder (**Table 4.2**). Flounder is therefore considered to be a main discarded species for both gear types. Other discarded species including plaice, whiting and turbot are considered to be minor discarded species.

**Table 4.2: Summary statistics from 14 observer trips undertaken on board Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels in the Eastern Baltic Sea from 2008-2010**

	Flounder	Cod	Plaice	Turbot	Whiting	Mackerel
Discard (Kg)	42839.4	21442.6	2053.1	275.8	45.9	3
Landed (Kg)	2803.5	238115.4	2290.4	368.4	0	0
% of total catch discarded	13.81%	6.91%	0.66%	0.09%	0.01%	0.00%

Data source: client

## 4.3 Endangered, threatened or protected species (ETP)

According to MSC methodology, endangered, threatened and protected (ETP) species are defined as those that are recognised as such by national legislation and/or binding international agreement (e.g. CITES) to which the jurisdictions controlling the fishery under assessment are party. Species that appear exclusively on non-binding lists such as IUCN Red List, OSPAR, HELCOM or that are only the subject of intergovernmental recognition (such as FAO International Plans of Action) and that are not included under national legislation or binding international agreement are not considered as ETP under MSC protocols.

Most capture fisheries have at least some potential to interact with endangered, threatened or protected species. The ETP interaction profile for each gear type varies and is greatly influenced by the manner in which it is utilised. Factors such as frequency of use, duration of deployment, season, and location all play a role in defining a gear types ETP interaction profile.

In general, populations of endangered, threatened and protected species are well studied and in the Baltic Sea, with considerable levels of work undertaken in relation to the regular monitoring of fishing activity through the deployment of onboard scientific observers, capture of anecdotal information, and a wide range of EU and nationally funded research programmes.

**Table 4.3** lists the ETP species that have been identified as being relevant to the assessment of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod fisheries.

**Table 4.3: Endangered, threatened or protected species, Eastern Baltic Sea**

Species	CITES App II (DK signed 1977)	Council Directive 92/43/EEC Habitats Directive App II
Harbor Porpoise <i>Phocoena phocoena</i>		
Harbor Seal <i>Phoca vitulina</i>		
Grey Seal <i>Halichoerus grypus</i>		
Ringed seal <i>Phoca hispida</i>		
Allis Shad & Twaite shad <i>Alosa spp</i>		
Common eel <i>Anguilla anguilla</i>		
Sturgeon <i>Acipenser sturio</i>		

Source: CITES, EC 92/43/EEC

During the assessment of the cod fisheries, the assessment team have considered the above list of species in the context of the potential interactions with individual units of certification. The result of this analysis determined the Outcome Status score. To score well, a fishery must be conducted in a manner that ensures ETP impacts fall within acceptable limits (as defined under legislation and /or binding agreements that are in place).

The Harbor porpoise is the only cetacean species native to the Baltic Sea. There are three seal species within the Baltic: harbor, grey and ringed.

Globally, harbor porpoise and seals are also known to occasionally be captured incidentally in mobile gears. Within the German fleet, there are no indications that Harbor porpoise are ever taken or captured during otter trawling or fly shooting operations. Within the Baltic Sea the mobile gears are unlikely to have any impact on Harbor porpoise with which set net fisheries are of more concern. In relation to seals the indication is that the potential interaction is at a low level relative to seal populations in the Baltic which are known to be increasing.

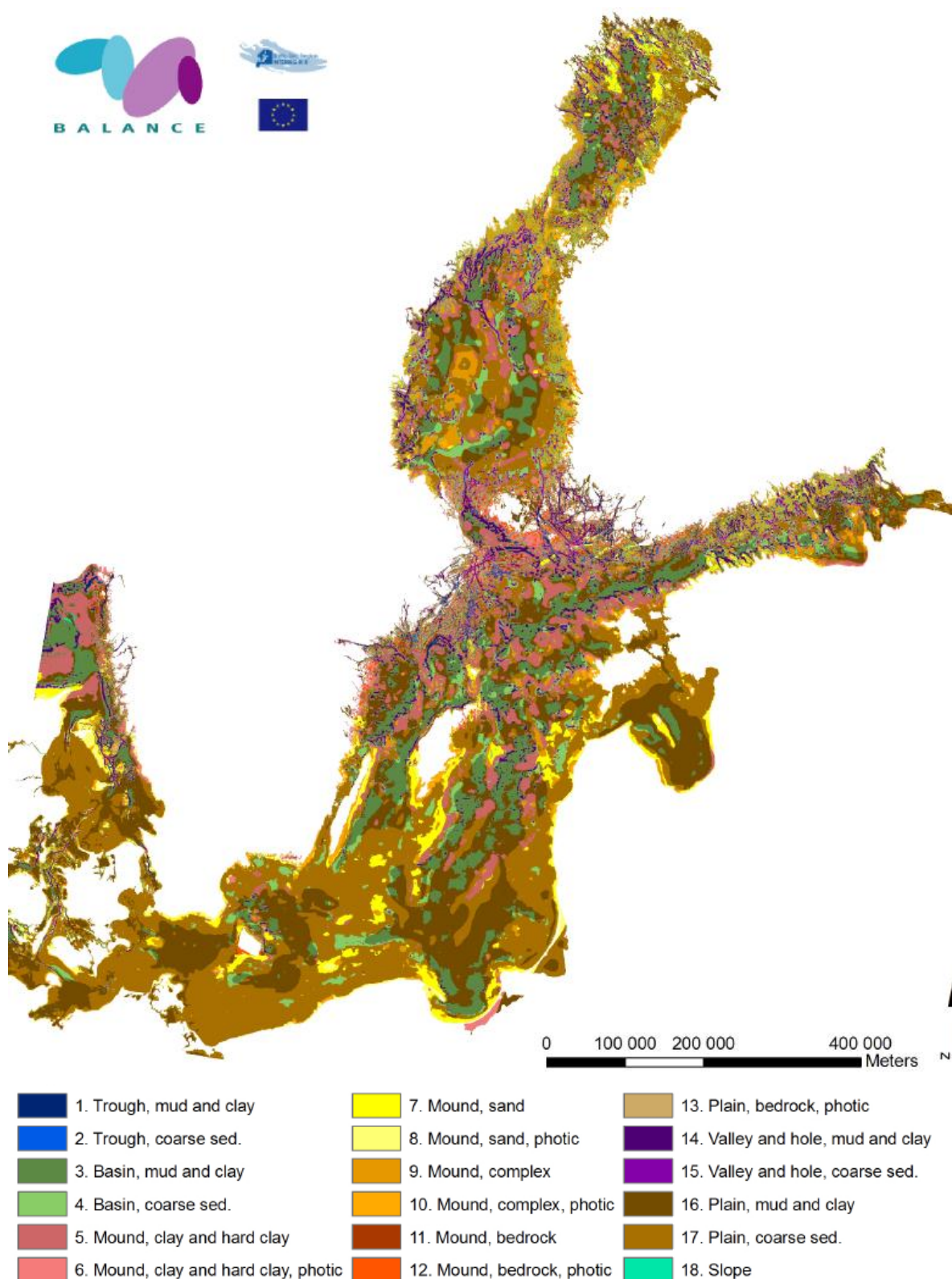
The main breeding areas for Baltic grey and ringed seals in the Eastern Baltic are in Estonian waters (Jüssi, 2009).

#### 4.4 Habitat

The Eastern Baltic seabed habitat is characterised by sand, hard clay and mud and clay sediments and consists of several deep basins. Habitat types have been extensively studied and various projects have mapped and classified habitat distribution and topographic features (e.g. BALANCE, EUSEA map, MESH project, HELCOM). A detailed habitat map is provided in **Figure 4.2**.

Approximately 100,000 km<sup>2</sup> of the Baltic's seafloor (a quarter of its total area) is a variable dead zone i.e. hypoxic (low-oxygen) area. The more saline (and therefore denser) water remains on the bottom, isolating it from surface waters and the atmosphere. This leads to decreased oxygen concentrations within the zone. It is mainly bacteria that grow in it, digesting organic material and releasing hydrogen sulphide. Because of this there are large anaerobic zones that impact the seafloor ecology which as a result is typically species-poor with low biomasses (ICES, 2006).

Figure 4.2: The Baltic seabed sediment, marine landscapes and topographic features



Source: Balance

Mobile demersal fishing gears including demersal otter trawl and Seine nets (fly shooting) are known to have significant potential to impact seabed habitats and biological communities. Impacts are generally greatest in habitats that support sensitive communities such as corals, burrowing



megafauna and seapens and seagrass beds; habitats that typically are not subject to high rates of natural disturbance.

With demersal otter trawl gears, the main impact is associated with the heavy steel trawl doors that are used to keep the net open. These are towed along the seabed and may weigh up to 1200Kg each, while vessels fishing two trawls in a side by side arrangement (twin-rigged) must also tow a clump weight or bottom roller along the seabed. This is also required to be heavy, in order to keep the inner end of both nets on the seabed. The heavy nature of the gear results in physical damage to the seabed that is evidenced by scour tracks which can sometimes be detected for a long time after a fishing event using side scan sonar. The size of rockhoppers on the ground rope varies in size depending on the type of ground the gear is being fished over. Larger rockhoppers are used for more varied, hard grounds. Repeated trawling of an area can cause long-term changes in seabed communities and tends to reduce the seabed to a two dimensional structure. Long lived and slow growing species tend to be removed by multiple passes of trawls or by the effects of sedimentation as each pass of the net re-suspends sediment which then may settle on and smother sessile fauna. In this way, large, long lived and slow growing fauna are gradually replaced by small, short lived and fast growing organisms that are capable of rapid reproduction and re-colonisation. Structural changes may have long-term negative effects on the structure and productivity of the benthic community, such as:

- » Shifts from larger, longer-lived benthic species to smaller more opportunistic species (Lindeboom and de Groot, 1998);
- » Decrease in the abundance of gadoids and increase in flatfish, resulting in increased predation pressure on the benthos (ICES, 1999);
- » Attraction of demersal bottom feeders, such as cod and plaice, to the trawling sites to feed on benthic invertebrates, which can be more susceptible to predation by damage from trawling.

While extensive research has been conducted in relation to the impacts of mobile fishing gears on seabed habitats, this has not as yet resulted in any clear initiatives to set acceptable limits of impact, at national or EU level. While various EU regulations refer to the need for all ecosystem impacts of fisheries to be taken into account in order to ensure sustainability, this has not yet occurred in the context of seabed impacts of mobile gears. Some of the fisheries that are included under the present assessment occur across Natura 2000 sites designated on account of its habitat conforming to the Habitats Directive Annex I habitat '*sandbanks covered by water at all times*'. It is unknown the extent of all fishing effort in these areas as overlays of Natura sites with complete fishing effort data have not been available. Assessment of VMS data, which maps effort for the portion of the fleet with vessels  $\geq 15$ m in length, has not been possible. Effort mapping for vessels  $<15$ m in length has not been possible. Despite this, a clear indication of effort is provided by landing statistics to the scale of ICES rectangles.

## 4.5 Ecosystem impacts

There is considerable knowledge of the habitats and ecosystem of the Baltic Sea. Food webs and trophic relationships of the Baltic Sea are the subject of ongoing research and investigation, much of this research finds its way into the working and study group reports of the International Council for the Exploration of the Sea (ICES). Efforts to improve and refine the science which underpins the fishery management systems applied in European waters has intensified in recent years as Europe has made a clear commitment to applying the precautionary approach, taking into account all ecosystem impacts of fisheries, in deciding on future management systems and structures.

There is an excellent level of information on the trophic position and role of cod, a top predator within the Baltic Sea food web. Many studies have been completed that examined the fish community structure in the Baltic Sea. ICES and HELCOM provide an annual overview of the state of the Baltic Sea ecosystem including through the work undertaken by the ICES and HELCOM Working Group on the Integrated Assessments of the Baltic Sea. This has been an important source in reviewing the scoring in relation to ecosystem.

The Baltic Sea is a large semi-enclosed brackish water body with low species diversity, but high productivity and areas of high eutrophication. It undergoes pronounced climate influence through variability in temperature and salinity and has stratified water column with a permanent halocline (ICES and HELCO, 2010).

The Baltic Sea is an ecosystem with a number of sub-systems with different hydro-climatic and ecological setting with recognised main gradients of temperature, salinity, species diversity and composition. These sub-systems are differently exposed to the main external drivers including climate, eutrophication, as well as fisheries. The ecosystem in the Baltic Sea has undergone a number of regime shifts (Alheit *et al*, 2005).

In managing potential habitat and ecosystem impacts, industry and management authorities are guided by German commitment to a number of relevant conventions and European Directives, such as:

- » **HELCOM** The Helsinki Commission (HELCOM) is the governing body of the “Convention on the Protection of the Baltic Sea Area”. All riparian countries of the Baltic Sea Area are members of the Commission. HELCOM works as an environmental policy-maker for Baltic Sea concerns, but also as the body to coordinate and supervise the implementation by the Contracting Parties. In addition to that, HELCOM provides information about the environmental status and trends in the Baltic Sea Area, the measures and their efficiency. HELCOM produced a Baltic Sea Action Plan in 2007 which sets an ambitious programme to restore the good ecological status of the Baltic marine environment by 2021.
- » **ASCOBANS** ASCOBANS was concluded in 1991 as the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS) under the auspices of the Convention on Migratory Species (CMS or Bonn Convention) and entered into force in 1994. Germany is a signatory nation.
- » **Council Directive 79/409/EEC** of 2 April 1979 on the conservation of wild birds Directive 1979 and its amending acts aim at providing long-term protection and conservation of all bird species naturally living in the wild within the European territory of the Member States (except Greenland).
- » **Council Directive 92/43/EEC** on the conservation of natural habitats and of wild fauna and flora came into force on 21 May 1992. The central aim of the Directive is to conserve biodiversity across the area of the European Union through a coherent network of Special Areas of Conservation (SACs).
- » **CBD** - the Convention on Biological Diversity was signed at the UN Rio Conference on Environment and Development (1992). This aims conserve biological diversity, encourage sustainable use of its components and the fair and equitable sharing of the benefits arising from the use of these resources.

## 5. Administrative context (P3)

Principle 3 of the Marine Stewardship Council standard states that:

*The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.*

In the following section of the report a brief description is made of the key characteristics of the management system in place to ensure the sustainable exploitation of the fishery under assessment.

### 5.1 Governance & Policy

#### 5.1.1 Legal & Customary Framework

The cod resource in the Eastern Baltic Sea (ICES areas IIIId, sub-division 25-32) is predominantly exploited by Poland (26% of TAC), Sweden (23% of TAC), Denmark (23% of TAC), Germany (9% of TAC) and Latvia (9% of TAC). For vessels registered in Member States of the European Union, participation in this fishery is subject to the Common Fisheries Policy of the EU. This policy came into being in the form we recognise today in 1983. It was reviewed thoroughly in 2002 and the current basic fisheries regulation (No.2371/2002) was adopted by the Council of Ministers on 20 December 2002. This regulation sets out the strategic aims of the CFP and enables the Council of Ministers, or in certain cases the Commission, to make more detailed Regulations on such issues as control requirements, fleet structure, technical conservation, marketing and annual total allowable catches (TAC) etc. Outside of the CFP framework other EU legislation and international agreements deals with habitats and species protection; such legislation and agreements are also relevant to fisheries management and to the activities of fishermen. At the national level implementation of the CFP and other legislation/agreements is the responsibility of individual Member States –governed by the EC legislation itself, or by primary and secondary national legislation enacted in conformity with the EC legislation. National fisheries administrations are responsible for a range of management and regulatory duties, including:

- » management of fleet activity,
- » management of national quota,
- » monitoring and control of all fisheries occurring within national jurisdiction,
- » collection, collation and transmitting of key fishery data, and
- » undertaking at least a base range of scientific monitoring and development work.

The German Hochsee- und Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fleet exploiting the cod resource in the Eastern Baltic Sea applies a management plan and a code of conduct that are binding on its members.

#### 5.1.2 Consultation, Roles & Responsibilities

The main institutions involved in management of the Baltic cod fisheries are:

- » ICES ACOM – provides the forum for consolidation of scientific work undertaken by scientists in participating national institutions (through relevant Expert Groups), and the delivery of advice on how best to manage fish stocks—including Eastern Baltic cod.
- » DG MARE of the European Commission – responsible for advising on the management of European fisheries through the Common Fisheries Policy
- » STECF – the fisheries scientific committee of the European Commission providing advice to the Commission on all aspects of fisheries science



- » Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) responsible for overall management of German fisheries
- » *Federal Agency for Agriculture and Food (BLE)* responsible for monitoring, control and surveillance of the German fishing fleet and other vessels fishing within German jurisdiction, including the monitoring and management of vessel quota uptake
- » German Fisheries Association (DFV) responsible for representation of the interests of the German commercial and recreational fishermen
- » German fisheries Producer Organisations - among them Erzeugergemeinschaft der Nord- und Ostseefischer GmbH responsible among others for certification of member fishing vessels to standards of sustainable practice. Members of the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH must abide with the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH "Code of Conduct" to qualify for such certification.
- » The Baltic Sea Regional Advisory Council (BSRAC) – one of six advisory councils established by industry and the European Commission for the purposes of securing industry views and advice on the management of fisheries in the Baltic Sea.

All of these institutions have well established protocols covering their purpose, roles, operation, representation, consultation, decision-making, dissemination of policy, plans, decisions and information, and both internal and external review of practices and performance.

### 5.1.3 Objectives

The cod fishery in the Baltic Sea is managed through a multiannual plan (Council Regulation (EC) 1098/2007) that was adopted in September 2007. The plan shall ensure the sustainable exploitation of the stocks by gradually reducing or maintaining the fishing mortality rates at levels no lower than 0.3 on ages 4 to 7 years in the Eastern Baltic Sea.

There are clear procedures that are regularly used for the measurement of SSB and F, and for measurement of performance relative to SSB and F. These are consolidated and reported upon by the relevant ICES Expert Groups and Committees. The long-term management plan for Baltic cod is up for assessment in 2010.

### 5.1.4 Incentives

In general, the CFP includes very few positive incentives for the individual fisher to fish sustainably. This in combination with long-term low economic performance in most segments of the EU fleet has meant that the task of ensuring sustainable exploitation of the fish resources has rested with the authorities (EU and MS) rather than with the industry. This has implied that the incentive focus has for a long time been on negative incentives such as penalties for non-compliance with rules and regulations. This has made it difficult to achieve the goals formulated in the CFP. The Green Paper on the Reform of the CFP in 2012 therefore puts focus on possible measures to encourage the fishing industry to take more responsibility in implementing the CFP. Among the measures mentioned are:

- » Results-based management instead of rules on how to fish. This would leave it with the industry to demonstrate that it operates responsibly in return for access to fishing.
- » Rights-based management schemes to encourage the industry to eliminate surplus capacity and invest more efficiently.

Since the 2002 revision of the CFP, subsidies that contribute to unsustainable fishing have stopped. There is no support to increase capacity, or to compensate for low catches. The industry does not pay directly for management or science, though on balance this is not considered a subsidy to fleet operation. Some NGOs have in the past questioned whether development support through the EC's structural funding mechanisms to the fishery sector –the European Fisheries Fund (EFF) – constitutes

continuing subsidy to the sector. In recent rounds of such development funding, financing restrictions have been tightened. A preferential tax system is applied to fuel across all EU primary production sectors. This is deemed by some to constitute a subsidy to operation. It is difficult to sustain this argument on a relative basis, as on the whole, European countries apply a far higher level of taxation on fuel than any other economic block in the world (with the exception of Japan).

## 5.2 Fishery Specific Management System

### 5.2.1 Fishery specific objectives

The cod fishery in the Eastern Baltic Sea is managed in line with the long-term objectives established under the multiannual plan for the cod stocks in the Baltic Sea and in line with the advice provided by ICES. This is interpreted and applied at EU, national and fleet levels through a tiered process of review, consultation and planning – in conformity with EU and national policy. This includes a range of input and output controls. At an operational level short-term objectives are primarily represented by output controls linked to the annual setting of Total Allowable Catch (TAC). Achievement against this annual target is monitored at national level on a monthly basis. The TAC for cod in the Eastern Baltic Sea (ICES sub-areas 25-32) is established in accordance with the regulations in Chapter III of the said multiannual plan taking into consideration the advice provided by ICES. Management is by Harvest Control Rule (TAC), Fishing Effort Limitation (days-at-sea and temporal area closures). The multiannual plan has specific requirements for vessels undertaking cod fishery in the Baltic Sea. These requirements include among others special fishing permit, logbook keeping (applicable only to vessels >8 meter), VMS, notification of fishing operations, recording of fishing effort and designated landing ports.

The TAC is allocated between EC Member States according to the “Relative Stability” allocation key established at the time of the foundation of the CFP. In respect of the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fleet quota allocation is on the basis of historic track records on fish landings. The allocation system applied is effectively synonymous with Individual Transferable Quotas (ITQs). Quotas may be re-distributed on a temporary (annual) basis through quota sharing among members of the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH producer organisation. The BLE monitors the individual quota uptake on a day-to-day basis from sales notes from first hand sales. The facility exists to stop the fishery nationally once the quota is taken up.

### 5.2.2 Compliance & enforcement

Germany is a Member State of the European Union, and its fisheries are subject to the principles and practices of the Common Fisheries Policy. Elements of Member State compliance with EC Regulations are captured in the annual EC fisheries compliance scoreboard<sup>2</sup>. The overall CFP requirements for Monitoring, Control and Surveillance (MCS) have recently been revised and a comprehensive Fisheries Control Regulation (Council Regulation (EC) 1224/2009) has come into force from 1 January 2010. The machinery of the EU MCS systems (operational procedures) is well developed, is in place, and is applied in a clear and transparent way. Specific requirements for monitoring, inspection and control of the fisheries for cod in the Baltic Sea form part of the multiannual Baltic cod management plan. These requirements include the implementation of national control action plans that includes strategies and inspection benchmarks. Data is shared between the Member States of the European Union. In this way the activities of the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fleet can be comprehensively monitored by the German authorities, even where landings are made to ports outside Germany. In relation to cod TAC, there is a clear system of data collection, testing and feedback, and there is regular

<sup>2</sup> [http://ec.europa.eu/competition/state\\_aid/studies\\_reports/studies\\_reports.html](http://ec.europa.eu/competition/state_aid/studies_reports/studies_reports.html)

inspection of landings. Non-compliance of German fishermen is dealt with by the relevant authorities through the criminal justice systems, and using agreed and tested procedures. It has been confirmed by the BLE that the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels targeting Baltic cod are operating in full compliance of the rules. This is substantiated from CFCA Evaluation reports on control campaigns in the Baltic Sea.

### **5.2.3 Decision making & Dispute Resolution**

All EU member states have signed up to the CFP, and are bound by European legislation. Disputes between Member States and the Commission are resolved in the Council of Ministers. Where appropriate, European legislation is enacted at the national level through relevant primary and secondary legislation. Formal procedures apply for the resolution of disputes through the European Court of Justice and the national court systems. Extensive consultative processes are in place at national and European levels to debate policy, plans and management, and recent years have seen the introduction of more formal procedures to incorporate a wider stakeholder community within such consultations. Key institutions in this regard are the Advisory Committee on Fisheries and Aquaculture (ACFA) - which comprises a contact group at the European level for all stakeholders at national and regional levels – and the Regional Advisory Councils (RACs) – which comprise a contact group dealing with particular fisheries at the regional level. There is a Baltic Sea RAC that deals with issues relating to amongst others the Baltic Sea cod fishery. Within the fisheries administrative structures of the member state there are a wide range of bodies and committees through which problems can be raised and disputes debated and resolutions found. In Germany the Fisheries Law (1984/2006) enacts consultation with relevant stakeholder organisations, including POs and NGOs, and regional authorities (Länder). Outside the machinery of government, there are a range of institutional solutions to dispute resolution – through the professional associations (at local, regional and national levels).

### **5.2.4 Research Plan**

The core backdrop to the management of the Baltic cod fishery is the advice provided by the ICES Advisory Committee (ACOM) which draws on the on-going work of international scientists from relevant research laboratories and institutions on the stock biology and marine science. Scientific research and assessment is carried out by ICES Working Groups and specialist study groups. The assessments are reviewed and evaluated by the ICES Advisory Committee (ACOM) which then provides advice on the status of target and non-target stocks to the European Commission. ICES advice, via Commission proposals, informs particular TACs and quotas. Stock assessment and data gathering methodologies are regularly reviewed at STECF and ICES level and at the level of the contributing laboratories and research institutions. Within ICES, a stock assessment methods working group keeps methods for fish stock assessment under regular review, and there are specific working groups (e.g. Baltic Fisheries Assessment Working Group (WGBFAS), Baltic International Fish Survey Working Group (WGBIFS) and Planning Group on Commercial Catches, Discards and Biological Sampling (PGCCDBS)) dealing with various issues relevant to the fishery such as e.g. the precautionary approach, discards, biological sampling etc. Scientists from the German Baltic Sea Fishery Institute (Johann Henrich von Thünen-Institut) are actively involved in research in fish stocks in the Baltic Sea and relevant ICES expert groups.

### **5.2.5 Management Evaluation**

The fisheries management system is subject to regular internal review (as required by the CFP). This occurs at every level of the system with policy documents formulated at the European Commission level as a result of initiatives at international, European, member state, and sub-national levels. These policies and resulting operational plans and practices are then subject to wide consultation before ratification, and prescribed monitoring and evaluation processes after ratification. These systems also include formal consultation and review processes involving all EC Member State

fisheries administrations, and committees such as ACOM (the body through which ICES provides formal advice), STECF (the committee by which the European Commission seeks expert opinion on fisheries), the Advisory Committee on Fisheries and Aquaculture (ACFA) dealing with industry concerns at a European / “horizontal” level), and the Regional Advisory Councils (RACs) dealing with regionally specific technical issues (of which the body specifically incorporating Baltic cod fishing interests is the Baltic Sea RAC).

The multi-annual plan for management of Baltic cod in Article 26 specifically calls for an evaluation by the Commission of the plan performance (i.e. impacts on the fish stocks and the fishery) in 2010 after three years of functioning. The evaluation will be based on advice from the STECF and the Baltic RAC.

A wide range of normative monitoring of fisheries practice and the work of the various management institutions also takes place. This includes data collection on vessels (vessel register), fleet activity (days at sea, VMS), landings, catches (through observer programmes), and operating economics (costs and earnings surveys). In terms of institutional performance, regular monitoring against performance targets is undertaken in respect of statistics collection, quota management, aerial, at sea, and on-shore inspections, checks across the audit trail, fisheries enforcement (including prosecutions), and the nature and extent of development support to the sector.

As regards the management of ecosystem components (cf. Principle 2) that may be affected by the Baltic cod fisheries management systems are in general less developed and less comprehensive when compared to fish stock components, cod stocks in particular. However, a long-term management plan for the pelagic fish stocks in the Baltic Sea is presently under consideration and bird protection areas /with restriction/ban on fishing activities) have been designated under the auspices of the EU Birds Directive<sup>3</sup>. Natura 2000 areas in the Baltic Sea (including Germany) have been designated and protection requirements incl. possible restrictions on fisheries are now being considered. As regards the protection of harbor porpoise in the Baltic Sea action plans have been developed and are now under implementation including measures to implement the EU regulation laying down measures concerning incidental catches of cetaceans in fisheries (Council Regulation (EC) No 812/2004), implementation of the objectives of the EU Habitat Directive<sup>4</sup> as well as support to the implementation of the ASCOBANS Action Plan for harbour porpoise in the Baltic Sea (Jasternia Plan).

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<sup>3</sup> Directive 2009/147/EC of the European Parliament and the Council of 30 November 2009 on the conservation of wild birds (codified version).

<sup>4</sup> Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora)

## 6. Background to the Evaluation

### 6.1 Assessment Team

**Assessment team leader:** Nick Pfeiffer

Team leader/ marine scientist with particular responsibilities particular responsibility for assessment under Principles 2

Nick Pfeiffer is a fisheries and marine environmental consultant with a diverse experience and in-depth knowledge of Irish marine fisheries. Nick is involved in a number of MSC assessments, including acting as the P2 expert on the recent assessment of IPSG mackerel.

Nick's experience as a fishery scientist spans ten years and includes the development of fisheries technical conservation measures for commercial fisheries as well as the evaluation of the impacts of a variety of fishing methods on marine ecosystems. As an industry analyst, Nick has been involved in many projects related to the fisheries sector since 2002 and most recently carried out a review of fisheries on Irish offshore islands.

Through his work, Nick has always sought to develop a greater understanding of the principles that relate to the sustainability of coastal and fishing livelihoods. In this regard he is committed to promoting the concept that natural resources can be harvested in a balanced sustainable manner, thereby ensuring long-term security for coastal communities and natural systems.

**Expert team member:** Dr Paul Medley

Fishery scientist / stock assessment specialist with particular responsibility for assessment under Principle 1

Dr Paul Medley is an experienced fishery scientist and population analyst and modeler, with wide knowledge and experience in the assessment of pelagic stocks (amongst a range of marine fish stocks and ecosystems). He holds a first degree in Biology and Computer Science (1st class honor's) from the University of York, and a doctorate from Imperial College, London, based on a thesis "*Interaction between Longline and Purse Seine in the South-West Pacific Tuna Fishery*".

He has travelled widely and worked with a range of fishery systems and biological stocks, both as principal researcher and as evaluator. He is familiar with MSC assessment procedures, having participated in a significant number of MSC full assessments across a range of fisheries, undertaken a substantial number of pre-assessments and acted as peer reviewer in still others.

He is familiar with a wide range of fisheries in the North East Atlantic and other parts of the world, and over the period 2000 to 2005 he has been serving with the Centre for Independent Experts, University of Miami, as an evaluator of various US fishery research programmes. He has been working with the MSC on the development of guidelines for certification of small scale, data poor fisheries. He is based in York.

**Expert team member:** Prof Sten Sverdrup-Jensen

Fisheries economist with particular responsibility for assessment under principle 3.

Sten has more than 30 years of experience with Danish and international fisheries. In 1978-81 he was the Director of the North Jutland County/Aalborg University Fisheries Research Group undertaking the first EU fisheries research project in Denmark. As founding director of Danish Institute of Fisheries Technology 1981-87 Sten Sverdrup-Jensen was involved in various research and consultancy projects focusing on fisheries management and development in Denmark.

After leading a global evaluation of EU fisheries development aid Sten Sverdrup-Jensen in 1991 took up a position as Planning Adviser to the Director General and Acting Director of Social Science Division at ICLARM (now World Fish Centre). Upon his return to Denmark Sten Sverdrup-Jensen in 1993 was the founding director of IFM and involved in research and consultancy work related primarily to institutional aspects of fisheries management for a range of Danish and international clients. After having served as Chief Technical Adviser to Danida/Mekong River Commission on the establishment of fisheries R&D institutes in Cambodia and Laos in

1999-2002 Sten Sverdrup-Jensen re-joined IFM and took up positions as Senior Researcher and Acting Director/Head of Centre.

His most recent research work relates to EU fisheries (e.g. Indicators for Fisheries Management in Europe, IMAGE). His most recent expert assignments include studies on a) Economic and Social impacts of the proposed scenarios for a long term management plan for Baltic pelagic fisheries and b) Impact Assessment Studies related to the 2012 revision of the CFP, both commissioned by the DG MARE as well as the assessment of Danish pelagic fisheries for MSC certification. In 2008 Sten Sverdrup-Jensen was appointed Professor (adj.) at Aalborg University.

**Expert advisor:** Dr Antonio Hervás

Fishery scientist / stock assessment specialist (Principle 1)

Dr. Antonio Hervás is Food Certification International's Fisheries Development Manager. He is an established Fisheries Scientist specialised in quantitative stock assessment methods and the design of management strategies for the sustainable exploitation of the fish resources.

Dr. Hervás holds a BSc in Marine Sciences, a Higher Diploma (postgraduate course) in Fisheries Management, Development and Conservation and a PhD in the development of stock assessment procedures.

From 2001 to 2008 he worked as a fisheries scientist for the assessment on mollusc stock of Ireland at Trinity College Dublin and at the marine Science-MRI at the National University of Ireland, Galway. During this time Dr. Hervás was an active member of the National Shellfish Management Framework with responsibilities on providing scientific advice on the status of mollusc stocks for their management.

Dr. Hervás has published an extensive number of peer reviewed papers, technical reports and has acted as peer reviewer for the ICES Journal of Marine Science.

From 2009, Dr. Hervás has acted as Team Leader and Principle 1 expert against the MSC standard.

**Expert advisor:** Ms Fiona Nimmo

Fishery scientist and industry analyst (Principle 2)

Fiona Nimmo is a senior consultant specialising in fisheries, marine management and energy projects. With degrees in both chemical engineering and marine biology, she has a solid background in science that allows her to adapt to challenging projects. Fiona has over six years of experience in commercial fisheries, impact assessments and natural fish and shellfish resources. She has experience of fisheries within the North Sea, Irish Sea, Atlantic Ocean and English Channel. Impact assessments are undertaken with due regard to the sensitivity of specific habitats and species. Fiona therefore has experience across a diverse range of marine habitats such as sandbanks, biogenic reefs and meadow beds, and species including marine mammals (both cetaceans and seals), sharks (such as basking shark and various ray species) and fish and shellfish (including herring, mackerel, plaice, sole, salmon, lobster, edible crab, Nephrops, scallop etc).

Fiona has completed a number of MSC pre assessments for UK fisheries and is currently involved in the pre-assessment for 33 Danish fisheries. She has undertaken commercial fisheries and natural fish resource assessments for EIA studies for various marine developments including large offshore wind farms. She has contributed to product flow analysis for the Marine Fisheries Agency and the South East Economic Development Agency and recently completed a Regulatory Impact Assessment of marine extensions to Special Protected Areas (SPA) for the Scottish Government. This project focused on the potential impacts of commercial fisheries on the SPA sites designated to protect seabird species.

