JRC Scientific and Technical Reports

Scientific, Technical and Economic Committee for Fisheries (STECF)

REVIEW OF SCIENTIFIC ADVICE FOR 2012 Part 2 (STECF-11-09)

Advice on Stocks of Interest to the European Community in the North Sea Celtic and Irish Seas, West of Scotland, West of Ireland, south western waters, Icelandic and East Greenland, Barents Sea and the Norwegian Sea, Faeroe plateau ecosystem and widely distributed and migratory stocks, deep sea stocks and Elasmobranch Resources in the North East Atlantic.

PREPARED IN DRAFT BY THE STECF-EWG 11-09, LYNGBY, DENMARK 4 – 8 JULY 2011.

Edited by John Casey, Willy Vanhee & Hendrik Doerner

EUR 24897 EN – 2011

JRC EUROPEAN COMMISSION

ipsc Institute for the Protection and Security of the Citizen

The mission of the Institute for the Protection and Security of the Citizen (IPSC) is to provide research results and to support EU policy-makers in their effort towards global security and towards protection of European citizens from accidents, deliberate attacks, fraud and illegal actions against EU policies

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.

European Commission
Joint Research Centre
Institute for the Protection and Security of the Citizen

Contact information
Address: TP 051, 21027 Ispra (VA), Italy
E-mail: stecf-secretariat@jrc.ec.europa.eu
Tel.: 0039 0332 789343
Fax: 0039 0332 789658

https://stecf.jrc.ec.europa.eu/home
http://ipsc.jrc.ec.europa.eu/
http://www.irc.ec.europa.eu/

JRC 66020

EUR 24897 EN
ISBN 978-92-79-20803-4
ISSN 1831-9424 (online)
ISSN 1018-5593 (print)
doi:10.2788/39614

Luxembourg: Office for Official Publications of the European Union

Printed in Italy

SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF)

REVIEW OF SCIENTIFIC ADVICE FOR 2012 – part 2

This report does not necessarily reflect the view of the European Commission and in no way anticipates the Commission's future policy in this area

Table of Contents

REVIEW OF SCIENTIFIC ADVICE FOR 2012 PART 2

General request to STECF

The STECF is requested to review and comment on the scientific advice released in 2010 – 2011 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 scientific advisory committees of ICES and RFMOs.

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 plans and Harvest Control Rules suggested in the Communication from the Commission on fishing opportunities for 2012 (COM(2011)*298*-FINAL.

Introduction to the STECF Review of Advice for 2012

Background

This report represents the STECF review of advice for stocks in the North Sea Celtic and Irish Seas, West of Scotland, West of Ireland, south western waters, Icelandic and East Greenland, Barents Sea and the Norwegian Sea, Faeroe plateau ecosystem and widely distributed and migratory stocks, deep sea stocks and Elasmobranch Resources in the North East Atlantic and was endorsed by the STECF at its 37nd Plenary meeting held in Copenhagen from 11-15 July 2011. For some stocks listed in this report, the advice will be updated in October 2011 and published in the STECF Consolidated review of advice for 2012, which will be available in November 2011.

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 review was drafted by the STECF-EWG 11-09 during its meeting held in Lyngby, Denmark from 4-8 July 2011.

The STECF review of advice for 2012 Part 1 included the latest assessments and advice for stocks in the Baltic sea and was publishes in June 2011. Part 3 will contain imformation of other stocks of interest to the European Community and will be published in November 2011. Parts 1, 2 and 3 will also be amalgamated and published as the Consolidated STECF Review of advice for 2012 in November 2011.

Format of the STECF Review of advice

For each stock, a summary of the following information is provided:

STOCK: [Species name, scientific name], [management area]

FISHERIES: fleets prosecuting the stock, management body in charge, economic importance in relation to other fisheries, historical development of the fishery, potential of the stock in relation to reference points or historical catches, current catch (EU fleets' total), any other pertinent information.

SOURCE OF MANAGEMENT ADVICE: reference to the management advisory body.

MANAGEMENT AGREEMENT: where these exist.

REFERENCE POINTS: where these have been proposed.

STOCK STATUS: Reference points, current stock status in relation to these. STECF has included precautionary reference point wherever these are available. The stock status is summarised in a "traffic light" table utilising four separate symbols to indicate status in relation to different reference points. The key to the symbols is as follows:

⛔ **- indicates an undesirable situation e.g. F is above the relevant reference point or SSB is below the relevant reference point**

- indicates a desirable situation e.g. F is below the relevant reference point or SSB is above the relevant reference point

- indicates that the status is unknown e.g the reference point is undefined or unknown, or F or SSB is unknown relative to a defined reference point

- indicates that status lies between the precautionary (pa) and limit (lim) reference points

RECENT MANAGEMENT ADVICE: summary of most recent advice.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final. The TACs or effort limits for 2012 that should be proposed according to the rules prescribed in COM (2011) 298-Final).

