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Opinion by written procedure
Review of scientific advice for 2013 - part I
Advice on stocks in the Baltic Sea
(STECF-OWP-12-04)

JUNE 2012

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OPINION OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES BY WRITTEN PROCEDURE

Review of scientific advice for 2013 – Advice on stocks in the Baltic Sea

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1. BACKGROUND

According to Article 2 of Commission Decision 629 of 26 August 2005 establishing a Scientific, Technical and Economic Committee for Fisheries, STECF shall provide annual advice on the situation of fishery resources relevant to the EU. The first part of the stock advice focuses on stocks and associated fisheries in the Baltic Sea.

2. TERMS OF REFERENCE

The STECF is requested to review and comment on the scientific advice for Baltic Sea stocks released by ICES in 2012 in particular for the stocks specified below. The text of previous STECF reviews of stocks for which no updated advice is available shall be retained in the report in order to facilitate easy reference and consultation.

STECF is requested, in particular, to highlight any inconsistencies between the assessment results and the advice delivered by the scientific advisory committees of ICES.

In addition, when reviewing the scientific advice from ICES, and any associated management recommendations, STECF is requested to take into account Harvest Control Rules adopted in any type of multi-annual management plan and rules and principles for the setting of takes specified in the Commission Communication to the Council concerning a consultation on Fishing Opportunities for 2013 (COM(2012) 278 final).

(http://ec.europa.eu/fisheries/cfp/fishing_rules/tacs/info/com_2012_278_en.pdf)

As regards advice for the central Baltic stocks, STECF is requested to advise on:

(a) catch levels for 2013 for the stocks concerned that, based on single stock assessments, result in a fishing mortality rate that restores and maintains all stocks above levels capable of producing MSY by 2015;

(b) possible changes to the catch levels referred to in a) by taking into account biological interactions among the stocks, and;

(c) possible spatial measures supporting the MSY objectives taking into account the biological interactions between the stocks concerned.

In the absence of appropriate scientific criteria or analyses, STECF should advise on the catch levels that are predicted to maintain stocks above the previously-defined Bpa levels.

It has been agreed between the DG Mare and the STECF that the opinion of the STECF on scientific advice to be reviewed for Baltic Sea stocks will be delivered through a written procedure and should have to be provided to the Commission by June 29, 2012.

Baltic Sea stocks:

- Cod in subdivisions 22-24
- Cod in subdivisions 25-32
- Herring in ICES division IIIa & subdivisions 22-24
- Herring in subdivisions 25-29 (excluding Gulf of Riga) & 32
- Herring in the Gulf of Riga
- Herring in subdivision 30 (Bothnian Sea)
- Herring in subdivision 31 (Bothnian Bay)
- Sprat in subdivisions 22-32
- Flounder

- Plaice
- Dab
- Turbot in subdivisions 22-32
- Brill in subdivisions 22-32
- Salmon in subdivisions 22-31 (Main basin & Gulf of Riga)
- Salmon in subdivision 32 (Gulf of Finland)
- Sea trout

Additional request on Baltic salmon:

Given the most recent ICES advice for Baltic salmon and the COM proposal for a long-term management plan for Baltic salmon, STECF is requested to provide possible catch options for Baltic salmon in 2013 in accordance with the proposed harvest rule in COM(2011) 470.

Background.
The Commission issued a proposal for a long-term management plan for Baltic salmon in 2012 (COM 2011/470). This includes a harvest rule for determining a TAC for catches taken at sea. The STECF is requested to provide the candidate TAC for 2013 that would result from applying this harvest rule. While the harvest rule is specified in terms of fishing mortality of $F_{0.1}$, STECF is requested also to provide the candidate TAC that would result if the TAC were based on a harvest rate of 0.1.

3. INTRODUCTION

This report represents the STECF review of advice for stocks of interest to the European Community in the Baltic Sea.

In undertaking the review, STECF has consulted the most recent reports on stock assessments and advice from ICES and has attempted to summarise them in a common format.

The TAC advice for 2013 is provided in accordance with the rules laid down in Chapter 6 of the Communication from the Commission concerning a consultation on Fishing Opportunities for 2013 COM(2012) 278-final.

The advice for central Baltic stocks taking into account biological interaction among the stocks is given in section 4.13. The additional request on Baltic salmon is dealt with in section 4.8.1.

For data-limited stocks for which an abundance index is available, ICES has used a harvest control rule based on an index-adjusted *status quo* catch to provide catch advice for 2013. The advice is based on a comparison of the two most recent index values with the three preceding values, combined with recent catch or landings data.

4. STECF REVIEW OF ICES ADVICE ON RESOURCES IN THE BALTIC SEA

4.1. Brill (*Scophthalmus rhombus)* in the Baltic Sea (Subdivisions 22-32)

FISHERIES: The brill fishery is carried out mainly by Denmark in Subdivision 22. Total reported landings have fluctuated between 1 and 160 t.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES.

REFERENCE POINTS: There are no reference points proposed for brill in the Baltic.

STOCK STATUS:

F (Fishing Mortality)		
		2009–2011
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown

SSB (Spawning-Stock Biomass)		
		2007–2011
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	↗	Increasing

CPUE in the Baltic International Trawl Survey (BITS-Q1) has increased substantially since 2000 indicating an increasing abundance.

MANAGEMENT AGREEMENT: No management objectives have been defined for this stock.

RECENT MANAGEMENT ADVICE: Based on the ICES approach for data-limited stocks, ICES advises that catches should be no more than 68 tonnes.

STECF COMMENTS: STECF agrees with ICES assessment of the state of the stock.

Noting that ICES uses the trends in the survey index and average reported landings in 2009 – 2011 as basis for providing advice it seems more appropriate to express the advice for 2013 in terms of landings instead of catches. STECF therefore advises that landings of brill should be no more than 68 tonnes in 2013.

4.2. Cod (*Gadus morhua*) in the Baltic Sea (Subdivisions 22-24)

FISHERIES: Cod in the Western Baltic (Subdivisions 22-24) is exploited predominantly by Denmark and Germany, with smaller catches taken by Sweden and Poland. The fishery is conducted by trawl (68% of the landings) and gillnets (32%). Landings have in recent years been between 14,000 and 24,000 t with the lowest value of the time series in 2010. Landings in 2011 were 16,300 t.

ICES has estimated discards in 2010 to 10 % of the total catch in weight. The majority of the discards are undersized cod.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on an age-based assessment using commercial as well as survey data using the SAM assessment model.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	23 000 t	B_{pa} (23 000 t)
	F_{MSY}	0.25	F_{max} (ICES, 2011)
Precautionary Approach	B_{lim}	not defined	
	B_{pa}	23 000 t	MBAL
	F_{lim}	not defined	
	F_{pa}	not defined	
Management Plan	SSB_{MGT}	not defined	
	F_{MGT}	0.60	EU management plan based on stochastic simulations.