Fiona is currently involved in developing a Model Management Plan and Guidance for Scottish Inshore Fishery Groups and reviewing objectives and measures for brown crab management for the UK and Ireland Crab Working Group.

**Expert advisor:** Paul Macintyre

MSC Chain of Custody and Traceability specialist / Lead Auditor

15 years management experience within the aquaculture and fish processing sectors. 20 years experience auditing ISO, HACCP, BRC, GlobalGAP, organic and conventional farming operations within the aquaculture



production and fish processing sectors and including MSC Chain of Custody since 2005. ISO 9001 Lead Auditor (QMI 1991); Registered Organic Inspector (DEFRA); Diploma in Advanced Food Hygiene (Queen Margaret University Edinburgh); BRC v5 Food Manufacturing Auditor BRC (London and Manchester); GlobalGAP IFA Trainer (GlobalGAP Cologne); RYA Yachtmaster Offshore (RYA Southport); Diploma Photography (Photography Institute)

### 6.1.1 Peer Reviewers

Peer reviewers used for this report were Dr Mike Pawson and Ms Helen Davies. A summary CV for each is available in the **Assessment downloads** section of the fishery's entry on the MSC website.

## 6.2 Public Consultation

Public announcements of the progression of the assessment were made as follows:

Date	Announcement	Method of notification
17/11/2009	notification of commencement of assessment	notification on MSC website
17/12/2009	nomination of Assessment Team candidates	notification on MSC website
throughout	solicitation of inputs to stakeholder consultation and assessment	email, phone and mail
12/02/2010	announcement of Assessment Tree and Scoring Guideposts	notification on MSC website
22/07/2010	announcement of assessment visit and convening of stakeholder consultation meetings	direct email, notification on MSC website
16-20/08/2010	assessment visit	Notification on MSC website
21/09/2010	notification of Proposed Peer Reviewers	Notification on MSC website
TBD	notification of Public Comment Draft Report	Notification on MSC website
TBD	notification of Final Report	Notification on MSC website

## 6.3 Stakeholder Consultation

A total of 42 stakeholder individuals and organisations having relevant interest in the assessment were identified and consulted during this assessment. The interest of others not appearing on this list was solicited through the postings on the MSC website.

Initial approaches were made by email and followed up by phone. Issues raised during correspondence were investigated during research and information gathering activities, and during interviews.

Most stakeholders contacted during this exercise either indicated that they had no direct interest in this fishery assessment, or that they had no particular cause for concern with regard to its assessment to the MSC standard.

### Stakeholder issues

Written and verbal representations were provided to the assessment team expressing a range of views, opinions and concerns. The team is of the view that matters raised have been adequately debated and addressed as a part of the scoring process for this fishery, and that none of the issues raised, therefore, require separate attention beyond that represented in this report.

The written representation provided by WWF is presented in **Appendix 4**.

## Interview Programme

Following the collation of general information on the fishery, a number of meetings with key stakeholders were scheduled by the team to fill in information gaps and to explore and discuss areas of concern.

Meetings were held as follows:

Name	Position	Organisation
Jörg Petersen, Kai-Arne Schmidt + Skippers Walter Lüdtke, Kay Briesewitz, Dietmar Luick, Sebastian Erler	Client representative, skippers and client group members	Erzeugergemeinschaft der Nord- und Ostseefischer GmbH
Chris Zimmerman	Deputy Director of Institute for Baltic Sea Fisheries	Federal Research Institute for Rural Areas, Forestry and Fisheries, Institute for Baltic Sea Fisheries Rostock
Dr Nik Probst	Head of Sampling and Research	
Dr Christian von Dorrien	Head of Fisheries and Environment	Project manager of UNCOVER. Institute of Baltic Sea Fisheries (OSF)
Lutz Wessendorf	Head of Unit - Catch Management	Federal Office for Agriculture and Food
Karoline Schacht	Fisheries Policy Officer	WWF Germany
Dr Peter Breckling	Representative	Union of German Cutter Fisheries (Deutscher Fischerei - Verband.e.V)

## 6.4 Other Certification Evaluations & Harmonisation

At the time of writing, there was one certified fishery targeting this stock. In addition, 3 MSC assessments targeting this stock are currently underway (also detailed below).

These formed an important background resource for the assessment team - collating and reporting on available stock and fishery information, as well as highlighting areas of stakeholder and assessment team concerns.

### Completed assessments

- » DFPO Denmark Eastern Baltic cod  
<http://www.msc.org/track-a-fishery/certified/north-east-atlantic/Denmark-Eastern-Baltic-cod>

### Assessments in progress

Details are given below:

- » Küstenfischer Nord eG Heiligenhafen Eastern Baltic cod  
<http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/kuestenfischer-nord-eg-heiligenhafen-eastern-baltic-cod>
- » Sweden Eastern Baltic Cod Fishery  
<http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/sweden-eastern-baltic-cod>



Harmonisation for these assessments has been thoroughly explored by the teams involved.

## 6.5 Previous Assessments

The Erzeugergemeinschaft der Nord- und Ostseefischer GmbH North Sea saithe demersal otter trawl fishery achieved MSC certification on 8<sup>th</sup> October 2008, covering the following Unit of Certification:

<b>Species:</b>	Saithe ( <i>Pollachius virens</i> )
<b>Location:</b>	EC waters: ICES Sub-Area IIa, IIIa, IIIbcd, IV
<b>Fishing methods:</b>	Demersal otter trawl
<b>Vessels:</b>	30 trawlers, of which only 7 are continuously engaged in the saithe fishery accounting for 60-90% of the annual saithe landings.

The fishery has undergone one surveillance audit in April 2010 and a stakeholder notification has been issued for the second surveillance audit due to be undertaken in February 2011.

Three conditions were raised to address uncertainties in stock assessment, bycatches and North Sea cod bycatches. The surveillance audit documented progress in line with the client Action Plan to address these conditions. Due to the timescale of the Action Plan these conditions remain open, however no new conditions have been raised and excellent compliance by the client fleet with respect to technical measures have been reported.

## 6.6 Information Sources Used

The principle sources of information used in this assessment process derive from information presented to the team by the client and fishery managers, as well as information derived as a result of interviews and consultations with members of the fishing industry, processors, regulators, and other stakeholders, and as a result of literature research.

The primary sources of information on this stock and the fishery are as follows:

- » ASCOBANS. Proceedings of a number of Meetings of the Parties to ASCOBANS.
- » EC, 2007a. Council Regulation (EC) No 1098/2007 of 18 September 2007 establishing a multiannual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks. Official Journal of the European Union L 248/1.
- » (Also other important Council Regulations were used for the assessment of Principle 3)
- » HELCOM, 2010, Ecosystem health of the Baltic Sea: HELCOM Initial holistic assessment. Baltic Sea Environment Proceedings No. 122.
- » HELCOM, 2010. [http://www.helcom.fi/environment2/biodiv/en\\_GB/bspas/](http://www.helcom.fi/environment2/biodiv/en_GB/bspas/)
- » HELCOM, 2010. Towards an ecologically coherent network of well-managed Marine Protected Areas Implementation report on the status and ecological coherence of the HELCOM BSPA network
- » ICES, 2007. Report of the Workshop on Limit and Target Reference Points [WKREF]. Advisory Committee on Fisheries Management. ICES CM 2007/ACFM: 05
- » ICES, 2008a. Report of the Working Group on Integrated Assessment of the Baltic Sea (WGIAB) ICES, Baltic Committee C.M 2008/BCC:04; 145 pp

- » ICES, 2008c. Report of the Workshop on Reference Points in the Baltic Sea (WKREFBAS). ICES Advisory Committee. ICES Document CM 2008/ACOM:28
- » ICES, 2010a. Report of the Baltic Fisheries Assessment Working Group (WGBFAS). ICES Headquarters, Copenhagen. . 621 pp.

Taken in combination these provide a clear consolidated view of the stock, the fisheries that exploit the stock, and the science behind advice on the management of the stock. In addition a number of other sources have been used in this assessment, which is detailed in full in **Appendix 2**.

## 7. Scoring

### 7.1 Scoring Methodology

#### Process

The MSC is dedicated to promoting “well-managed” and “sustainable” fisheries, and the MSC initiative focuses on identifying such fisheries through means of independent third-party assessments and certification. Once certified, fisheries are awarded the opportunity to utilise an MSC promoted eco-label to gain economic advantages in the marketplace. Through certification and eco-labelling the MSC works to promote and encourage better management of world fisheries, many of which have been suggested to suffer from poor management.

The MSC Principles and Criteria for Sustainable Fisheries form the standard against which the fishery is assessed and are organised in terms of three principles:

- » **MSC Principle 1** - Resource Sustainability
- » **MSC Principle 2** - Ecosystem Sustainability
- » **MSC Principle 3** - Management Systems

A fuller description of the MSC Principles and Criteria and a graphical representation of the assessment tree is presented as **Appendix 1** to this report.

The MSC Principles and Criteria provide the overall requirements necessary for certification of a sustainably managed fishery. To facilitate assessment of any given fishery against this standard, these Criteria are further split into Sub-criteria. Sub-criteria represent separate areas of important information (e.g. Sub-criterion 1.1.1. requires a sufficient level of information on the target species and stock, 1.1.2 requires information on the effects of the fishery on the stock and so on). These Sub-criteria, therefore, provide a detailed checklist of factors necessary to meet the MSC Criteria in the same way as the Criteria provide the factors necessary to meet each Principle.

Below each Sub-criterion, individual ‘Performance Indicators’ (PIs) are identified. It is at this level that the performance of the fishery is measured. Altogether, assessment of this fishery against the MSC standard is achieved through measurement of 31 Performance Indicators. The Principles and their supporting Criteria, Sub-criteria and Performance Indicators that have been used by the assessment team to assess this fishery are incorporated into the scoring sheets (**Appendix 3**).

Scoring of the attributes of this fishery against the MSC Principles and Criteria involves the following process:

- » Decision to use the MSC Default Assessment Tree contained within the MSC Fishery Assessment Methodology (FAM v2)
- » Description of the justification as to why a particular score has been given to each sub-criterion
- » Allocation of a score (out of 100) to each Performance Indicator

In order to make the assessment process as clear and transparent as possible, the Scoring Guideposts are presented in the scoring table and describe the level of performance necessary to achieve **100** (represents the level of performance for a Performance Indicator that would be expected in a theoretically ‘perfect’ fishery), **80** (defines the unconditional pass mark for a Performance Indicator for that type of fishery), and **60** (defines the minimum, conditional pass mark for each Performance Indicator for that type of fishery). The Assessment Tree and Scoring Guideposts for the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod are shown as **Appendix 3** to this report.

## Scoring outcomes

There are two, coupled, scoring requirements that constitute the Marine Stewardship Council's minimum threshold for a sustainable fishery:

- » The fishery must obtain a score of 80 or more for each of the MSC's three Principles, based on the weighted average score for all Criteria and Sub-criteria under each Principle.
- » The fishery must obtain a score of 60 or more for each Performance Indicator.

A score below 80 at the Principle level or 60 for any individual Performance Indicator would represent a level of performance that causes the fishery to automatically fail the assessment.

## 7.2 Scoring

The assessment team convened scoring meetings from 27<sup>th</sup> to 29<sup>th</sup> August 2010 in Göteborg (Sweden). The output of these meetings is shown in the scoring sheets forming **Appendix 3** to this report. The scores allocated to the assessment tree at Sub-criterion, Criterion and Principle levels are shown schematically in **Table 7.1**. The weighted scores for those sub-criteria where a score of below 80 has been allocated at Performance Indicator level – and thus triggering the placing of a condition to bring that element up to good industry practice - are indicated in **red**.

Further details are provided below on those areas where current practices are considered to be below good industry practice. In all cases however, these are not sufficiently below best practice to warrant an automatic failure (i.e. none score less than 60).

In each of these cases a condition is placed upon the fishery as a requirement of certification, further explanation of the attached conditions<sup>5</sup> is provided in **Section 8.4**. Further elaboration on the justification for the scores is provided in the relevant performance indicator in the assessment tree in **Appendix 3**.

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<sup>5</sup> In some cases several of the issues of concern raised in the scoring and outlined here, are covered by a single condition.

**Table 7.1: Summary of the scores for Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod**

Principle 1 – Stock Status / Harvest Control Rules			
1.1.1	Outcome (status)	Stock status	90
1.1.2		Reference Points	80
1.1.3		Stock Rebuilding	N/A
1.2.1	Management	Harvest Strategy	85
1.2.2		Harvest control rules & tools	80
1.2.3		Information & monitoring	65
1.2.4		Assessment of stock status	85

Principle 2 – Wider Ecosystem Impacts			Otter Trawl	Seine Nets
2.1.1	Retained Species	Outcome (status)	100	100
2.1.2		Management	100	100
2.1.3		Information	100	100
2.2.1	Bycatch	Outcome (status)	80	80
2.2.2		Management	85	85
2.2.3		Information	85	85
2.3.1	ETP Species	Outcome (status)	90	90
2.3.2		Management	85	85
2.3.3		Information	85	85
2.4.1	Habitats	Outcome (status)	75	75
2.4.2		Management	80	80
2.4.3		Information	85	85
2.5.1	Ecosystem	Outcome (status)	80	80
2.5.2		Management	80	80
2.5.3		Information	95	95

Principle 3 – Management / Governance			
3.1.1	Governance & Policy	Legal & customary framework	95
3.1.2		Consultation, roles & responsibilities	85
3.1.3		Long term objectives	100
3.1.4		Incentives for sustainable fishing	80
3.2.1	Fishery-specific Management System	Fishery specific objectives	80
3.2.2		Decision making processes	80
3.2.3		Compliance & enforcement	95
3.2.4		Research plan	80
3.2.5		Management performance evaluation	80

Further details are provided below on those areas where current practices are considered to be below good industry practice. In all cases however, these are not sufficiently below best practice to warrant an automatic failure (i.e. none score less than 60).

In each of these cases a condition is placed upon the fishery as a requirement of certification, further explanation of the attached conditions is provided in **Section 8.3**. And further elaboration on the justification for the scores is provided in the relevant Performance Indicator in the assessment tree in **Appendix 3**.

## 8. Certification Recommendation

### 8.1 Eligibility Date

The target Eligibility Date for this fishery is 4th February 2011

### 8.2 Overall Scores

The performance of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod in relation to MSC Principles 1, 2 and 3 is summarised below:

**Table 8.1: Overall scores for Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod**

MSC Principle	Fishery Performance	
	Otter Trawl	Seine nets (fly shooting)
Principle 1: Sustainability of Exploited Stock	81.9 - PASS	
Principle 2: Maintenance of Ecosystem	87 - PASS	87 - PASS
Principle 3: Effective Management System	86.5 - PASS	

The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 60 against any MSC Criteria.

It is therefore recommended that the **Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod fishery be certified according to the Marine Stewardship Council Principles and Criteria for Sustainable Fisheries.**

Following these findings of the assessment team, and review by stakeholders and peer-reviewers, a final determination will be presented to Food Certification International's MSC Certification Sub-Committee for a final decision to be made.

### 8.3 Conditions

The fishery attained a score between 60 and 80 against a number of Performance Indicators, as indicated in **Table 7.1**. The assessment team has therefore set a number of conditions for continuing certification that Erzeugergemeinschaft der Nord und Ostseefischer GmbH, as the client for certification, is required to address. The conditions are applied to improve performance to at least the 80 level within a period set by the certification body but no longer than the term of the certification.

Further elaboration on the justification for the scores is provided in the relevant performance indicator in the assessment tree in Appendix 3.

As a standard condition of certification, the client shall develop an 'Action Plan' for meeting the conditions for continued certification, to be approved by Food Certification International.

The conditions are associated with Principle 1 and Principle 2. There are no conditions associated with Principle 3.

Both otter trawl and Seine net (fly shooting) Units of Certification have scored less than 80 in Principle 1 performance indicator Information/Monitoring.

Both otter trawl and Seine net (fly shooting) Units of Certification have scored less than 80 in the Outcome Status performance indicators for Principle 2 components Habitats and Ecosystem. No conditions are associated with Retained Species, Bycatch Species, Endangered Threatened or Protected Species and Ecosystem for these gear types.

In setting conditions for the certification to proceed, it is the intention of the certification body to assist the fishery attain 'best practice' in the areas where scoring has made it necessary for conditions to be applied. Conditions, associated timescales and relevant Performance Indicators are set out below.

### 8.3.1 Principle 1 Conditions

#### *All Units of Certification*

Condition 1	Harvest Strategy (management)
1.2.3	<b>Information / monitoring</b>
	Relevant information is collected to support the harvest strategy
<b>SG80 guidepost(s) not met:</b>	Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule. There is good information on all other fishery removals from the stock.
<b>Score:</b>	<b>65</b>
<b>Annual Milestones</b>	<p><b>5 years of certification.</b></p> <p><b>Suggested action should take place from the date certification is issued and evidence of it should be provided at each annual surveillance audit.</b></p> <p><b>Year 1:</b> The client fishery shall provide evidence of its engagement with relevant stakeholders through the proposed action plan with the objective of eliminating unreported landings and of minimising the uncertainty related to underreported landings Resulting score: <b>65</b></p> <p><b>Year 2:</b> The client fishery shall provide evidence of its engagement with relevant stakeholders through the proposed action plan with the objective of eliminating unreported landings and of minimising the uncertainty related to underreported landings. Resulting score: <b>65</b></p> <p><b>Year 3:</b> The client fishery shall provide evidence of its engagement with relevant stakeholders through the proposed action plan with the objective of eliminating unreported landings and of minimising the uncertainty related to underreported landings Resulting score: <b>65</b></p> <p><b>Year 4:</b> The client fishery shall provide evidence of its engagement with relevant stakeholders through the proposed action plan with the objective of eliminating unreported landings and of minimising the uncertainty related to underreported landings Resulting score: <b>65</b></p> <p><b>Year 5:</b> The client fishery shall provide evidence of its engagement with relevant stakeholders through the proposed action plan with the objective of eliminating unreported landings and of minimising the uncertainty related to underreported landings. By the fifth year of certification uncertainty on underreported landings estimates should not exist. Resulting score: <b>80</b></p>
<b>Summary of issues</b>	Substantial underreported of catches occurred in 1993-1996, and also from 2000 to 2007 bringing uncertainty to the assessment of the stock. Estimates of the amount of misreporting are available from the national industries and control agencies and indicated that total catches during 2000-2007 were about 32-45% higher than reported figures. By nature this information is highly uncertain. Although Germany submitted data available on misreporting, not all countries exploiting the Eastern Baltic cod reported this information. There are indications that unreported landings decreased significantly in years 2008 and 2009 due to a more stringent



	enforcement of fishing control. Available information suggests that unreported landings in 2009 were only 6% of the reported landings. However this estimation is likely to be only minimum estimates and information on un-reported landings remains uncertain.
<b>Suggested Action</b>	Work with relevant stakeholders (e.g. fishermen, the scientific institutions, and control agencies) to ensure that estimations on unreported landings are accurate.

Condition 2	Harvest Strategy (management)
<b>1.2.3</b>	<b>Information / monitoring</b>
	Relevant information is collected to support the harvest strategy
<b>SG80 guidepost(s) not met:</b>	Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule. There is good information on all other fishery removals from the stock.
<b>Score:</b>	<b>65</b>
<b>Annual Milestones</b>	<p><b>5 years of certification</b></p> <p><b>Suggested action should take place from the date certification is issued and evidence of it should be provided at each annual surveillance audit</b></p> <p><b>Year 1:</b> The client fishery shall provide evidence of its engagement with relevant stakeholders through the proposed action plan with the objective of ensuring that a robust discard sampling is to be implemented. Resulting score: <b>65</b></p> <p><b>Year 2:</b> The client fishery shall provide evidence of the improvement in the robustness of the discard sampling program Resulting score: <b>65</b></p> <p><b>Year 3:</b> The client fishery shall provide evidence of the improvement in the robustness of the discard sampling program Resulting score: <b>65</b></p> <p><b>Year 4:</b> The client fishery shall provide evidence of the improvement in the robustness of the discard sampling program Resulting score: <b>65</b></p> <p><b>Year 5:</b> The client fishery shall provide evidence of the improvement in the robustness of the discard sampling program to the point of being not considered as a main source of uncertainty for the estimation of fishing mortality. Resulting score: <b>80</b></p>
<b>Summary of issues</b>	A sampling program for the estimation of discard mortality has been in operation since year 2004. However, the season and area coverage of discard sampling still requires improvement. The lack of a robust sampling program for discards adds uncertainty to the estimation of fishing mortality, F.
<b>Suggested Action</b>	Work with relevant stakeholders to ensure that discards are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule.

### 8.3.2 Principle 2 Conditions

#### All Units of Certification

Condition 3	Habitats
<b>2.4.1</b>	<b>Status: trawl</b>
	The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.
<b>SG80</b>	The fishery is highly unlikely to reduce habitat structure and function to a point where there

<b>guidepost(s) not met:</b>	would be serious or irreversible harm.
<b>Score:</b>	<b>75</b>
<b>Annual Milestones</b>	<p><b>Year 1:</b> Provide map data and integrate habitat considerations and data recording into a Code of Conduct. Provide further details of Natura 2000 sites, qualifying features and associated Appropriate Assessments Resulting score: <b>75</b></p> <p><b>Year 2:</b> Demonstrate that data is being generated from the Code of Conduct i.e. records of any interactions with sensitive habitats Resulting score: <b>75</b></p> <p><b>Year 3:</b> Demonstrate data generated and research undertaken is shaping the development of a management strategy to mitigate adverse habitat impacts Resulting score: <b>75</b></p> <p><b>Year 4:</b> Demonstrate data generated and research undertaken is further shaping the development of a management strategy to mitigate adverse habitat impacts Resulting score: <b>75</b></p> <p><b>Year 5:</b> Demonstrate that management strategy is implemented Resulting score: <b>80</b></p>
<b>Summary of issues</b>	<p>Demersal otter trawling and fly shooting are associated with damage to sensitive seabed habitats and non-target benthic communities. Effort from the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fisheries is focused in the south-eastern areas of the Eastern Baltic Sea with highest intensity adjacent to Bornholm. Effort occurs within the Danish, Swedish and Polish EEZ. The seabed over this area is not homogenous and available broad scale habitat maps show that the area comprises a mosaic of different seabed habitats. Accordingly, it is likely that there is variation in the sensitivity to the effects of trawling and fly shooting across the range of affected habitats. There are a range of Natura 2000 sites and Baltic Sea Protected Areas throughout the Eastern Baltic. The qualifying features and extent of management plan implementation have not been made available for these entire sites. While the datasets and maps that have been available to the assessment team do, to some extent, indicate the presence of known sensitive habitats or communities in the areas fished, the resolution of such maps has not been adequate to assess the range of these habitats and biotopes or sufficient for the purpose of evaluating the fishery at SG80.</p>
<b>Suggested Action</b>	<p>Provide detailed overlays of habitat mapping (including biotope where possible) with all Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod trawling and fly shooting effort, with particular focus on Natura 2000 and BSPA sites.</p> <p>Provide details of management plan development and implementation status for Natura 2000 and BSPA site, together with Appropriate Assessments where they have been undertaken.</p> <p>Include strategic provisions relating to protecting vulnerable seabed habitats in the Code of Conduct. A log for recording encounters with vulnerable seabed habitats should be established and maintained as part of the Code of Conduct on all certified vessels. This could include an undertaking to explore technical measures to reduce unacceptable impacts where identified, such as the sole use of semi-pelagic otter trawl doors or mid water trawling in these areas and/or possibility of closing vulnerable habitat area(s).</p> <p>Use resulting information in enhance management strategy of the impacts of the fishery to seabed habitats at least to a point where measures combine into a cohesive, reactive and documented strategy that shows an understanding of how the management measures work together to achieve the objective of minimising impacts to seabed habitats.</p>

## 8.4 Recommendations

In addition to the above Conditions, it is also considered that there are areas of performance that the team would like to see improvements in, despite the fact that they relate to Performance Indicators where the client vessels scored 80 or better.

The assessment team has made a number of recommendations. These are not required to maintain certification but would improve the performance of the fishery against the MSC Principles and Criteria. Accordingly, the action taken and timescales are at the discretion of the client.

Recommendations are made in respect of:

1. Retained Species

It is recommended that retained species landed in conjunction with the cod otter trawl and Seine nets (fly shooting) fisheries are reviewed at annual surveillance audits to ensure that a score of 100 remains validated.

2. Bycatch Species

It is recommended that records are continued to be kept on the volumes of discarded species, including flounder and plaice, and that these be made available to appropriate scientific bodies to inform stock assessments for these species.

3. Endangered Threatened and Protected species

It is recommended that a wheelhouse guide be developed to inform skippers and crew of all potential ETP species encountered in the Eastern Baltic Sea (including Twaite shad and European eel) and that any interactions with these species are recorded.

4. Ecosystem

It is recommended that the development of a management plan that accounts for multispecies interactions and variability in environmental conditions is supported where possible.

## 9 Limit of Identification of Landings

This assessment relates only to the fishery defined in **Section 2.1** up to the point of landing of Eastern Baltic cod from the Erzeugergemeinschaft der Nord und Ostseefischer GmbH member vessels to processing plants or actions that have been approved to the MSC Chain of Custody Standard.

### 9.1 Traceability

Although landings are mostly into German ports, certified vessels may also land into other EU countries. All landings made to non-German ports are subject to the same scrutiny and reporting procedures and there is a well established mechanism to enable port-of-landing authorities to report the landing to the relevant German authorities in a timely fashion.

Traceability up to the point of first sale has been scrutinised as part of this assessment and the positive results reflect that the systems in place are deemed adequate to ensure fish is caught in a legal manner and is accurately recorded. The report and assessment trees describe these systems in more detail, but briefly traceability can be verified by:

- » No transshipment;
- » A geographically restricted fishery enabling concentrated inspection effort;
- » Accurate reporting – log books and sales notes (regularly inspected and cross-checked);
- » Verified landings data (including data on other retained species) are used for official monitoring of quota up-take and national statistics;
- » A high level and sophisticated system of at sea monitoring, control and surveillance;
- » Close cooperation between EU regulatory and enforcement authorities and no immunity from prosecution in other jurisdictions;
- » Reporting prior to landing with limited tolerance;
- » A high level of inspection of landings prior to and during unloading;
- » Officially calibrated weighing systems of landing; and
- » Routine inspection of entire factory process.

The above is considered sufficient to ensure fish and fish products invoiced as such by the fishery originate from within the evaluated fishery and no specific risk factors have been identified.

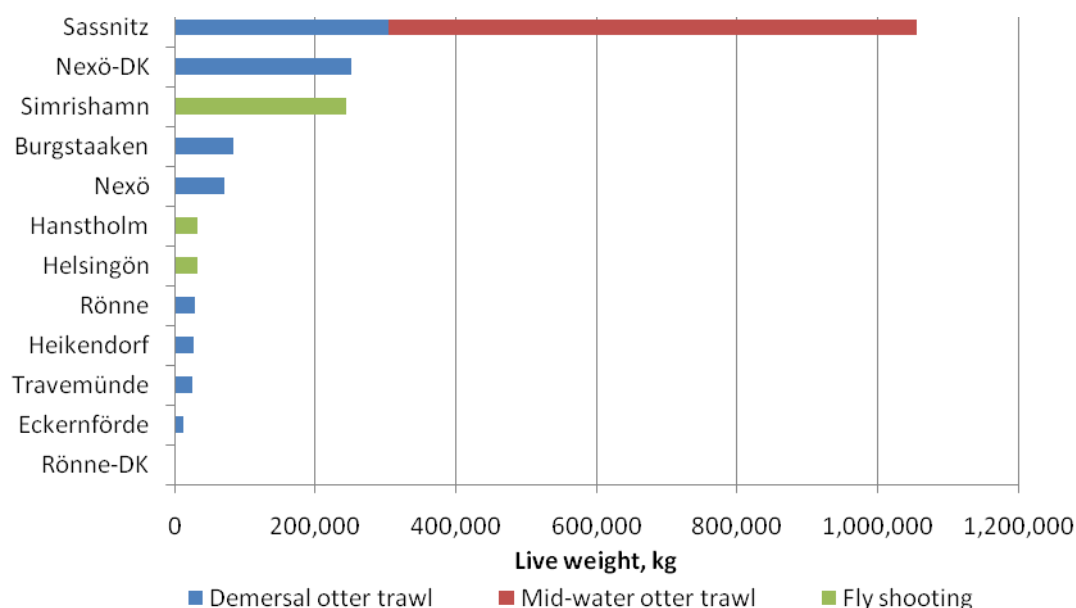
### 9.2. Processing at sea etc

There is no at sea processing of cod.

### 9.3 Point of Landing

Figure 9.1 shows landings ports and percentage from the total landed. Cod is landed almost exclusively in German and Danish ports. However, there are no restrictions defining port of landing, over and above those stated in national fishing regulations (for example vessels must land to registered ports). There is no requirement for the vessels to land at ports named in this report. There are no specific risk factors after the point of landing which need to be highlighted or that may influence chain of custody assessments.

Figure 9.1. Main Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod landings ports



Data source: client

## 9.4 Eligibility to Enter Chains of Custody

Only Eastern Baltic cod caught by all Erzeugergemeinschaft der Nord und Ostseefischer GmbH member vessels, caught in the manner defined in the Units of Certification (**Section 2.1**) recommended for certification (caught using otter trawl and Seine nets (fly shooting) fishing methods) shall be eligible to enter the chain of custody, and only where fish is landed to a MSC Chain of Custody certified business. Chain of Custody should commence following the first point of landing, at which point the product shall be eligible to carry the MSC logo (under restrictions imposed by the MSC Chain of Custody standard). There are no restrictions on the fully certified product entering further chains of custody. Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod does not require its own chain of custody certificate.

The Target Eligibility Date for this fishery will be the 4th February 2011. This means that, assuming that this remains the eligibility date once the assessment is completed (which will be confirmed upon publication of the Public Certification Report), any fish caught by the certified fleet (as defined above) following that date will be eligible to enter the chain of custody as certified product. The rationale for this date is that it meets with the client's wishes to use this date and this meets the guidelines set out in MSC Technical Advisory Board (TAB) Directive D-021(v2). The measures taken by the client to account for risks within the traceability of the fishery – and therefore generating confidence in the use of this date for target eligibility – can be found above in the Traceability subdivision (**Section 9.1**) of this report.

## 10. Client Agreement to the Conditions

The agreed and signed client Action Plan to meet the Conditions of Certification outlined in **Section 8.3**, serves as a client agreement to those conditions, as detailed below:

### 10.1 Client Action Plan

The Erzeugergemeinschaft der Nord und Ostseefischer GmbH is actively committed to sustainable and rational exploitation of marine living resources, through continually improving our knowledge of the sea, the management of our fisheries and minimising the environmental impact of what we do – all the while delivering seafood of the highest quality. Accordingly, and arising from the conditions of certification, Erzeugergemeinschaft der Nord und Ostseefischer GmbH will undertake to implement the following action plan in relation to the conditions of certification.

#### *All Units of Certification*

#### **Condition 1: P1 Information and monitoring**

The Erzeugergemeinschaft wish to stress the very positive development of the stocks of eastern baltic cod during the last years and the radical reduction of misreporting / unreported landings of certain member states. Being fully engaged in sustainability it is our aim to avoid overfishing and unreported landings, not only of Baltic cod. On the international level the Erzeugergemeinschaft commits itself directly or through the German Fishery Association (Deutscher Fischereiverband) in the Baltic Sea RAC and in the Baltic Sea 2020-forum.

In Germany the Erzeugergemeinschaft commits itself to avoid unreported landings / misreporting / overfishing in close discussions with the ministries of agriculture of four coastal countries and the federal ministries of agriculture and environment.

The Erzeugergemeinschaft der Nord- und Ostseefischer will work closely together with the German national authorities, the national research institute, partner organizations in other countries with fisheries on the Eastern Baltic stock and other relevant stakeholders to strive for the goal to reduce the uncertainty of catch information in this fishery to a minimum. The Erzeugergemeinschaft will however also support any initiative to assure that estimates of unreported landings are not uncertain and that illegal catches do not occur again as in the period prior to 2008, understanding however that ships being member of the Erzeugergemeinschaft have not been involved in any illegal fishing activity in the past

Besides being committed to these aims, the Erzeugergemeinschaft uses through its marketing organisation for more than two years a self-developed full traceability system for fisheries in the North Sea, the only one of its kind in Germany. It allows customers to have full information about catches. Further all landed catches per logbook and sold catches are reported separately to the national fishing authorities, giving a full set of information to them.

**Action:** permanent

**Documented:** can be documented during annual audits

#### **Condition 2: P1 Information and monitoring**

As a sampling program for the estimation of discard mortality is in operation since 2004 which requires improvement, the Erzeugergemeinschaft will do its utmost to convince research bodies, in

particular national institutes, to improve the sampling program.

A close cooperation with the von-Thünen-Institut (Hamburg, Rostock) exists and the Erzeugergemeinschaft allow scientists to join their vessels almost anytime upon request.

In a joint project with the von-Thünen-Institut (vTI) in January 2011 two vessels shall be equipped with CCTV systems. Data originating from there shall be analysed by the vTI for scientific purposes. The vTI expects a large volume of data also giving additional information on discards.