STECF COMMENTS: Any comments STECF thinks worthy of mention, including errors, omissions or disagreement with assessments or advice.

In addition to summarising the ICES advice and in accordance with the Commission's request to STECF, this report also provides the TAC proposals for 2012 that result from the direct application of the rules laid down in Chapter 6 of the Communication from the Commission concerning a consultation on Fishing Opportunities COM(2011) 298-final.

STECF has been instructed by the Commission to apply the following interpretation of the rules:

Category 1 stocks – Stocks for which harvest control rules (HCRs) have been agreed among all contracting parties sharing the exploitation of a fish stock (e.g. EU and Norway) or adopted by the EU in the context of Multi-Annual Management Plans. The HCRs have to be applied when calculating the catch options which will be included in the scientific advice, taking obvisiously into account results of the stock assessment;

Category 2 stocks – Stocks for which no HCRs have been agreed and data are sufficient to carry out an analytical assessment of the fish stock. The MSY-HCR designed by ICES has to be applied when calculating the catch option.

Category 3 stocks – Stocks for which no HCRs have been agreed and data are insufficient to carry out an analytical assessment. A reduction of 25 % should be applied in the TAC.

Subsequent to the above interpretation, the Commission provided further clarification regarding its requirements for stocks for which no analytical assessment could be carried out. For such stocks the Commission requested that no catch options or fishing effort limits should be released by the STECF and in addition, no recommendation on management options should be made available. Accordingly, for those stocks that are classified as Category 3, a simple statement to that effect is included in the report.

STECF wishes to stress that unless it is explicitly stated in the STECF comments, the TAC and fishing effort proposals arising from direct application of the rules in COM(2011) 298-final should not be interpreted as STECF recommendations for fishing opportunities for 2012.

Acknowledgement

The STECF review of scientific advice for 2012 Part 2 was drafted by the STECF-EWG 11-09 held in Lyngby, Denmark from 4-8 July 2011. The Report was reviewed and adopted by the STECF at its 37th plenary session held in Copenhagen from 11-15 July 2011.

STECF acknowledges the extensive contribution made by the following participants:

Participants EWG 11-09 meeting in Lyngby, Denmark, 4-8 July 2011:

STECF members
Bertignac, Michel
Casey, John (Chair)
Cardinale, Max
Kirkegaard, Eskild

Vanhee, Willy

External experts:
Egan, Afra
Dobby, Helen
Keatinge, Michael
Kupschus, Sven
Munch-Petersen, Sten
Raid, Tiit

Observers
Park, Michael – Scottish White Fish Producers Organisation (SWFPA), North Sea RAC
Svendrup, Esben – Pelagic RAC, Danish Pelagic Producer's organisation

JRC expert
Doerner, Hendrik

STECF Secretariat
Doerner, Hendrik

1. Eco-region 1: Resources of the North Sea

1.1. Norway lobster (*Nephrops norvegicus*) - IIa (EU zone), IIIa and North Sea (EU zone)

Assessments of the *Nephrops* Functional Units of Subarea IV utilized a number of approaches, including Underwater UWTV surveys (UWTV) surveys, length composition information, and basic fishery data such as landings and effort. Owing to uncertainties in the accuracy of historic landings and to inaccurate effort figures in some fisheries, increasing attention is paid to survey information and size composition data as an indicator of stock status. In 2011 the *Nephrops* stock in IIIa (FU3&4) was also assessed on basis of UWTV data. Furthermore, ICES has recognised the *Nephrops* in the trenches across six ICES statistical rectangles 41-43F0 and 41-43F1 as a functional unit: FU34 although as yet does not provide advice for this area.
For those stocks without UWTV surveys, assessment is made on the basis of analysis of length compositions, trends in mean length for recruit classes and commercial cpue. Biennial advice for these stocks was provided in 2010 and is valid for 2011 and 2012 (applies to FU 5, FU 10, FU 32 and FU 33). Advice sheets have been provided for these FUs by ICES this year, but the only updates (except for landings figures) are that ICES has adopted a single advice from the scenarios presented last year (based on precautionary considerations and the MSY framework). Hence, for these FUs, the following text remains unchanged from the consolidated STECF Review of Advice for 2010 (STECF 2011a) except for i) providing the single adopted advice and ii) the TAC proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final.