MANAGEMENT AGREEMENT: The EC agreed on a management plan for cod in the Baltic Sea in September 2007. For Western Baltic cod the aim is to reach a fishing mortality rate at levels

no lower than 0.6. This should be reached by fixing the TAC consistent with an annual reduction in F by 10% and by annually reducing the total number of days a vessel can fish in the area by 10 % until the target F of 0.6 has been reached. The plan sets a maximum change of 15% of the TAC between consecutive years, unless the fishing mortality is estimated to be higher than 1.

In addition to the rules for setting the TAC and fishing effort the plan includes a number of control provisions and only two types of trawls (since January 2010: BACOMA with 120 mm square mesh panel and T90 with 120 mm mesh) are allowed in the cod trawl fishery. High-grading is prohibited in all Baltic fisheries since January 2010.

STOCK STATUS:

F (Fishing Mortality)				
	2009	2010	**2011**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined
Management plan (F_{MGT})	✗	✓	✓	Below target
SSB (Spawning Stock Biomass)				
	2010	2011	**2012**	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	✓	✓	✓	Full reproductive capacity
Management plan (SSB_{MGT})	?	?	?	Undefined

SSB has been fluctuating just above Bpa since 2000 with an increase in recent years. F (ages 3–6) has decreased since the late 1990s and fell below the target F specified in the management plan in 2010. The latest year classes have been below the 10-year average. The 2003 year class is the latest above-average year class.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the EU management plan (EC 1098/2007) that landings in 2013 should be 20,800 tonnes.

Management plan approach: Following the agreed EU management plan implies fishing at an F management plan of 0.6, which will lead to a TAC of 20,800 tonnes in 2013. This is expected to lead to an SSB of 35,200 tonnes in 2014. No further reduction in days-at-sea is required.

MSY approach: Following the ICES MSY framework implies fishing mortality being reduced to 0.25, resulting in landings of 9,900 tonnes in 2013. This is expected to lead to an SSB of 44,100 tonnes in 2014.

Following the transition scheme towards the ICES MSY framework implies fishing mortality being reduced to 0.33, resulting in landings of 12,700 tonnes in 2013. This is expected to lead to an SSB of 41,700 tonnes in 2014.

Precautionary approach: As there is no Fpa defined for this stock, the catch corresponding to the precautionary approach cannot be calculated. Bpa is 23,000 tonnes, and all options in the outlook will result in an SSB above Bpa in 2014.

STECF COMMENTS: STECF agrees with ICES advice and notes that in accordance with the multi-annual management plan landings in 2013 should be 20,800 t.

4.3. Cod (*Gadus morhua*) in the Baltic Sea (Subdivisions 25-32)

FISHERIES: Cod in the Eastern Baltic (Subdivisions 25-32) is exploited predominantly by Poland, Sweden, and Denmark, the remaining catches taken by Latvia, Lithuania, Russia, Germany, Finland, and Estonia. Cod is taken primarily by trawlers and gillnetters.

The reported landings for the years 1992–1995 are known to be incorrect due to incomplete reporting and these landings have therefore been estimated. In this period, unreported and misreported catches were between about 7% and 38% of reported landings.

Estimates are available for underreporting since 2000 from a range of industry and enforcement sources. These indicate that catches in 2000 to 2007 have been around 32 - 45% higher than the reported figures. Since 2008 unreported landings have been reduced to less than 7 % of reported landings. There is no indication of unreported landings in 2011. Landings have fluctuated between 42,000 t and 392,000 t over the whole time series, starting in 1965. In 2011 the landings amounted to 54,218 t. (80% by trawlers and 20% by gillnetters).

Discards are estimated to be 7 % of the total catch in weight in 2011.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on an age-based assessment using commercial and survey data.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Undefined	
	F_{MSY}	0.30	Based on stochastic simulations.
Precautionary Approach	B_{lim}	Undefined	
	B_{pa}	Undefined	
	F_{lim}	0.96	F_{med} (estimated in 1998).
	F_{pa}	0.60	5th percentile of F_{med}.
Management Plan	SSB_{MGT}	Undefined	
	F_{MGT}	0.30	EU management plan based on stochastic simulations.

MANAGEMENT AGREEMENT: The EC agreed on a management plan for cod in the Baltic Sea in September 2007. For Eastern Baltic cod the aim is to reach a fishing mortality rate no lower than 0.3. This should be reached by fixing the TAC consistent with an annual reduction in F by 10% and by annually reducing the total number of days a vessel can fish in the area by 10 % until the target F of 0.3 has been reached. The plan sets a maximum change of 15% of the TAC between consecutive years, unless the fishing mortality is estimated to be higher than 1.

In addition to the rules for setting the TAC and fishing effort the plan includes a number of control provisions and only two types of trawls (since March 2010: BACOMA with 120 mm square mesh panel and T90 with 120 mm mesh) are allowed in the cod trawl fishery. High-grading is prohibited in all Baltic fisheries since January 2010.

STOCK STATUS:

F (Fishing Mortality)			
	2009 2010	**2011**	
MSY (F_{MSY})	✓ ✓	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	✓ ✓	✓	Harvested sustainably
Management plan (F_{MGT})	✓ ✓	✓	Below target
SSB (Spawning-Stock Biomass)			
	2010 2011	**2012**	
MSY ($B_{trigger}$)	? ?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	? ?	?	Undefined
Qualitative evaluation	↗ ↗	✓	Above poss. reference points

ICES considers the present SSB to be above any candidate precautionary biomass reference points. The SSB has increased in recent years and is estimated to be 263,000 tonnes at the start of 2012.

Fishing mortality in 2008–2011 was estimated to be the lowest in the series. The abundance of the 2006, 2007, 2008, and 2009 year classes (at age 2) is above the average of the last 20 years.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the EU management plan that landings in 2013 should be 65,900 tonnes.

Management plan: Following the agreed EU Management plan implies fishing at an F of 0.3, which results in a TAC in 2013 of 65,900 tonnes. This is expected to lead to an increase in SSB to 313,000 tonnes in 2014.

MSY approach: As no MSY Btrigger has been identified for this stock, the ICES MSY framework has been applied with F_{MSY} without consideration of SSB in relation to MSY Btrigger.

Following the ICES MSY framework implies fishing at an F of 0.30, resulting in landings of 65,900 tonnes in 2013. This is expected to lead to an SSB of 313,000 tonnes in 2014.

No transition is needed as F in 2011 is below F_{MSY}.

Precautionary approach: The fishing mortality of Fpa = 0.6 corresponds to landings of 118,000 tonnes in 2013. This is expected to reduce SSB to 239,000 tonnes in 2014.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2013. Following the EU management plan the TAC in 2013 should be set at 65,900 t.