**Action:** permanent

**Documented:** at each annual audit

### Condition 3: P2 Habitats

The Erzeugergemeinschaft der Nord- und Ostseefischer will work closely together with the German national authorities, the national research institute, partner organizations in other countries with fisheries on the Eastern Baltic stock and other relevant stakeholders to:

Ensure that the impact of bottom trawling on the substrate is appropriately monitored: This includes the collection of data on the composition of by-caught benthic species and high-resolution data (higher than obtained by VMS) on the geographical distribution of the fishery in relation to protected areas (both possibly by electronic monitoring installed voluntarily on some ships that are members of the Erzeugergemeinschaft). The Erzeugergemeinschaft will encourage the science to analyze the data and will, together with science, support the development of technical measures to reduce any impact of the trawl on the substrate; and

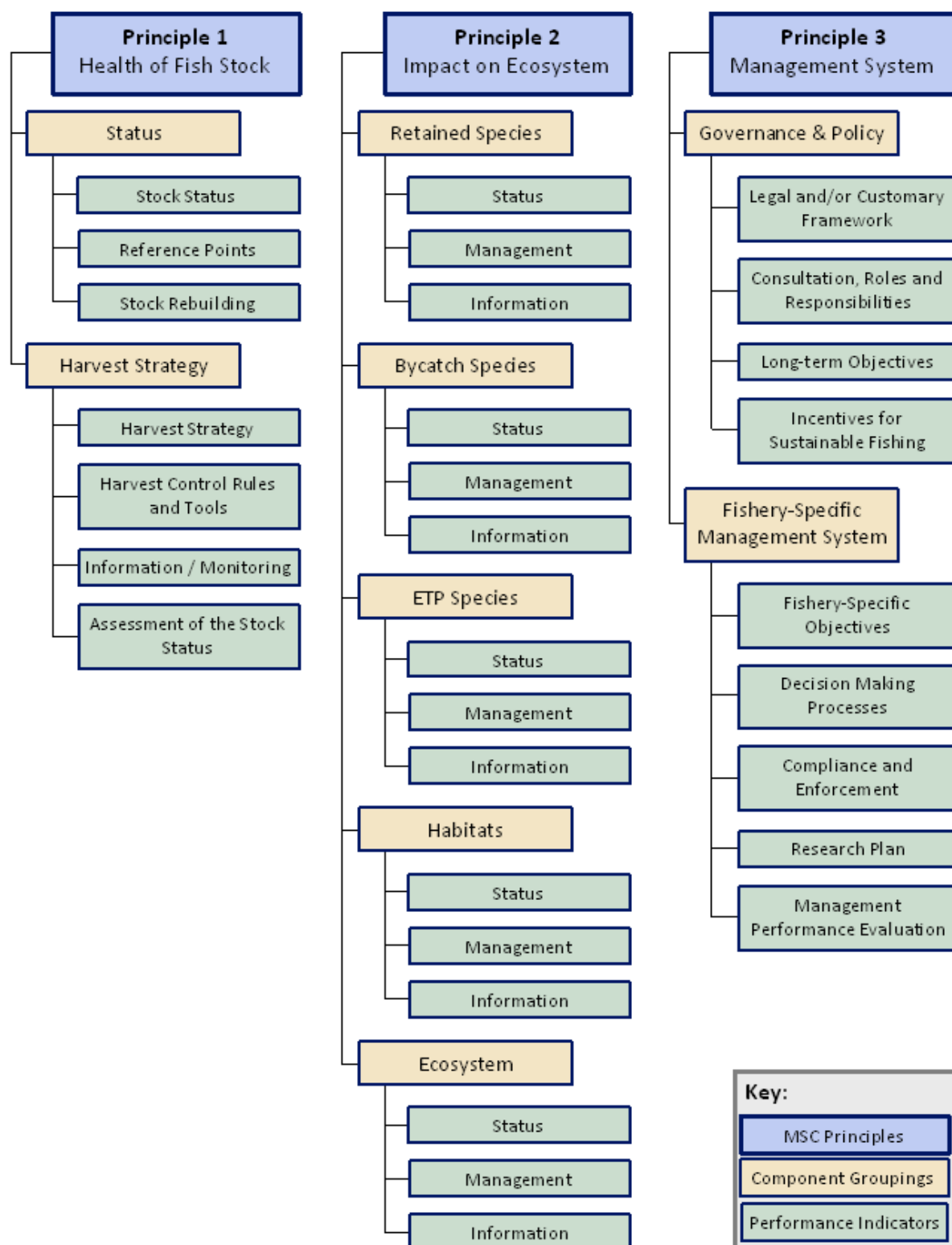
Support the national government and research bodies to undertake appropriate activities for the assessment of fisheries impact in Natura 2000 areas, to ensure that these activities do not negatively impact the feature that is protected by the Natura 2000 designation. The Erzeugergemeinschaft states again that none of its vessels is operating inside Natura 2000 areas and continue to do so.

**Action:** within 18 months

**Documented:** within 5 years of certification, status shall be documented during the annual surveillance audit, commencing with the 2<sup>nd</sup> audit



## Appendix 1 – MSC Principles & Criteria



Below is a much-simplified summary of the MSC Principles and Criteria, to be used for over-view purposes only. For a fuller description, including scoring guideposts under each Performance Indicator, reference should be made to the full assessment tree, complete with scores and

justification, contained in **Appendix 3** of this report. Alternately a fuller description of the MSC Principles and Criteria can be obtained from the MSC website ([www.msc.org](http://www.msc.org)).

## Principle 1

***A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.***

### Intent:

The intent of this Principle is to ensure that the productive capacities of resources are maintained at high levels and are not sacrificed in favour of short-term interests. Thus, exploited populations would be maintained at high levels of abundance designed to retain their productivity, provide margins of safety for error and uncertainty, and restore and retain their capacities for yields over the long term.

### Status

- » The stock is at a level that maintains high productivity and has a low probability of recruitment overfishing.
- » Limit and target reference points are appropriate for the stock (or some measure or surrogate with similar intent or outcome).
- » Where the stock is depleted, there is evidence of stock rebuilding and rebuilding strategies are in place with reasonable expectation that they will succeed.

### Harvest strategy / management

- » There is a robust and precautionary harvest strategy in place, which is responsive to the state of the stock and is designed to achieve stock management objectives.
- » There are well defined and effective harvest control rules in place that endeavour to maintain stocks at target levels.
- » Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.
- » The stock assessment is appropriate for the stock and for the harvest control rule, takes into account uncertainty, and is evaluating stock status relative to reference points.

## Principle 2

***Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends***

### Intent:

The intent of this Principle is to encourage the management of fisheries from an ecosystem perspective under a system designed to assess and restrain the impacts of the fishery on the ecosystem.

### Retained species / Bycatch / ETP species

- » Main species are highly likely to be within biologically based limits or if outside the limits there is a full strategy of demonstrably effective management measures.

- » There is a strategy in place for managing these species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species.
- » Information is sufficient to quantitatively estimate outcome status and support a full strategy to manage main retained / bycatch and ETP species.

### **Habitat & Ecosystem**

- » The fishery does not cause serious or irreversible harm to habitat or ecosystem structure and function, considered on a regional or bioregional basis.
- » There is a strategy and measures in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.
- » The nature, distribution and vulnerability of all main habitat types and ecosystem functions in the fishery area are known at a level of detail relevant to the scale and intensity of the fishery and there is reliable information on the spatial extent, timing and location of use of the fishing gear.

## **Principle 3**

***The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.***

### **Intent:**

The intent of this principle is to ensure that there is an institutional and operational framework for implementing Principles 1 and 2, appropriate to the size and scale of the fishery.

### **Governance and policy**

- » The management system exists within an appropriate and effective legal and/or customary framework that is capable of delivering sustainable fisheries and observes the legal & customary rights of people and incorporates an appropriate dispute resolution framework.
- » Functions, roles and responsibilities of organisations and individuals involved in the management process are explicitly defined and well understood. The management system includes consultation processes.
- » The management policy has clear long-term objectives, incorporates the precautionary approach and does not operate with subsidies that contribute to unsustainable fishing.

### **Fishery specific management system**

- » Short and long term objectives are explicit within the fishery's management system.
- » Decision-making processes respond to relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner.
- » A monitoring, control and surveillance system has been implemented. Sanctions to deal with non-compliance exist and there is no evidence of systematic non-compliance.
- » A research plan provides the management system with reliable and timely information and results are disseminated to all interested parties in a timely fashion.

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## Appendix 3 – Assessment Tree / Scoring sheets

The following Assessment Tree includes description of the Scoring Guideposts (SGs) and Performance Indicators (PIs) used to score the fishery. The Assessment Tree provides detailed justification for all scores attributed to the fishery, in a way which is clearly auditable by future assessors.

<b>1</b>	<b>A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.</b>
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1.1	Management Outcomes			
	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
1.1.1	<b>Stock Status</b> The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing	It is <u>likely</u> that the stock is above the point where recruitment would be impaired.	It is <u>highly likely</u> that the stock is above the point where recruitment would be impaired.	There is a <u>high degree of certainty</u> that the stock is above the point where recruitment would be impaired.
			The stock is at or fluctuating around its target reference point.	There is a <u>high degree of certainty</u> that the stock has been fluctuating around its target reference point, or has been above its target reference point, <u>over recent years</u> .
Score: 90				
There is a high degree of certainty that the stock is above the point where recruitment would be impaired. Trends in F, SSB and Recruitment and their relationship confirm this.				
The stock is above any candidate for full reproductive capacity based SSB estimates for 2010 compared with estimated long term yields when fishing at FMSY.				
Justification				
<i>There is a <u>high degree of certainty</u> that the stock is above the point where recruitment would be impaired.</i>				
In spite of the absence of applicable biomass reference points (BRPs), the relationship between SSB and recruitment indicates that at current spawning stock sizes there is a high degree of certainty that the stock is above the point where recruitment would be impaired (due to fishing). Recruitment overfishing occur when the adult population is fished at a rate at which the number and size of the adult population is reduced to a point that the stock does not have the reproductive capacity to replenish itself. Current fishing mortality estimated at 0.23 y <sup>-1</sup> for 2009 and predicted to be at 0.17 y <sup>-1</sup> for 2010 is well below F <sub>MSY</sub> indicating that the likelihood that the current rate of fishing will cause recruitment overfishing is very low. At current fishing mortality, the level of SSB depends of recruitment success (which depends on hydrographic conditions) and not vice versa.				
<i>The stock is at or fluctuating around its target reference point</i>				
SSB in 2009 is estimated at 220.5 MT and is predicted to increase to 294.3 MT in 2010. Fishing mortality was estimated to be below Fmsy for two consecutive years (F2008 = 0.2467 y-1 and F2009 = 0.2331 y-1) and present SSB is considered to be above any potential candidate of SSB for full reproduction capacity (ICES, 2010). Current SSB levels compared to projected long term yields when fishing at F <sub>MSY</sub> (around 240,000 t) form the basis for considering that current SSB is above any candidate for full reproductive capacity (i.e. BMSY). However, SSB has been at low levels until 2009 and therefore SG100 is not met.				
References				
ICES, 2010a. Report of the Baltic Fisheries Assessment Working Group (WGBFAS). ICES Headquarters, Copenhagen. . 621 pp.				
ICES, 2010b. 8.42. Cod in Subdivision 25-32. Book 8. ICES Advice 2010				

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>1.1.2</b>	<b>Reference Points</b> Limit and target reference points are appropriate for the stock.	<u>Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.</u>	Reference points are appropriate for the stock and can be estimated.  The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.  The target reference point is such that the stock is maintained at a level consistent with $B_{MSY}$ or some measure or surrogate with similar intent or outcome.  For low trophic level species, the target reference point takes into account the ecological role of the stock.	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of relevant <u>precautionary issues</u> .  The target reference point is such that the stock is maintained at a level consistent with $B_{MSY}$ or some measure or surrogate with similar intent or outcome, <u>or a higher level</u> , and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.

**Score: 80**

Biomass reference points were removed due to a major shift on environmental conditions for spawning and recruitment. As a result fishing mortality-based reference points are used to manage the Eastern Baltic cod stock. Flim and Fpa are defined to avoid recruitment overfishing and only Fpa is used in the management plan. FMSY has been defined recently following the newly incorporated MSY approach in the advice provided by ICES. FMSY has been defined following stochastic simulations carried out by AGLTA in 2005 which aimed to estimated sustainable fishing mortalities for the exploitation of this stock.

### Justification

*Reference points are appropriate for the stock and can be estimated.*

Reference points have been set for fishing mortality, which are appropriate for the stock, available data and analyses. The values are Flim = 0.96 y-1, Fpa = 0.6 y-1 and Ftarget = Fmsy = 0.3 y-1. Calculations based on yield per recruit gave  $F_{0.1} = 0.17$  y-1 and  $F_{max} = 0.29$  y-1. The reference points have been estimated based on past output from stock assessments.

In 2009, biomass reference points were removed due to a major shift on environmental conditions for spawning and recruitment. A recent integrated ecosystem assessment (ICES CM 2008/BCC: 04) shows a major shift in food web composition and in environmental drivers in the Central Baltic basin. The productivity of the Eastern Baltic Ecosystem can be described by high and a low productivity time periods, dominated by the North Sea water inflows to the Baltic Sea. In 2007, discussion on the estimation of Biomass Limit reference Points (Blim and Bpa) focused on the separation into two different time periods (high and low productivity) for recruitment and on the methodology to derive reference points under that such environmental driven situation (WKREF, 2007). The preferred methodology would have been to include the main environmental drivers in to the estimation procedure and to estimate a limit reference point dependent on levels of variables characterising environmental regimes. This could not be achieved at the time of the workshop on reference points (2007 and 2008) (WKREF, 2007; WKREFBAS, 2008). It was concluded that biomass reference points for cod could not be estimated without considering changes in the biomass of its prey (sprat) and the environmental conditions for spawning and recruitment. During the benchmark assessment workshop January 2009 this conclusion was accepted and biomass reference points were deleted because the relation between SSB and R has altered and depends on the environmental conditions which have been unfavourable since 1987.

*The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.*

The Advisory Committee of Fisheries Management (ACFM) in 1998 estimated a precautionary Fishing Mortality Reference Point at Fpa = 0.6, defined as the 5% percentile of Fmed derived from a stochastic stock recruitment relationship covering years-classes 1966-1995. The Limit Fishing Mortality Reference Point (Flim) was set to 0.96 determined as Fmed, which correspond to the 50-percentile from a ratio of observed SSB and subsequent recruitment. The fishing mortality limit (Flim = 0.96) under the current harvest control rule does not appear to have any purpose. Instead the precautionary fishing mortality rate is used as a precautionary trigger point to ensure that recruitment overfishing does not occur.

*The target reference point is such that the stock is maintained at a level consistent with  $B_{MSY}$  or some measure or surrogate with similar intent or outcome.*

In the absence of applicable biomass reference points, fishing mortality-based reference points are used to manage the Eastern Baltic cod stock.

$F_{MSY}$  was estimated at  $0.3 \text{ y}^{-1}$  based on stochastic simulations (WKREF, 2007; WKREFBAS, 2008) carried out by the *ad hoc* Group on Long term Advice (AGLTA, 2005). The *ad hoc* Group performed simulations to derive range of sustainable fishing mortalities for the Eastern Baltic cod. Stochastic simulations assumed that the stock recruitment relationship (based on data for the low productivity period 1987-2001) is represented by a hockey-stick model with a breakpoint at 160,000 t and recruitment around 174,000 million individuals. The model implies that recruitment is constant (with a predefined stochastic variation) at SSBs greater than 160,000 t and there is no environmental effect on recruitment in the modelling; except for an assumed low recruitment level based upon the recent environmental conditions. The simulations included implementation errors (i.e. un-reported landings and discards). AGLTA estimated fishing mortalities of 0.3-0.4 as candidate long-term fishing mortalities to achieve high long term yields and minimising the probability of SSB failing below 160,000 t (former Blim) (AGLTA, 2005).

The assessment team considered that the current reference points are not sufficiently precautionary to meet any of the issues of SG100.

It has been recommended that present  $F_{LIM}$  and FPA should be removed and only fishing mortalities in the range of 0.3-0.4 as calculated by AGLTA (2005) should be kept (ICES, 2009). This approach would be more precautionary in avoiding recruitment overfishing. In addition biomass reference points are under development and the appropriate biomass reference points in related to different ecosystems regimes is not well understood.

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	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
1.1.3	<b>Stock Rebuilding</b> Where the stock is depleted, there is evidence of stock rebuilding.	Where stocks are depleted rebuilding strategies which have a <u>reasonable expectation</u> of success are in place.	Where stocks are depleted rebuilding strategies are in place.	Where stocks are depleted, strategies are <u>demonstrated</u> to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete within the <u>shortest practicable</u> timeframe.
		Monitoring is in place to determine whether they are effective in rebuilding the stock within a <u>specified</u> timeframe.	There is <u>evidence</u> that they are rebuilding stocks, or it is highly likely based on simulation modelling or previous performance that they will be able to rebuild the stock within a <u>specified</u> timeframe.	
Score:		—		
NA				
Justification				
Fishing mortality rate has been below FMSY for the last two years and current SSB levels are considered to be above any suggested biomass reference point for full reproductive capacity. Therefore stock rebuilding does not have to be triggered				
References				

1.2	Harvest Strategy (management)			
	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
1.2.1	<b>Harvest Strategy</b> There is a robust and precautionary harvest strategy in place	The harvest strategy is <u>expected</u> to achieve stock management objectives reflected in the target and limit reference points.  The harvest strategy is <u>likely</u> to work based on prior experience or plausible argument.  <u>Monitoring</u> is in place that is expected to determine whether the harvest strategy is working.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy <u>work together</u> towards achieving management objectives reflected in the target and limit reference points.  The harvest strategy may not have been fully tested but monitoring is in place and <u>evidence</u> exists that it is achieving its objectives.	The harvest strategy is responsive to the state of the stock and is <u>designed</u> to achieve stock management objectives reflected in the target and limit reference points.  The performance of the harvest strategy has been <u>fully evaluated</u> and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.  The harvest strategy is <u>periodically reviewed and improved</u> as necessary.

**Score: 85**

The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.

The harvest strategy has not been fully tested but monitoring is in place and evidence exists that it is achieving its objectives.

The harvest strategy has been reviewed and changed as necessary and as result of it the perception of the stock status has improved significantly.

#### Justification

*The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.*

The harvest strategy is responsive to the state of the stock. There is an agreed harvest control rule which is based on annual stock assessment and independent scientific advice. The management decision making appears well informed and consideration is given to a wide number of issues besides stock size, including ecosystem considerations. The performance of the assessment and harvest strategy is routinely presented and provide an overview of the changes in the state of the stock in relation to SSB, fishing mortality and recruitment.

The elements of the harvest strategy are working together to achieve stock management objectives reflected in the target and limit reference point. The multiannual management plan introduced in 2008 was one of the first implemented to combine total allowance catch (TAC) and effort control management system within the European Common Fisheries Policy (CFP). The harvest decision rules are set to ensure that fishing mortality is maintain at  $F = 0.3 \text{ y}^{-1}$  which is the main objective of the management plan.

Although the TAC remains the main control, other technical measures are applied to improve the performance of the fishery. These include: 1. Indirect effort control measure (i.e. seasonal and area closures to protect spawning fish). 2. Technical conservation measures (i.e. (i) high-grading ban to reduce discard mortality. (ii). A Bacoma codend with a 120 mm mesh along with a Bacoma window (5.5 m), to further decrease discard and (iii) the minimum landing size. Although the effectiveness of these technical conservation measures have not been evaluated (and therefore issue 1 SG 100 "designed" is not awarded) evidence indicates that are working together toward achieving management objectives

*The harvest strategy may not have been fully tested but monitoring is in place and evidence exists that it is achieving its objectives.*

Bastardie *et al.* (2009) carried out a management strategy evaluation (MSE) of the multi-annual management plan for cod in the Eastern Baltic Sea. The MSE was reviewed by three independent scientists (Review Group on Cod Management Plans, 2009). The MSE concluded that this management plan is in accordance with the precautionary approach under the following conditions (i) the current settings of the assessment model are maintained (especially the shrinkage on  $F$  at 0.5); (ii) the effort reduction in the year is fully complied; (iii) biological parameters are assumed stationary on a long term basis. (iv)The exploitation pattern

remains constant (v) the observation error added in the management procedure remains in the range of magnitude tested. The evaluation is most sensitive to assumptions about implementation error; i.e. TAC and effort overshoot.

Given that the current harvest strategy has not been in place long it cannot be confirmed that the harvest strategy is being implemented under the above precautionary assumptions. Therefore it was considered that the current harvest strategy has not been fully tested (Issue 2 SG 100). However, monitoring is in place and the assessment of the stock status indicates that stock biomass is at high productive levels and exploitation rates are consistent with long term sustainable objectives. Therefore issue 2 SG 80 is met

*The harvest strategy is periodically reviewed and improved as necessary.*

Before the implementation of the multiannual management plan in 2008 a number of different management strategies were introduced without success, partly because regulations led to unintended responses of the fishery in response to reduction to fishing pressure (ICES, 2008). The improvement in the stock status is a result of the overall improvement in the harvest strategy. Currently the multiannual management plan is being reviewed following the normal management processes.

## References

- Bastardie, F., Nielsen, J.R., and Kraus, G. 2010. The eastern Baltic cod fishery: a fleet-based management strategy evaluation framework to assess the cod recovery plan for 2008. ICES Journal of Marine Science, 67:71-86.
- EC, 2007. Council Regulation (EC) No 1098/2007 of 18 September 2007 establishing a multiannual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks. Official Journal of the European Union L 248/1.
- ICES, 2008b. Report of the Baltic Fisheries Assessment Working Group ICES Advisory Committee on Fisheries Management. . ICES Document CM 2008/ACOM: 06
- ICES, 2010a. Report of the Baltic Fisheries Assessment Working Group (WGBFAS). ICES Headquarters, Copenhagen. . 621 pp.
- ICES, 2010b. 8.42. Cod in Subdivision 25-32. Book 8. ICES Advice 2010

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>1.2.2</b>	<b>Harvest control rules and tools</b> There are well defined and effective harvest control rules in place	<u>Generally understood</u> harvest control rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.  There is <u>some evidence</u> that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.	<u>Well defined</u> harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.  The <u>selection</u> of the harvest control rules takes into account the <u>main</u> uncertainties.  <u>Available evidence indicates</u> that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	The <u>design</u> of the harvest control rules take into account a <u>wide</u> range of uncertainties.  <u>Evidence clearly shows</u> that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.

**Score: 80**

*Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.*

*The selection of the harvest control rules takes into account the main uncertainties*

*Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.*

### Justification

*Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.*

A multiannual management plan was agreed by the EU in 2007 and implemented in 2008 (EC 1098/2007) with the objective of maintaining exploitation rates at levels ( $F = 0.3 \text{ y}^{-1}$ ) that provide high long term yields. The plan restricts between year TAC change to  $\pm 15\%$  unless  $F$  is greater than  $F_{pa} = 0.6\text{y}^{-1}$ . The plan also introduced an effort management control system (days at sea) with the aim of directly control fishing effort. ICES evaluated the management plan and concluded that it is in agreement with the precautionary approach.

Aiming for keeping fishing mortality rates at levels that provide high long term yields rather than aiming to keep the stock biomass above a biomass reference levels has been accepted for this stock (see 1.1.2). Stock assessment shows that at ranges of SSB observed recruitment does not depend on SSB and it is SSB levels that depend on recruitment success.

*The selection of the harvest control rules takes into account the main uncertainties.*

The evaluation of the multiannual management plan analysed the robustness of the plan to uncertainties related to fleet adaptation, including; misreporting, importing catching power, adapting capacity and relocating fishing effort. The simulations revealed that that the management plan is robust and consistent with the precautionary approach. It is not possible to say that the evaluation take into account a wide range of uncertainty. Simulation testing was carried out under a number of assumptions (see PI 1.2.1) and it is not possible to say that the rule is designed, as the testing has occurred after the rule was implemented. Therefore Issue 2 SG 100 is not met.

*Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.*

The multiannual management plan introduced total allowance catch (TAC) and total allowance effort (TAE) as management tools to achieve the exploitation rates required under the harvest control rules. TAC and TAE were set corresponding to a gradual reduction in fishing mortality, by 10% per year until the stock recovered to the targeted  $F$  at 0.3 (EC, 2007). Conservative assessment setting underestimated the forecasted SSB and consequently  $F$  decreased to levels below  $F$  more rapidly than expected.  $F$  was estimated to be below 0.3 already in 2008. Under the current fishing mortality rates ( $F < 0.3$ ) the TAC constraint at 15% is the main controlling measure limiting the utilization of the resource. This measure indicates that  $F$  will remain well below 0.3 in the coming years (assuming that recent recruitment trends do not change significantly)  $F$  in 2009 was estimated at 0.23; and projected  $F$  is estimated at 0.17 for years 2010 and 2011.

It is not possible to say that available evidence clearly shows that the tools in used are effective due mainly to the sensitivity of the tools effectiveness to implementation error (TAC and effort overshoot). Therefore issue 3 SG 100 is not met.

### References

Bastardie, F., Nielsen, J.R., and Kraus, G. 2010. The eastern Baltic cod fishery: a fleet-based management strategy evaluation framework to assess the cod recovery plan for 2008. ICES Journal of Marine Science, 67:71-86.

EC, 2007. Council Regulation (EC) No 1098/2007 of 18 September 2007 establishing a multiannual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks. Official Journal of the European Union L 248/1.

ICES, 2010a. Report of the Baltic Fisheries Assessment Working Group (WGBFAS). ICES Headquarters, Copenhagen. . 621 pp.

ICES, 2010b. 8.42. Cod in Subdivision 25-32. Book 8. ICES Advice 2010

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>1.2.3</b>	<b>Information monitoring</b> Relevant information is collected to support the harvest strategy	<p><u>Some</u> relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.</p> <p>Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.</p>	<p><u>Sufficient</u> relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.</p> <p>Stock abundance and fishery removals are <u>regularly monitored at a level of accuracy and coverage consistent with the harvest control rule</u>, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.</p> <p>There is good information on all other fishery removals from the stock.</p>	<p>A <u>comprehensive range</u> of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly relevant to the current harvest strategy, is available.</p> <p><u>All information</u> required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent <u>uncertainties</u> in the information [data] and the robustness of assessment and management to this uncertainty.</p>

**Score: 65**

Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy

Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.

#### Justification

*Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.*

The stock distribution of the Eastern Baltic cod is well understood and defined as the ICES Subdivisions 25-32 of the Baltic Sea. The stock is biologically distinct from the adjacent Western Baltic cod stock distributed in Subdivisions 22-24, although the stocks overlap in the border area. The stock separation has been confirmed by genetic studies. Separation between stocks is maintained primarily through differences in spawning areas.

Information on stock productivity and its relation to the environment conditions is well understood. A recent integrated ecosystem assessment (ICES CM 2008/BCC: 04) shows a major shift in food web composition and in environmental drivers in the Central Baltic basin. The productivity of the Eastern Baltic Ecosystem can be described by high and a low productivity time periods, dominated by the North Sea water inflows to the Baltic Sea. Information of different regimes in stock productivity support the harvest strategy (based on maintaining F at sustainable rates)

The fleet composition is also well known. A system of licences ensures this. Fishing effort distribution is well known through the use of the vessel monitoring system (for vessels greater than XX m).

Biological information for stock assessment is routinely sampled from all countries fishing the Eastern Baltic cod stock. Age, length and weight are routinely sampled within the abundance surveys. However, there are long standing problems with aging inconsistencies in this stock. Otoliths from cod in the Eastern Baltic generally do not show well-defined seasonal growth zones. As a result of this, there is uncertainty related to the stock age structure.

*Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.*

Landings by species are routinely reported. These constitute the official landings reported by the relevant government management authorities. However, substantial underreported of catches occurred in 1993-1996, and also from 2000 to 2007 bringing uncertainty to the assessment of the stock. Estimates of the amount of misreporting are available from the national industries and control agencies and indicated that total catches during 2000-2007 were about 32-45% higher than reported

figures. By nature this information is highly uncertain. Although Germany submitted data available on misreporting, not all countries exploiting the Eastern Baltic cod reported this information. There are indications that unreported landings decreased significantly in years 2008 and 2009 due to a more stringent enforcement of fishing control (Copenhagen declaration on combating unreported cod fishery in the Baltic Sea, 2007). Available information suggests that unreported landings in 2009 were only 6% of the reported landings. However this estimation is likely to be only minimum estimates and information on unreported landings remains uncertain (ICES, 2010). Uncertainty in the under-reported estimates determines that **Issue 3 SG 80 “There is good information on all other fishery removals from the stock” is not met.**

Another source of mortality is discard data. Although, a sampling program for the estimation of discard mortality has been in operation since year 2004, the season and area coverage of discard sampling still requires improvement. The lack of a robust sampling program for discards adds uncertainty to the assessment of the stock status. The uncertainty related to discard mortality due to the lack of robustness in the discard sampling program determine that **Issue 2 SG 80 “Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule” is not met**

Stock abundance indices are available from Baltic international Trawl Surveys (BITS) conducted since year 1991 annually. Denmark, Germany, Latvia, Poland, Russia, Lithuania and Sweden participate with research vessels. The surveys have been internationally coordinated since year 2001, when a standardised trawl was introduced among all countries. As a result of this, surveys abundance indices are divided in two time periods which cannot be compared. CPUE from the commercial Danish fleet is used as a tuning fleet for the assessment of the stock. Danish CPUE standardisation which accounts for factor affecting both relative abundance and fishing efficiency provides a reliable estimate of abundance indices.

## References

- ICES, 2010a. Report of the Baltic Fisheries Assessment Working Group (WGBFAS). ICES Headquarters, Copenhagen. . 621 pp.
- ICES, 2010b. 8.42. Cod in Subdivision 25-32. Book 8. ICES Advice 2010
- Nielsen, E.E, Hansen, M.M., Schmidt, C., Meldrup, D. And P. Gronkjaer. 2001. Population of origin of Atlantic cod. Nature, Vol. 413, no 6853: 272.



	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>1.2.4</b>	<b>Assessment of stock status</b> There is an adequate assessment of the stock status	The assessment estimates stock status relative to reference points.  The major sources of uncertainty are identified.	The assessment is appropriate for the stock and for the harvest control rule, and is evaluating stock status relative to reference points.  The assessment takes uncertainty into account.  The stock assessment is subject to peer review.	The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.  The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.  The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.  The assessment has been internally and externally peer reviewed.

**Score: 85**

The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.

The assessment takes uncertainty into account

The stock assessment is subject to peer review

### Justification

*The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.*

The stock size, fishing mortality rates and recruitment levels are estimated on an annual basis. The fishing mortality rate is compared to the reference points used by management and a TAC is advice that agrees with the harvest control rules.

The assessment methodology and level of accuracy is sufficient to apply the harvest control rule effectively. The principal assessment model is the XSA version of virtual population analysis. The model is suitable for the available data. XSA is an age structure assessment method which assesses the annual age-disaggregated F and abundance from catch at age data, together with indices of abundance. XSA is used by ICES for a number of stocks, has been widely tested and is generally considered robust as long as the catch-at-age and survey data are reliable.

Species and stock-specific parameters are used in the model as appropriate. Weight at age is estimated each year, taking account of their variability in the assessment. The assessment includes estimates of unreported and discard mortality as it is considered to be significant.

*The assessment takes uncertainty into account*

The major uncertainties are identified in the annual assessments and their implications examined and reported as part of the management advice. However specific advice is presented as a table of options for fishing mortality (TAC), but does not report outcomes in relation to the uncertainties in the data and assessment. The main uncertainties in this assessment are mainly due to problems with underreporting, discarding and age-reading (Issues 2 and 3 SG100 not met)

*The stock assessment is subject to peer review*

The stock assessment is subject to peer review through the working group process. A review is undertaken by the Scientific, Technical and Economic Committee for Fisheries (STECF). While external review is conducted on ICES stock assessments, these reviews are not routine (Issue 4 SG100 not met)

### References

ICES, 2010a. Report of the Baltic Fisheries Assessment Working Group (WGBFAS). ICES Headquarters, Copenhagen. . 621 pp.

ICES, 2010b. 8.42. Cod in Subdivision 25-32. Book 8. ICES Advice 2010

<b>2</b>	<b>Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.</b>
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The following Principle 2 scoring tables provide justification for otter trawl (including demersal, pelagic and semi-pelagic) and fly shooting (seine netting).

## Retained species

<b>2.1</b>	<b>Retained species</b>			
	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>2.1.1</b>	<b>Status</b> The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species.	Main retained species are likely to be within biologically based limits or if outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.  If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.	Main retained species are <u>highly likely</u> to be within biologically based limits, or if outside the limits there is a <u>partial strategy</u> of <u>demonstrably effective</u> management measures in place such that the fishery does not hinder recovery and rebuilding.	There is a <u>high degree of certainty</u> that retained species are within biologically based limits.  Target reference points are defined and retained species are at or fluctuating around their target reference points.
<b>Score:</b>		<b>100</b>		

There are no main or minor retained species within otter trawl and fly shooting Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod fisheries. This performance indicator therefore scores 100.

### Justification

An analysis of the official logbook landings data for Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels fishing in the Eastern Baltic using demersal, semi-pelagic and midwater otter trawl reveals that 99.86% of the catch by weight is cod (Table 1). While it is recognised that 1.5 tonnes of flounder is retained, this species is normally discarded and is therefore assessed under the Bycatch component. Other species occasionally retained include plaice (380 kg) and whiting (152kg) and turbot (40 kg). This level of retained species over an annual period is considered to be negligible in size and negligible in its impact to plaice, whiting and turbot.

An analysis of the official logbook landings data for Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels fishing in the Eastern Baltic using fly shooting reveals that 99.89% of the catch by weight is cod (Table 1). Other species occasionally retained include plaice (310 kg) and mixed species (30 kg). This level of retained species over an annual period is considered to be negligible in size and negligible in its impact to plaice and other species.

As per Section 7.2.3 of FAM v2 it is assessed that the otter trawl and fly shooting fisheries therefore meet SG100.