In 2009 there were important developments in the methodology to assess the status of *Nephrops* stocks. The use of UWTV surveys has enabled the development of fishery-independent indicators of abundance. STECF (2005) had suggested that a combination of an absolute abundance estimate from an UWTV survey and a harvest rate based on $F_{0.1}$ from a combined sex–length cohort analysis (LCA) and the mean weight and selection pattern from the commercial fishery could be used to calculate appropriate landings. The approach has been further developed and evaluated by ICES workshops in 2007, 2009 and 2010 (ICES 2007, ICES 2009, 2010). The 2009 workshop addressed concerns raised regarding factors which could potentially bias the UWTV survey results. Major sources of bias were quantified for each survey and an overall bias correction factor derived which, when applied to the estimates of abundance from the UWTV survey allows them to be treated as absolute abundance levels.

In particular the workshop concluded that the UWTV surveys detect the burrows of *Nephrops* considerably smaller than the sizes of those taken by the fishery. Therefore the abundance estimates used to calculate the Harvest Ratios presented in the advice since 2009 include a component of the stock that is too small to be exploited by the fishery. This has resulted in calculated Harvest Ratios appearing to have decreased in the current advice compared to previous estimates of Harvest Ratios. In essence, this is a scaling issue, not a change in exploitation rate. The previous proportion corresponding to fishing at $F_{0.1}$ were in the range of 15–20% whereas the revised values from the benchmark in 2009 are in the range of 8–10%.

The 2012 advice for the major *Nephrops* stocks (FUs) in the North Sea and IIIa is now based on the harvest rate approach initially advocated by STECF. STECF also encourages establishing and developing UWTV surveys for other *Nephrops* functional units.

Because there is a proportion of the stock that is observed by TV surveys that is not available to the gears that catch *Nephrops*, HRs are based on the catch/fishable stock size ratio. STECF agrees with ICES that it is appropriate to estimate HRs on the catch/fishable size ratio. However, using such an approach implies historical HR estimates for each FU that are greater than were previously estimated (when compared to $F_{0.1}$, for example), since previous estimates were based on the catch/total stock size ratio.

MSY approach

There are no precautionary reference points defined for *Nephrops*. Under the new ICES MSY framework, exploitation rates which are likely to generate high long-term yield (and low probability of stock overfishing) have been explored and proposed for each functional unit. Owing to the way *Nephrops* are assessed, it is not possible to estimate F_{msy} directly and hence proxies for F_{msy} are determined. Three candidates for F_{msy} are $F_{0.1}$,

$F_{35\%SpR}$ and F_{max}. There may be strong differences in relative exploitation rates between the sexes in many stocks. To account for this, values for each of the candidates have been determined for males, females and the two sexes combined. The appropriate F_{msy} candidate has been selected for each Functional Unit independently according to the perception of stock resilience, factors affecting recruitment, population density, knowledge of biological parameters and the nature of the fishery (relative exploitation of the sexes and historical Harvest Rate vs. stock status).

A decision making framework based on the table below was used in the selection of preliminary stock specific F_{msy} proxies. These may be modified following further data exploration and analysis. The combined sex F_{msy} proxy should be considered appropriate provided that the resulting percentage of virgin spawner per-recruit for males or females does not fall below 20%. In such a case a more conservative sex specific F_{MSY} proxy should be picked over the combined proxy.

		Burrow Density (average numbers/m2)		
		Low	Medium	High
		<0.3	0.3-0.8	>0.8
Observed harvest rate or landings compared to stock status	> F_{max}	$F_{35\%SpR}$	F_{max}	F_{max}
	F_{max} - $F_{0.1}$	$F_{0.1}$	$F_{35\%SpR}$	F_{max}
	< $F_{0.1}$	$F_{0.1}$	$F_{0.1}$	$F_{35\%SpR}$
	Unknown	$F_{0.1}$	$F_{35\%SpR}$	$F_{35\%SpR}$
Stock Size Estimates	Variable	$F_{0.1}$	$F_{0.1}$	F35%
	Stable	$F_{0.1}$	$F_{35\%SpR}$	F_{max}
Knowledge of biological parameters	Poor	$F_{0.1}$	$F_{0.1}$	$F_{35\%SpR}$
	Good	$F_{35\%SpR}$	$F_{35\%SpR}$	F_{max}
History Fishery	Stable spatially and temporally	$F_{35\%SpR}$	$F_{35\%SpR}$	F_{max}
	Sporadic	$F_{0.1}$	$F_{0.1}$	$F_{35\%SpR}$
	Developing	$F_{0.1}$	$F_{35\%SpR}$	$F_{35\%SpR}$