STECF notes that there are no indications of unreported landings since 2010.

4.4. Dab (*Limanda limanda)* in the Baltic Sea (Subdivisions 22-32)

FISHERIES: The total landings of dab have been fluctuating between 1,000 t and 1,900 t. since 2003. Landings in 2011 were 1268 t. The highest landings are observed in Subdivision 22. The main dab landings are reported by Denmark (Subdivision 22 and 24) and Germany (mainly in Subdivision 22).

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES.

REFERENCE POINTS: There are no reference points defined for dab in the Baltic.

STOCK STATUS:

F (Fishing Mortality)		
		2009–2011
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown

SSB (Spawning-Stock Biomass)		
		2007–2011
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	↗	Increasing

Survey trends show an increasing trend since the early 2000s. The average stock size indicator (number/hour) in the last two years (2010–2011) is 96% higher than the abundance indices in the three previous years (2007–2009).

MANAGEMENT OBJECTIVES: No management objectives have been defined for this stock.

RECENT MANAGEMENT ADVICE: Based on the ICES approach for data-limited stocks, ICES advises that catches in 2013 should be no more than 1,400 tonnes.

STECF COMMENTS: STECF agrees with ICES assessment of the state of the stock.

Noting that ICES uses the trends in the survey index and average reported landings in 2009 – 2011 as basis for providing advice it seems more appropriate to express the advice for 2013 in terms of landings instead of catches. STECF therefore advises that landings of dab should be no more than 1,400 tonnes in 2013.

4.5. Flounder (*Platichthys flesus*) – IIIbcd (EU zone), Baltic Sea

FISHERIES: All countries surrounding the Baltic Sea report landings of flounder. It is taken as by-catch in fisheries for cod and to a minor extent, in a directed fishery. Since 1973 total recorded landings have fluctuated between 10-20 thousand t. In 2011 the reported landings were 15,269 t, of which 10,484 t is reported from subdivisions 24 and 25. Discards of flounder in the demersal trawl fishery targeting cod is very high (five to ten times the amount landed) and variable.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES.

REFERENCE POINTS: No reference points have been proposed for the flounder stocks in the Baltic.

STOCK STATUS:

F (Fishing Mortality)		
	2009–2011	
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown

SSB (Spawning-Stock Biomass)		
	2007–2011	
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	↘	Decreasing

Results from the Baltic International Trawl Survey (BITS) indicate that the stock has fluctuated without trend, although there is an increasing trend in subdivisions 22 and 24–25. The average stock size indicator (number/hour) for the whole distribution area of the survey (subdivisions 22–28) in the last two years (2010–2011) is 5% lower than the abundance indices in the three previous years (2007–2009). Preliminary model results suggest increasing stock size and decreasing fishing mortality for the most important components.

RECENT MANAGEMENT ADVICE: Based on the ICES approach for data-limited stocks, ICES advises that catches should be no more than 15,100 tonnes in 2013.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock.

STECF notes that preliminary analyses of Swedish bycatch and discard data shows that the amount of flounder discarded in the demersal trawling for cod can be very high and variable. Estimated

discards of flounder may be five to ten times greater than the amounts of landed bycatches of flounder in the cod trawl fishery.

Noting the likely large discard of flounder and that ICES uses the trends in the survey index and average reported landings in 2009 – 2011 as basis for providing advice it seems more appropriate to express the advice for 2013 in terms of landings instead of catches. STECF therefore advises that landings of flounder should be no more than 15,100 tonnes in 2013.

4.6. Herring (*Clupea harengus*) in Divisions IIIbcd, Baltic Sea

The present ICES stock assessment units of Baltic herring and the corresponding management units are shown in the text table below:

Herring Stock Assessment Units	**Management Areas**
Herring in division IIIa and subdivisions 22-24	Subdivisions 22 – 24 Division IIIa
Subdivisions 25 – 29 (excluding Gulf of Riga) and 32	Subdivisions 25,26,27,29, 32 and 28.2
Gulf of Riga Herring (subdivision 28.1)	Subdivision 28.1 (Gulf of Riga)
Herring in subdivision 30	Subdivisions 30-31
Herring in Subdivision 31	Subdivisions 30-31

4.6.1. Herring (clupea harengus) in Division IIIa and Subdivision 22 – 24.

FISHERIES: Herring of this stock of spring spawners are taken in the North-eastern part of the North Sea, Division IIIa and Sub-divisions 22–24. Division IIIa has directed fisheries by trawlers and purse seiners and by-catches in the small mesh trawl fisheries for sprat, Norway pout and sandeel, while Sub-divisions 22–24 have directed trawl, gillnet and trap net fisheries. The catches of herring taken in the Skagerrak and the Kattegat consist of mixture of autumn spawners from the North Sea stock and spring spawners from the area and from the western Baltic. After a period of high landings in the early 1980s the combined landings of all fleets have decreased to below the long-term average. The proportion of the total catch of the spring spawner stock taken in the western Baltic has varied between 42 and 63% since 2005 with an average of 52%.

Two TACs are set for Division IIIa. One covering the catches taken in fisheries using nets with a mesh size equal to or larger than 32 mm (target herring fishery) and one for fisheries using nets with a mesh size smaller than 32 mm (by-catch fishery). The TACs comprises both the autumn- and spring-spawning stocks in the area The TAC for the North Sea is based on the advice for the autumn spawners and does not take into account the likely catches of spring spawners.

EU and Norway have agreed that 50% of the quotas for the target herring fishery in Division IIIa in 2012 can be fished in the North Sea.

Landings in 2011 by area, fishery and stock are shown in the table below (WBSS: Western Baltic spring spawners; NSAS: North Sea autumn spawners.

Area where WBSS are being caught	Fleet	Fishery	WBSS 2011 catch	NSAS 2011 catch
Division IIIa	C	Directed herring fisheries with purse-seiners and trawlers.	10 816 t	6 608 t
	D	Bycatches of herring caught in the small-mesh fisheries.	818 t	1 780 t
Subdivisions 22–24	F	All herring fisheries in Subdivisions 22–24.	15 830 t	-
Division IVa East	A	Directed herring fisheries with purse-seiners and trawlers.	308 t	-

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The mixing in Divisions IIIa and IVa of the autumn spawners from the North Sea with this spring

spawning stock complicates assessment as well as management of both these stocks. The analytical assessment of the spring spawners in IIIa and western Baltic is based on catch data, two acoustic indices and a larvae survey index.