**Table 1: Live weight (kg) of species landed in conjunction with the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod otter trawl and fly shooting fisheries for 2009 period (Erzeugergemeinschaft der Nord- und Ostseefischer GmbH, 2010)**

	Otter trawl		Fly shooting	
	Kg	%	Kg	%
Cod	1,556,035	99.13%	310,614	99.06%
Cod (research)	300	0.02%		0.00%
Cod roe	9,433	0.60%	2,594	0.83%
Cod liver	1,742	0.11%		0.00%
Plaice	380	0.02%	310	0.08%
Turbot	40	0.00%		0.00%
Flounder	1,550	0.10%	0	0.00%
Mixed	0	0.00%	30	0.01%
Whiting	152	0.01%		0.00%
Total	1,569,631	100.00%	313,548	100.00%
<b>Total cod</b>	<b>1,567,510</b>	<b>99.86%</b>	<b>313,208</b>	<b>99.89%</b>

#### References

Erzeugergemeinschaft der Nord- und Ostseefischer GmbH. 2010. Logbook landings statistics for member vessels.

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
2.1.2	<b>Management strategy</b>  There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species.	There are <u>measures</u> in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a <u>partial strategy</u> in place, if necessary that is expected to maintain the <b>main</b> retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a <u>strategy</u> in place for managing retained species.
		The measures are considered <u>likely</u> to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some <u>objective basis for confidence</u> that the partial strategy will work, based on some information directly about the fishery and/or species involved.  <	

volumes of species landed to be monitored, and provides evidence that the overall objective of TACs and quotas are being achieved. While quotas are in place for turbot and whiting for other stocks, none are set in the Baltic area.

The EU legal **minimum landing sizes** for the Baltic Sea are set out in Annex IV of Regulation No 2187/2005. The EU regulation states that undersized animals are not to be retained on board, transhipped, landed, transported, stored, sold, displayed or offered for sale and must be returned immediately to the sea. There are minimum landings sizes set for plaice and turbot (Table 2)

**Table 2: Minimum Landing Sizes (MLS) for retained species in the Baltic (EC, 2005)**

Species	Baltic area	Minimum landing size
Plaice	Subdivisions 22-32	25cm
Turbot	Subdivisions 22-32	30cm

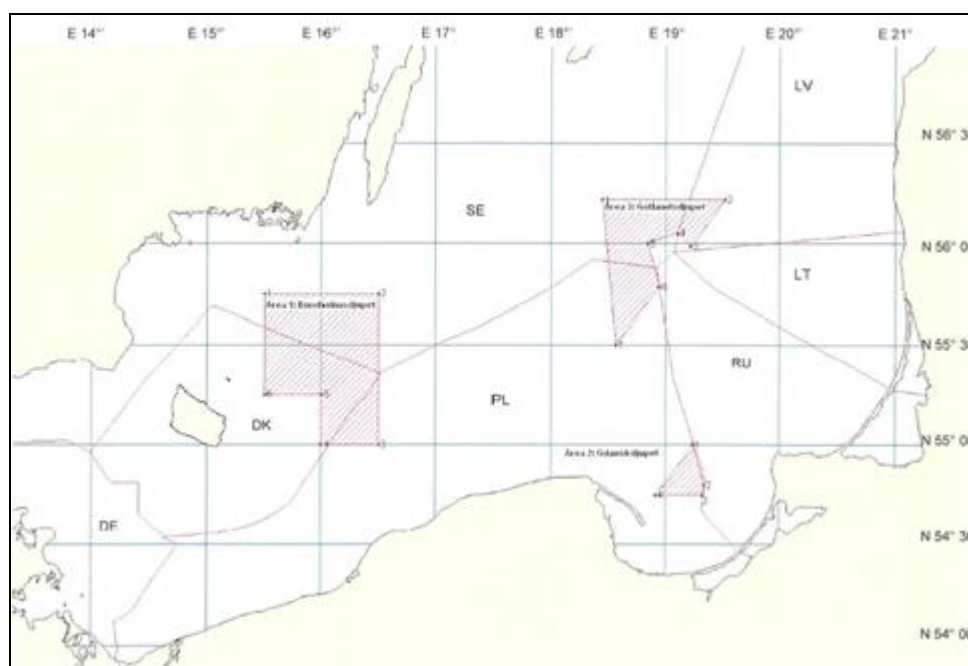
**Technical gear restrictions** for trawl nets targeting cod within the Baltic Sea specify a minimum mesh size of  $\geq 105\text{mm}$  and must be fitted with either a Bacoma exit window or T90 codend and extension piece. The Code of Conduct operated by the fleet under assessment requires that the “Minimum mesh size shall be 125 mm”. For authorised use, trawls fitted with a Bacoma exit window or a T90 codend and extension piece must meet a set of strict criteria in relation to twine thickness, size of window, specifications for mounting, joining, etc. These criteria are described in detail in Appendix 1 (Bacoma) and Appendix 2 (T90) of Annex II of the Regulation No 2187/2005.

Other trawl gear i.e. with less than 105mm nets, for example fleets targeting pelagic species such as herring and sprat, are not included within this Unit of Certification.

Measures such as **multi-annual management plans** and **days at sea** which are designed to protect cod stocks within the Baltic will also be of relevance to retained species. The multi-annual management plan for cod stocks in the Baltic Sea, introduced in 2008 was one of the first implemented to combine TAC and effort control management systems within the European Common Fisheries Policy (Bastardie, 2009). The multi-annual management plan permits catches of cod within a well defined and closely monitored quota. Within the cod management plan, reduction in discarding is encouraged through allowing extra days at sea for vessels using highly selective gears. The plan also prohibits transhipment, makes notification of landing mandatory and limits effort through days at sea restrictions. The recovery plan stipulates that vessels can fish a maximum of 181 days in the Western area and 160 days in the Eastern area, and if a vessel is catching in both areas a maximum of 181 days out of port are permitted, with a maximum of 160 in the eastern area. A day out of port is a continuous 24 hours period, or part thereof, when the vessel is out of port with catch strain regulated gears on board or such gear are used.

As part of the EU recovery plan (EU 1098/2007) there are complete **seasonal closures** for the Eastern Baltic Sea (ICES 25-28) to protect cod spawning season during the entirety of months July and August. During this period vessels with a total length of 8m or more are not allowed to catch within ICES areas 25-28. There is a special exemption for those vessels between 8-12m which allow vessels to fish for up to 5 days per month from Monday to Friday.

There are three closed areas from the 1<sup>st</sup> May to 31<sup>st</sup> October within the Eastern Baltic Sea: Bornholmsdjupet, Gdanskdjupet and Gotlandsdjupet (Figure 1). All fishing, except from passive nets with a mesh size of minimum 157mm and drifting long lines, are not allowed to fish in these areas. The fishing prohibition is also valid for vessels below 8m in length.

Figure 1: Closed areas from 1<sup>st</sup> May to 31<sup>st</sup> October

### Ban on high grading

All German vessels are banned from undertaking any form of high grading. These will be discussed in 2.2.2 Bycatch Management.

The evidence presented above supports that there is a strategy in place for managing all retained species. Some of these measures are specifically designed to manage the retained species component (quota and minimum landing size) while other are specifically designed for cod management but also benefit retained species (mesh sizes, closed areas etc). The first SG100 is therefore met.

The negligible levels of retained species, as presented in Table 1, provides evidence that the strategies are working, are being implemented successfully and are achieving their overall objective.

All SG100 issues are met and therefore a score of 100 is awarded.

### References

- Bastardie, F., Nielsen, J. R., and Kraus, G. 2010. The eastern Baltic cod fishery: a fleet-based management strategy evaluation framework to assess the cod recovery plan of 2008. – ICES Journal of Marine Science, 67: 71–86.
- COUNCIL REGULATION (EC) No 1098/2007 establishing a multi-annual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks, amending Regulation (EC) No 2847/93 and repealing Regulation (EC) No 779/97
- COUNCIL REGULATION (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy
- COUNCIL REGULATION (EC) No 2406/96 of 26 November 1996 laying down common marketing standards for certain fishery products
- COUNCIL REGULATION (EC) No 850/98 of 30 March 1998 for the conservation of fishery resources through technical measures for the protection of juveniles of marine organisms ANNEX XII MINIMUM SIZES
- European Commission. (2006a) Non paper on the review of the cod recovery plan.
- Horwood, J., O'Brien, C., and Darby, C. 2006. North Sea cod recovery? e ICES Journal of Marine Science, 63: 961e968
- ICES Advice 2009, Book 6 6.4.2 Cod in Subarea IV (North Sea), Division VIId (Eastern Channel), and IIIa West (Skagerrak)
- ICES CM 2009 ACOM Advisory Committee: 47 Report of the Workshop on Mixed Fisheries Advice for the North Sea

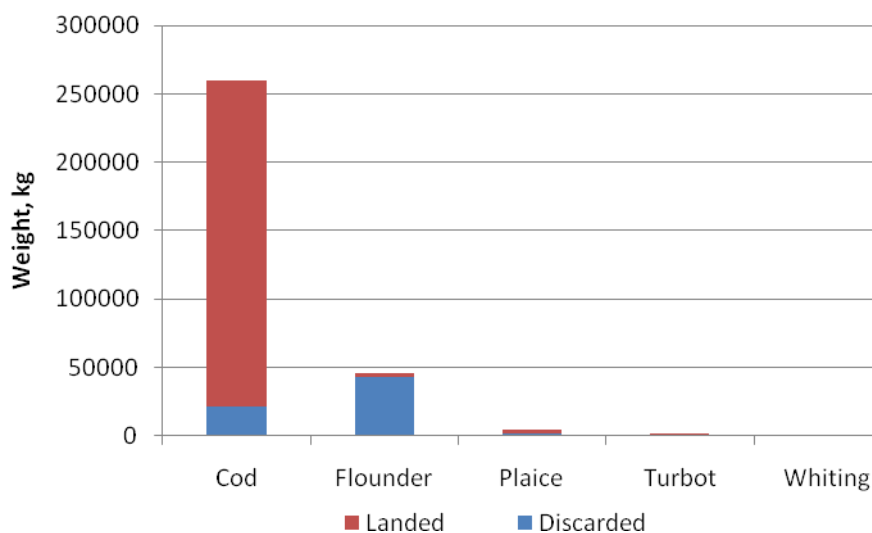
	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
2.1.3	<b>Information monitoring</b>  Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species.	<u>Qualitative information</u> is available on the amount of main retained species taken by the fishery.	<u>Qualitative information</u> and some quantitative information are available on the amount of <b>main</b> retained species taken by the fishery.	Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.
		Information is <u>adequate</u> to <u>qualitatively</u> assess outcome status with respect to biologically based limits.	Information is <u>sufficient</u> to estimate outcome status with respect to biologically based limits.	Information is <u>sufficient</u> to <u>quantitatively</u> estimate outcome status with a <u>high degree of certainty</u> .
		Information is adequate to support <u>measures</u> to manage <u>main</u> retained species.	Information is adequate to support a <u>partial strategy</u> to manage <u>main</u> retained species.	Information is adequate to support a <u>comprehensive strategy</u> to manage retained species, and evaluate with a <u>high degree of certainty</u> whether the strategy is achieving its objective.
		Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).	Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.	
<b>Score: 100</b>				
Information is accurate and verifiable and collected in sufficient detail to assess the minimal risk posed by these fisheries on retained species. A score of 100 is therefore awarded.				
<b>Justification</b>				
Accurate and verifiable information is available on the catch of all retained species. Data is recorded within a 5% tolerance on onboard logbooks for all retained species. Information is collected centrally by the Ministry and is adequate to determine the risk posed by the fishery as well as the ongoing mortalities associated with it. Information on retained species catch can be verified from source log sheets and can be cross referenced with landings inspection reports and at sea inspection reports.  It is considered that comprehensive data is collected and ongoing monitoring is sufficient to determine and ensure that no impacts occur.  It is recommended that retained species landed in conjunction with the cod otter trawl and fly shooting fisheries are reviewed at annual surveillance audits to ensure that a score of 100 remains validated.				
<b>References</b>				



## Bycatch species

2.2	Bycatch species:			
	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
2.2.1	<b>Status</b> The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups.	Main bycatch species are <u>likely</u> to be within biologically based limits, or if outside such limits there are mitigation <u>measures</u> in place that are <u>expected</u> to ensure that the fishery does not hinder recovery and rebuilding.  If the status is poorly known there are measures or practices in place that are expected result in the fishery not causing the bycatch species to be biologically based limits or hindering recovery.	Main bycatch species are <u>highly likely</u> to be within biologically based limits or if outside such limits there is a <u>partial strategy</u> of <u>demonstrably effective</u> mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	There is a <u>high degree of certainty</u> that bycatch species are within biologically based limits.
<b>Score:</b> 80				
<b>Summary:</b> Due to the selectivity of the gears and the manner in which they operate there are no main bycatch species associated with these fisheries. A score of 80 is therefore awarded.				
<b>Justification:</b>  The bycatch species associated with Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels, including otter trawl and fly shooting, operating in the Eastern Baltic are cod, flounder and plaice (Figure 2). Discarding of cod is accounted for within the Principle 1 criteria and therefore will not be considered further.  The bycatch component is separated from retained species to allow those species which are typically discarded and therefore of nuisance value to be assessed. Flounder is included within this bycatch component since it represents a significant majority of discards. However, the overall proportion of flounder discarded in relation to total catch (Figure 2), together with the low level of risk to this species given its high survivability, has placed it in the minor bycatch category.  Figure 2 indicates that there are no other main bycatch species to consider in conjunction with the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels. Since there are no main bycatch species that can be considered in this performance indicator, SG60 and SG80 issues are met.  While the status of flounder stocks within the Eastern Baltic is unknown, given the proportions discarded by the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fleet in relation to overall catch and the high survivability of the species it is assessed that the fishery is of low risk to flounder. All SG 60 and SG80 issues are met; it is however considered that SG100 cannot be met in full and a score of 80 is therefore awarded.				

**Figure 2: Calculated discards (kg) from Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels operating in the Eastern Baltic based on observer trips from 2008-2010 (IOR, 2010)**



#### References

Institute for Baltic Sea Fisheries Rostock (IOR), 2010. Discarding data from observation trips.

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>2.2.2</b>	<b>Management strategy</b> There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations.	There are <u>measures</u> in place, if necessary, which are expected to maintain main bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery.  The measures are considered <u>likely</u> to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).	There is a <u>partial strategy</u> in place, if necessary, for managing bycatch that is expected to maintain <u>main</u> bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery.  There is <u>some objective basis for confidence</u> that the partial strategy will work, based on some information directly about the fishery and/or the species involved.  There is <u>some evidence</u> that the partial strategy is being implemented successfully.	There is a <u>strategy</u> in place for managing and minimising bycatch.  The strategy is mainly based on information directly about the fishery and/or species involved, and testing supports <u>high confidence</u> that the strategy will work.  There is <u>some evidence</u> that the strategy is achieving its objective  There is <u>clear evidence</u> that the strategy is being implemented successfully, and intended changes are occurring.
<b>Score: 85</b>				

**Summary:** It is assessed that there are clear strategies in place for managing and minimising discards. However, evidence of testing to support with high confidence that the strategy will work to achieve its objective and through successful implementation is not possible to determine. Only one SG100 is met. All SG60 and SG80 are met on account of the evidence presented below, together with the fact that there are no main bycatch species considered in the assessment.

#### Justification

The fishery is managed under the overarching European Union Common Fisheries Policy, under which many measures are in place that are designed to ensure that the impacts of all fisheries in relation to bycatch species are minimised on an ongoing basis. The recent policy statement by the EU in relation to *A policy to reduce unwanted by-catches and eliminate discards in European fisheries* (EU, 2007) sets out clear objectives and means by which the EU Commission proposes to reduce and eliminate discards in European fisheries. Germany has shown ongoing commitment to the CFP since its inception. It is expected that this system will lead to a reduction in discarding by easing or eliminating some of the commercial pressures that are believed to give rise to discarding. Other elements of the German strategy include a comprehensive regime of technical control measures that includes:

- Ban on high grading
- Technical gear restrictions
- Closed areas
- Cod recovery plan and days at sea
- Minimum Landing Sizes
- Observer programmes

Closed areas, the cod recovery plan and days at sea and minimum landing sizes have been discussed under 2.1.2 for retained species. Although the details are not repeated in this section, these measures are appropriate to bycatch species and have been taken into consideration for scoring.

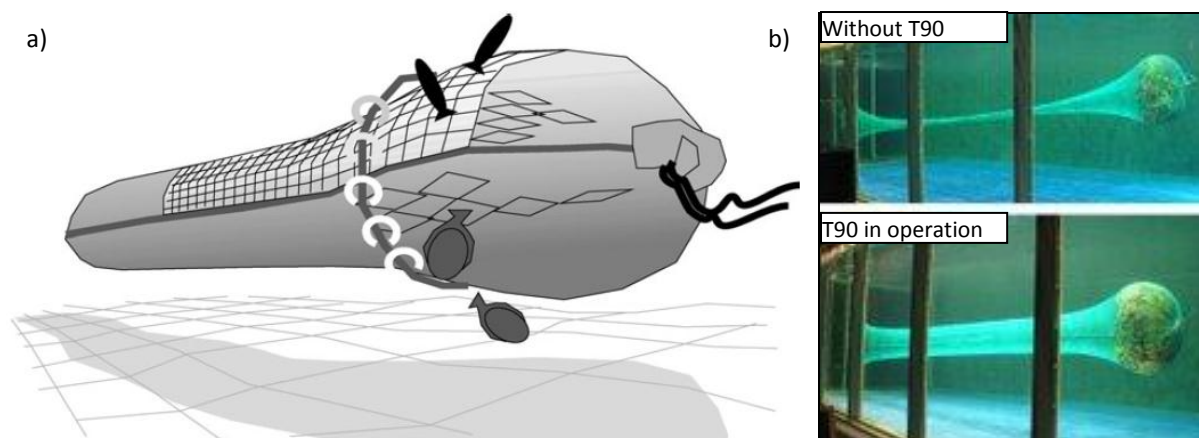
**High-grading** is the practice of discarding low-value small fish in order to fill the quota allotted with higher-value big fish and therefore increase the value of the catch.

While this ban on high grading is not easily enforceable at sea, it should be detectable through monitoring the size distribution of landings. This is considered to be a strategy specifically designed to manage discards.

**Minimum mesh sizes** for demersal otter trawlers are set at 105mm or greater when these vessels are targeting cod, furthermore if the mesh size is greater than 105mm the gear must be fitted with either a Bacoma exit window (Figure 3a) or a T90 codend and extension piece (Figure 3b; shown in operation in the bottom figure). These measures are designed to specifically manage cod discards, however they are also relevant for discards of other species.

**Figure3:(a) The design of the BACOMA window codend (Suuronen *et al.*, 2007)**

**(b) T90 codend shown in lower picture (Hansen, 2008)**



A Bacoma codend with a 120 mm mesh was introduced by IBSFC in 2001 in parallel to an increase in diamond mesh size to 130 mm in traditional codends. The expected effect of introducing the Bacoma 120 mm exit window was nullified by compensatory measures in the industry. This was to some extent explained by the mismatch between the selectivity of the 120 mm Bacoma trawl and the minimum landing size. In October 2003, the regulation was changed to a 110 mm Bacoma window. This was expected to enhance the compliance and to be in better accordance with the minimum landing size, which was changed from 35 to 38 cm in the same year. On the 1st of March 2010 the Bacoma 120 mm was re-introduced along with an extended Bacoma window (5.5 m), to further decrease discard and the minimum landing size was kept at 38 cm (ICES, 2010).

**Observer trips** are required for a certain proportion of specific fishing fleets to record discard levels associated with the fishery. Data from observer trips on board Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels in the Eastern Baltic during 2008-2010 have been provided for this assessment.

### Score

Given the above details it is assessed by the team that there are strategies in place for managing and minimising bycatch (discards). However, evidence of the success and implementation of these strategies are inherently difficult to obtain for species other than cod.

It is assessed by the team that bycatch management strategies for the Eastern Baltic cod otter trawl and fly shooting fisheries meet all of the SG60 and SG80 issues and the first SG100 issue; a score of 85 has been awarded.

### References

COUNCIL REGULATION (EC) No 2187/2005 of 21 December 2005 for the conservation of fishery resources through technical measures in the Baltic Sea, the Belts and the Sound, amending Regulation (EC) No 1434/98 and repealing Regulation (EC) No 88/98

COMMISSION REGULATION (EC) No 356/2005 of 1 March 2005 laying down detailed rules for the marking and identification of passive fishing gear and beam trawls

COMMISSION REGULATION (EC) No 356/2005 of 1 March 2005 laying down detailed rules for the marking and identification of passive fishing gear and beam trawls

COUNCIL REGULATION (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation

of fisheries resources under the Common Fisheries Policy

EU, 2007. European Parliament resolution of 31 January 2008 on a policy to reduce unwanted by-catches and eliminate discards in European fisheries (2007/2112(INI))C 68 E/26 Official Journal of the European Union

Hansen, U., 2008. Seafood Industry Council. Gear technology – T90 available at: <http://www.seafoodindustry.co.nz/n1552,277.html#cs-12896>

ICES CM 2009 ACOM Advisory Committee: 39 Report of the Planning Group on Commercial Catches, Discards and Biological Sampling

ICES CM 2009 FTC Fisheries Technology Committee:07 Report of the Working Group on Quantifying all Fishing Mortality

ICES, 2010. Book 8. 8.4.2 Baltic Sea Cod in Subdivision 25-32.

Seafish. 2009. Discards – new developments in 2009 as at 19 December 2009

Suuronen, P., Tschernij, V., Jounela, P., Valentinsson, D., and Larsson, P-O. 2007. Factors affecting rule compliance with mesh size regulations in the Baltic cod trawl fishery. – ICES Journal of Marine Science, 64: 1603–1606

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>2.2.3</b>	<b>Information monitoring</b> Information on the nature and amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch.	<u>Qualitative information</u> is available on the amount of main bycatch species affected by the fishery.  Information is <u>adequate</u> to <u>broadly understand</u> outcome status with respect to biologically based limits.  Information is adequate to support <u>measures</u> to manage bycatch.	<u>Qualitative information and some quantitative information</u> are available on the amount of <b>main</b> bycatch species affected by the fishery.  Information is sufficient to estimate outcome status with respect to biologically based limits.  Information is adequate to support a <u>partial strategy</u> to manage main bycatch species.  Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).	<u>Accurate and verifiable information</u> is available on the amount of all bycatch and the consequences for the status of affected populations.  Information is <u>sufficient</u> to quantitatively estimate outcome status with respect to biologically based limits with a <u>high degree of certainty</u> .  Information is adequate to support a <u>comprehensive strategy</u> to manage bycatch, and evaluate with a high degree of certainty whether a strategy is achieving its objective.  Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.
<b>Score: 85</b>				

**Summary:** Qualitative and quantitative data are available to inform the scoring of bycatch species in the Eastern Baltic cod Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fisheries. Information is sufficient to support partial strategies (developed specifically to manage cod discards) and strategies (developed specifically for other discard species). Estimations of outcome status are possible and the ongoing mortalities of all bycatch species are collected in sufficient detail to allow the fourth SG 100 issue to be met.

#### Justification

Qualitative information and some quantitative information are available on the amount of bycatch species affected by the fishery. Ongoing fishing fleet discard sampling programmes provide accurate and verifiable data in relation to the nature and scale of discarding in the Eastern Baltic Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fisheries. Data provided by IOR is based on observer reporting and reported discard levels broadly correspond with those observed in other Eastern Baltic cod fisheries currently under assessment (Danish and Swedish). The level of information that is available in relation to discarding is adequate to determine the risk posed by the fishery for the status of affected populations, as well the effectiveness of the management strategy.

Information is sufficient to estimate outcome status with respect to biologically based limits. Little discarding of commercial species (other than cod) takes place in the Eastern Baltic cod Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fisheries. However, quantitative information is not sufficient to undertake stock assessments for all discarded species due to uncertainties surrounding levels of discards, as well as other factors and so biologically based limits cannot be determined with a high degree of certainty.

Information is adequate to support a partial strategy to manage main bycatch species. Available qualitative and quantitative information in relation to bycatch for Eastern Baltic cod trawl and Seine net (fly shooting) fisheries and is deemed sufficient to support measures that serve to limit the implications of bycatch levels for affected species.

Routine monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species. Bycatch sampling is conducted on an ongoing basis and records quantify all species captured and not retained. Data collected are adequate for monitoring bycatch rates and are used by IOR to evaluate ongoing

mortalities to bycatch species.

In addition vessel logbook records have been provided to the team for Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels operating in the Eastern Baltic. These records clearly indicate that skippers record the level of discarded species in weight from each haul. Data is, however, specific to cod and values of other discarded species are not visible (whether or not they are encountered). This contributes important data in relation to monitoring discarded species.

It is assessed that all SG 60 and SG80 issues are met and that the last SG100 issue is met and therefore a score of 85 is awarded.

### References

Institute for Baltic Sea Fisheries Rostock (IOR), 2010. Discarding data from observation trips.

ICES CM 2009/ACOM:31. Report of the Benchmark and Data Compilation Workshop for Flatfish (WKFLAT 2009)

Kelleher K. 2005 Discards in the world's marine fisheries: An update. FAO FISHERIES TECHNICAL PAPER 470



## Endangered, threatened or protected (ETP) species

2.3	ETP species			
	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>2.3.1</b>	<b>Status</b> The fishery meets national and international requirements for protection of ETP species. The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species.	Known effects of the fishery are <u>likely</u> to be within limits of national and international requirements for protection of ETP species. Known direct effects are <u>unlikely</u> to create <u>unacceptable impacts</u> to ETP species.	The effects of the fishery are known and are <u>highly likely</u> to be within limits of national and international requirements for protection of ETP species. Direct effects are <u>highly unlikely</u> to create <u>unacceptable impacts</u> to ETP species. Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	There is a <u>high degree of certainty</u> that the effects of the fishery are within limits of national and international requirements for protection of ETP species. There is a <u>high degree of confidence</u> that there are <u>no significant detrimental effects (direct and indirect)</u> of the fishery on ETP species.
<b>Score:</b>		<b>90</b>		

**Summary:** Interaction of otter trawling and fly shooting with ETP species in the Eastern Baltic is considered to be rare with the exception of Twaite shad interactions. An overall score of 90 is awarded.

### Justification

ETP species are defined as those that are recognised as such by national legislation and/or binding international agreement (e.g. CITES) to which the jurisdictions controlling the fishery under assessment are party. Species that appear exclusively on non-binding lists such as IUCN Red List, OSPAR, HELCOM or that are only the subject of intergovernmental recognition (such as FAO International Plans of Action) and that are not included under national legislation or binding international agreement are not considered as ETP under MSC protocols.

Elasmobranch species such as common skate and spurdog are often associated with trawling gear including otter trawl and fly shooting; however elasmobranch distribution is known not to extend into the Eastern Baltic area (Zidowitz *et al.*, 2008). Seals are known to occasionally attempt to enter mobile gears where they may become entrapped and drown, however this is a rare event and anecdotal information from the fishery suggests that numbers killed or injured in this way are low and the fishery is not believed to present a significant risk to either Harbour, Grey or Ringed seal populations.

There are no indications that Harbour porpoise are ever taken or captured during otter trawling or fly shooting operations. There are no indications that eel are ever taken or captured during otter trawling or fly shooting operations.

Discard data for the Eastern Baltic cod fisheries as a whole indicate that Twaite shad is occasionally taken (although this is not specifically linked to Erzeugergemeinschaft der Nord- und Ostseefischer GmbH operations).

Thiel *et al.* (2008) report a total of 107 records of Twaite shad in subdivisions 20–27 from 1990 to 2005 with most of these recent records originating from a Twaite-shad stock in subdivisions 24, 25 and 26. Thiel *et al.* (2008) go on to explore the potential causes for the fluctuating trends in twaite shad stocks in the Baltic sea including: construction of barriers in rivers with spawning sites of twaite shad; habitat destruction in those rivers as consequence of gravel extraction and reengineering scheme to improve navigation and for flood defense purposes, water pollution in the lagoons of the Southern Baltic and in their tributaries, climatic variation and commercial fisheries in the Southern Baltic.

IUCN classifies the current status of Twaite shad to be good and to be increasing in the North Sea and Baltic; the species is assessed as of least concern on the IUCN Red List (Freyhof & Kottelat, 2008). There is a high degree of certainty that the effects of otter trawling and fly shooting in the Eastern Baltic cod fishery on Twaite shad is within the limits of national and international requirements for protection of this species.

It is therefore assessed that all potential ETP interactions with this fishery meet SG100 issue one, SG80 issue one

and SG60 issues one and two.

Indirect effects of the fishery are largely limited to the potential impact of removing cod and the associated ecosystem impacts that this may have on ETP prey items (such as sprat and herring). The current fishing mortality levels on the Eastern Baltic cod stock are considered unlikely to create an unacceptable impact on ETP species. However due to the historic regime shifts within the Baltic and the fact that multi-species management plans are still in development, it cannot be assessed with a high degree of confidence that there are no significant detrimental indirect effects on ETP species. Therefore SG100 issue two cannot be met.

A score of 90 is awarded for the Eastern Baltic cod otter trawl and Seine net (fly shooting) fisheries.

## References

CITES Appendix II [www.cites.org](http://www.cites.org)

Council Directive 92/43/EEC – the *abitats Directive*

European Commission. Council regulation no. 23/2010

Freyhof, J. & Kottelat, M. 2008. <http://www.iucnredlist.org/apps/redlist/details/904/0> International Union for the Conservation of Nature Redlist, 2010 [www.iucnredlist.org](http://www.iucnredlist.org)

Thiel, R., Riel, P., Neumann, R., Winkler, H. M., Böttcher U. and Gröhsler, T. 2008. Return of twaite shad *Alosa fallax* (Lacépède, 1803) to the Southern Baltic Sea and the transitional area between the Baltic and North Seas. *Hydrobiologia* 602:161-177

Zidowitz, H., George, M., Fordham, S., Kullander, S.O. and Pelczarski, W. 2008. Sharks in the Baltic: Distribution, use and conservation of cartilaginous fishes in the Baltic Sea. Shark Alliance.