Preliminary MSY B triggers were proposed at the lowest observed UWTV abundance.
STECF notes that the estimated HRs for *Nephrops* FUs imply that in some cases, the most recent harvest rate is significantly higher than F_{msy} (or even F_{max}) and that to set catch limits for 2011 in line with F_{msy} would imply reductions in harvest rate and similar large reductions in fishing opportunities and revenue to the fleets that exploit *Nephrops*. STECF does not have the appropriate data and information to quantify the potential economic effects of such reductions. In addition, given that for most Nephrops FUs for which UWTV survey estimates are available, there does not seem to be any immediate biological risk to the stocks even at recently observed harvest rates, incremental reductions in fishing mortality towards the F_{msy} target would seem appropriate. STECF therefore suggests that fishing opportunities for each FU be set in line with successive annual adjustments in fishing mortality (HR) until F_{msy} is realised.

STECF notes that the TAC decision rules proposed in the Commission's Communication on fishing opportunities for 2012 (COM(2011)298 Final) are intended to deliver successive annual reductions in fishing mortality along the lines suggested above and that these could be used as a basis for setting FU-specific TACs for *Nephrops*.

***Nephrops* Functional Units in III a and the North Sea**

Norway lobster (*Nephrops*) in the North sea (IV) and Skagerrak-Kattegat (IIIa) is assessed in a number of different stock functional units (FU) treated as separate stocks, see below. However, for management purposes the North Sea is partitioned into 2 units only: The EU EEZ and Norwegian EEZ, each of which is treated as a single unit.

FU 3&4	Skagerrak and Kattegat	EU EEZ & Norwegian EEZ
FU 5	Botney Gut	EU EEZ
FU 6	Farn Deep	"
FU 7	Fladen ground	"
FU 8	Firth of Forth	"

FU 9:	Moray Firth	EU EEZ
FU 10:	Noup	"
FU 32	Norwegian Deep	Norwegian EEZ
FU 33	Horn's Reef	EU EEZ
FU 34	Devil's Hole	EU EEZ

The *Nephrops* in FU 3 & 4 as well as *Nephrops* in FU 32 (Norwegian EEZ) are managed as separate units, but else the situation is complicated in the EU EEZ in the North Sea, where it is not possible to implement the specific biological advice for the different FUs where the management operates for the (single) EU EEZ of the North Sea. In the EU EEZ catches can be taken anywhere, and this could imply inappropriate harvest rates (HRs) from some parts. More important, vessels are free to move between grounds, which allow effort to develop on some grounds in a largely uncontrolled way. Management at the FU level could provide the controls to ensure that catch opportunities and effort are compatible and in line with the scale of the resources in each of the stocks defined by the Functional Units. Note that advice for 2011 based on 2010 assessments is provided for those four FUs which are covered by UWTV surveys whilst for FUs 5, 32 and 33 ICES has provided biennial advice for 20011 and 2012.

The ICES advice is presented separately for each Functional Unit in the North Sea. Overall landings in Subarea IV were around 20 800 t in 2010 (a reduction of 3500 t from 2009) Landings from other rectangles have risen steadily and amounted to over 2300 tonnes in 2009, but fell to just over 1400 tonnes in 2010 (including landings from Devil's Hole, FU 34).
To provide some guidance on appropriate future landings for these areas, the use of an average landings figure of around 1800 tonnes (2008-2010) could be considered (On the basis of ICES advice that catches from 'other areas' should not increase).

STECF approach to the provision of TACs corresponding to the rules laid down in The Communication from the Commission on fishing opportunities for 2012 (COM(2011) 298 final)

STECF notes that in the North Sea (which comprises eight *Nephrops* Functional Units (FUs)) the present aggregated management approach (overall TAC for all FUs) runs the risk of unbalanced effort distribution. Adoption of management initiatives to ensure that effort can be appropriately controlled in smaller areas within the overall TAC area is recommended. Furthermore, STECF notes that the current aggregated management of all *Nephrops* FUs in the North Sea as a single unit is a major obstacle for a management complying with the Commissions Communication on Fishing opportunities for 2011 (COM(2011)298 final) as the rules require a TAC for each stock (in this case FU). To facilitate the provision of advice on landings for each FU consistent with COM(2011) 298-FINAL, STECF has derived 'partial TAC's for each FU. These values have been derived by distributing the 2010 North Sea TAC (EU EEZ) across FUs in proportion to the recent average landings (08-10) from each FU within the EU EEZ. (see below).