REFERENCE POINTS:

	Type	Value	Technical basis
MSY approach	MSY $B_{trigger}$	110 000 t	Based on management plan development and the lowest observed SSB in the 2008 assessment.
	F_{MSY}	0.25	Management plan evaluations (ICES, 2008).
Precautionary approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

F (Fishing Mortality)				
	2009	2010	2011	
MSY (F_{MSY})	✗	✗	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined
SSB (Spawning-Stock Biomass)				
	2010	2011	2012	
MSY ($B_{trigger}$)	✗	✗	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

Catches have declined since the early 1990s and SSB has decreased in recent years, reaching the lowest in the time-series in 2011 at MSY Btrigger. Fishing mortality has decreased in the last two years and was below FMSY in 2011. The 2010 and 2011 year classes are estimated to be stronger than year classes during the low recruitment phase in the mid-2000s.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY framework that catches in 2013 should be no more than 51,900 t. ICES recommends eliminating the optional transfer to Subarea IV.

MSY approach: Following the ICES MSY framework implies a fishing mortality FMSY of 0.25. There is no need to reduce F as SSB2013 is estimated to be above MSY Btrigger. This results in catches of no more than 51,900 t in 2013 from the whole distribution area. This is expected to lead to an SSB above 180,000 t in 2014.

Precautionary approach: No PA reference points have been set for this stock. It is therefore not possible to give advice based on these.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2013.

STECF notes that the above advised catch limits include a predicted catch of Western Baltic/ IIIa spring spawners of 300 t in the eastern part of Division IVa. This indicates that the catch of Western Baltic/IIIa spring spawners from Division IIIa and Western Baltic (subdivisions 22-24)should be limited to 51,600 t.

Assuming a fifty-fifty allocation of the advised catch of Western Baltic spring spawners (51,600 t) between Division IIIa and the Western Baltic and taking into account catches by fishery of North Sea autumn spawners in Division IIIa, STECF advises that catches of herring from Division IIIa and Subdivisions 22- 24 for 2013 should not exceed the following:

Management unit	Advised catch 2013	Predicted catch by stock	
		WBSS	NSAS
Division IIIa target herring fishery	34,300 t	24,400 t	9,900 t
Division IIIa by-catch fishery	3,600 t	1,400 t	2,200 t
Subdivisions 22 to 24	25,800 t	25,800 t	0 t

STECF underlines that the predicted catch by stock is based on the assumption that the advised catch for Division IIIa is taken from Division IIIa and IIIa and in keeping with ICES advice, that quota transfer to the North Sea does not take place.

4.6.2. Herring (Clupea harengus) in Subdivisions 25-29 (excluding Gulf of Riga) and 32.

FISHERIES: All the countries surrounding the Baltic, exploit the herring in these areas as part of fishery mixed with sprat. Over the last 30 years, landings of herring have decreased from a peak of 369,000 tonnes in 1974 to 91,592 tonnes in 2005. Since then landings have increased to 116,785 tonnes in 2011.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is based on catch data and on an international acoustic survey. Natural mortality is derived from a multispecies model from 2006 rescaled to the most recent estimates of cod biomass. Recruitment estimates for forecasts are based on the acoustic survey. Catches of Central Baltic spring-spawning herring taken in the Gulf of Riga are included in the assessment.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	not defined	
	F_{MSY}	0.16	Based on stochastic simulations and long-term deterministic simulations (ICES, 2011).
Precautionary Approach	B_{lim}	not defined	
	B_{pa}	not defined	
	F_{lim}	not defined	
	F_{pa}	0.19*	F_{med} (assessment 2000).

STOCK STATUS:

F (Fishing Mortality)				
	2009	2010	**2011**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	✗	✗	✗	Harvested unsustainably
SSB (Spawning-Stock Biomass)				
	2010	2011	**2012**	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined
Qualitative evaluation	→	→	→	Stable but low biomass

SSB in 2011 (628,000 t) was 70% of the long-term (1974–2011) average. Fishing mortality has been above Fpa and FMSY since the beginning of the 1980s. The last stronger year classes were the 2002 and 2007 year classes. Both year classes are, however, just above the long-term average.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the transition to the MSY approach that catches in 2013 should be no more than 117,000 tonnes.

MSY approach: As no MSY Btrigger has been identified for this stock, the ICES MSY framework has been applied with FMSY without considering SSB in relation to MSY Btrigger.

Following the ICES MSY framework implies fishing at F = 0.16, corresponding to catches of less than 99,000 tonnes in 2013. This is expected to lead to an SSB of 666,000 tonnes in 2014.

Following the ICES transition to the MSY framework implies a fishing mortality of 0.22 (F2010*0.4+FMSY*0.6), which is higher than Fpa = 0.19. Therefore, Fpa is used as the basis for advice, resulting in catches of less than 117,000 tonnes in 2013. This is expected to lead to an SSB of 645,000 tonnes in 2014.

Precautionary Approach: The fishing mortality in 2013 should be no more than Fpa, corresponding to catches of less than 117,000 tonnes in 2013. This is expected to lead to an SSB of 645,000 tonnes in 2014.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2013.

STECF notes that the advice provided by ICES is referring to the stock and not to management area. Therefore in the herring TAC for the Sub-divisions 25-27, 28.2, 29&32 the average catches of this stock in Sub-division 28.1 should be excluded and the average catches of Gulf of Riga herring taken outside the Gulf of Riga in Sd 28.2 should be included. Respective calculations are given in the table below.

Taking into account the above mentioned issues STECF has revised the advised catch options provided by ICES and advises on the basis of the transition to the MSY approach that catches in 2013 should be no more than 112,560 tonnes.

MSY approach: 94,560 tonnes.

Transition MSY approach: 112,560 tonnes.

Precautionary approach: 112,560 tonnes.

Table. Setting of herring catch limits by management area in Sub-divisions 25-27, 28.2, 29&32.

Management area	Stock advice	Average 5 year catch taken outside management area	Average 5 year catch of another stock taken in the management area	Management area advice
Sd 25-27, 28.2, 29&32	117,000 t	4,600 t	160 t	112,560 t

4.6.3. Herring (Clupea harengus) in the Gulf of Riga.

FISHERIES: Herring catches in the Gulf of Riga include both Gulf herring and open-sea herring, which enter the Gulf of Riga from April to June for spawning. Landings have fluctuated between 30,000 and 40,000 tonnes since 2000. The herring in the Gulf of Riga is fished by Estonia and Latvia. The structure of the fishery has remained unchanged in recent decades. Approximately 70% of the catches are taken by the trawl fishery and 30% by a trap net fishery on the spawning grounds. ICES estimates landings in 2011 to 35,024 tonnes.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	60 000 t	WKMAMPEL (ICES, 2009).
	F_{MSY}	0.35	WKMAMPEL (ICES, 2009), based on stochastic simulations.
Precautionary Approach	B_{lim}	not defined	
	B_{pa}	not defined	
	F_{lim}	not defined	
	F_{pa}	0.4	From medium-term projections.