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
2.3.2	<b>Management strategy</b>  The fishery has in place precautionary management strategies designed to: <ul style="list-style-type: none"><li>- meet national and international requirements;</li><li>- ensure the fishery does not pose a risk of serious or irreversible harm to ETP species;</li><li>- ensure the fishery does not hinder recovery of ETP species; and</li><li>- minimise mortality of ETP species.</li></ul>	<p>There are <u>measures</u> in place that minimise mortality, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.</p> <p>The measures are <u>considered likely</u> to work, based on <u>plausible argument</u> (e.g. general experience, theory or comparison with similar fisheries/species).</p>	<p>There is a <u>strategy</u> in place for managing the fishery’s impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.</p> <p>There is an <u>objective basis for confidence</u> that the strategy will work, based on <u>some information</u> directly about the fishery and/or the species involved.</p> <p>There is <u>evidence</u> that the strategy is being implemented successfully.</p>	<p>There is a <u>comprehensive strategy</u> in place for managing the fishery’s impact on ETP species, including measures to minimise mortality, which is designed to achieve <u>above</u> national and international requirements for the protection of ETP species.</p> <p>The strategy is mainly based on information directly about the fishery and/or species involved, and a <u>quantitative analysis</u> supports <u>high confidence</u> that the strategy will work.</p> <p>There is <u>clear evidence</u> that the strategy is being implemented successfully, and intended changes are occurring. There is evidence that the strategy is achieving its objective.</p>
Score: 85				
Summary: Given the level of risk posed by the fisheries it is assessed that appropriate management strategies are in place to minimise interaction with ETP species and manage any indirect effects. A score of 85 is awarded.				
Justification				
<p>As discussed under 2.3.1 the level of risk to ETP species in the Eastern Baltic posed by trawling and fly shooting is extremely low and likely to be limited to indirect effects.</p> <p>The removal of cod from the Eastern Baltic Sea is managed by a comprehensive strategy which has been discussed under Principle 1. There is no indication that the current rate of removals will have any unacceptable impacts upon ETP species. Evidence is available to confirm that such strategies are being implemented successfully.</p> <p>Given the low risk posed by the trawl and fly shooting fisheries to ETP species and the stringent management of the removal of a species that may be a prey item, or may indirectly affect population structure of other prey items (such as sprat and herring), it is assessed that all of the SG60 and SG80 issues are met and the first SG100 is met. A score of 85 is therefore awarded.</p>				
References				
<p>COUNCIL REGULATION (EC) No 2187/2005 of 21 December 2005 for the conservation of fishery resources through technical measures in the Baltic Sea, the Belts and the Sound, amending Regulation (EC) No 1434/98 and repealing Regulation (EC) No 88/98</p> <p>COUNCIL REGULATION (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy</p>				

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
2.3.3	<b>Information / monitoring</b> Relevant information is collected to support the management of fishery impacts on ETP species, including: <ul style="list-style-type: none"><li>- information for the development of the management strategy;</li><li>- information to assess the effectiveness of the management strategy; and</li><li>- information to determine the outcome status of ETP species.</li></ul>	Information is <u>adequate</u> to <u>broadly understand</u> the impact of the fishery on ETP species.  Information is adequate to support <u>measures</u> to manage the impacts on ETP species  <u>Information</u> is sufficient to <u>qualitatively</u> estimate the fishery related mortality of ETP species.	Information is <u>sufficient</u> to determine whether the fishery may be a threat to protection and recovery of the ETP species, and if so, to measure trends and support a <u>full strategy</u> to manage impacts.  <u>Sufficient data</u> are available to allow fishery related mortality and the impact of fishing to be <u>quantitatively</u> estimated for ETP species.	Information is <u>sufficient</u> to <u>quantitatively</u> estimate outcome status with a high degree of certainty.  Information is adequate to support a <u>comprehensive strategy</u> to manage impacts, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.  <u>Accurate and verifiable information</u> is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species.
<b>Score: 85</b>				
<b>Summary:</b> Information in relation to Erzeugergemeinschaft der Nord- und Ostseefischer GmbH otter trawl and Seine net (fly shooting) ETP interactions in the Eastern Baltic is sufficient to quantitatively estimate outcome status of potential ETP species. A score of 85 is awarded.				
<b>Justification</b>				
<p>The information available on discards from the observer programme and discards recorded by Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels, together with the detailed retained information allows a clear picture to be gained in relation to the current threat of the Eastern Baltic cod otter trawl and Seine nets (fly shooting) fisheries on ETP species. This data is quantitative and currently allows the potential threat of the fisheries and the mortality levels to be recorded. All SG60 and SG80 issues are therefore met.</p> <p>The ETP species with the highest potential to be taken by the trawl and fly shooting fleet is Twaite shad. There is sufficient information in relation to the population size, distribution and wider environmental on this species to allow quantitative estimation of the outcome status with a high degree of certainty, and therefore to award SG100 issue 1. However the level of information does not currently support the strategies in place and it is recommended that Twaite shad and other fish ETP species be included in a wheelhouse guide for recording ETP species interactions. Once this record is operational it will allow accurate information to be obtained on the exact magnitude of all impacts and mortalities and therefore the consequences for the status of all ETP species can be determined to a high degree of certainty. For these reasons SG100 issues 2 and 3 cannot be met.</p> <p>A score of 85 is therefore awarded.</p>				
<b>References</b>				
JNCC. 2002. Atlas of Cetacean distribution in north-west European waters. Compiled and edited by Reid J.B, Evans G.H. and Northridge S.P.				
OSPAR Commission, 2008. Case Reports for the OSPAR List of threatened and/or declining species and habitats				

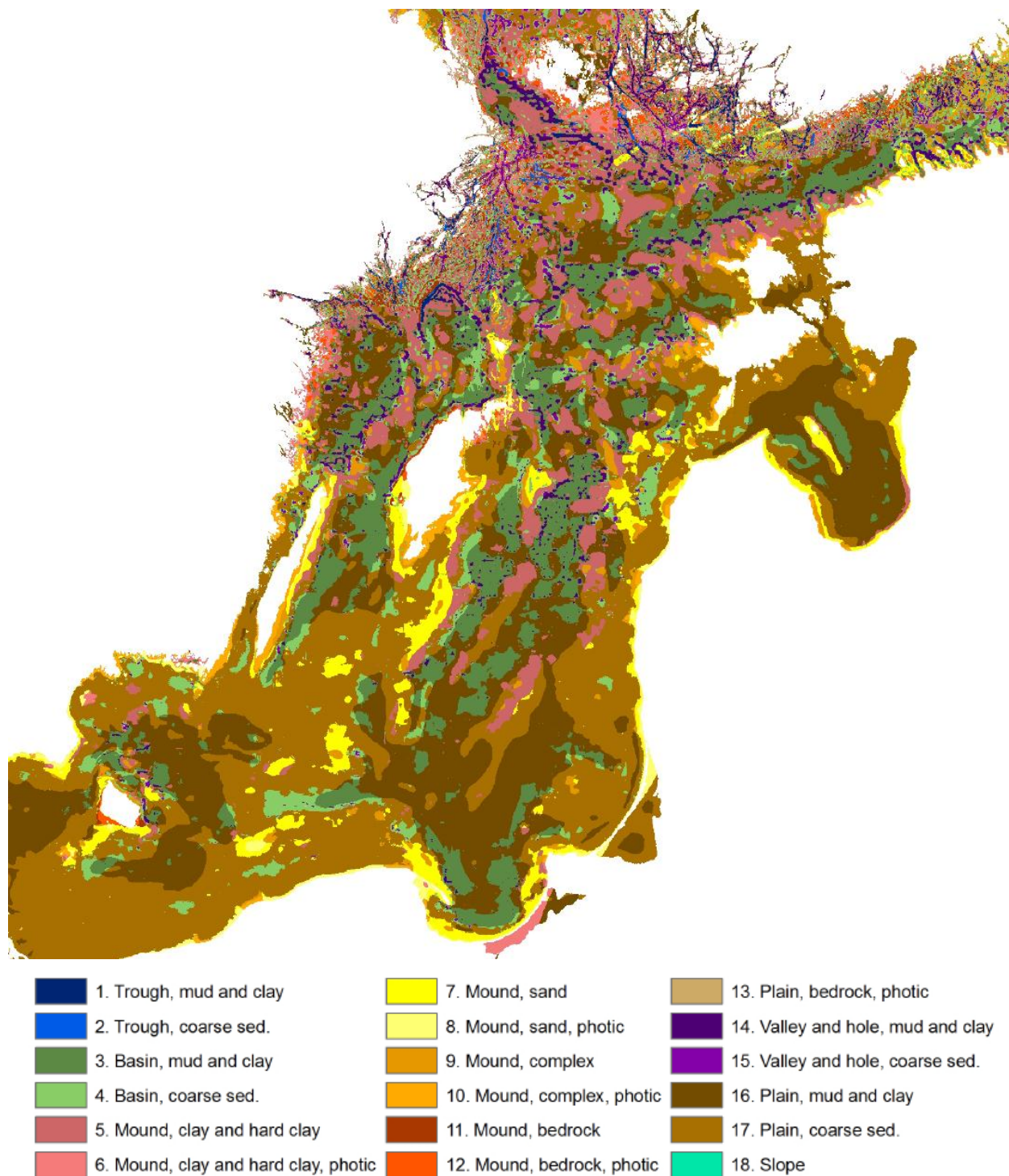
## Habitats

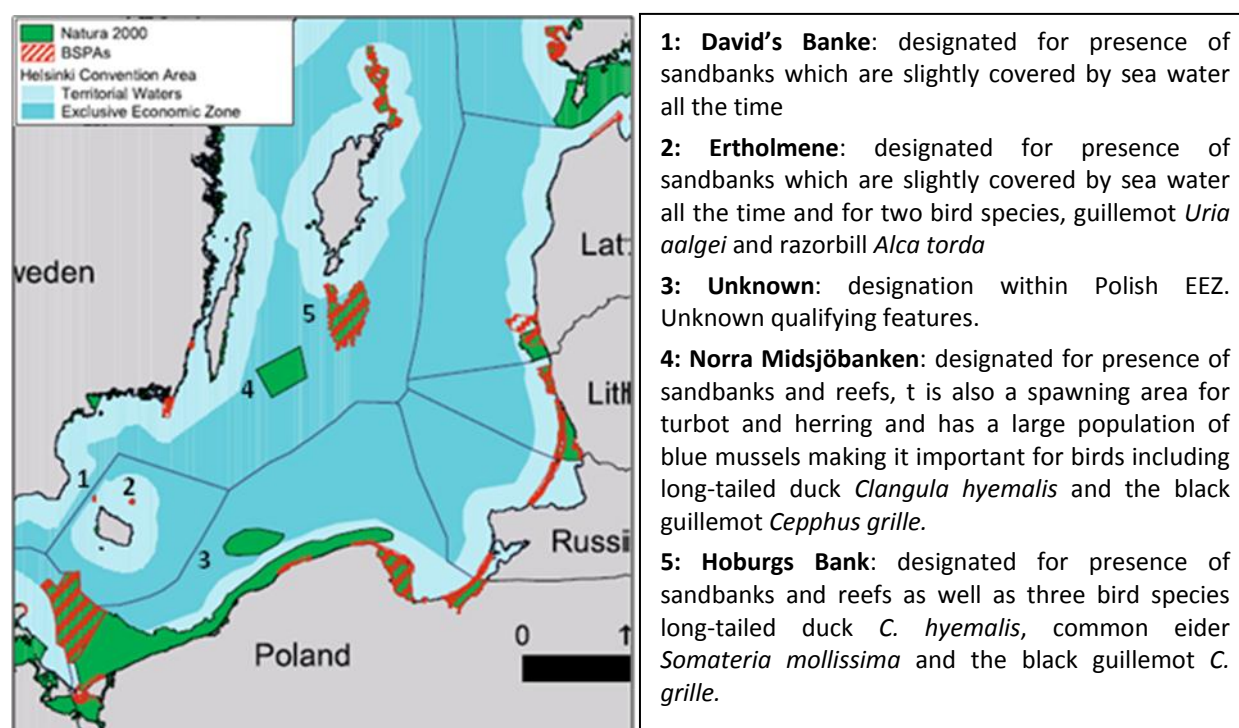
2.4	Habitats			
	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
2.4.1	<b>Status: Trawl</b> The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
Score:		75		
<b>Summary:</b> It is considered unlikely that otter trawl and fly shooting will reduce habitat structure to a point where there would be irreversible or serious harm. All indications are that the gear is not operated across sensitive habitats designated as Natura 2000 sites. However, VMS data has not been available to confirm this to the stage where SG80 can be awarded. It is therefore deemed appropriate to score both fisheries 75.				
<b>Justification</b>				
<p>The Eastern Baltic seabed habitat is characterised by sand, hard clay and mud and clay sediments and consists of several deep basins. Habitat types have been extensively studied and various projects have mapped and classified habitat distribution and topographic features (e.g. BALANCE, EUSEA map, MESH project, HELCOM). A detailed habitat map is provided in Figure 4.</p> <p>Approximately 100,000 km2 of the Baltic's seafloor (a quarter of its total area) is a variable dead zone i.e. hypoxic (low-oxygen) area. The more saline (and therefore denser) water remains on the bottom, isolating it from surface waters and the atmosphere. This leads to decreased oxygen concentrations within the zone. It is mainly bacteria that grow in it, digesting organic material and releasing hydrogen sulphide. Because of this there are large anaerobic zones that impact the seafloor ecology which as a result is typically species-poor with low biomasses (ICES, 2006).</p> <p>There are, however, important benthic habitats within the Baltic Sea which support ecosystem structure and in 1994, 62 Baltic Sea Protected Areas (BSPAs) were designated under HELCOM Recommendation 15/5. BSPAs are a regional initiative by HELCOM Contracting Parties to protect the Baltic Sea marine environment from pressures caused by human activities. As of February 2010 there are 159 BSPAs which have been chosen as examples of typical biotopes of ecological significance.</p> <p>In 2003 HELCOM and the OSPAR Commission decided that the BSPAs were to be extended by the addition of Natura 2000 sites to form an ecologically coherent network of MPAs in the Baltic Sea. With the BSPAs and Natura 2000 sites combined, 12% of the Baltic Sea is protected.</p> <p>Figure 5 presents the location of Natura 2000 sites and BSPAs within a selected area of the Eastern Baltic Sea.</p> <p>While VMS data has not been available to the assessment team, detailed consultation with Erzeugergemeinschaft der Nord- und Ostseefischer GmbH member skippers allowed an understanding of the areas targeted to be determined. It is noted that most of the trawl fishery for cod is now conducted in the water column in the Bornholm Basin, hence the impact of the bottom trawl on the sea floor has been reduced (ICES, 2010). This is mainly due to the distribution of cod within the water column which is higher than in other ecosystems on account of the low oxygen levels found in the deeper basins of the Baltic sea. Despite this, for the purpose of this assessment, to ensure a precautionary approach, it is assumed that all of the effort by the trawl fleet (including demersal, semi-pelagic and midwater otter trawling and fly shooting) is demersal otter trawling.</p> <p>A review of the available data and consultation suggests that the majority of bottom trawling for cod occurs over muddy clay sediments in the south-eastern Eastern Baltic Sea, in water depths typically of 60-100 meters. Some areas of course sediment and hard clay are also fished.</p> <p>On account of lack of VMS data it is difficult to tell with a high degree of certainty whether fishing effort overlaps the Natura 2000 sites. Appropriate Assessments (or Habitat Regulation Assessments) have not been provided for</p>				



these sites and it is unknown whether management measures are implemented for the sites, other than Hoburgs Bank, which is out with the area targeted by the German fleet.

**Figure 4: Marine seabed sediment, landscapes and topographic features of the Baltic Sea (Balance, 2008)**



**Figure 5: Location of Natura 2000 sites and Baltic Sea Protected Areas (BSPAs) (Helcom, 2010)**

The gear used in the demersal trawl cod fishery comprises a single or twin rig arrangement. The latter will be assumed for the purpose of this assessment. The twin rig configuration involves two trawls which are simultaneously towed in parallel behind the vessel. The net is kept open by steel otter boards (trawl doors) that may weigh up to 1,000kg each. A single 'clump' weight or roller, which may weigh up to 800kg, is deployed between the two nets and serves to keep the inner wing ends of the net close to the seabed. The ground rope of the nets typically hold 100mm diameter rubber rollers, while each net has a tickler chain (typically comprising 12mm steel chain) spanning between the wing ends. Codend's may have chaffing gear fitted for protection on the underside. Being a demersal species living close to the seabed, trawls gears used to fish for cod can reasonably expected to have an impact on benthic habitats, as the gear must establish close contact with the seabed in order to work efficiently. The greatest physical impact results from contact with the seabed that is made by trawl doors as well as the centre weight or roller; as these are pulled across the seabed they leave behind them a furrow (Hopkins, 2003) which may be detected for some time afterwards using side scan sonar or ROV footage as shown in Figure 6.

The impact of demersal otter trawling on benthic habitats is well documented (e.g. Lindeboom & de Groot 1998; Jennings & Kaiser 1998; Watling & Norse 1998; Hall 1999; ICES 2000b; Nilsen *et al.* 2002; Ojaveer 2002; Huse *et al.* 2003; Thrush & Dayton 2002, Jennings *et al.* 2001, Trimmer *et al.* 2005, Hiddink *et al.* 2006, Hopkins 2003).

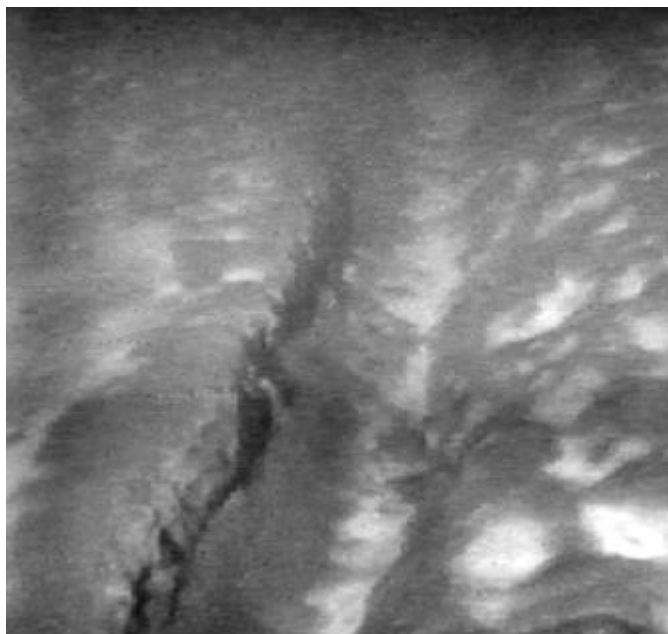
Effects on habitat include the removal of major physical features, reduction of structural biota, reduction in habitat complexity, changes in sea floor structure and changes to benthic communities. . Each pass of the trawling gear re-suspends sediment which then may settle on and smother sessile fauna. Furthermore this may lead to the possible remobilisation of pollutants which, once in suspension, can become available for further uptake.

Trawling tends to reduce the seabed to a flat homogenous plain. By directly or indirectly removing and flattening any relief, the seabed may lose much or its entire three dimensional structure. Benthic communities of larger slow growing and long lived species are removed and replaced by less diverse communities of smaller, short lived and fast growing species. Hiddink *et al.* (2006) suggest that negative impacts of trawling are greatest in those areas where seabed habitats are not subject to high levels of natural disturbance. Benthic macrofauna are most affected by trawling activity; whereas burrowing and other smaller seabed infauna are less vulnerable (Bergmann & Santbrink, 2000; Dinmore *et al.* 2004). Where trawling does not cause direct mortality to species or individual specimens, indirect consequences may arise whereby fauna is damaged or injured, making it more susceptible to being preyed upon by scavenging fauna (Kaiser & Spencer, 1994; Kenchington *et al.* 2006). Repeated trawling of the



seabed may also modify benthic production processes (Humborstad, 2004).

**Figure 6: Remotely operated vehicle (ROV) recording at 60m depth in the southern Baltic Sea indicating a trawl mark which is approximately 0.5m deep and 1m wide (Hopkins, 2003).**



It is known that demersal otter trawling has a significant initial effect on muddy-sand and mud habitats, but on the latter these effects have been shown to be short-lived with an apparent long-term, positive, post-trawl, disturbance response (Kaiser et al, 2006). This positive response may represent an increase in the abundance of smaller-bodied fauna, but a possible overall decrease in biomass (Jennings et al. 2001 Duplisea et al. 2002).

The rates of recovery for benthic communities following intensive trawling disturbance may range from weeks to years, with rates of recovery depending on rates of immigration, recruitment and growth (Schratzberger and Jennings, 2002). Slow-growing large-biomass biota such as sponges and soft corals are known to take much longer to recover (up to 8 yr.) than biota with shorter life-spans such as polychaetes (<1 yr) (Kaiser et al., 2006). Reduced impact of bottom otter trawling on the seabed can basically be achieved by minimizing the impacted area and by reduction of the pressure of gear components on the bottom (Valdemarsen et al. 2007).

Given the lack of VMS data or vessel tracking plots it has not been possible to determine the true extent of areas fished by all Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels trawling for Eastern Baltic cod. While the team were satisfied that the fishery meets SG60, it was felt that there was insufficient evidence presented to consider it highly unlikely that the fishery would reduce any habitat structure and function to a point where there would be serious or irreversible harm.

The level of detail provided did not allow for the risks to all potentially affected seabed habitats, in particular sandbanks and reefs, for all Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod landings to be considered.

A score of 75 was therefore deemed appropriate.

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	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
2.4.2	<b>Management strategy</b>  There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.	There are <u>measures</u> in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.  The measures are considered <u>likely</u> to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).	There is a <u>partial strategy</u> in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.  There is some <u>objective basis for confidence</u> that the partial strategy will work, based on some information directly about the fishery and/or habitats involved.  There is <u>some evidence</u> that the partial strategy is being implemented successfully.	There is a <u>strategy</u> in place for managing the impact of the fishery on habitat types.  The strategy is mainly based on information directly about the fishery and/or habitats involved, and testing supports high confidence that the strategy will work.  There is <u>clear evidence</u> that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.
<b>Score: 80</b>				
<b>Summary:</b> There are partial strategies in place in the form of complete seasonal closures and area seasonal closures. These are designed to protect cod spawning and are therefore not considered a full strategy for the habitat component. There is evidence that the strategies are being implemented and that they will work. All SG60 and SG80 issues are therefore met and a score of 80 is awarded.				
<b>Justification</b>				
<p>There is a partial strategy in place which, although not specifically designed to manage habitat impacts, does work to limit the interaction of gears with habitats throughout the Eastern Baltic.</p> <p>As part of the EU recovery plan (EU 1098/2007) there are complete seasonal closures for the Eastern Baltic Sea (ICES 25-28) to protect cod spawning season during the entirety of months July and August. During this period vessels with a total length of 8m or more are not allowed to catch within ICES areas 25-28. There is a special exemption for those vessels between 8-12m which allow vessels to fish for up to 5 days per month from Monday to Friday.</p> <p>There are three closed areas from the 1<sup>st</sup> May to 31<sup>st</sup> October within the Eastern Baltic Sea: Bornholmsdjupet, Gdanskdjupet and Gotlandsdjupet (Figure 1: Retained Species). All fishing, except from passive nets with a mesh size of minimum 157mm and drifting long lines, are not allowed to fish in these areas. The fishing prohibition is also valid for vessels below 8m in length.</p> <p>There is objective basis for confidence that these strategies will work based on potential recovery times for benthic habitats and communities.</p> <p>There is clear evidence that this partial strategy is being implemented through rigorous checks undertaken by the Federal Office for Agriculture and Food using both VMS and on board inspections.</p> <p>All SG80 issues of this performance indicator are met for Erzeugergemeinschaft der Nord- und Ostseefischer GmbH otter trawling and fly shooting cod fisheries in the Eastern Baltic.</p> <p>In 2007 Helcom produced a Baltic Sea Action Plan which committed to improving the protection efficiency of the BSPA network (as shown in Figure 5) by 2010 by developing and implementing management plans for these areas. It is however, unknown what management plans are in place for the Natura 2000 sites and BSPAs that are present in the Eastern Baltic or indeed if they restrict the fishing activities in order to protect the habitat structure and function. It cannot be assessed that any strategy is in place to specifically manage the impact of the Eastern Baltic cod fishery on the habitat function and structure; therefore no SG100 issues are met. A score of 80 is therefore awarded.</p>				
<b>References</b>				
<p>Helcom, 2010. <a href="http://www.helcom.fi/environment2/biodiv/en_GB/bspas/">http://www.helcom.fi/environment2/biodiv/en_GB/bspas/</a></p> <p>Helcom, 2010. Towards an ecologically coherent network of well-managed Marine Protected Areas Implementation report on the status and ecological coherence of the HELCOM BSPA network</p>				

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
2.4.3	<b>Information monitoring</b>  Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.	There is a basic understanding of the types and distribution of main habitats in the area of the fishery.	The nature, distribution and vulnerability of all main habitat types in the fishery area are known at a level of detail relevant to the scale and intensity of the fishery.	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.
		Information is adequate to broadly understand the main impacts of gear use on the main habitats, including spatial extent of interaction.	Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent, timing and location of use of the fishing gear.	Changes in habitat distributions over time are measured.
		Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	The physical impacts of the gear on the habitat types have been quantified fully.	
Score: 85				
Summary: Data on the distribution of habitats, protected areas and the extent and timing of fishing operations are sufficient to allow all SG80 issues to be met and the first SG100 issue to be met. As core of 85 is therefore awarded.				
Justification				
<p>The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types. A series of maps indicating the location of the main vulnerable habitats in the Baltic Sea is available on the Helcom website (Helcom, 2010) and in the habitat mapping undertaken by the Balance project (Balance, 2008).</p> <p>A network of marine Natura 2000 sites and BSPAs have been designated throughout the Baltic and these designations have been based on detailed information on the extent and type of biotopes and community structures they support. While detailed biotope mapping has not been available to the team, it is obviously known in sufficient detail to allow the network of protected sites to be designated.</p> <p>The report of the ICES marine habitat working group for 2008 provides a useful summary of marine habitat mapping work that is presently underway in the European context. Broad scale habitat maps that have been available to the assessment team during the scoring of the fishery do not indicate the presence of any habitats that would be considered sensitive in the context of the known effects of the gear type.</p> <p>Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent, timing and location of use of the fishing gear. There is adequate information available on the spatial extent, timing and location of use of the fishing gear. EU logbooks data confirm the location of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod fisheries. While VMS data has not been made available to the assessment team, it is known to be used to monitor and enforce area closures and can map the extent of effort by the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels. The location, timing and extent of fishing can therefore be determined and monitored to detect any increase in fishing effort and therefore increase in risk to habitats. Furthermore information on fisheries impacts to habitats are collected by ICES and reported on an annual basis.</p> <p>However, although detailed habitat maps are available, there is no indication that changes in the distribution of habitats are likely to be monitored over time.</p> <p>Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).</p> <p>However, the physical impacts of the gear on the habitat types has not been investigated in detail and quantified</p>				

fully for the seabed habitats associated with the fishery.

All issues at SG 80 have been satisfied and one at SG100. Accordingly a score of 85 is awarded.

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Helcom, 2010. [http://www.helcom.fi/environment2/biodiv/en\\_GB/bspas/](http://www.helcom.fi/environment2/biodiv/en_GB/bspas/)

ICES Working Group on Marine Habitat Mapping (WGMHM) Report for 2008.

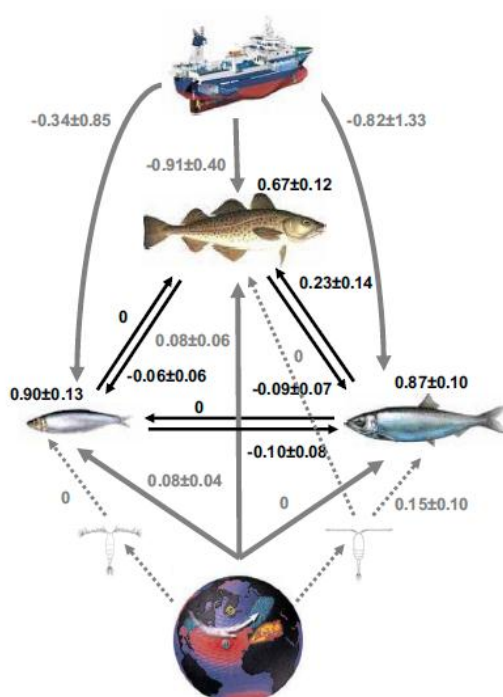
## Ecosystem

2.5	Ecosystem			
	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
2.5.1	<b>Status</b> The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.	The fishery is <u>unlikely</u> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The fishery is <u>highly unlikely</u> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is <u>evidence</u> that the fishery is <u>highly unlikely</u> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
<b>Score:</b> 80				
<b>Summary:</b> Given the current status of the cod stocks in ICES Subdivision 25-32, the current levels of fishing mortality and anticipated %TAC changes, it is considered highly unlikely that the current levels of cod removal will disrupt the underlying ecosystem structure and function to a point of serious or irreversible harm. A score of 80 is therefore awarded				
<b>Justification</b>				
<p>The structure of the Baltic Sea ecosystem and the position and function of cod within this ecosystem is well researched (Matthaus and Franck 1992; ICES 1996; Cook <i>et al.</i>, 1997; Myers <i>et al.</i>, 1997; Beaugrand <i>et al.</i>, 2003; Harvey <i>et al.</i>, 2003; MacKenzie and Koster 2004; Frank <i>et al.</i>, 2005; Koster <i>et al.</i>, 2005; Mollmann <i>et al.</i>, 2005; Mollmann <i>et al.</i>, 2008; Lindegren <i>et al.</i>, 2009, ICES, 2009).</p> <p>In the Baltic Sea, marine and freshwater species live in the same habitats and have in many cases genetically adapted to the brackish-water conditions. Compared to other sea regions, biodiversity in the Baltic is low and only a handful of keystone species build the basis for the food web (Helcom, 2010).</p> <p>The Baltic Sea food web is made up of a small number of species and the trophic levels are interlinked by only a few linkages. As a consequence of this any changes at the top level of the food web are more easily reflected at lower levels and vice versa than in cases with a larger number of species and more interlinkages between the trophic levels. The models of the Baltic food web predict that top predators at the fourth trophic level, including mammals, large fish and cormorants, control the abundance of small fish species at the third trophic level such as perch, sprat, herring and cyprinid fish (Helcom, 2010). The Baltic Sea upper trophic food web is dominated by cod and two competing planktivorous fish species, herring and sprat (Lindegren et al., 2009). Additionally, the species are forced top-down by fishing and bottom-up through zooplankton and environmental effects (Figure 7).</p> <p>ICES advice (ICES 2010a; ICES 2010b) states that the recruitment of this Eastern Baltic cod stock is strongly driven by environmental factors. Spawning is confined to the deep basins where the water has sufficiently high oxygen content and salinity for eggs to survive. The amount of water with these characteristics depends mainly on the inflow of high salinity water from the North Sea.</p> <p>Considering the multitude of pressures that act upon the Baltic biodiversity at any one time, the relative impact of an individual pressure is difficult to discern. Substantial attention has been focused on the impacts of fishing on nutrient enriched ecosystems, such as the Baltic Sea, reflecting the combined impact of increasing fishing intensity and nutrient run-off on marine food webs, and bottom oxygen depletion, leading <i>inter alia</i> to a relative decrease in the landings of demersal fish (cod) compared with pelagic species (herring and sprat) and an associated decline in mean trophic level of the fisheries (Bagge 2000; Caddy 2000; Hopkins et al. 2001).</p> <p>The multispecies interactions in the Baltic are considered clear and strong and Baltic multispecies assessment process started more than 20 years ago. Both the ICES Study Group on Multispecies Assessment in the Baltic and the Baltic Fisheries Assessment Working Group compile and assess information to inform multispecies assessments for Baltic stocks.</p> <p>The European Union BECAUSE work program (2004–2007) included development of conceptual foodweb models and analysis of processes driving critical interactions including environment; prediction of stock trends applying improved multi-species forecast models; improving multispecies assessment models; and analysis of fisheries management implications.</p>				

A multi-annual management plan for cod in the Baltic Sea was agreed by the EU in 2007 ((EC) No 1098/2007). Currently the multiannual management plan is being reviewed following the normal management processes. A new multi-annual plan is expected to be agreed at the end of 2011 and implemented in January 2012 and will run over three years period. Currently research is being undertaken into the development of multi-species management plans which would model the three most commercially important species (cod, sprat and herring) to set harvest control rule consistent with the ecosystem approach.

A score of 80 is therefore awarded.

**Figure 7: A schematic view of the Baltic Sea upper-trophic food web (Lindegren *et al.*, 2009).**



*Black arrows and parameters represent species interactions between cod (Top), sprat (Left) and herring (Right). Gray arrows and parameters demonstrate the effects of fishing, climate, and zooplankton on the three species. Interactions with the key zooplankton species *Acartia* spp. (Left) and *P. acuspes* (Right) are illustrated by dotted arrows. Negative parameter values indicate negative effects on the biomass of the species and vice versa. Intraspecific parameters  $\_1$  indicate an increasing degree of density dependence in the population*

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	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>2.5.2</b>	<b>Management strategy</b> There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function.	There are <u>measures</u> in place, if necessary, that take into account potential impacts of the fishery on key elements of the ecosystem.  The measures are considered likely to work, based on <u>plausible argument</u> (e.g., general experience, theory or comparison with similar fisheries/ ecosystems).	There is a <u>partial strategy</u> in place, if necessary, that takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.  The partial strategy is considered likely to work, based on <u>plausible argument</u> (e.g., general experience, theory or comparison with similar fisheries/ ecosystems).  There is <u>some evidence</u> that the measures comprising the partial strategy are being implemented successfully.	There is a <u>strategy</u> that consists of a <u>plan</u> , containing measures to address all main impacts of the fishery on the ecosystem, and at least some of these measures are in place. The plan and measures are based on well-understood functional relationships between the fishery and the Components and elements of the ecosystem.  This plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery does not cause serious or irreversible harm.  The measures are considered likely to work based on <u>prior experience</u> , <u>plausible argument</u> or <u>information</u> directly from the fishery/ecosystems involved.  There is <u>evidence</u> that the measures are being implemented successfully.
<b>Score: 80</b>				

Summary: There is a partial strategy in place to manage the ecosystem component which is considered likely to work and is being implemented successfully. A score of 80 is therefore awarded.

#### Justification

Sustainable management of fisheries within the waters of the European Union are facilitated and effected under the framework of the Common Fisheries Policy. For the future, the CFP recognises the need to manage fisheries collectively on a multispecies basis as well as recognising the need to increasingly take into account ecosystem aspects and influences in formulating future fishery management policy and in developing management plans. Significant advances are being made at scientific level principally through ICES e.g. Working Group on Multispecies Assessment Methods (WGSAM), in order to support the development of multispecies assessment methodologies. Germany's commitment to the CFP supports future developments with respect to fisheries management at European level and forms the basis of a partial strategy that is increasingly expected to take into account and restrain ecosystem impacts of the fishery in the future.

While implementation of a full ecosystem approach to fisheries management is still some way off and in depth scientific debate is taking place at an international level as to the best ways to implement such a policy, some measures are in place in the interim to identify and avoid or reduce ecosystem impacts of the fishery where possible. A full suite of management measures apply to the three top commercially harvest species in the Eastern Baltic (cod, herring and sprat) at fleet level including vessel licensing, quota allocation and effort limitation; while a second tier of technical control measures adds to the partial strategy to manage ecosystem impacts of the fishery. In addition, the EU promotes research into reducing ecosystem impacts of fishing and has funded a number of important research projects designed to investigate fishing gear modifications in order to reduce ecosystem impacts (such as the RECOVERY and REDUCE projects).

Further provisions of European law designed to protect the environment and ecosystems, such as the Marine Strategy Framework Directive, Water Framework Directive and Habitats Directive are likely to play a growing role

in limiting fishery related ecosystem impacts in the future. In particular, the Habitats Directive is likely to play a much greater role in protecting sensitive marine habitats, once clear conservation objectives and management regimes for Natura 2000 sites have been agreed and implemented. The Marine Strategy Framework Directive also aims to establish a global network of Marine Protected Areas by 2012.

The partial strategy is considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ ecosystems). The partial strategy generally takes into account European environmental policy and also reflects current international scientific thinking. It is also intended to be both adaptive to change and reactive. Based on this it is considered likely that the partial strategy will be successful in ensuring the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function.

There is some evidence that the measures comprising the partial strategy are being implemented successfully. Germany has shown clear commitment to the CFP and has made significant advances in managing its national fisheries in accordance with the aspirations and objectives of the Common Fisheries Policy to create long term sustainability in European Fisheries.

The assessment team were satisfied that all of the scoring guides at SG80 were met, but none at SG 100. Accordingly a score of 80 was recorded.

### References

Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

Council Directive 2000/60/EC (Water Framework Directive)

Council Directive 2008/56/EC (Marine Strategy Framework Directive)

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>2.5.3</b>	<b>Information / monitoring</b> There is adequate knowledge of the impacts of the fishery on the ecosystem.	Information is adequate to <u>identify</u> the key elements of the ecosystem (e.g. trophic structure and function, community composition, productivity pattern and biodiversity).  Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but <u>have not been investigated in detail</u> .	Information is adequate to <u>broadly understand the functions</u> of the key elements of the ecosystem.  Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but <u>may not have been investigated in detail</u> .  The main functions of the Components (i.e. target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are <u>known</u> .  Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred.  Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Information is adequate to <u>broadly understand the key elements</u> of the ecosystem.  Main <u>interactions</u> between the fishery and these ecosystem elements can be inferred from existing information, and <u>have been investigated</u> .  The impacts of the fishery on target, Bycatch, Retained and ETP species and Habitats are identified and the main functions of these Components in the ecosystem are <u>understood</u> .  Sufficient information is available on the impacts of the fishery on the Components and elements to allow the main consequences for the ecosystem to be inferred.  Information is sufficient to support the development of strategies to manage ecosystem impacts.
<b>Score:</b>	<b>95</b>			

**Summary:** Compared to other ecosystems, the Baltic ecosystem is relatively simple and therefore ecosystem models are capable of capturing the main ecological processes and allow the responses of the Baltic Sea's food web to fishing pressure and environmental changes to be understood. The level of information and data specific to the Eastern Baltic Sea has allowed the first three SG100 issues to be met. Since most of the SG100 issues are met a score of 95 is awarded.

#### Justification

Information is adequate to broadly understand the key elements of the ecosystem. Key elements include the trophic structure of the Baltic Sea ecosystem such as key prey, predators and competitors; community composition, productivity patterns and characteristics of biodiversity.

Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and have been investigated. A number of studies have modelled the food web in the Baltic Sea (Lindgren *et al* 2009; Harvey *et al*, 2003; Niiranen, 2007). Harvey *et al* (2003) describe the construction and calibration of an ecosystem model of the Baltic Sea proper food web, using the Ecopath with Ecosim software, to evaluate interactions between fisheries, environment and the food web. Models of this type readily lend themselves to answering simple, ecosystem wide questions about the dynamics and the response of the ecosystem to anthropogenic changes. Thus, they can help design policies aimed at implementing ecosystem management principles, and can provide testable insights into changes that have occurred in the ecosystem over time.

The main functions of the Components (i.e. target, Bycatch, Retained and ETP species and Habitats) in the

ecosystem are known and understood. Compared to other ecosystems, the Baltic ecosystem is relatively simple and therefore ecosystem models are capable of capturing the main ecological processes and allow the responses of the Baltic Sea's food web to fishing pressure and environmental changes to be understood.

Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred. Sections 2.1.3, 2.2.3, 2.3.3 and 2.4.3 outline the array of data that are collected in relation to the fishery. The range of data is sufficient to allow the main impacts on these components to be inferred directly.

Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures). Data is routinely collected on an ongoing basis to allow for the detection of any change or increase in risk level to the main ecosystem components. Key data collected include landings data for all species, discard data from observer trips and reports, spatial data in relation to fishing effort (via EU logbooks and VMS) and data in relation to fishing effort.

All SG80 issues are met and three out of five SG100 issues are met. A score of 95 is therefore awarded.

## References

DTU Aqua, Finnish Institute of Marine Research, Baltic Nest Institute. 2008. Evaluating the Baltic Sea food web responses to environmental change

Harveya, C. J., Coxb, S. P., Essington, T. E., Hansson, S. and Kitchell, J. F. 2003. An ecosystem model of food web and fisheries interactions in the Baltic Sea. ICES Journal of Marine Science Volume 60, Issue 5 Pp. 939-950

Lindegren, M., Mollmann, C., Nielsen, A. and Stenseth, N. C. 2009. Preventing the collapse of the Baltic cod stock through an ecosystem-based management approach. PNAS. Vol 106. No. 34: 14722-14727.

Niiranen, S. 2007 An Ecopath model of the Baltic Sea food web

**3 The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable**

**3.1 Governance and Policy**

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>3.1.1</b>	<p><b>Legal and/or customary framework</b></p> <p>The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> <li>- Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2;</li> <li>- Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and</li> <li>- Incorporates an appropriate dispute resolution framework.</li> </ul>	<p>The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2.</p> <p>The management system incorporates or is subject by law to a <u>mechanism</u> for the resolution of legal disputes arising within the system.</p> <p>Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.</p> <p>The management system has a mechanism to <u>generally respect</u> the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>	<p>The management system incorporates or is subject by law to a <u>transparent mechanism</u> for the resolution of legal disputes which is <u>considered to be effective</u> in dealing with most issues and that is appropriate to the context of the fishery.</p> <p>The management system or fishery is attempting to comply in a timely fashion with binding judicial decisions arising from any legal challenges.</p> <p>The management system has a mechanism to <u>observe</u> the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>	<p>The management system incorporates or is subject by law to a <u>transparent mechanism</u> for the resolution of legal disputes that is <u>appropriate to the context of the fishery and has been tested and proven to be effective</u>.</p> <p>The management system or fishery acts proactively to avoid legal disputes or rapidly implements binding judicial decisions arising from legal challenges.</p> <p>The management system has a mechanism to <u>formally commit</u> to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>

**Score: 95**

Summary: The management system has a transparent mechanism at international, EU, national, and local (Erzeugergemeinschaft der Nord- und Ostseefischer GmbH GmbH) levels for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the German cod fishery in the Eastern Baltic. The system acts proactively to avoid legal disputes and rapidly implements binding judicial decisions arising from legal challenges. The system has a mechanism to formally commit to the legal rights of people dependent on fishing for food and livelihood. However, the system is not always pro-active and effective in settling international disputes.

## Justification

*The management system is generally consistent with local, national or international laws .....*

At level of international law, Germany ratified the United Nations Convention on the Law of the Sea (UNCLOS) convention in 1994. The principle legislative instrument for fisheries management in the EU is the Common Fisheries Policy, CFP, which aims at achieving sustainable fisheries management across the EU. This clearly aims to achieve both P1 (stock management) and P2 (wider ecosystem impacts). For example, the regulation states

The scope of the CFP extends to conservation, management and exploitation of living aquatic resources ..... bearing in mind .....UNCLOS. The objective of the CFP should therefore be to provide for sustainable exploitation of living aquatic resources ..... in the context of sustainable development, taking account of the environmental, economic and social aspects in a balanced manner.

Underneath the umbrella of the EU CFP, there are many binding regulations covering all aspects of fisheries, which are amended and updated as required. For example, some of the key recent pieces of legislation include the regulations on IUU and on control & enforcement. The EU CFP is enacted into German law by the Marine Fisheries Act of 1998/2006 (Seefischereigesetz), which directly reflects the scope and objective of the CFP and as such aims at achieving sustainable fisheries in accordance to MSC P1 and P2.

*The management system incorporates .... a transparent mechanism for the resolution of legal disputes, considered effective...*

The international agreements on fisheries and related matters signed by the EU and Germany are supported by transparent mechanisms for the resolution of management disputes that has been tried and tested over the long term. One example is the regular annual consultations with third countries resulting in the setting of TACs and other regulations pertaining to the exploitation of shared fish stocks. The subsequent regulations of the fisheries are clearly set out and communicated to the Member States and disputes over compliance (at all levels) are dealt with through the established judicial institutions at EU and national levels.

The Court of Justice of the European Communities (CJEC) rules on cases brought before it concerning, amongst others, the application of Community legislation. Although some cases are referred to the Court from national courts, most cases are brought by the Commission because Member States have failed to transpose and/or implement EU legislation. Individuals have very limited ability to bring cases directly to the Court, but must rely instead on complaining to the Commission or bringing cases at the national level. Although the role of the CJEC is less visible, it is far from insignificant in the development of the CFP. For example, the Court has been called to judge on catch quotas, free circulation of capital, and the EC's authority regarding relations with third countries.

The main mechanism for the resolution of legal disputes at the national level is the German judicial system. In event of a fisheries infringement the BLE can administratively fine the offender (when confessed) or hand over the details to the public prosecutor who will then decide on the proceedings. Fishermen or industry representatives can appeal to the full judicial process.

The reason for not achieving the 100 scoring guidepost in relation to the resolution of legal disputes is that the transparency and efficacy of the dispute resolution mechanism is less transparent at the international level. There are recent examples of difficulties in negotiations at this level in trans-boundary fisheries such as Northeast Atlantic Mackerel. Therefore it cannot be concluded that *the mechanism has been tested and proven effective*.

*The management system or fishery acts proactively to avoid legal disputes.....*

At the EU and national level it is worth stating that the management authority is not subject to continuing court challenges. There are a number of mechanisms in EU and German fisheries management which act proactively to avoid legal disputes, and these are much improved in recent years. Following the review of the CFP in 2002, much increased emphasis was placed on stakeholder engagement in the management process as a means of proactively avoiding disputes. Stakeholder consultation through Regional Advisory Councils (RAC) is now an integral part of the functioning of this system. For the cod fishery under assessment the Baltic RAC plays an important role in bringing parties together (industry – across all sectors, science, NGO) early on in the management process, thereby



reducing the likelihood of management measures which trigger dispute. Additionally in Germany, both the Ministry and the BLE act proactively with the industry to discuss management proposals, address industry concerns and inform of up-coming regulations. There are regular meetings between the industry and the ministry, which have done much to foster proactive dialogue in recent years.

However, it has happened in some occasions that the annual bi-lateral consultations between e.g. EU and Norway on TACs, terms of fishing and MCS could not be timely completed because of (legal) disputes. This has in some years prevented the EC to set and communicate quotas and uptake regulations to Member States before the start of the calendar year and prevented EU fishers from entering Norwegian zone and vice-versa. This is another reason why the score cannot reach the 100 SG.

*The management system has a mechanism to formally commit to the legal rights .....*

The EU CFP sets out a formal commitment to the legal and customary rights of people dependent on fishing, through a commitment to relative stability (meaning Member States are consistently allocated the same proportion of particular stocks):

“In view of the precarious economic state of the fishing industry and the dependence of certain coastal communities on fishing, it is necessary to ensure relative stability of fishing activities by the allocation of fishing opportunities among the Member States, based upon a predictable share of the stocks for each Member State.”

How the allocation is divided within member states is then laid out at national level. In Germany quotas are distributed among fishing vessels, producer organisations and fishing companies on an annual basis on the background of historical track records. The National Strategic Plan and Operational Programme "European Fisheries Fund (EFF) 2007-2013 of the Federal Republic of Germany" (in accordance with EC reg. no 1198/2006) explicitly considers fishing communities and includes a number of socio-economic objectives, which can be achieved whilst remaining consistent with P1 & 2 (stock management & ecosystem) objectives. It is of note that these objectives also seek to be in accordance with the Lisbon Strategy for growth and employment: These include:

- Maintenance of employment in fishing areas / avoid population decline
- Facilitating new entrants to the fishing industry
- Integrated / strategic development of ports – including rural or niche ports
- Ensure local communities are vibrant and the quality of life is high.

## References

EC 2002. Council Regulation No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy. Official Journal of the European Union L 358, 59-80.

Marine Fisheries Law (Seefischereigesetz) of 6 July 1998 as changed by Regulation (Verordnung) of 31 October 2006 (BGB. IS 2407)

Operational Program European Fisheries Fund (EFF) 2007-2013, Federal Republic of Germany (Operationelles Programm Europäische Fischereifonds (EFF) 2007-2013, Bundesrepublik Deutschland. (CCI-Nr. 2007/DE 14 FPO 001)

EC 1980. Council Regulation No 2214/80 of 27 June 1980 on the Conclusion of the Agreement on Fisheries between the European Economic Community and the Kingdom of Norway. Official Journal of the European Union L 226, 47-50.

<http://www.ble.de>

<http://www.bsrac.org/>

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
3.1.2	<b>Consultation, roles and responsibilities</b> The management system has effective consultation processes that are open to interested and affected parties.  The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <u>generally understood</u> .  The management system includes consultation processes that <u>obtain relevant information</u> from the main affected parties, including local knowledge, to inform the management system.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <u>explicitly defined and well understood</u> for <u>key areas</u> of responsibility and interaction.  The management system includes consultation processes that <u>regularly seek and accept</u> relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.  The consultation process <u>provides opportunity</u> for all interested and affected parties to be involved.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <u>explicitly defined and well understood</u> for <u>all areas</u> of responsibility and interaction.  The management system includes consultation processes that <u>regularly seek and accept</u> relevant information, including local knowledge. The management system demonstrates consideration of the information and <u>explains how it is used or not used</u> .  The consultation process <u>provides opportunity and encouragement</u> for all interested and affected parties to be involved, and <u>facilitates</u> their effective engagement.

**Score: 85**

Summary: Organisations and individuals involved in the CFP management process have been identified. Functions, roles and responsibilities at all levels are explicitly defined and well understood for all areas of responsibility and interaction. The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained. The consultation process provides opportunity for all interested and affected parties to be involved.

#### Justification

*Organisations / individuals in management process .... are explicitly defined and well understood for all areas of responsibility...*

Section 5 of this assessment report provides a description of the key roles and responsibility in the fishery management process. Briefly, these include:

- Management / administration: EU DG Mare, Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), **Federal Agency for Agriculture and Food (BLE)**, Regional authorities (Länder).
- Scientific Advice: ICES, EU's STECF & ACOM, Johann Heinrich von Thünen Institut
- Control & Enforcement: EU Community Fisheries Control Agency (CFCA) , BLE
- Industry Representation: German Fisheries Association (DFV), Producer Organisations within the fisheries sector
- Industry / NGO / Scientific liaison: Baltic Sea RAC
- Germany/the Baltic Sea RAC also has strong NGO representation, which, over recent years has played an important role in encouraging a more ecosystem-based approach to fisheries management.

In each of the cases highlighted above there is clear and transparent explanation provided (most simply found on their respective websites) on the roles and responsibilities – both for those with statutory and non-statutory roles.

*The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge and demonstrates consideration of the information obtained.*

The best examples of this are, at EU level, the work of the Baltic Sea RAC, and at German level, the consultation requirements for BLE on fisheries management specified in the Marine Fisheries Law and the Roundtable Discussions at Ministry level on fisheries politics.. The RAC is a formalised industry consultation process which has contributed much in recent years to the development/implementation of the multi-annual plan for the Baltic cod fishery, and there is clear evidence of the work of the RAC being used by the EU. RAC meetings are regular and provide an effective conduit for local knowledge into the management system. However, both in the case of EU consideration of RAC proposals and in the Ministry and BLE level consultations with industry and other stakeholders, there is not always a clear explanation provided (e.g. in the minuted outputs) of how the information is used or not used. For this reason the 100 SG cannot be met.

*The consultation process provides opportunity for all interested and affected parties to be involved (and in some cases facilitates their effective engagement).*

A good recent example of this has been the consultation process on the reform of the common fisheries policy (which itself closely mirrors the consultation process that preceded the drafting of the reformed CFP in 2002). The 2009 Green paper on the reform of the CFP expressly states that its purpose is “to trigger and encourage public debate and to elicit views on the future CFP. The Commission invites all interested parties to comment on the questions set out in this Green Paper”. Clear guidelines are provided on how, where and when to respond. The German Federal Government and industry and other interested parties have actively taken up the opportunity to respond, as have the Baltic Sea RAC. Contributions to this consultation process can be viewed at: [http://ec.europa.eu/fisheries/reform/consultation/received/index\\_en.htm](http://ec.europa.eu/fisheries/reform/consultation/received/index_en.htm)

The degree to which the consultation process facilitates engagement for all is less clear. Although there was active facilitation to get industry and key vocal stakeholders to contribute to the reform consultation, it is generally less clear how other maritime and marine organisations are brought into more routine fisheries management consultation. For example the degree to which marine recreation, aquaculture, aggregate extraction and offshore industries are actively facilitated – perhaps as part of an ICZM or marine spatial planning forum is not obvious. This is another reason for the 100 SG not being met.

## References

NSRAC (2009). The Common Fisheries Policy After 2012. A paper prepared by the NSRAC for consideration by the Commission before the Green Paper is finalised. Available at <http://www.nsrac.org/>

COM(2009)163 final. GREEN PAPER. Reform of the Common Fisheries Policy

Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), Reform of the Common Fisheries Policy. Challenges for sustainable use of our living marine resources (Reform der Gemeinsamen Fischereipolitik. Herausforderung für eine nachhaltige Nutzung unserer lebenden Meeresschätze). BMELV, February 2010

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>3.1.3</b>	<b>Long term objectives</b> The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach.	Long-term objectives to guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are <u>implicit</u> within management policy.	<u>Clear</u> long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are <u>explicit</u> within management policy.	<u>Clear</u> long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are <u>explicit</u> within <u>and required by</u> management policy.

**Score: 100**

Summary: The CFP has clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within and required by management policy.

### Justification

Clear long-term objectives ..... are explicit within and required by management policy.

At the governance and policy level, clear over-arching long term objectives are set out in the EU common fisheries policy. The reform of the CFP in 2002 heralded the explicit adoption of “a precautionary approach to protect and conserve living aquatic resources, and to minimise the impact of fishing activities on marine eco-systems, and to contribute to efficient fishing activities within an economically viable and competitive fisheries industry, providing a fair standard of living for those who depend on fishing activities .....”. These long term objectives are clear and explicitly defined and entirely consistent with MSC P&Cs.

The 2002 reform of the CFP also embraced a more long-term approach to fisheries management, involving the establishment of multi-annual recovery plans for stocks outside safe biological limits and of multi-annual management plans for other stocks. It aimed to progressively implement an eco-system-based approach to fisheries management.

Article 15 of Council Regulation EC 1198/2006 on the European Fisheries Fund, requires that all member states:

“Shall adopt, following appropriate consultation..... a national strategic plan covering the fisheries sector (which) .....sets out the priorities, objectives, the estimated public financial resources (in accordance with the CFP) .....for:

- (a) ..... adjustment of fishing effort / capacity with regard to the evolution of fisheries resources, promotion of environmentally-friendly fishing methods and sustainable development of fishing activities;
- (e) the sustainable development of fisheries areas,
- (g) preserving human resources in the fisheries sector, through upgrading professional skills, securing sustainable employment and enhancing the position and role of women;
- (h) protection and enhancement of the aquatic environment related to the fisheries sector”.

The Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), have complied with the requirements of the above regulation in the ‘Operational Plan for the development of the German Fisheries sector 2007 – 2013’. The plan explicitly prioritise sustainable exploitation of the natural resources and endeavour to strike a balance between sustainable fisheries and social interests in line with the principles of the Rio-Conference and the Baltic 21. The programme also is in explicit support of the FAO Code of Conduct for responsible fisheries.

The plan objectives are fully compliant with both the objectives of the CFP and the MSC P&Cs.

### References

Council Regulation /EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy. Official Journal of the European Union L 358, 59-80.

COUNCIL REGULATION (EC) No 1198/2006. On the European Fisheries Fund

Marine Fisheries Law (Seefischereigesetz) of 6 July 1998 as changed by Regulation (Verordnung) of 31 October 2006 (BGB. IS 2407)

Operational Program European Fisheries Fund (EFF) 2007-2013, Federal Republic of Germany (Operationelles Programm Europäische Fishereifonds (EFF) 2007-2013, Bundesrepublik Deutschland. (CCI-Nr. 2007/DE 14 FPO 001)

Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora

<http://www.baltic21.org/>

<http://www.fao.org/docrep/005/v9878e/v9878e00.HTM>

<http://www.unep.org/Documents/Multilingual/Default.asp?documentid=78&articleid=1163>

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>3.1.4</b>	<b>Incentives for sustainable fishing</b> The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that negative incentives do not arise.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and <u>explicitly considers</u> incentives in a <u>regular review</u> of management policy or procedures to ensure that they do not contribute to unsustainable fishing practices.

**Score: 80**

Summary: The management system at CFP and national levels does provide incentives for fishers/vessel owners that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that negative incentives do not arise.

### Justification

*The management system provides for incentives ..... and seeks to ensure that negative incentives do not arise.*

Since the 2002 revision of the CFP, subsidies that contribute to unsustainable fishing have stopped. There is no support to increase capacity, or to compensate for low catches.

There are some minor forms of subsidy which could be identified for this fishery. However, these do not contribute to unsustainable fishing and are consistent with MSC principles 1 and 2. These are:

- The industry does not pay directly for management or science (although this is funded through taxation) which could be construed as effective subsidy.
- A preferential tax system is applied to diesel across all EU primary production sectors, which could be considered a subsidy relative to other economic sectors, but this is difficult to argue for fisheries as a whole as European countries apply a far higher level of taxation on fuel than any other economic block in the world (with the exception of Japan).
- The EC's structural funding mechanisms to the fishery sector –the European Fisheries Fund (EFF) – provides targeted financial support to the sector, but funding restrictions have been significantly tightened (focus on improvements in safety and environmental impact).

No detrimental subsidies, which contribute to unsustainable fishing practices have been identified..

At national level, the management system provides economic and social incentives for sustainable fishing. These include:

- Penalties for infringements / non-compliance
- Pooling of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessel quotas has increased both certainty and commercial flexibility for members to plan operations in a profitable and economically efficient manner. The pooling is also believed by industry to have reduced possible quota shortage discards. However, this is not verified.

However, *the management system does not explicitly consider incentives in a regular review.*

The 2002 Reform of the CFP did not explicitly consider incentives, focussing instead on the priorities of fleet capacity, stakeholder engagement, improved enforcement, removal of subsidies and long term planning. By contrast the most recent review of the CFP does address the question of incentives much more explicitly in particular in the form of 'results based management' and increased industry responsibility and even self management. However, there is no regular review which explicitly addresses incentives.

**References**

COUNCIL REGULATION (EC) No 1198/2006. On the European Fisheries Fund

COUNCIL REGULATION (EC) No 1342/2008. Establishing a long-term plan for cod stocks and the fisheries exploiting those stocks and repealing Regulation (EC) No 423/2004.

COMMISSION REGULATION (EC) No 498/2007. Laying down detailed rules for the implementation of Council Regulation (EC) No 1198/2006 on the European Fisheries Fund

COM(2009)163 final. GREEN PAPER. Reform of the Common Fisheries Policy

Ministry of Food, Agriculture and Fisheries, Denmark (2009). Paving the way for a New Common Fisheries Policy (including a joint statement by Danish, **German** and UK Fisheries Ministers).



3.2	Fishery- specific management system			
	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
3.2.1	<b>Fishery-specific objectives</b>  The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.	<u>Objectives</u> , which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <u>implicit</u> within the fishery's management system.	<u>Short and long term objectives</u> , which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <u>explicit</u> within the fishery's management system.	<u>Well defined and measurable short and long term objectives</u> , which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <u>explicit</u> within the fishery's management system.
<b>Score: 80</b>				
Summary: The multi-annual plan for the Baltic cod stocks explicitly includes short and long term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2.				
<b>Justification</b>				
<u>Short and long term objectives</u> , which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <u>explicit</u> within the fishery's management system.				
<p>The overall objectives for managing this fishery are set out in the Council Regulation of September 2007 establishing a “Multiannual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks”. The stated objectives of the plan is to “...ensure the sustainable exploitation of the cod stocks concerned by gradually reducing and maintaining the fishing mortality rates at levels no lower than (a) 0.6 on ages 3 to 6 years for the cod stock in Area A (ICES sub-divisions 22-24) and 0,3 on ages 4 to 7 years for the cod stock in Areas B and C (ICES sub-divisions 25-32)”.</p> <p>At the operational level short-term objectives are primarily represented by output controls linked to the annual setting of the Total Allowable Catch (TAC) and input controls that limits the number of fishing days.</p> <p>Whilst in main the objectives referred to above for target stock management are well defined and measurable, however the objectives relating to P2 (e.g. minimising environmental impact, adoption of an ecosystem based approach) are <u>neither well defined nor measurable</u>.</p>				
<b>References</b>				
EC 2002. Council Regulation No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy. Official Journal of the European Union L 358, 59-80.				
EC 2007. Council Regulation No 1098/2007 of 18 September 2007 establishing a multiannual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks. Official Journal of the European Union L 248/1.				

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
3.2.2	<b>Decision-making processes</b> The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives.	There are <u>informal</u> decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.  Decision-making processes respond to <u>serious issues</u> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take <u>some</u> account of the wider implications of decisions.	There are <u>established</u> decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.  Decision-making processes respond to <u>serious and other important issues</u> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.  Decision-making processes use the precautionary approach and are based on best available information.  <u>Explanations</u> are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Decision-making processes respond to <u>all issues</u> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.  <u>Formal reporting</u> to all interested stakeholders describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.

**Score: 80**

Summary: Decision-making processes that result in measures and strategies to achieve the objectives for the Baltic cod resources are well established. The processes do respond to serious and other important issues identified in a transparent, timely and adaptive manner and also take account of the wider implications of the decisions. Decisions are based on a precautionary approach and best available information. Explanations are provided for any actions or lack of action associated with findings and recommendations.

Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.

#### Justification

*There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.*

The European Commission (DG Mare) lies at the heart of the EU internal decision making process and make proposals based on inputs from a wide consultative structure, scientific advice from ICES, scientific review from STECF, industry / stakeholder review from ACFA, and direct industry input from the Baltic Sea Regional Advisory council. In addition proposals, are, where relevant viewed by other Commission Directorates, including (of particular relevance to P2 considerations – DG Environment). Above all, the Commission has responsibility to ensure that proposals comply with the objectives laid out in the common fisheries policy. This same decision-making ‘machinery’ is brought to bear on fishery specific management decisions, such as the setting of TACs, technical measures (MLS, mesh size, days-at-sea, closed areas etc) and most importantly, the determination of multi-annual plans (including harvest control rules and reference points). The final arbiter in the decision-making process is the Council of European Union – made up of elected representatives of member states (in the case of

fishery decisions this is the fisheries ministers of each member state).

The impacts of the multi-annual plan on the Baltic cod stocks and the Baltic cod fisheries shall, on the basis of advice from STECF and the Baltic RAC, be evaluated by the Commission at the end of 2010 ( the third year of the plan application) and in each of the following years. Further the Commission shall every third year seek scientific advice from STECF on progress towards objectives and if required decide on additional and /or alternative measures to meet the objectives.

*Decision-making processes respond to serious and other important issues .....*

The ICES working group structure, and the consultative structure built into the decision-making process (STECF / ACFA / RAC / DG MARE working groups/DG environment etc. at the EU-level, and the Ministerial Roundtable Discussions and BLE Consultations at the national level) does mean that serious and other important issues are considered. Certainly latest scientific advice, and industry and social implications play key roles in shaping decisions. However, this perhaps stops short of being all issues. In particular some of the P2 criteria, including habitats and ETP species receive less consideration in a timely, adaptive and transparent manner.

*Decision-making processes use the precautionary approach and are based on best available information.*

Commission agreements and proposals are always in line with (and guided by) the CFP, which clearly states a commitment to the precautionary approach. By making use of the considerable expertise within ICES, STECF and ACFA the Commission ensures that decisions are based on the best available information. In recent years, considerable additional effort is placed on data recording and monitoring procedures to ensure the information on which decisions are based are accurate.

*Explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.*

The system for transparent explanation of decision-making and resulting actions stops short of being 'formal reporting to all interested stakeholders' in a way which describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. It is possible to see details of ICES working group reports, and recommendations of STECF and ACFA (although these are less 'accessible'). It is also possible to see the outputs of the commissions' deliberations (Agreed Records/Communications /Regulations), however it is difficult for all stakeholders to derive clear explanation of the decisions that take place during the process. There is little 'non technical' reporting to the public or industry – other than generic descriptions of the regulatory bodies and processes.

## References

- EC 2002. Council Regulation No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy. Official Journal of the European Union L 358, 59-80.
- COMMISSION DECISION (2004/864/EC). Amending Commission Decision 1999/478/EC of renewing the Advisory Committee on Fisheries and Aquaculture
- COMMISSION DECISION (2005/629/EC). Establishing a Scientific, Technical and Economic Committee for Fisheries
- EC 2007. Council Regulation No 1098/2007 of 18 September 2007 establishing a multiannual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks. Official Journal of the European Union L 248/1.
- [http://ec.europa.eu/fisheries/legislation/decision\\_making\\_process\\_en.htm](http://ec.europa.eu/fisheries/legislation/decision_making_process_en.htm)

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>3.2.3</b>	<b>Compliance and enforcement</b> Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with.	<p>Monitoring, control and surveillance <u>mechanisms</u> exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective.</p> <p>Sanctions to deal with non-compliance exist and there is some evidence that they are applied.</p> <p>Fishers are <u>generally thought</u> to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.</p>	<p>A monitoring, control and surveillance <u>system</u> has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules</p> <p>Sanctions to deal with non-compliance exist, <u>are consistently applied</u> and thought to provide effective deterrence.</p> <p><u>Some evidence exists</u> to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.</p> <p>There is no evidence of systematic non-compliance.</p>	<p>A <u>comprehensive</u> monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.</p> <p>Sanctions to deal with non-compliance exist, are consistently applied and <u>demonstrably</u> provide effective deterrence.</p> <p>There is a <u>high degree of confidence</u> that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.</p>

**Score: 95**

Summary: A comprehensive monitoring, control and surveillance system is prescribe in the Baltic cod management plan and has been implemented by the German authorities. The system has demonstrated its ability to enforce the strategies and measures and sanctions for non-compliance are consistently applied and thought to provide effective deterrence. Evidence demonstrates that Erzeugergemeinschaft der Nord- und Ostseefischer GmbH members comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery. There is a high degree of confidence that Erzeugergemeinschaft der Nord- und Ostseefischer GmbH members comply with the management system.

#### Justification

*A comprehensive monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.*

The long-term management plan for Baltic cod stocks and fisheries includes specific measures for the monitoring, control and surveillance of the fisheries. These includes among others: issuing of special permits to vessels fishing for cod, additional logbook requirements, effort recording, area entry/exit regulations and notification, designated landing ports, development, implementation and annual revision of national control action programme including inspection benchmarks. The plan also includes Joint Deployment Campaigns (JDC) under the auspices of the Community Fisheries Control Agency (CFCA)

At EU level it is the responsibility of Member states to enforce rules agreed under the CFP. An EU Community Fisheries Control Agency (CFCA) was established in 2007 to strengthen and coordinate controls across all national enforcement authorities to bring about improved uniformity and effectiveness of enforcement. This is further reinforced by the new EU control regulation which came into force on 1<sup>st</sup> January 2010, and aims to foster a new culture of compliance (1224/2009).

In Germany the authority responsible for MCS ashore and in coastal waters (12 sea mile zone) is the regions (Länder) under coordination of the Bundesanstalt für Landwirtschaft und Ernährung (BLE) under the Ministry of Food, Agriculture and Consumer Protection. The latter is responsible for all MCS in waters outside the 12 mile zone. Inspections are carried out in accordance with a risk-based strategy, which includes focus areas and campaigns (following the FAO Sampling Strategy). The positive effects of this strategy include a reduction in the number of infringements in recent years and a constructive dialogue with the fishing industry on MCS issues.

The MCS of the Baltic cod fisheries is carried out in accordance with the 'National control programme for cod fisheries in Germany'. BLE in 2009 took part in 13 Joint Deployment Campaigns on the Baltic cod fisheries, each of them of 2 weeks duration. Monitoring, control and surveillance can be considered comprehensive and the COM(2008) 670 report demonstrates that this is consistently effective.

*Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.*

In Germany, non-compliance is dealt with through the criminal justice systems, and using agreed and tested procedures. In event of an infringement being detected by the authorities, details of the infringement are passed to the public prosecutor, who determines the appropriate fine / sanction. This process also enables the fisher to prepare a defence against the charge and provides full right of appeal. The system of deterrent remains transparent, independent and consistently applied.

*There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.*

According to BLE (pers. com) the no of infringements in the German cod fisheries is very low and Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels are particularly compliant. This statement is supported by evaluation reports from CFCA Joint Deployment Campaigns in the Baltic Sea 2009 as well as the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH written conduct instruction to members of 11 December 2009.

*There is no evidence of systematic non-compliance.*

The enforcement system make strategic and coordinated use of logbooks (increasingly e-logbooks), sales notes, vessels monitoring systems, designated ports, landing inspections, advance hailing of landing (in particular when landing cod), reporting tolerance limits, inspections throughout the retail and supply chain (as a result of revised buyers and sellers registration requirements in the reformed CFP). Recent improvements include the new EU IUU and Control regulations and the NEAFC Port State control. However, it is not clear how the IUU regulation will be implemented. There is no evidence of systematic non-compliance in the cod fisheries (or other).

## References

Council Regulation (EC) No 1098/2007 of 18 September 2007 establishing a multiannual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks. Official Journal of the European Union L 248/1.

COUNCIL REGULATION (EC) No 1224/2009. Establishing a Community control system for ensuring compliance with the rules of the common fisheries policy, amending Regulations (EC) No 847/96, (EC) No 2371/2002, (EC) No 811/2004, (EC) No 768/2005, (EC) No 2115/2005, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007, (EC) No 676/2007, (EC) No 1098/2007, (EC) No 1300/2008, (EC) No 1342/2008 and repealing Regulations (EEC) No 2847/93, (EC) No 1627/94 and (EC) No 1966/2006

COMMISSION REGULATION (EC) No 1010/2009. Laying down detailed rules for the implementation of Council Regulation (EC) No 1005/2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing

COM(2008) 670. COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT. Reports from Member States on behaviours which seriously infringed the rules of the Common Fisheries Policy in 2006

National Control Program 2010 for German Cod Fisheries (Nationales Kontrollprogramm 2010 für den Dorschfang in Deutschland), BLE (in German)

FAO Fisheries Technical Paper 454. Safety in sampling - Methodological notes. Rome, 2004. ISBN 92-5-105039-2

[http://ec.europa.eu/cfca/baltic/index\\_en.htm](http://ec.europa.eu/cfca/baltic/index_en.htm)

[http://www.cfca.europa.eu/pages/docs/baltic/13\\_09.pdf](http://www.cfca.europa.eu/pages/docs/baltic/13_09.pdf)

Erzeugergemeinschaft der Nord- und Ostseefischer GmbH conduct instruction to members dated 11 December

2009 (in German)

Erzeugergemeinschaft der Nord- und Ostseefischer GmbH rules on fish production and sale 2010 (Erzeugungs- und Vermarktungsregeln 2010) of 4 December 2009 (in German).