STOCK STATUS:

F (Fishing Mortality)				
	2009	2010	**2011**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	✗	✓	✓	Harvested sustainably

SSB (Spawning-Stock Biomass)				
	2010	2011	**2012**	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

The estimated SSB in 2011 is 95,900 tonnes, well above the MSY Btrigger biomass of 60,000 t. Following high recruitment, SSB increased in the late 1980s and is currently estimated to be above the long-term average. The year classes of 2005, 2007, and 2009 are strong, while the 2006 and 2010 year classes are poor.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the transition to the MSY approach that catches in 2013 should be no more than 23,200 tonnes.

MSY approach: Following the ICES MSY framework implies fishing at F = 0.35, which corresponds to catches of less than 23,200 tonnes in 2013. This is expected to lead to an SSB of 80,400 tonnes in 2014.

Precautionary approach: The fishing mortality in 2013 should be no more than Fpa, corresponding to catches of less than 25,900 tonnes in 2013. This is expected to keep SSB above the long-term average..

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2013.

STECF notes that the advice provided by ICES is referring to the stock and not to management area. Therefore in the Gulf of Riga herring TAC the average catches of open sea herring in the Gulf of Riga should be included and the average catches of Gulf of Riga herring taken outside the Gulf of Riga should be excluded. Respective calculations are given in the table below.

Taking into account the above mentioned issues STECF advises the following catch limits for 2013:

Transition to the MSY approach: 27,640 t

MSY approach (F = 0.35): 27,640 t

Precautionary approach: 30,340 t.

Table. Setting of herring catch limits by management area in Sub-division 28.1.

Stock	Stock advice	Average 5 year catch taken outside management area	Average 5year catch of another stock taken in the management area	Management area advice
Sd 28.1	23,200 t	160 t	4,600 t	27,640 t

4.6.4. Herring (Clupea harengus) in Subdivision 30, Bothnian Sea

FISHERIES: Finland and Sweden carry out herring fishery in this area. On average 95% of the total catch is taken by trawl fishery. Landings were relative stable around 20,000 to 30,000 tonnes until 1992, after which they increased to between 50,000 and 60,000 tonnes. A further increase in landings has taken place since 2006. In 2011 the landings were 75,500 tonnes.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	271 000 t	2.5% lower percentile of B_{MSY}.
	F_{MSY}	0.16	F giving the highest yield based on stochastic stock simulations with the hockey-stick S–R relationship.
Precautionary Approach	B_{lim}	not defined*	
	B_{pa}	not defined*	
	F_{lim}	not defined	
	F_{pa}	not defined**	

STOCK STATUS:

F (Fishing Mortality)	2009	2010	2011	
MSY (F_{MSY})	✓	✓	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined

SSB (Spawning Stock Biomass)	2010	2011	2012	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

The spawning-stock biomass tripled between the mid-1980s and mid-1990s and thereafter decreased by 40% until 1999. In the 2000s SSB remained high and has increased further after 2008. There is, however, great uncertainty around the estimates. Since the beginning of the time-series, the most likely estimates of fishing mortality have been below F_{MSY} and have exceeded F_{MSY} only in 1997 and 1999. Prior to 1994, recruitment was stable and low and has continued to remain stable over the past 20 years, but at a slightly higher average value than previously. The three year classes 2002, 2006, and 2008 are the most abundant in recent years. Landings in 2011 were the highest recorded over the time-series..

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY framework that the catch in 2013 should be no more than 97,000 tonnes.

MSY approach: Following the ICES MSY framework implies a fishing mortality of 0.16, resulting in catches of no more than 97,000 tonnes in 2013. This is expected to result in an SSB of 597,000 tonnes in 2014.

No transition scheme applies as fishing mortality is below FMSY.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2013.

STECF notes that the TAC for herring in the Bothnian Bay covers Subdivisions 30 and 31 and should be set in accordance with the combined advice given for the two herring stocks in the area. The advised catch of herring in subdivision 31 in 2013 is 2,100 tonnes (see section 4.6.5 Herring in Subdivision 31).

Based on the above considerations and STECF advises the following catch limits for 2013 for subdivisions 30 and 31:

MSY approach: 99,100 tonnes.

Transition to the MSY approach: 99,100 tonnes.

Given the different development of the two herring stocks in subdivisions 30 and 31, the current management system with a common TAC set for both areas might not adequately protect the weaker stock (subdivision 31). Therefore ICES recommends a separate management for the two stocks.

STECF agrees with ICES advice that measures may be required to avoid overexploitation of the herring stock in subdivision 31. A measure could be separate catch limits for subdivision 31.

4.6.5. Herring (Clupea harengus) in Subdivsion. 31,

FISHERIES: Trawl fisheries account for the main part of the total catches. Normally the trawl fishing season begins in late April and ends before the spawning season in late May to July. It resumes in August/September and continues, until the ice cover appears, usually in early November. Landings in 2011 were 3,350 tonnes.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES.

REFERENCE POINTS: No reference points are agreed for the stock.

STOCK STATUS:

F (Fishing Mortality)		
		2000–2011
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	✓	Low to moderate

SSB (Spawning-Stock Biomass)		
		2007–2011
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	↘	Decreasing stock abundance

Cpue from trapnet fisheries shows fluctuations with a decreasing trend since 2003. Fishing effort has generally decreased since the 1980s and is considered to be low. The average stock abundance indicator (cpue from trapnet) in the last two years (2010–2011) is 68% lower than the abundance indices in the three previous years (2007–2009).

RECENT MANAGEMENT ADVICE: Based on the ICES approach for data-limited stocks, ICES advises that catches should be no more than 2,100 tonnes.

Given the different development of the two herring stocks in Subdivisions 30 and 31, a common TAC set for both areas might not adequately protect the weaker stock. Therefore ICES recommends a separate management for the two stocks.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2013.

STECFs advice on catch limits for subdivisions 30 and 31 is given in section 3.6.4.

4.7. Plaice (*Pleuronectes platessa*) in the Baltic Sea (Subdivisions 22-32)

ICES has revised the stock definition for Baltic Sea plaice and the Baltic plaice is now assessed as belong to two stocks, one distributed in subdivisions 24 to 32 and one in the Kattegat and subdivisions 22 and 23. This means that there is a mismatch between the assessment areas and the TAC management areas.

STECF has reviewed the two assessments and based on the two catch forecasts and the historical distribution of landings, STECF provides a advice on landings for 2013 for subdivisions 22 to 32.

4.7.1. Plaice (Pleuronectes platessa) in the Kattegat and subdivisions 22 and 23.

FISHERIES: In Subdivision (SD) 22 plaice is mostly taken in mixed fisheries together with cod. In the Kattegat plaice is almost exclusively a bycatch in the combined Nephrops–sole fishery. Historical information on discard ratio in the Skagerrak and the Kattegat is around 15–25% in weight. Landings in 2011 were 1586 tonnes.