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>3.2.4</b>	<b>Research plan</b> The fishery has a research plan that addresses the information needs of management.	<u>Research</u> is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2.  Research results are <u>available</u> to interested parties.	A <u>research plan</u> provides the management system with a strategic approach to research and <u>reliable and timely information</u> sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.  Research results are <u>disseminated</u> to all interested parties in a <u>timely</u> fashion.	A <u>comprehensive research plan</u> provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and <u>reliable and timely information</u> sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.  Research plan and results are <u>disseminated</u> to all interested parties in a <u>timely</u> fashion and are <u>widely and publicly available</u> .

**Score: 80**

Summary: The regular and strategic work undertaken by ICES working groups and national experts on the Baltic cod stocks provides the management system with reliable and timely information sufficient to achieve the objectives of the multi-annual plan. Research results are disseminated to all interested parties in a timely fashion.

### Justification

*A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.*

ICES strategically establish study groups based on information requirements identified by national delegates, including through industrial representations. Members of various ICES Working Groups focused on such elements as climate change, plankton, multi-species fisheries (ecosystem), etc. All review research, identify research requirements and undertake appropriate work. There is good communication between Working Groups (via ACOM), and between researchers through their specialist interests.

Research / investigation is undertaken in relation to specific requirements, which generally come from the recommendations of the Stock Assessment Working Group. Members of the ICES community keep abreast of developments within the scientific community of relevance to the fishery under consideration. The ICES community is wider than Europe and includes relevant research elsewhere. Research contracts are left to other organisations, including Universities, (e.g. through the EC) to supplement scientific understanding relevant to the fishery and related ecosystem. In Germany the Johann Heinrich von Thünen Institut plays a key role in the work of ICES, and is the formal representative of Germany on ICES working groups and, as such, contributes significant resources and expertise to relevant research.

For example, a number of key ICES working / study group have particular bearing on the fishery under assessment. These include (but are not limited to):

- WGBFAS Baltic Fisheries Assessment Working Group
- WGBIFS Baltic International Fish Survey Working Group
- PGCCDBS Planning Group on Commercial Catches, Discards and Biological Sampling

Research direction is steered by the money available. Typically it is easier to get national research funding for national projects. As a result many projects are undertaken by national scientific institutes using national fleets. The findings of these studies contribute to ICES findings. Taken in combination it can be concluded there is therefore a strategic approach which delivers reliable and timely information. However, this stops short of being considered a coherent and comprehensive research plan.

*Research results are disseminated to all interested parties in a timely fashion.*

The annual reports of ICES working groups and study groups are publically available on the ICES website. In addition they are disseminated to interested parties in a timely fashion – in particular they are disseminated to decision-makers, in time for annual fishery allocation negotiations. However, this stops short of being widely and publicly available, as the results are not presented in an accessible form (easy to find), to enable all interested parties (including public / consumers) to quickly interpret the findings – without significant prior knowledge or



expertise.

### References

Johann Heinrich von Thünen Institut: <http://www.vti.bund.de/en/>

Searchable hub for all ICES expert groups: <http://www.ices.dk/workinggroups/WorkingGroups.aspx>

	Criteria	60 Guideposts	80 Guideposts	100 Guideposts
<b>3.2.5</b>	<b>Monitoring and management performance evaluation</b>  There is a system for monitoring and evaluating the performance of the fishery-specific management system against its objectives.  There is effective and timely review of the fishery-specific management system.	The fishery has in place mechanisms to evaluate <u>some</u> parts of the management system and is subject to <u>occasional internal</u> review.	The fishery has in place mechanisms to evaluate <u>key</u> parts of the management system and is subject to <u>regular internal</u> and <u>occasional external</u> review.	The fishery has in place mechanisms to evaluate <u>all</u> parts of the management system and is subject to <u>regular internal</u> and <u>external</u> review.

**Score: 80**

The multi-annual management plan for Baltic cod has in place mechanisms to evaluate key parts of the management system and is subject to regular internal and occasional external review.

### Justification

*The fishery has in place mechanisms to evaluate key parts of the management system and is subject to regular internal and occasional external review.*

There is a comprehensive system of routine monitoring of information relevant for management decision-making and stock assessment purposes. The monitoring programme specified in the Baltic cod multiannual management plan principally focuses on landings from the fishery, i.e. quota uptake and effort, i.e. days at sea. This monitoring forms a substantially more accurate reflection of actual fishing mortality. Additional monitoring (scientific sea surveys) is also in place to provide sufficient information to support stock assessment purposes.

Procedures exist to regulate harvest in light of monitoring results. The multiannual management plan in its Article 6 specifies the procedures to be followed to set the annual TAC. Additionally the multi-annual plan in Article 26 specifies that the impacts of the plan on the Baltic cod stocks and the Baltic cod fisheries shall, on the basis of advice from STECF and the Baltic RAC, be evaluated by the Commission at the end of 2010 (the third year of the plan application) and in each of the following years. Further the Commission shall every third year seek scientific advice from STECF on progress towards objectives and if required decide on additional and /or alternative measures to meet the objectives.

The majority of the evaluations undertaken within the CFP “machinery” are ‘internal’ either within ICES or the EC and MS. However, ICES work brings together a wide range of national scientists, and in so doing builds external perspectives into the assessments and advice. Additionally the ICES work is periodically externally reviewed. However, this stops short of regular external review.

### References

Council Regulation (EC) No 1098/2007 of 18 September 2007 establishing a multiannual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks. Official Journal of the European Union L 248/1.

## Appendix 4 – WWF written submission received during site visit

Please see following pages for details of WWF's comments submitted during the site visit stage of the assessment process.



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Food Certification International Ltd

Attn. Melissa McFadden

Dochfour Business Centre, UK Findhorn House,  
Dochgarroch, Inverness  
Scotland, IV3 8GY

26<sup>th</sup> August 2010

### Reference:

**Stakeholder input for MSC certification of eastern Baltic cod assessed by Food Certification International Ltd (FCI) for the German, Swedish and Danish Cod fisheries in the Baltic Sea.**

Dear Mrs McFadden,

World Wide Fund for Nature (WWF) is highly interested in following the MSC full assessment process and give input to the assessment of the German Eastern Baltic cod fishery. In the following document we like to provide you with our positions on the three MSC principles in regard to this certification process. Please also find attached scientific and consultancy documents which provides additional information on stocks, bycatch and ecosystem impacts as well as management issues for the fisheries.

### **General remarks**

The Marine Stewardship Council (MSC) certifies fisheries which are considered sustainable. It is thus of highest importance to WWF that all MSC principles, criteria and indicators are applied strictly and with the background of a thorough understanding of each fisheries.

WWF finds it important that the MSC certification give both consumers and producers good reasons for choosing certified fish. The upcoming reform of the European Common Fisheries Policy (CFP) as well as the EU Control Regulation (EC 1224/2009) will provide means and mechanisms to close the gap between certified and non certified fish. We believe that MSC fisheries shall take and keep, special lead in an *effective fisheries control* to ensure and incite compliance in all fisheries, as well as in *implemented ecosystem based management*. To implement vessel monitoring systems within MSC fisheries is crucial. Once the fisheries are MSC approved the traceability of certified stocks and fisheries should be possible without doubts.

WWF urge that when evaluating the fisheries FCI strictly looks at those principles for the ecosystem based management and the precautionary principle that Germany, Sweden, Denmark, and other EU Member States has signed under the UN Food and Agriculture Organisation (FAO ) The *ecosystem based management approach* as well as *multispecies management* is crucial.

### **Ecosystem based management and bycatches**

WWF would like to emphasize the importance of that all three (Swedish, German and Danish) MSC fisheries will take the lead in reducing and eliminating of wasteful fishing practices such as bycatch and discard. Therefore WWF strongly supports the application of *CCTV-technique on fishing vessels* to provide and secure control over real catches, bycatches and discards.

It is important that the certification will guarantee that unintended bycatch species are avoided by use of selective fishing gear and / or seasonal and areal closures. The fisheries should avoid negative effects on the sea floor and benthic habitats. To secure this it is important to find areas where trawling can be conducted without harming vulnerable bottom ecosystems and within the setting of an ecosystem based management. Given this the fisheries need to be even more precautionary and respectful in areas with high biodiversity and high risk of bycatches.

According to the report on bycatches in the Baltic Sea (Österblom, H., 2002) the estimated figure for the bycatch of seabirds in Baltic Sea is 10,000 per year. Although this is an extrapolation from only some surveys it seems a big loss of seabirds in the area. Currently the European Commission is developing an EU Action Plan in order to reduce incidental catches of seabirds in fishing gears and FCI should take this into consideration when assessing the different fisheries. Please find attached the link to COM consultation paper on this Action Plan.

Another sensitive area is the conflict identified in marine Natura 2000 sites. Especially the impacts of bottom touching gear on benthic habitats (sandbanks and reefs) and associated species in the North Sea as well as the high bycatch mortality of harbour porpoises and seabirds in static gear in the Baltic Sea.

WWF strongly recommends that MSC certified fisheries voluntarily commit *to follow the measures recommended by ICES / EMPAS project for fisheries in Natura 2000 sites:*

1. Exclusion of fisheries with mobile bottom contacting gear in the area of the protected habitat types sandbank and reefs.
2. Spatial and temporal exclusion of static gears (especially gillnets) in Natura 2000 sites in the Baltic Sea to reduce by-catches of seabirds.
3. Promotion and mandatory use of selective, ecologically sound fishing gear (eg.fish traps) in areas in which harbour porpoises and seabirds are endangered by gillnets.
4. Respect EU Habitat and Birds Directive which in Annex II and IV requires specific management measures to protect the population of harbour porpoise even beyond the boundaries of established marine protected areas.

These measures are recommended in order to implement the results of the EMPAS project and to safeguard the protection of species and habitats in the marine Natura 2000 sites of the German Exclusive Economic Zone in the North Sea and Baltic Sea (ICES 2008a), but we find them really suitable for marine Natura 2000 sites in the whole Baltic Sea until the member states have adopted fisheries management measures in these areas. In the protection plan for the Natura 2000 sites "Hoburgs bank SE0340144" it is stated that fisheries shall be restricted. Fisheries with trawl shall not be allowed at all and fisheries with gillnet shall not be allowed during 15 October - until 15 of May at Hoburgs Bank. Please see attached WKFMPA report 2008 for more information, as well as the protection plan for Natura 2000 site, Hoburgs Bank.

### Specific remarks for Eastern Baltic cod - ICES area 25-32 in order of MSC principles

The Spawning Stock Biomass (SSB) of the Eastern cod stock has increased remarkably in recent years. It has reached 294,000 tonnes in 2010. The fishing mortality level in 2009 was estimated to be low ( $F=0.23$ ) for the second year in a row. The 2006 and 2007 year classes (at age 2) are the strongest year classes since 1987 according to ICES. The improvement is due to

- environmental factors: Inflow of saline water that set good conditions for reproduction and
- management efforts: Implementation and enforcement of the multi-annual plan since 2007 along with improved control and enforcement to reduce illegal fishing.

In 2009 the available national information compiled by ICES suggested that compared to total landings the rate of unreported landings were 6%. This rate went down from 30-40% unreported landings during the years 2000 to 2008. Actions in progress to improve enforcement and control (Copenhagen declaration on combating unreported cod fishery in the Baltic Sea, 2007) have proven (to be) successful. It should be noted, however, that the estimate of unreported catches and the discard level according to ICES is still "rather uncertain". This has to be taken into consideration in the evaluation of the long term sustainability of the stock.

In addition, discard levels in the cod trawl fishery have been predicted to increase due to higher catch levels<sup>6</sup>. Observer programmes show that trawl fisheries for cod on average discard 28% of their total catch which is cod and flatfish<sup>7</sup>. The amount of cod discard is greatest in the first and second year class for both Baltic stocks<sup>8</sup>. Depending on the strength of year classes entering into the fishery discard levels will vary. Fishing gear selectivity should be improved according to best available technique before gaining certification status.

For the eastern cod stock, WWF supports ICES advice on setting the 2011 TAC according to the rules of the multi-annual plan (15% increase of the TAC). However, the revision of the management plan should take into account the transition of the management based on the MSY principle and because this stock is still in recovery the management plan should be precautionous.

Sprat and herring are the main prey of cod and therefore the cod fishery can indirectly affect the sprat and herring stocks by decreasing predation frequency/level on these species. An increasing cod stock can reduce the clupeids. Similarly is the recruitment of cod influenced by predation by sprat and herring on cod eggs (Friedrich W. Köster and Christian Möllmann, 2000. *Trophodynamic control by clupeid predators on*

*recruitment success in Baltic cod?* ICES Journal of Marine Science 57(2):310-323).

### Principle 1: Management of the stock

#### Management plan evaluations and coming recommendations

ICES has evaluated the EC management plan in March 2009 and concluded that this management plan is in accordance with the precautionary approach. During the evaluation ICES assumed that the annual effort reduction is fully achieved until the target  $F$  is reached. The plan appeared to be most sensitive against implementation error, i.e. TAC or effort overshoots. Provided this implementation error is unbiased (i.e. no systematic misreporting) and below 10%, the stock would be likely to reach full reproduction potential before 2015.

<sup>6</sup> <http://www.ices.dk/committe/acom/comwork/report/2009/2009/cod-2532.pdf>, pg 33.

<sup>7</sup> Fiskeriverket (2007b). Åtgärder för att möjliggöra uppskattningar av fiskets bifångster samt deras effekter på hotade arter och bestånd, pg 12 <https://www.fiskeriverket.se/download/18.36bbe77c11545cd713780003339/bif%C3%A5ngster+reg.uppdrag+070629+dnr101-3108-05.pdf>

<sup>8</sup> <http://www.bsrac.org/archive/Dokumenter/Demersal%20WG/100309/Baltic%20Sea%20selectivityDTU.pdf>, pg 9.

Following the EU Management plan implies a fishing mortality of 0.3, which will require a 15% maximum

TAC change in 2011. The resulting changes in TACs are expected to lead to a decrease in fishing mortality

to 0.17 and to an increase in SSB to 453 000 ton.

Like WWF pointed out earlier this year in the Danish assessment for the Eastern Baltic cod fishery several gears are included in the assessment – long line, gillnet, trap and demersal trawl, the trawling accounts for around 70%. Evaluation is needed for all of those fishing gears and its effects on target stock and other species as well as the bottom structure/habitat.

Reference points: For Baltic cod the scientific reference points have been changed in the last years. ICES presented an integrated ecosystem assessment (ICES CM 2008/BCC:04) that shows a major shift in food web composition and environmental drivers in the Central Baltic basin, and concluded that previously defined biomass reference points are not considered to be applicable anymore and will not be used in assessing stock status or advice. Because this issue will be one of the main tasks for the evaluation of the Baltic Sea it seems important for the assessment team to check data with independent scientists and member states around the Baltic. Even though this particular assessment concerns German / Swedish fisheries there might be more fisheries applying from other countries in the future and they are all fishing on the same stock / stocks.

Scientific basis during the years: According to ICES substantial **underreporting** of catches occurred in 1993-1996, and also from 2000 to 2007. In this situation, ICES have chosen to include mis- and non-reported landings in the assessment. Estimates of misreporting are available from the national industries and control agencies and indicate that total catches during the years 2000-2007 were about 32 -45 % higher than the reported figures. By nature this information is highly uncertain and incomplete and no data were available for some countries where misreporting was suspected to occur. ICES considers that in 2008 and 2009 the enforcement of fishing control led to significant reduction of mis- and non-reporting; the available information suggest that unreported landings in 2009 were only 6% of the reported landings. Although the adjusted landing values derived by ICES are the best possible estimates, they are likely to be minimum estimates. WWF have, as previously mentioned, unofficial sources of information that for 2009 the unreported landings are more likely to be cut by half. The 6% value is based only on a few countries actually reporting, but since no information has been made available by official sources (on e.g. which countries actually reported or not) WWF cannot provide this information.

**Discard** data have been available since 1996 and are included in the assessment as yearly proportions discarded per age-group. From 2004 onwards, annual estimates of discards have been derived from the biological sampling of catches. The season and area coverage of discard sampling still requires improvement. Due to changes in technical regulations (e.g. increase in minimum landing size; the introduction of different cod end sizes; and various fishery closures), discard rates have been variable.

Uncertainties in assessment and forecast: Uncertainties in assessment are mainly due to problems with underreporting, discarding and age-reading. The estimate of F in 2009 is uncertain because of the uncertainty of the level of the total landings in 2009. Sampling for discards is insufficient and raising procedures have been problematic recently. This led to revisions in this year's assessment of the strength of incoming year classes in 2010. Additionally, assumptions had to be made on the levels of discards of illegal catches. Predicted discards for 2010 are based on the 2008 values, and strong year-classes are entering the fishery from 2010 onwards. **This may lead to increased discarding of juveniles.** Large inconsistencies exist in age determinations for the Eastern Baltic cod stock owing to the lack of clear growth rings in the otoliths. In 2008, the quantity of landings with no age information was very high (28%). This results in poor catch-at-age and survey data, and in a likely

underestimation of fishing mortality. ICES attempted to resolve the inconsistencies in age determinations for this stock, but no consensus was reached. An EU funded study initiated in 2007 (project DECODE) has taken a different approach to deliver validated aging data for the assessment, but this method is not fully developed.

Stock recovery: The long term management plan for cod in the Baltic that was agreed upon 2007. In 2010 it has to be decided whether it is still suitable or need major revision. The important thing is that the total fleet capacity and the quotas set for the region is set in accordance with sustainability of the eastern cod stock to keep it in a healthy condition and in that way also be a viable stock for fishing. Something that is difficult to define due to changes in ICES evaluation model. Together with nature's good will in inflow of saline water and a couple of strong year classes the long term management plan slowly increased the stock. ICES evaluated the management plan in 2009 and considered it to be in line with the precautionary approach. WWF think it is crucial to maintain the same management plan for the coming few years to gain stability in the stock and a better balance in the ecosystem. An increase in discards has occurred in the last year, at the same time it was presented how the surveillance cameras, in combination with selectivity panels in the trawls, can decrease discard of juvenile cod. For this reason it is extremely important that fishermen help with data-collection to enable scientists to clarify unaccounted catches and discards. Since 2010 high-grading is prohibited in all Baltic fisheries. However, no evaluation exists so far on the actual implementation and enforcement progress.

Harvest strategy: As the stock vulnerability is still high for the eastern Baltic cod WWF believe the stock should be harvested with the highest level of precaution. A fully enforced long term management plan with a fishing pressure below  $F_{0.3}$  at least for the coming years is necessary. This has to be included in the coming management plan due from 2011. The ecosystem approach and the precautionary principle should be applied. It is of high importance that the trawl fisheries use the best available selective trawling methods and gears to reduce catches of undersized cod, less than 38cm in length. It is also important to secure the increase in recruitment of the cod stocks that all discarding of young cod should be stopped through relevant measures.

Factors affecting the fisheries and the recruitment of the stock: The stock is managed through TAC, effort, and seasonal fisheries restrictions. The EC Council Regulation for the Baltic TAC in 2009 involved reductions in the effort in terms of number of fishing days per year, resulting in a maximum 160 days of fishing in subdivisions 25 and 28.2 in 2009. No further reduction in fishing days was required in 2010.

A measure that is important according to WWF is the seasonal and areal closure of spawning and feeding grounds. The cod fisheries in the Eastern Baltic are regulated by a seasonal closure during 1st July to 31st August to protect spawning cod. A closure of a central part of the main spawning area in the Bornholm Deep has been implemented and enforced during the main spawning seasons since the mid-1990s for all fisheries. A year-round closure for all fisheries in specific areas of the Bornholm Deep, the Gotland Basin, and the Gdansk Deep was introduced in 2005 aimed at reducing fishing mortality. Since 2006, area closures have been enforced from 1 May to 31 October. High-grading has been prohibited since 1st January 2010 in all Baltic fisheries but the control measures of how this is followed are not very clear.

All of these measures have contributed to the marked decline in the fishing mortality on this stock.

A Bacoma cod end with a 120mm mesh was introduced by IBSFC in 2001 in parallel to an increase in diamond mesh size to 130mm in traditional cod ends. The expected effect of introducing the Bacoma 120mm exit window was nullified by compensatory measures in the industry. This was to some extent explained by the mismatch between the selectivity of the 120mm Bacoma trawl and the minimum landing size. In October 2003, the regulation was changed to a 110mm Bacoma window. This was expected to enhance the compliance and to be in better accordance with the



minimum landing size, which was changed from 35 to 38cm in the same year. 1st of March 2010 the Bacoma 120mm was re-introduced along with an extended Bacoma window (5.5m), to further decrease discard and the minimum landing size was kept at 38cm. The increase in mesh size and extended cod end is supported by WWF.

In 2009 gillnet catches accounted for about 30% of the total catch. For set gillnets the bycatch of under seized fish is not the big problem.

## **Principle 2: Ecosystem Impact**

The ecosystem in the Baltic is under high pressure with eutrophication and pollutants as two considerable impacts on the ecosystem except from the fishing pressure. Due to this and the normal changes like seasonal influx of saline water and algal blooms the Baltic Sea and its fish stocks has to be handled with care. As cod is the major predator on herring and sprat the stock size of cod determines the natural mortality on these other fish populations. The Baltic should be managed with an ecosystem based approach and with a co-management of cod, herring and sprat for a better balance in the ecosystem, fish production and sustainable fish catches.

Concerning by-catch of birds and mammals in set nets this has to be recorded and dealt with. The by-catch rate are depending on the season, location and fishing gear. Despite management improvements this issue still needs to be addressed. The Harbour porpoise distribution and by-catch is mainly in the Baltic proper, southern part and in the western area.

We like to see that MSC certified fisheries will choose to close for fishing during some parts of the year and/or for specific types of gears or specific depths at times when bycatches are thought to be most frequent. According to the report by Österblom (2002) there are fisheries in North America which prohibit fishing during day periods when the concentration of seabirds is most abundant (sunrise and dawn) which significantly decreased bycatch numbers.

WWF urge the FCI Assessment Team to take account of the following project results on bycatches into your assessment:

- Progress on the possibilities for avoiding by-catch of mammals and birds with development of seal-safe fish traps or pot, Hel Marine station- in Poland The University of Gdansk [www.hel.ug.edu.pl/info/helmarinestation.htm](http://www.hel.ug.edu.pl/info/helmarinestation.htm)
- Contact Ms. Sara Königson, The Swedish Board of Fisheries regarding "Implementation of fish- and fisheries-related measures of HELCOM Baltic Sea Action Plan".
- ASCOBANS, the Belt and Sound Aquarium – contact person Mats Amundin, Kolmården, Sweden
- EU LIFE+ SAMBAH project (Static Acoustic Monitoring of the Baltic Harbour Porpoise) sources of information on the marine mammals [www.sambah.org](http://www.sambah.org)
- EU Habitat Directive : <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:NOT>
- LIFE Nature project "Marine Protected Areas in the Eastern Baltic Sea" on use of by-catch safe fishing gear in pilot project areas, [http://www.balticseaportal.net/bsp\\_section/web/?id=396](http://www.balticseaportal.net/bsp_section/web/?id=396)
- EU Action Plan for Reducing Incidental Catches of Seabirds in Fishing Gear:
- [http://www.bsrac.org/archive/Dokumenter/Documents%20Section/Commission/consultation\\_document\\_en.pdf](http://www.bsrac.org/archive/Dokumenter/Documents%20Section/Commission/consultation_document_en.pdf)
- Report bycatches of seabirds, seal and harbour porpoise in the Baltic (2002), English summary:

Österblom, H. (2002). Bifångster i fiskeredskap av fågel, säl och tumlare i Östersjön. Naturhistoriska riksmuseet, Stockholm, <http://www.wwf.se/source.php/1117073/wwf-1020504.pdf>

- ICES Response to EU on selectivity of active gears targeting cod in the Baltic Sea (2007), attached.

See also attachment with article by S. Hansson, Stockholm University and reference list for further contacts.

### **Principle 3 Management of fisheries**

Governance and policy: IUU - Illegal Unregulated and Unreported cod landings in the Baltic have officially decreased to a rate of 6% of total landings. According to WWF this is not a transparent and reliable percentage as only 3 member states around the Baltic reported to the EU Commission. Therefore WWF conducted an informal survey which indicates a level of IUU still ongoing of about 25-30% minimum. Unfortunately this numbers cannot be verified by statistics as illegal acts are not recorded.

WWF encourage the assessors to read through the ICES advice of 2005 for the eastern Baltic cod, area 25-32. On page 11 it says: *“In 1993-1996 there was substantial misreporting, and this has also been the case since 2000. Estimates are available for misreporting from a range of industry and enforcement sources. These indicate that recent catches have been around 35-40% higher than the reported figures. These estimates have been incorporated in the assessment. The accuracy of these estimates is not known. Regarding the 2003 data a systematic attempt has been made to collect information on unreported landings for most of the major national fleets”*. This calculation has then been used until just recently when the official numbers from the Commission was set to 6%. See attachment with ICES advice 2005 for eastern Baltic cod – IUU.

With both the new EU regulation on IUU and on Fisheries Control adopted in 2009 important changes will be implemented that hopefully will provide for better estimations.

The Baltic Sea **RAC** has improved communication links between industry, NGO's, managers and scientists. The view of the Baltic is more similar than 5 years ago but still there are discrepancies between representatives from different Member States. The BS RAC seminar in the spring 2007 with signing of the statement of the Fisheries Ministers to sign on an agreement for jointly decrease and eradicate the IUU in the Baltic was one of the big steps forward in common understanding. The decision to follow the scientific advice for the Baltic cod was agreed upon in the fall 2008, 2009 and 2010.

Worth knowing is also that within the framework of the EU strategy for the Baltic Sea region (adopted by the European Council, October 2009) a forum called **Baltfish** has been created this year, aiming for better dialog between the fisheries directors of the Baltic States. Fisheries are highlighted under two pillars in this EU Strategy and under two priority areas.

Priority area 2: To preserve natural zones and biodiversity, including fisheries. Germany has been identified as the coordinating country for this priority area.

Priority area 9: To reinforce sustainability of agriculture, forestry and fisheries. Sweden has taken the lead for sustainable fisheries and for “Developing and improving coordination and cooperation among Member States and stakeholders”. Within the same priority area Denmark takes lead on eradicating discards.

Within this context the “Stockholm declaration” was adopted 2009 by the Ministers of Fisheries in all Baltic states aiming for measures to protect young cod by improved selectivity, develop new selective fishing gears in close collaboration between member states, experts and industry, BSRAC,

as well as to develop a roadmap in 2010 to eradicate discards of cod inter alia through the adoption of a discard ban as appropriate. This work is now proceeding and WWF appreciates this work.

Consultation, roles and responsibilities: At the national level, national fisheries administrations and industry bodies look a bit different but all have to comply with the regional management plan decided by the Ministers within the framework of the CFP. Member states are responsible for a range of management and regulatory duties, including management of fleet activity, management of national quota, control and surveillance. The importance of management is high also for other issues concerning the health of the ecosystem and its fish populations in the Baltic.

For more information and reports please come back with questions. It would also be highly appreciated if the assessment team could provide us with a reply to our comments.

Best regards,

**Karoline Schacht**

Fisheries Policy Officer

WWF Germany

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## APPENDIX to WWF Submission

### Attachments - 20 documents:

1. ICES advice 2005 for eastern Baltic cod – IUU
2. ICES Response to EU on selectivity of active gears targeting cod in the Baltic Sea (2007)
3. Implementation of fish- and fisheries-related measures of HELCOM Baltic Sea Action Plan, Sara Köningsson – pdf 4.2-1 bycatch mammals and codtraps
4. Baltic Ecosystem by Sture Hansson, Stockholm University, on Ecosystem changes in the Baltic
5. Bevarandeplan för Natura 2000-område Hoburgs bank SE0340144 Bevarandeplan för Natura 2000-område Hoburgs bank SE0340144 Länsstyrelsen i Gotlands län 1.- (in Swedish only)
6. Bycatch in gillnet fisheries – An overlooked threat to waterbird populations, Ramunas Zydelis et al. Biological Conservation 142 (2009) 1269–1281
7. The EMPAS project Natura 2000 sites
8. Fisheries measures for marine Natura 2000 Sites
9. EU Action Plan for Reducing Incidental Catches of Seabirds in Fishing Gear
10. BALANCE - Baltic Sea environmental issues in “andersson\_rekker\_balance”
11. SAMBAH Static Acoustic Monitoring of the Baltic Harbour porpoise 2010-2014 (LIFE08 NAT/S/000261) Mats Amundin & Daniel Wennerberg, Kolmården Wildlife Park, Sweden
12. Management plan for Harbour porpoise - Åtgärdsprogram för tumlare (Phocoena phocoena) 2008-2013, Swedish Protection Agency, (in Swedish unfortunately)
13. Baltic Sea Environment Proceedings No. 122, Helsinki Commission, Ecosystem Health of the Baltic Sea 2003–2007 HELCOM Initial Holistic Assessment – (bsep122)
14. Bifångster i fiskeredskap – Österblom 2002 –((in Swedish only)
15. Symposium on Biology and Management of Seals in the Baltic area. 15 –18 February 2005, Helsinki, S.G.Lunneryd & S. Königson
16. ICES WKFMMPA REPORT 2008
17. Tillin – Effects of bottom trawling
18. Qieros – Effects of bottom trawling
19. Council Regulation (EC) No 1224/2009 - (LexUriServ)
20. Reference list of contact details for bycatch and ecosystem impact in the Baltic and North Sea.

## Appendix 5 – Peer review reports

### Peer Reviewer A

Peer review of the draft MSC assessment report for the **Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod fishery**, as prepared by P. Medley, F. Nimmo, S. Sverdrup-Jensen, A. Hervás and N. Pfeiffer (Food Certification International Ltd) for Erzeugergemeinschaft der Nord und Ostseefischer GmbH.

This review is in three parts, commenting on the presentation, accuracy and interpretation of the information and evidence used as a basis for the assessment of the above fishery, on the scoring table, and on the overall recommendation for certification including the suitability of the attached conditions. Throughout, I have identified the section(s) of the report at which my comments are aimed, and have not commented where I am content with the information provided or the conclusions reached. In preparing this review, I have taken into account the assessment team's response to peer review comments on the recent assessment of the Danish eastern Baltic Sea cod fishery.

#### Presentation

The information presented in the report is generally well presented and comprehensive, though there is too much repetition of information provided in the main text of the report in the scoring table comments in **Appendix 3**, where additional information often appears.

**FCI: Agree and recommendation will be taken into account for future assessment reports.**

It is not clear why the decision has been made to split the otter trawl fishery into three UoCs, on the basis that fishermen in the Baltic may operate their gear at various heights within the water column depending on the behaviour of cod. Nowhere in the assessment report is there any information that distinguishes these UoCs (which employ the same otter boards and nets), or how landings are identified to them. Assessment scores are given only for otter trawls and fly seine, and nowhere in the scoring table is a distinction made between demersal, pelagic or semi-pelagic use of otter trawls. It is not obvious that there is any practical basis for separate otter trawl UoCs.

**FCI: The fishery under assessment includes the following gears:**

1. seine nets
2. demersal otter trawls
3. pelagic trawls
4. semi pelagic trawls

As correctly identified by the peer reviewer, the trawl gears employ the same otter boards and nets and are therefore assessed as otter trawls within the Principle 2 element. The UoC's remain separated to ensure transparency. Landings are logged against gear type giving distinction between demersal, pelagic/mid-water and semi-pelagic gears, as detailed in Figure 2.11. Please note that no landings are recorded by semi-pelagic gear in this figure – semi-pelagic gear is being explored by the client's members to mitigate interaction with pipelines and has therefore been included within the UoC's.

It is apparent that this report leans heavily on those prepared by the same assessment team for similar Danish and Swedish fisheries for Eastern Baltic cod, but please ensure that all references to Danish or Swedish work are appropriate for the assessment of the German Baltic cod fishery.

**FCI: Amendments made where relevant.**

The references listed in **Appendix 2** should not be duplicated in the scoring table.

**FCI: The assessment team still is of the view that references should be included in scoring tables.**

**Glossary:** You define Bmsy as the stock biomass level for full reproductive capacity, but MSY is determined in terms of yield and F (connected with particular exploitation patterns and recruitment levels) and, presumably, Bmsy is the biomass at this level of F (and is not directly related to reproductive capacity).

FCI: Definitions corrected

**1 Introduction, 1.1 Scope:** last para. I think that it is misleading to suggest that the report is not “intended to comply with the standard editing norms expected for scientific journals”. This would cover both technical editing (which lay people will recognise) and critical scientific editing, which is important to ensure that the evidence presented is robust and defensible, and is why peer reviews are incorporated in the MSC assessment process.

FCI: The assessment team still is of the view that the report is not intended to comply with the standard editing norms expected for scientific journals this is to ensure the report remains robust while also being sufficiently accessible to all readers.

**2.4.1 Geographic Range:** shouldn't 35°N be 45°N (in the North east Atlantic)? Very few cod are caught south of the Celtic Sea.

FCI: changed as suggested

**Figure 2.6: Global distribution of Atlantic cod and map of the Baltic Sea showing ICES subdivisions** is superfluous, given **Figure 2.10**, which is more useful.

FCI: figure on the right removed as suggested (since repeated in figure 2.10)

**3.1.1 Trends in stock biomass, recruitment and fishing mortality:** you note that, since 1987, all year classes have been below the long-term average, though a decrease in fishing mortality since 2004 and higher recruitment (but still below the long-term mean) in recent years resulted in a rapid increase of the SSB to 294,000 t in 2010. This does not necessarily indicate that there is a high degree of certainty that the stock is above the point where recruitment would be impaired due to fishing, since no SSB-R relationship is presented. As you point out, at current fishing mortality, the level of SSB depends of recruitment success, and not vice versa. In fact, it is clear that environmental influences determine recruitment levels (see **2.4.2 Life cycle** and **3.2 Reference Points**), and the emphasis on reproductive capacity is unnecessary since  $F_{MSY}$  (and associated biomass levels) appears to have been estimated with some confidence.

FCI: High degree of certainty was assessed in terms of recruitment overfishing risk. Current fishing mortality estimated at  $0.23 \text{ y}^{-1}$  for 2009 and predicted to be at  $0.17 \text{ y}^{-1}$  for 2010 is well below  $F_{MSY}$  indicating that the likelihood that the current rate of fishing will cause recruitment overfishing is very low.

Under **3.2.1 Fishing mortality-based reference points**, you provide considerable detail that is either no longer relevant (since  $F_{msy}$  has now been adopted) or potentially confusing.

FCI: A description of the background for the adoption of the current reference points used by management is considered appropriate due to the peculiarities of this fishery. The removal of the biomass reference points and the only use of fishing mortality-based reference points need to be well explained.

For example, you state that  $F_{msy}$  is based on stochastic simulations that assumed that recruitment is constant at SSBs > 160,000 t and that there is no environmental effect on recruitment. However, the present low level of recruitment is due to environmental conditions (and not a low SSB), and the much more productive history of the stock is ignored. This uncertainty should be acknowledged when discussing the robustness of  $F = 0.3 \text{ y}^{-1}$  that has been adopted as  $F_{target}$  in the multi-annual management plan and as  $F_{MSY}$  in ICES advice for 2010 (and 2011).

FCI: It is understood that an explanation of the robustness of  $F_{target}$  used in the multiannual management plan is provided within section 3.2 (including reasons for the removal of biomass reference points) and PI 1.1.2 scoring table.

**3.5 Information and Stock Assessment, 3.5.2 Total Catch Data:** you mention a large discard of juvenile cod under **4.2 Bycatch (including discarding)**, but provide no evidence of this under Principle 1, despite stating that a discard sampling programme has been operated since 2004 (and see Condition 2).

FCI: Level and variability of discard presented now in Section 3.5.2.

**3.5.5 Other information:** if estimates of daily and seasonal egg production are available, have they been used to estimate SSB, and how does this compare with VPA estimates? What relevance does the comment “These time series have been used to validate Baltic cod egg production” have to the present MSC assessment?

FCI: Section 3.5.5 “Other information” relates to PI 1.2.3/SG 100. It shows that some biological information, in this case fecundity information, is comprehensive as egg production estimates are available from different methods (i.e. ichthyoplankton surveys, Female SSB estimator). However, information presented in 3.5.5 could not be used to score issue 1 SG 100 as issue 2 and issue 3 did not reach the 80 mark.

**4. Environmental elements:** other than indicating salinity distribution in the Baltic, of what relevance to this assessment is **Figure 4.1**, which shows the distribution limits of some marine and freshwater species?

FCI: This figure provides context to the overall ecosystem within the Baltic which is shaped largely on the salinity distribution.

**3.5.2 Total Catch Data.** If the “lack of a robust sampling program for discards” implies that there are no reliable discard data, then say so (and see **Condition 2**).

FCI: Higher scores for plaice and flounder under retained 2.1.1 have not been awarded on account of the lack of ICES advice due, partly, to lack of data on discarding. This is adequately addressed within the justification tables.

**4.1.1 Otter trawl (demersal and mid-water):** you state here that nets have a mesh size of  $\geq 105\text{mm}$ , but the fleets’ code of conduct requires that the “Minimum mesh size shall be 125 mm”. This should also be mentioned against **2.1.2** in the scoring table.

FCI: updated as suggested

**4.3. ETP species, 4.3.1 Harbour porpoise:** you state that harbour porpoise are known to occasionally be captured incidentally in mobile gears, and then say that “limited data have been available to the assessment team to suggest that it can and does occur”. Does this mean that there is a porpoise by catch, or not (since only one or two fatalities due to trawling each year would constitute an unacceptable level). However, you say that “There are no indications that Harbour porpoise are ever taken or captured during otter trawling or fly shooting operations” at **2.3.1** in the scoring table.

FCI: Report text updated to match scoring table emphasising that “There are no indications that Harbour porpoise are ever taken or captured during otter trawling or fly shooting operations”

**4.4 Habitat:** you provide a detailed habitat map of the Baltic, but then state that approximately a quarter of its total area is a largely anaerobic zone which is species-poor with low biomass. Where is this area, and does it coincide with that fished by the UoCs?

FCI: The location of the anaerobic area is unknown, but expected to vary depending on the environmental conditions.



Under **4.5 Ecosystem impacts**; you outline the considerable knowledge of the habitats and ecosystem of the Baltic Sea, and provide details of the conventions and European Directives that Germany uses to guide management of potential habitat and ecosystem impacts (though with no indication as to how they relate to the UoCs). From the MSC assessment point of view, however, it would be useful to know more about the regime shifts and their effect on cod production, and whether/how exploitation of cod might affect the rest of the ecosystem.

FCI: Regime shifts and their effect on cod stocks and associated management measures triggered due to such environmental factors should be addressed under P1. The level of exploitation of cod and how it might affect the rest of the ecosystem is described in detail within the Scoring tables.

**5.2.1 Fishery specific objectives:** what are the “margins” mentioned among the specific requirements for vessels undertaking cod fishery in the Baltic Sea?

FCI: The word “margin” is confusing and has been deleted from the text.

**5.2.4 Research Plan**, you note that discards and biological sampling are included in ongoing research and are thus of concern to assessment scientists. Is this sufficiently reflected in the uncertainties connected with estimations of stock status and management advice, and is there actually a formulated research plan, rather than a number of issues being pursued across a broad front (comments against **3.2.4 Research plan in scoring table** suggest not)?

FCI: There is no comprehensive research plan established for the Eastern Baltic Cod (as correctly mentioned in the justification for the scoring of criteria 3.2.1). Research on discard and biological sampling is found to be sufficiently reflected in the uncertainties connected with biological estimations and advice.

**6.4 Other Certification Evaluations & Harmonisation:** as the MSC assessment of the Danish fishery targeting Eastern Baltic cod is well advanced, and has been peer reviewed, it would be better here just to say that there are four full assessments for the Eastern Baltic cod fishery running concurrently, etc etc.

FCI: This section enumerates other Eastern Baltic cod fisheries under assessment and make clear that FCI have also undertaken these assessments and therefore harmonisation has occurred throughout.

**9.3 Point of Landing:** note that **Figure 9.1** duplicates **Figure 2.13**.

FCI: Noted

### Scoring Table, Appendix 3.

I have only commented where there appears to be a conflict between comments, the evidence provided in the report, or the mark given.

**1.1.1 Stock Status:** Though ICES considers the present (2010) SSB to be above any candidate for precautionary biomass reference points, there is not a high degree of certainty that the stock is above the point where recruitment would be impaired. It is acknowledged against **3.1.1 Trends in stock biomass, recruitment and fishing mortality** that there is no SSB-R relationship, and that the level of SSB depends of recruitment success, and not vice versa. The text should be revised accordingly.

FCI: The text has been modified: and now shows: “..trends in stock biomass, recruitment and fishing mortality were used in determining that at current spawning stock sizes there is a high degree of certainty that the stock is above the point where recruitment would be impaired due to fishing”.

In addition, it is difficult to reconcile the information deficiencies that contribute to a mark of 65 under **1.2.3** with a mark of 90 in relation to certainty of stock status (which has to be assessed on the basis of available information; and see comments against **1.2.4**). A score of 90 seems generous.

FCI: A score in information/monitoring that requires conditions does not mean that PI/stock status cannot score above 80. High degree of certainty was assessed in terms recruitment overfishing risk. Current fishing mortality estimated at  $0.23 \text{ y}^{-1}$  for 2009 and predicted to be at  $0.17 \text{ y}^{-1}$  for 2010 is well below  $F_{\text{MSY}}$  indicating that the likelihood that the current rate of fishing will cause recruitment overfishing is very low

**1.1.2, Reference Points:** you provide an exhaustive commentary on the history of development of reference points for this stock, which unnecessarily repeats information provided at **3.2.1 Fishing mortality-based reference points** and much of which is irrelevant to the current assessment. Surely, it is just sufficient to point out that biomass reference points are no longer used in view of the largely environmental-influenced patterns of recruitment, and that an MSY-based F reference level has been adopted (which can be accepted as surrogate for Bmsy) and explain what it is based on. In this light, a score of 80 seems too low.

FCI A description of the background for the adoption of the current reference points used by management was considered appropriate to explain the appropriateness of reference points used for the assessment of the stock status (issue 1 SG 80).

The assessment team considered that the current reference points are not sufficiently precautionary to meet any of the issues of SG100:

- It has been recommended that present  $F_{\text{LIM}}$  and FPA should be removed and only fishing mortalities in the range of 0.3-0.4 as calculated by AGLTA (2005) should be kept (ICES, 2009). This approach would be more precautionary in avoiding recruitment overfishing.
- In addition biomass reference points are under development and the appropriate biomass reference points in relation to different ecosystems regimes is not well understood

In addition, harmonization with other MSC Eastern Baltic assessments determines that score remain un-changed.

**1.2.1 Harvest Strategy:** you argue that, because the effectiveness of the conservation measures has not been evaluated, the harvest strategy is not designed to achieve stock management objectives, whereas these are separate criteria in the SG100 guideposts. Thus, two out of three elements are satisfied, and a score of 90 might be more appropriate. The same criticism applies to **1.2.2 Harvest Control Rules**. Just because simulation testing occurred after the rule was implemented, this does not mean that it was not designed to take into account the main uncertainties (which are either implicit in the stock assessment or known to management). It is not clear how a harvest strategy or control rule could be tested prior to implementation.

FCI: The main difference between a harvest strategy that meets Issue 1 SG 80 and a harvest strategy that meets Issue 1 SG 100 is in whether the elements of the harvest strategy are working together (SG 80) or the harvest strategy has been designed to achieve the objectives.

For a harvest strategy to meet the term designed it is understood here that the harvest strategy has to be designed and tested prior its implementation. The term working together reflect that the objectives of the harvest strategy are being met even if the harvest strategy was not designed and tested prior its implementation. Only Issue 1 SG 80 is met.

It is acknowledged here that whether issue 1 SG 100 is met or not is somewhat down to interpretation. However, if two of the three issues were to be satisfied, then a 95 would be the score to award (not 90). An 85 score was considered more appropriated by the assessment team.

**1.2.3 Information / monitoring:** you note that the quality of information on the Eastern Baltic cod fishery is often poor in respect to total landings history, discards and ageing, which together implies that there is potential for considerable uncertainty in the stock assessment (which is one element of the harvest strategy). The reasons for the mark of 65 given here should also be reflected in **1.1.1 (FCI: see comment for stock status)** (as it is in **1.2.4**).

FCI: main information uncertainties are taken into account in the assessment of the stock and this is reflected in the scoring if PI 1.2.4 (issue 2 SG 80 was met but not SG 100).

**1.2.4 Assessment of stock status:** in addition to comments above against **1.1.1** and **1.2.3**, one questions whether the assessment model used by ICES really is appropriate. XSA is an age-structured assessment method that is considered robust as long as the catch-at-age and survey data are reliable, but ICES (Advice 2010, Book 8) states that “large inconsistencies exist in age determinations for the Eastern Baltic cod stock”, which “results in poor quality catch-at-age and survey data”. Given the importance of survey information in the assessment, more detail on area covered, time of year, trawl used, etc should be provided.

FCI: More detailed information on survey methodology has been added to section 3.5.4 (Abundance indices).

**2.1.2. Management Strategy:** why is it considered useful to give **The EU legal minimum landing sizes for plaice and turbot**, and are these compatible with the mesh sizes being used in the UoCs?

FCI: It is considered useful as part of justification of this PI meeting SG100

**2.2.1 By-catch species, status (why only trawl?):** note that cod discards are not presented anywhere in this report (other than in **Table 4.2**). In this context, there is too much detail about the implementation of the Bacoma codend. It is sufficient to say that in March 2010 the Bacoma window was extended to 5.5 m and its mesh increased from 110 mm to 120 mm, in order to further decrease discards with a cod minimum landing size of 38 cm.

FCI: Discarding of cod is accounted for within the Principle 1 criteria. Justification table updated to include reference to fly shooting.

### Certification recommendation

The performance of the **Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod fishery** has been assessed against MSC Principal 1 (Sustainability of Exploited Stock), Principle 2 (Maintenance of Ecosystem) and 3 (Effective Management System) for two gear types, otter trawl and fly seine. Based on the evidence provided in the assessment report (with some reservations about the scoring against three Performance Indicators), I agree with the assessment team’s recommendation that the **Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod fishery** be certified according to the Marine Stewardship Council Principles and Criteria for Sustainable Fisheries.

The shortcomings in the performance of the fishery against MSC Principles set out in the assessment are adequately reflected in the three Conditions set and attendant recommendations, and in the client’s Action Plan.

## Peer Reviewer B

### Comments on Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod. Peer Review Draft Report.

#### General comments

Overall the report was well written and presented in an easy to understand format. Whilst I would not disagree with the Team's general assessment in favour of certification I do have strong reservations and the conclusions in relation to P2, specifically on habitats. The lack of information on the distribution of fishing effort and the location of sensitive habitats seems to be a generic problem which would benefit from guidance from the MSC. Normally, in the absence of basic information, the application of the precautionary approach would preclude many bottom trawl fisheries from obtaining certification if they operate in proximity to Natura sites and other sensitive habitats.

FCI: The assessment team does not agree that the otter trawl fishery should fail on account of habitat interactions. In addition to the evidence provided within the scoring tables, this is further justified based on harmonization with three other Eastern Baltic cod trawl fisheries currently under assessment (also by FCI but with different P2 experts) and the respective peer reviews of these fisheries. Further response is provided on this matter to address subsequent peer reviewer comments.

However, taking a pragmatic approach and bearing in mind the Client's existing certification, it seems reasonable that they be given the opportunity to present the information within an appropriate timeframe, in order they may proceed with their application.

#### Detailed comments.

Conditions. Page48.

1 "Work with relevant stakeholders to ensure that estimations on unreported landings are NOT uncertain." This double negative may be difficult to interpret for non native English speakers. Furthermore, the wording is vague and will be difficult to evaluate. Although this condition relates to information and monitoring, it should include a commitment and specific measures to reduce unreported catches, discards and bycatch. Reference to compliance with the PO's useful Code of Conduct should be included.

FCI: Ambiguity in the wording has been removed. The action plan designed by the client fishery is evaluated to be comprehensive to improve the performance of the fishery regarding information/monitoring issues where an 80 mark was not achieved. Compliance with the code of conduct will be audited at each surveillance audit.

2 "Work with relevant stakeholders to ensure that discards are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule. " Again the condition should refer to the Code of Conduct and ensure that discards are reduced to a minimum. Those that do occur should be reported accurately.

FCI: The action plan designed by the client fishery is evaluated to be comprehensive to improve the performance of the fishery regarding information/monitoring issues where an 80 mark was not achieved. Compliance with the code of conduct will be audited at each surveillance audit.

3 The wording should include a commitment to undelayed compliance with Natura 2000 legislation and national environmental legislation where it relates to habitats or species of national or Community Importance. Special measures to protect species such as shad or eels should be included in the PO's Code of Conduct.

FCI: Condition has been updated to include following text:

“This could include an undertaking to explore technical measures to reduce unacceptable impacts where identified, such as the sole use of semi-pelagic otter trawl doors or mid water trawling in these areas and/or possibility of closing vulnerable habitat area(s).”

Page 54. Client Action Plan. Habitats. The applicant should be aware that specific habitats and species listed in the Habitats and Species Directive are protected throughout the EU not just within Natura 2000 sites. Adequate evidence to support certification i.e. the measures suggested in Condition 3, should be provided prior to certification.

FCI: This is reflected in the timeline of the condition

Page 65. Annex 3

Principle 1 The scoring for P1 is reasonably justified. Questions remain over the abandonment of biomass reference points for those based on fishing mortality since there may be a significant proportion of the population removed by recreational fishing and small scale or part time fishermen which may not be considered by ICES. This is likely to lead inaccuracies in management planning.

FCI: biomass reference points for cod were removed due to the dependency of the Stock Recruitment relationship on environmental conditions. Removals from recreational fishing and small scale or part time fishermen are not related to the robustness of fishing mortality-based reference points for the management of the cod stock.

ICES report that they have taken into account the 6% figure calculated for discards which WWF claim to be vastly under estimated. Confirmation of the actual figure should be provided as soon as possible, not necessarily by the Client acting alone but rather by ICES and enforcement bodies collecting the information on behalf of all MS. However compliance by the client with accurate, verifiable reporting standards will help in the timely resolution of this important area of uncertainty.

FCI: Uncertainty related to un-reported landings has been captured as a condition of certification. Accurate figures will have to be confirmed during the 5 years of certification in order to bring the score to an 80 mark.

Recent recruitment ‘events’ and discrepancies in management measures i.e. mesh sizes and MLS, may be contributing the high proportion of juvenile cod in the discarded catch. However no analysis is offered as to the effect that this might be having on the current age structure of the stock which may be important given the difficulties in ageing from otoliths. There may also be implications for  $F_{msy}$  yr-1 and  $F_{max}$  yr-1. No comment is made on the medium to longer term effect that this might have on future population estimates.

FCI: Technical conservation measures newly introduced on mesh size are related to strong recruitment events. However, as discard sampling is not as comprehensive as should be, an improvement in the discard sampling program is requested as condition of certification. This will improve the knowledge of the true population structure removed from the population and will improve predictions on population estimates.

### 3.5.6 Stock Assessment Model

“...uncertainty of the level of the total landings in 2009. However, retrospective patterns are not significant and stock estimates are consistent among years. Comparison of stock assessment models gave similar stock estimates using XSA and SAM.” It is difficult to assess the level of risk arising from these uncertainties in landings and age analysis but given that the level of fishing mortality is well below the precautionary level then it is safe to assume that there is no immediately risk of stock collapse.

FCI: Agree.

Bycatch 2.2.2 Management strategy

Whilst there are a number of measures in place to deal with discards, their implementation may be variable. WWF suggest that only 3 countries are reporting on discards and other reports suggest that data is aggregated to prevent disclosure at a member state level. If the discard level is as high as WWF suggest then clearly the management strategy is not effective. However the stock assessment data indicates that more recent measures are having a positive effect. Concerns have also been raised about enforcement levels which are not evenly applied across MS and the fact that discards are likely to rise in line with catches. Monitoring of the highgrading ban both in terms of the volume of fish discarded and the levels of compliance should provide useful information on this aspect.

FCI: The management of bycatch and discards by the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fleet has been assessed in detail within the report and scoring table 2.2.2 (with exception of cod discards which are assessed under Principle 1). Direct data reports of discard sampling within this fleet were provided to the team and considered within the assessment. The score of 85 for Bycatch 2.2.2 remains justified.

### 2.2.3 Information/monitoring

Monitoring and reporting by the Client appears to be of an acceptable standard. Across the board (fishery wide), improvements have clearly been made in recent years but more needs to be done before the level of monitoring and reporting can be described as satisfactory. The appropriate use of observers, electronic logbooks and CCTV will help in this regard. If there is sufficient confidence in the level of monitoring and reporting of discards then the management authorities may be willing to consider real time closures to prevent juvenile cod from entering the nets which will also help reduce costs. Preventing the capture of juvenile cod should be considered a priority as the removal of large numbers of juveniles is likely to significantly detract from any the benefits derived from (unpredictable) recent recruitment 'events'.

FCI: The discarding of juvenile cod and information to inform levels of discarding for this (target) species are considered under Principle 1 and reflected in the conditions placed on this certification.

#### 2.3.1 ETP species

P28 4.3 ETPs. "Species that appear exclusively on non-binding lists such as IUCN Red List, OSPAR, HELCOM or that are only the subject of intergovernmental recognition (such as FAO International Plans of Action) and that are not included under national legislation or binding international agreement are not considered as ETP under MSC protocols." Is not clear from this statement if the assessment has considered these species and if this table is complete. Species protected under national legislation and other agreements such as Ascobans, Helcom etc. should at least be mentioned here and then detailed in later sections of the report. Certain provisions within the CFP may also be relevant.

FCI: As per MSC FAM definition these species have not been considered under ETP. Where appropriate they would be considered under bycatch. The bycatch and discard records from observer trips provided to the team presented no evidence of such species.

"Discard data for the Eastern Baltic cod fisheries as a whole indicate that Twaite shad is occasionally taken (although this is not specifically linked to Erzeugergemeinschaft der Nord- und Ostseefischer GmbH operations)." It is encouraging to note that few ETP species appear to be affected by this fishery. Stronger evidence should be provided by the Clients in respect of shad catches and efforts made to reduce the capture of this species. Threats mentioned from other sectors means that stocks are more vulnerable to fishing pressure than they might have otherwise have been.

FCI: This has been addressed in Recommendation 3.

P32. References to Ascobans and Helcom are welcomed but details of the national legislation are still missing.



FCI: This is acknowledged, however the detailed consideration of Natura 2000 sites, which are managed at a national level, are considered appropriate, albeit that these are designated in the EEZ of other Baltic countries.

#### 2.4.1 Habitats.

Page 31. "Some of the fisheries that are included under the present assessment occur across Natura 2000 sites designated on account of its habitat conforming to the Habitats Directive Annex I habitat 'sandbanks covered by water at all times'. It is unknown the extent of all fishing effort in these areas as overlays of Natura sites with complete fishing effort data have not been available. Assessment of VMS data, which maps effort for the portion of the fleet with vessels  $\geq 15\text{m}$  in length, has not been possible. Effort mapping for vessels  $<15\text{m}$  in length has not been possible. Despite this, a clear indication of effort is provided by landing statistics to the scale of ICES rectangles." Effort data on the scale of ICES rectangles is unlikely to provide sufficient resolution in order to assess this impact with any accuracy. From the statements given above, it cannot be said with any degree of certainty that "the fishery is unlikely to reduce habitat structure..."

FCI: From what is known about the fishery and its location of operation, based on detailed stakeholder consultation with the fleet, Scientific Bodies and Management Authority, it is understood where the Erzeugergemeinschaft der Nord- und Ostseefischer GmbH fleet operate. It has not been possible to present this data which has been acknowledged in the timescale of the conditions placed on the fishery. This result is in harmonisation with the other Eastern Baltic cod fisheries in MSC assessment.

4.4 Habitats. The extent of dead zones is interesting but its relevance is not clear since fishing is unlikely to take place in these areas-due to the low abundance of fish. Its significance perhaps may be revealed by the presentation of a location map showing the position of the dead zones.

FCI: Locations of dead zones are unknown.

The habitat map 4.2 is of limited use given that it is at wrong scale and the classification system used does not allow for the identification of sensitive habitats.

FCI: This is the best map available for presentation. Sensitive habitats are obviously understood to the extent to allow Natura 2000 designations.

2.3.2 Seine nets (fly shooting) "...This action means that the net is, to a certain extent, trawled along the seabed. Although fly shooting gear is generally lighter than trawl gear, with neither heavy trawl doors nor clump weight, the gear is robust and strong to withstand abrasion over the seabed." This suggests that there could be physical damage incurred from this fishery, though it is not clear if this has been considered in the scoring.

FCI: The term "demersal trawl" within 2.4.1 scoring table includes both otter trawl and fly shooting.

WWF make reference to the Hoburg Bank, an important Natura site designated for its bird populations and habitats including reefs. Mussel beds, also prevalent in the area, support a high biodiversity of macro algae as well as diving seabirds but are unlikely to be confined to the boundaries of the Natura site. Therefore evidence should be provided that these habitats are not being adversely affected by trawling or flyshooting activity. The reports states "It is noted that most of the trawl fishery for cod is now conducted in the water column in the Bornholm Basin, hence the impact of the bottom trawl on the sea floor has been reduced (ICES, 2010)." Fig. 2.11 suggests that demersal otter trawling is more frequently practiced than mid water trawling (around 43%:40%).

FCI: Fishing location within the water column is dependent on where cod is present – this is understood to vary year on year and seasonally.



Specific detail on the distribution of habitats is not clear from the report e. g. “The level of detail provided did not allow for the risks to all potentially affected seabed habitats, in particular sandbanks and reefs, for all Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod landings to be considered.” However the Team has concluded “It is considered unlikely that otter trawl and fly shooting will reduce habitat structure to a point where there would be irreversible or serious harm. “All indications are that the gear is not operated across sensitive habitats designated as Natura 2000 sites.” However, VMS data has not been available to confirm this to the stage where SG80 can be awarded.” “On account of lack of VMS data it is difficult to tell with a high degree of certainty whether fishing effort overlaps the Natura 2000 sites.”

Precise details over fishing areas is also confusing “...detailed consultation with Erzeugergemeinschaft der Nord- und Ostseefischer GmbH member skippers allowed an understanding of the areas targeted to be determined.” “Given the lack of VMS data or vessel tracking plots it has not been possible to determine the true extent of areas fished by all Erzeugergemeinschaft der Nord- und Ostseefischer GmbH vessels trawling for Eastern Baltic cod.” “The level of detail provided did not allow for the risks to all potentially affected seabed habitats, in particular sandbanks and reefs, for all Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod landings to be considered.”

Although the Team may have satisfied itself that there is no irreversible harm to sensitive habitats, they have not presented evidence to support this. I would strongly recommend that further evidence be provided in order to justify the score of 60 awarded for this element. Based on the PRDR, it is questionable if the fishery should pass this element of the certification.

**FCI: Disagree. Please refer to FAM v2 Section 7.5.6 Table 5 for guidance for term ‘unlikely’ for Habitats Component. Score is justified and remains unchanged.**

#### 2.4.2 Management strategy

Although management recommendations have been made for the Hoburgs Bank, none of the other Natura sites have so received detailed management guidance. Provisions exist for the protection of habitats outside of Natura sites where they are considered to be important for the integrity and functioning of the site. However the Habitats and Species Directive does require that management measures are prescribed for listed habitats and species within sites, which will no doubt develop as information becomes available. Measures may also be assigned under the CFP and Helcom, therefore it is reasonable to score this element as 80.

**FCI: Agreed**

#### 2.4.3 Information/monitoring.

Since information on fishing location and management measures have not been determined for the relevant habitats, the risk to habitats and the effectiveness of management measures cannot be deemed to be adequately addressed. Therefore it is difficult to see how a score of 85 can be justified.

**FCI: As per FAM, all SG 80 issues are met and the first SG100 issue is met with justifications provided within the Scoring Table. Score of 85 is justified.**

Although the distribution of habitats has been mapped it is not at a scale that will allow for the assessment of impacts from individual vessels. Furthermore, the level of information given by the Client which might allow for an assessment of risk to be carried out, has already been determined as insufficient ref: 2.4.1 “There is adequate information available on the spatial extent, timing and location of use of the fishing gear. EU logbooks data confirm the location of Erzeugergemeinschaft der Nord- und Ostseefischer GmbH Eastern Baltic cod fisheries”. This would appear to contradict the information given in 2.4.1.

FCI: As above, please refer to FAM v2 Section 7.5.6 Table 5

Member states are required to report on the condition of qualifying features of interest every 6 years. This should be sensitive enough to pick up deterioration in habitat quality and/or extent. It is uncertain if this damage can be ascribed to a particular sector or activity.

FCI: scoring unchanged

Page 103. 2.5 Ecosystem.

2.5.1 Based on historical evidence, it is reasonable to conclude that the fishery does not

cause serious or irreversible harm to the key elements of the food chain. This is supported by “The fishing mortality and stock levels encountered during the decade 1998-2007 did not cause a trophic cascade.” However, potential impacts on habitats and their structure and function are not addressed, nor is the issue of the effect of trawling on nutrient enriched benthic sediments which could exacerbate eutrophication if the nutrients are remobilized by trawling. Given the extent of nutrient enrichment in the Baltic, some consideration of this issue would be helpful.

FCI: the habitat justification has been edited to include remobilization of pollutants.

Potential effects on the trophic structure which may be incurred by future fishing operations should be addressed by forthcoming research and management plans as indicated in the following statement. “Currently research is being undertaken into the development of multi-species management plans which would model the three most commercially important species (cod, sprat and herring) to set harvest control rule consistent with the ecosystem approach”.

FCI: This has been addressed by Recommendation 4.

Potential effects on nutrient levels from continued trawling activity may be addressed through projects and programmes initiated by HELCOM and others dealing with water quality but are unlikely to be served by the projects listed in the justification statements. The potential effects of climate change on the main target species and in particular on cod recruitment, are not discussed.

FCI: The effect of climate change on stocks is applicable based on how the management system reacts to changes in stock status. This is an indirect P1 issue. For P2 the potential for fisheries to impact upon climate change is limited to vessel CO2 emissions.

The Baltic is relatively well served by international environmental bodies such as Helcom and legislation such as the Habitats and Species Directive, Marine Strategy Directive, Water Framework Directive, which should provide a robust framework within which wider ecosystem impacts can be managed. Germany is perceived as having a strong track record in implementing such legislation e.g. in designating offshore Natura sites. The score for this element is justified.

FCI: Agreed

2.5.3 Monitoring and information “Data is routinely collected on an ongoing basis to allow for the detection of any change or increase in risk level to the main ecosystem components.” The impacts of the fishery on key habitats is not identified, nor is the information readily collected, therefore the Team should consider revising their score. Earlier sections of the report refer “As regards the management of ecosystem components (cf. Principle 2) that may be affected by the Baltic cod fisheries management systems are in general less developed and less comprehensive when compared to fish stock components, cod stocks in particular.”

FCI: Information is collected, but may been readily available to the assessment team at time of scoring. VMS data is considered confidential and the process to obtain such data varies from country to country. Permission of individual fishermen is sometimes required before VMS data is released from the management authority. Conditions of certifications raised in this assessment require the

client to collaborate with relevant stakeholders in the development of monitoring/information to improve the performance of the fishery in those components of Principle 2 where the 'best practice' 80 mark was not reached.

3.1.1 Governance and policy. The Client has presented an extensive code of conduct (page 6, 2.2.2) within which its vessels must operate. Effective promotion and enforcement of this guidance as well as of national and international legislation, will demonstrate their intention to comply with the requirements of the certification scheme. Given their previous track record on compliance, there is no reason to assume that the rules and procedures designed to reduce environmental impacts (including those on the target species) will not be adhered to. Page 42 6.5 "...excellent compliance by the client fleet with respect to technical measures have been reported." However a cautionary note is given on page 13 "The proportion of the total catches landed by Germany increased to 7.57% in year 2009. Unallocated landings were significantly high accounting for 20% of the overall landings. It is important to note that unallocated landings figures are based on working group estimates and that they are only minimum estimates".

FCI: There is no evidence that client members have contributed to the unallocated landings.

Page 122. Meeting some the objectives set out in The National Strategic Plan and Operational Programme "European Fisheries Fund (EFF) 2007-2013 of the Federal Republic of Germany," e.g. encouraging new entrants to the sector, may be difficult if sustainable levels of fishing mortality are to be maintained.

FCI: This is a measure meant to enable replacement of (some) retiring fishers rather than general increase in the sector employment.

3.1.2 Consultation. The Team may wish to reconsider the score for this element in the light of the paper by Strehlow, H. V. 2010. The multiannual management plan for cod in the Baltic Sea: reactions and sentiments in two German fishing communities. – ICES Journal of Marine Science, 67: 1963–1971, in which it is argued that small scale fishermen are excluded from the decision making process partly due to the strong representation of the larger industrial vessels.

FCI: The team is aware of the paper by Harry Strehlow. The paper refers to fishing communities where there are no client members. In another MSC assessment which includes fishers from one of the two fishing communities mentioned the team did not find support for the argument which dates back to 2007.

3.2.1 Fishery specific management plan. The Client should continually press ICES to provide the information and the EC to update the multi annual plan and other necessary guidance, to help them operate in a more environmentally friendly way. In the meantime, strong efforts should be made to provide locally derived data i.e. on habitats and discards, to inform the management authorities. This is reflected in the scoring of this element.

FCI: Agree

Ref: "P37 5.2.5 The multi-annual plan for management of Baltic cod in Article 26 specifically calls for an evaluation by the Commission of the plan performance in 2010 after three years of functioning." No such evaluation has been provided.

FCI: The evaluation of the multi-annual management was initiated in 2010 as scheduled.

3.2.4 Research plan. There is no comprehensive multi annual plan in place that deals with the target stocks, habitats and ecosystems. Therefore the score is justified.

FCI: Agree

## Appendix 6 – Stakeholder Input received prior to PCDR

**a.** Written submissions from stakeholders received during consultation opportunities on the announcement of full assessment, proposed assessment team membership, proposed peer reviewers, proposal on the use or modification of the FAM and use of the RBF.

*Not applicable.*

**b.** All written and a detailed summary of verbal submissions received during site visits pertaining to issues of concern material to the outcome of the assessment, regarding the specific assessment.

*Written submissions from WWF (main letter included as **Appendix 4** to this report) were used as background reference material when assessing the stock and ecosystem impacts, but did not contain anything that – in and of itself – pertained to issues of concern material to the outcome of this assessment, as defined within the MSC Methodology.*

*Where relevant, this material has been explicitly referenced within the scoring justification tables, conditions and recommendations.*

**c.** Explicit responses from the assessment team to submissions described in **a.** and **b.** above.

*Not applicable.*