The distribution of landings by area in the period 2002 to 2011 is given in the table below.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	Undefined.	
	F_{MSY}	0.25	F_{MSY} for neighbouring North Sea stock. Since selectivity in Kattegat is towards larger fish (discards are considerably lower) this proxy is considered conservative and in the range of other possible proxies.
Precautionary approach	Not defined		

STOCK STATUS:

F (Fishing Mortality)		
	2009–2011	
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	↘	Decreasing, at historic low
SSB (Spawning-Stock Biomass)		
	2008–2012	
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	↗	Increasing

An exploratory assessment is presented, which is considered highly uncertain because of the short time-series available. The exploratory assessment shows that fishing mortality has dropped since 2006, and SSB has been increasing since 2009.

MANAGEMENT OBJECTIVES: No management objectives have been defined for this stock.

RECENT MANAGEMENT ADVICE: Based on the ICES approach for data-limited stocks, ICES advises that catches should be no more than 1,800 tonnes.

STECF COMMENTS: STECF agrees with ICES assessment of the state of the stock.

Noting that ICES uses the trends in the survey index and average reported landings in 2009 – 2011 as basis for providing advice it seems more appropriate to express the advice for 2013 in terms of landings instead of catches. STECF therefore advises that landings of plaice in the Kattegat and subdivisions 22 and 23 should be no more than 1,800 tonnes in 2013.

STECFs advice for subdivisions 22 to 32 is given in section 4.7.3.

4.7.2. Plaice (Pleuronectes platessa) in subdivisions 24 to 32.

FISHERIES: Landings increased from less than 100 tonnes in the beginning of the 1990ties to more than 1,200 tonnes in 2009. Since then landings have decreased and were 748 tonnes in 2011. Subdivisions 24 and 25 are the main fishing areas.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES.

REFERENCE POINTS: There are no reference points proposed for plaice in the Baltic.

STOCK STATUS:

F (Fishing Mortality)	
	2009–2011
MSY (F_{MSY})	? Unknown
Precautionary approach (F_{pa},F_{lim})	? Unknown

SSB (Spawning-Stock Biomass)	
	2007–2011
MSY ($B_{trigger}$)	? Unknown
Precautionary approach (B_{pa},B_{lim})	? Unknown
Qualitative evaluation	↗ Increasing

Survey trends have increased steadily since the early 2000s by about five times. The average stock size indicator (number/hour) in the last two years (2010–2011) is 39% higher than the abundance indices in the three previous years (2007–2009).

MANAGEMENT OBJECTIVES: No management objectives have been defined for this stock.

RECENT MANAGEMENT ADVICE: Based on the ICES approach for data-limited stocks, ICES advises that catches should be no more than 900 tonnes.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock.

Noting that ICES uses the trends in the survey index and average reported landings in 2009 – 2011 as basis for providing advice it seems more appropriate to express the advice for 2013 in terms of landings instead of catches. STECF therefore advises that landings of plaice from Baltic subdivisions 24-32 should be no more than 900 tonnes in 2013.

STECFs TAC advice for subdivisions 22 to 32 is given in section 4.7.3.

4.7.3. Advice for plaice (Pleuronectes platessa) in subdivisions 22 to 32.

The advised landings of plaice in 2013 for Kattegat and the Baltic Sea is as outlined in sections 4.7.1 and 4.7.2 1,800 tonnes for Kattegat and subdivisions 22 and 23 and 900 tonnes for subdivisions 24 to 32.

The predicted landings in subdivision 22 to 32 under the above advised scenarios depends on the distribution of the landings between the Kattegat and subdivisions 22 and 23. The relative proportion of landings from subdivisions 22 and 23 has shown an increasing trend over the latest teen years as shown in the table below. Assuming 75% of the landings in 2013 to be taken in subdivision 22 and 23 will give a predicted landing of plaice in 2013 in the Baltic Sea of 2,250 tonnes (1,350 from the Kattegat and subdivision 22 and 23 stock and 900 tonnes from the subdivision 24 to 32 stock).

	Landings in tonnes		Relative distribution of landings by area	
Year	Kattegat	sd 22 and 23	Kattegat	sd 22 and 23
2002	2030	1847	52%	48%
2003	2296	1085	68%	32%
2004	1609	1006	62%	38%
2005	1251	1139	52%	48%
2006	1550	851	65%	35%
2007	1380	1219	53%	47%
2008	1008	1003	50%	50%
2009	659	1008	40%	60%
2010	497	1043	32%	68%
2011	368	1218	23%	77%

4.8. Salmon (*Salmo salar*) in the Baltic Sea, Div. IIIb,c,d (Main Basin and Gulf of Bothnia, Sub-div. 22-31)

FISHERIES: Reported total landings in the Baltic Sea (including recreational fishery) have declined 83 % since 1990, from 5,636 (1990) to 934 t (2011). The decline has been largest in the offshore fishery where nominal catches in 2008 were 212 t or less than 10 % of catches reported in 1990. However, since 2008 reported catches of the offshore fishery have been increasing again, being 331 t in 2011. Landings from coastal fisheries were 380 t in 2011, which is 29 % of the catches in 1990. River catches have shown no clear trend with reported landings in 2011 of 170 t. 49 % of the EC quota for 2011 was landed.

Unreported catches and discards are estimated to be 40% of the total catches.

The decreased catches are largely explained by quota and national restrictions, reduced post-smolt survival, increased seal damage to catches and gear and declining effort mainly in the offshore fishery caused by a drift net ban since Jan 2008 but also by poor market prices and market restrictions related to high dioxin contents. The nominal landings in the offshore fishery were slightly higher than in 2010 (73,000 fish).

There has been an increase in the proportion of wild salmon in catches, relative to reared salmon, which reflects the increased wild smolt production

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES.

REFERENCE POINTS: To evaluate the state of the stock ICES uses the smolt production relative to the 50% and 75% level of the potential smolt production capacity (PSPC) on a river-by-river basis. ICES uses 75 % of the potential smolt production capacity as criteria for the population recovery to the MSY level.

MANAGEMENT AGREEMENTS: The EU Commission has presented a proposal establishing a multiannual plan for the Baltic salmon stock and the fisheries exploiting that stock (COM/2011/0470 final), but the plan has not yet been accepted. In that plan a constant fishing mortality rate of 0.1 in marine fisheries (including vessels offering services for recreational fisheries) is proposed as a basis for setting a TAC.

STOCK STATUS: In order to better support the management of wild salmon stocks, ICES has established five assessment units for the Baltic Main Basin and the Gulf of Bothnia.

Assessment unit	Name	Salmon rivers included
1	Northeastern Bothnian Bay stocks	On the Finnish-Swedish coast from Perhonjoki northward to the river Råneälven, including River Tornionjoki
2	Western Bothnian Bay stocks	On the Swedish coast between Lögdeälven and Luleälven
3	Bothnian Sea stocks	On the Swedish coast from Dalälven northward to Gideälven and on the Finnish coast from Paimionjoki northwards to Kyrönjoki
4	Western Main Basin stocks	Rivers on the Swedish coast in Divisions 25–29
5	Eastern Main Basin stocks	Estonian, Latvian, Lithuanian, and Polish rivers

Of the 27 rivers assessed by ICES, the probability of having reached 50% of the PSPC in 2011 is above 70% for seven rivers, between 30% and 70% for seven rivers, and below 30% for 13 rivers. The probability of having reached 75% of PSPC in 2011 is above 70% for only one of the 27 rivers. The target is more likely to be met in productive rivers especially in the Northern Baltic Sea area while the status of less productive wild stocks in other areas remains poor.

The relatively weak spawning migrations in both 2010 and 2011 will most likely result in reduced smolt production levels in the near future.

The total wild smolt production has increased about tenfold in assessment units 1–2 since the Salmon Action Plan was adopted in 1997. In assessment unit 3 the smolt production has been on the same level, and in assessment unit 4 a slightly decreasing trend in smolt production has been observed during the period. Wild smolt production of all assessment units combined is now estimated to be around 70% of the potential total smolt production. Smolt production is still low in rivers where salmon were extirpated and are now being reintroduced.

The total exploitation rate of salmon decreased considerably from the beginning of the 1990s to 2006, and harvest rate in the offshore fishery in particular showed a clear downgoing trend during

that period. However, since 2006 the total exploitation rate has slightly increased, and the exploitation in the longline fishery has increased substantially since 2008. The current offshore harvest rate by longlines only is close to the combined harvest rate for longlines and driftnets in the early and mid-2000's.

The post-smolt survival is a key factor influencing the abundance and development of salmon stocks. It has declined during the last 15 years and remained very low since 2005.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY approach a TAC of not more than 54 000 individuals of salmon. As the perception of the stock status has not changed markedly since last year's assessment, the advice for the fishery in 2013 is the same as the advice given in 2011 for the 2012 fishery and, therefore, a decrease in exploitation with respect to the TAC implemented in 2012 is required.

The share of the total catch that is mis- and unreported was estimated to be about 30% in 2011. Reducing these unaccounted removals would allow a higher TAC recommendation.

Salmon management should be based on the assessments of the status of individual stocks in the rivers. Fisheries on mixed stocks that cannot direct fishing only to those stocks that are close to or above their targets, present particular threats, and effort in such fisheries should be reduced. Fisheries in open-sea areas or coastal waters are more likely to pose these problems than fisheries in estuaries and rivers.

Salmon stocks in the rivers Rickleån and Öreälven in the Gulf of Bothnia, Emån in southern Sweden, and in a majority of the rivers in the southeastern Main Basin are especially weak and need longer-term stock rebuilding measures, including fisheries restrictions, habitat restoration, and removal of physical barriers. In order to maximize the potential recovery of these stocks, further decreases in exploitation are required along their feeding and spawning migration routes. The offshore fishery in the Main Basin catches all weak salmon stocks on their feeding migration. The coastal fishery catches weak stocks from northern rivers when the salmon pass the Åland Sea and Gulf of Bothnia on their spawning migration.

STECF COMMENTS: STECF agrees with the ICES advice.

STECF notes that with a TAC of 54,000 salmon as advised by ICES, the predicted total sea catch (reported and unreported commercial catch + recreational catch), would be over 100,000 salmon if unreporting in 2013 will be on the same level as in 2011. STECF notes that this scenario would result into a clearly positive development for a majority of the assessed salmon stocks, with an increased probability to reach the 75 % smolt production target.

The increase in overall smolt production has levelled off and wild smolt production is predicted to peak in 2012. The status of the less productive wild stocks is poor and for those rivers the probability to reach 75 % of the potential smolt production level by 2017/2018 is low regardless of the effort and TAC levels.

4.8.1. Additional request on Baltic Salmon

Given the most recent ICES advice for Baltic salmon and the COM proposal for a long-term management plan for Baltic salmon, STECF is requested to provide possible catch options for Baltic salmon in 2013 in accordance with the proposed harvest rule in COM(2011) 470.

Background.
The Commission issued a proposal for a long-term management plan for Baltic salmon in 2012 (COM 2011/470). This includes a harvest rule for determining a TAC for catches taken at sea. The STECF is requested to provide the candidate TAC for 2013 that would result from applying this harvest rule. While the harvest rule is specified in terms of fishing mortality of $F_{0.1}$, STECF is requested also to provide the candidate TAC that would result if the TAC were based on a harvest rate of 0.1.

STECFs response:
According to ICES projections, stock size on the feeding grounds would be about 1.2 (0.7–2.1) million salmon (wild and reared, 1SW and MSW fish in total) at the beginning of year 2013. A part of the salmon is spending their first winter in the sea, and those salmon do not recruit to the open sea fisheries in the beginning of the year.

Fishing mortality of F=0.1 in marine fisheries would result to a catch of 108,762 (63,444-190,333) salmon (assuming a natural mortality of 0.1). A harvest rate of 0.1 would result to a catch of 120,000 (70,000 – 210,000) salmon.

According to WGBAST scenarios, 60% reduction of fishing effort would roughly correspond to the F=0.1, depending on how much unreporting and/or misreporting takes place. The TAC decision on either fishing mortality F=0.1 or harvest rate of 0.1 would depend on the assumed amount of unreported catch. In the year 2011 unreported catches and discards were estimated to be 40 % of the total catches. Assuming the same level in 2013, the TAC resulting in F=0.1 would be 65,257 salmon and the TAC resulting in a harvest rate of 0.1 would be 72,000 salmon.

4.9. Salmon (*Salmo salar*) in the Baltic Sea, Gulf of Finland (Sub-div. 32)

FISHERIES: The salmon fishery in the Gulf of Finland is mainly based on reared fish. Estonia, Finland and Russia are participating in the salmon fishery. Salmon catches in the area are low, and although commercial effort is low there is substantial (but poorly quantified) effort and catches by recreational fishers. In 1996 the catches amounted to over 80 000 specimens, but in 2011 the nominal catches only amounted to 9 379 specimens or 52 t. Landings of the professional fisheries were 8 419 salmon and those of recreational fisheries were 960 salmon. Discards due to seal damages were 873 salmon. 56 % of the TAC in 2011 was utilised. Salmon from the Gulf of Finland are feeding to a substantial rate in the Main Basin area and are partly harvested there. Also, catches in the Gulf of Finland consist to some extent of salmon originating from Gulf of Bothnia.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES.

REFERENCE POINTS: Not established.

STOCK STATUS: The status of wild salmon stocks or the exploitation rate in the Gulf of Finland has not remarkably changed since the previous assessment. There are three remaining native salmon stocks in the Estonian rivers. In two of those, the estimated smolt production has clearly below 50% of the potential in the last three years. In the third river smolt production has increased significantly and has exceeded 50 % of the potential in last two years. Wild smolt production occurs in the rivers supported by smolt releases as well. Post-smolt survival of reared smolts has been low in recent years.

MANAGEMENT AGREEMENTS: The EU Commission has presented a proposal establishing a multiannual plan for the Baltic salmon stock and the fisheries exploiting that stock (COM/2011/0470 final), but the plan has not yet been accepted. In that plan a constant fishing

mortality rate of 0.1 in marine fisheries (including vessels offering services for recreational fisheries) is proposed as a basis for setting a TAC.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of precautionary considerations that catches of wild salmon should be kept to a minimum. To maintain a low bycatch of wild salmon in the coastal salmon fisheries, effort should be reduced in these fisheries. Additional measures to minimize catch of wild salmon in coastal fisheries close to the wild salmon rivers should be considered. Such measures could include relocation of coastal fisheries away from sites likely to be on the migration paths of Gulf of Finland wild salmon, relocating fisheries away from rivers and river mouths supporting wild stocks, and protection of wild salmon (from poaching) when they return to rivers. Also, reduction in exploitation in the fishery in the Main Basin needs to be considered as salmon from the Gulf of Finland to a large extent have the Main Basin as their feeding area.

STECF COMMENTS: STECF agrees with the ICES advice that catches of wild salmon should be kept to a minimum.

4.10. Sea trout (*Salmo trutta*) in the Baltic Sea (Sub-div. 22-32)

FISHERIES: Most of the sea trout catches are taken as a by-catch in other fisheries. Off-shore migrating sea trout stocks are to a large extent taken as a by-catch in the salmon fishery, whereas those which migrate shorter distances are caught in fisheries targeting whitefish, pikeperch, and perch. Nominal sea trout landings have been decreasing since 2000, from 1452 t in 2000 to 479 t in 2011. Ban on driftnets (from Jan 2008) had a significant effect especially on Polish sea trout catches which were reduced from 525 t in 2007 to 172 t in 2008. Since then, the Polish catches increased again due to increase in longline fisheries until 2010 when 454 t was caught, but decreased to 244 t in 2011. The Polish sea trout catch may be heavily overestimated due to misreporting salmon as sea trout.

Sea trout catch in the recreational fishery in not exactly known. In spite of figures being uncertain, the share of recreational fishery constitutes a significant part of the total catch. Reported river catch mainly from Swedish and Polish rivers was 92 t in 2011.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES.

REFERENCE POINTS: Not established.

STOCK STATUS: The Baltic Sea contains approximately 1000 sea trout stocks. The status of these populations is very variable; a few populations appear to be in a good state, whereas many populations especially in the Gulf of Bothnia and Gulf of Finland appear to be weak. In 6 of the 9 ICES subdivisions status of the sea trout stocks is below the estimated potential abundance if the river habitat was optimal and the populations stable.

MANAGEMENT AGREEMENTS: There are no management agreements or TAC set for the sea trout. Community and national regulations include inter alia minimum landing size, local and seasonal closures, and minimum mesh sizes for gillnet fishery.

RECENT MANAGEMENT ADVICE:
ICES advises on the basis of precautionary considerations that exploitation rates in the Gulf of Bothnia (ICES Subdivisions 30 and 31) and the Gulf of Finland (ICES Subdivision 32) should be reduced to safeguard the remaining wild sea trout populations in the region, both locally and on their migration routes. Additional management measures for Subdivisions 30–32 should be considered, in particular to address bycatch of sea trout. These could include minimum mesh size

for gillnets, effort limitations, fishing bans at river mouths, minimum legal landing sizes, and closures in time and space.

Existing fishing restrictions in ICES Subdivisions 22–29 (for example closed season, fishing bans at river mouths, minimum landing size, and minimum mesh sizes) should be maintained. Habitat improvements by restoration are needed and accessibility to spawning and rearing areas should be improved in many rivers.

STECF COMMENTS: STECF agrees with ICES advice.

STECF notes that no TAC is set for sea trout in the Baltic Sea and most of the catch is taken as bycatch in fisheries targeting other species. Therefore exploitation rates are most effectively reduced by fishing restrictions and management measures such as described in the ICES's advice.

4.11. Sprat (*Sprattus sprattus*) in IIIbcd, Baltic Sea (Sub-div. 22-32)

FISHERIES: All countries surrounding the Baltic Sea report landings of sprat. During the 1990s total catches increased considerably, from 86,000 t in the 1990 to 529,000 t in 1997. Since then there has been a decrease and landings have been fluctuating around 375,000 t until 2010. Landings in 2011 were 267,600 t. The lowest reported since 1993. Trawlers account for most of the catches. Varying amounts of herring are taken as by-catch in the fisheries for sprat.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The age-structured assessment is based long-term catch data and three survey indices.

MANAGEMENT AGREEMENT: The IBSFC long-term management plan for the sprat stock was terminated in 2006, and has not been replaced.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	not defined*	
	F_{MSY}	0.35	Stochastic simulations, including S–R relationship and HCR.
Precautionary Approach	B_{lim}	not defined*	
	B_{pa}	not defined*	
	F_{lim}	not defined	
	F_{pa}	0.40**	F_{med} estimate in 1998, allowing for variable natural mortality.

STOCK STATUS:

F (Fishing Mortality)			
	2009	2010	**2011**
MSY (F_{MSY})	✗	✓	✓ Below target
Precautionary approach (F_{pa})	✗	✓	✓ Harvested sustainably

SSB (Spawning-Stock Biomass)			
	2010	2011	**2012**
MSY ($B_{trigger}$)	?	?	? Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	? Undefined
Qualitative evaluation	↘	→	→ Stable at average level

SSB has declined from a historical high in the late 1990s, and the SSB in 2011 was estimated at close to the long-term average. The fishing mortality in 2011 declined to 0.29, which is the lowest estimated for the past ten years. None of the recent three year classes (2009–2011) are strong; the 2009 year class is estimated to be weak, the 2010 close to average and the 2011 year class is predicted to be close to the average.

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Abstract

The scientific advice on the stocks and fisheries in the Baltic Sea in 2013 evaluated and endorsed by the Scientific, Technical and Economic Committee for Fisheries (STECF) by written procedure in June 2012 on a request by the European Commission.

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The Scientific, Technical and Economic Committee for Fisheries (STECF) has been established by the European Commission. The STECF is being consulted at regular intervals on matters pertaining to the conservation and management of living aquatic resources, including biological, economic, environmental, social and technical considerations.

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