A summary of ICES advice and application of the rules in COM(2011) 298-FINAL for those North Sea FUs in the EU EEZ is given below. It should be noted, however, that despite the provision of a North Sea total in this table, STECF still **recommends** that *Nephrops* FUs should be managed separately.

	FU5	FU6	FU7	FU8	FU9	FU10	FU33	Other	Total
Average landings (08-10)	883	1788	12797	2328	1204	100	1138	1831	22069
FU 'partial TAC' 2011	939	1900	13600	2474	1280	106	1209	1946	23454[1)]
ICES Advice	Reduce catches	1400	14100	1700	1100	Reduce catches	Reduce catches	1831	20131[2)]
Category	3	2	2	2	2	3	3		
Rule		MSY-HCR	MSY-HCR	MSY-HCR	MSY-HCR				
Policy		1400	14100	1700	1100				

Landings expressed in t.

[1)] EU EEZ TAC for 2011

[2)] Sum of STECF advice – uses numerical options when available

1.1.1. Norway lobster (*Nephrops norvegicus*) in Skagerrak & Kattegat (IIIa).

FISHERIES: Historically, two Functional Units in this Management Area: a) Skagerrak (FU 3) and b) Kattegat (FU 4) have been distinguished. However, the distribution of Nephrops is continuous from southern Kattegat into Skagerrak, and the exchange of recruits between the southern and northern areas is very likely. ICES therefore recommends that these two FUs are treated as one single FU. The majority of landings are made by Denmark and Sweden, with Norway contributing only small landings from the Skagerrak. In more recent years minor landings have been taken by Germany. During the last 15 years, landings from IIIa varied between 3,000 t and 5,000 t. Peak landings of 5044 were recorded in 1998. In 2010 landings amounted to 5123 t.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment in 2011 is based on Danish UWTV survey data for 2010. A similar Swedish survey is being established in 2011 and from 2012 the assessment of this stock will be based on combined Danish and Swedish UWTV data.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Undefined.	
	$F_{MSY} = F_{max}$	Harvest ratio 7.9%.	Equivalent to F_{max} Combined sex.
Precautionary Approach	Not defined.		

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010
MSY (F_{MSY})	?	?	Appropriate
Precautionary approach (F_{pa},F_{lim})	?	?	Undefined

SSB (Spawning-Stock Biomass)	2009	2010	2011
MSY ($B_{trigger}$)	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	Undefined

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 6,000 t.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
STECF notes that with reference to COM(2011) 298-final, this stock is classified under category 2. This implies a TAC of 6000 t for 2012.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012. However, STECF notes an error by ICES: In the standard 'State of Stock' table for Bmsy the year range (should be 2008-2010 and **not** 2009-2011)

1.1.2. Norway lobster (*Nephrops norvegicus*) in Botney Gut (FU 5).

FISHERIES: Landings from Botney Gut were 959 t in 2010, a 33% increase from 2009 landings. Up to 1995, the Belgian fleet used to take over 75% of the international landings from this stock, but since then, its share has dropped to less than 6%. Long-term effort of the Belgian *Nephrops* fleet has shown an almost continuous decrease since the all-time high in the early 1990s. In 2010 around 37% of the total international landings were taken by Dutch trawlers for first sale in the Netherlands or in Belgium, and more than 40 % by UK trawlers. STECF notices that there has been a considerable increase in UK landings from this FU in the same period as the landings from Farn has decreased.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Biennial advice (for 2011 and 2012) for this FU was provided in 2010. Information on this FU is considered inadequate to provide advice based on precautionary limits. The perception of the stock is based on development in LPUEs

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$		No reference points are defined
	F_{msy}		No reference points are defined
Precautionary Approach	Not defined		

STOCK STATUS: The state of this stock is unknown. LPUE indicators show no trends for different fleets in recent years.

	F (Fishing Mortality)		
	2008	2009	2010
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	UWTV abundance		
	2009	2010	2011
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

RECENT MANAGEMENT ADVICE: The 2010 advice for this *Nephrops* stock is biennial and valid for 2011 and 2012 (see ICES 2010). This year ICES adopts the transition to the MSY approach as the basis for advice, which corresponds to reducing catches.

To protect the stock in this functional unit, management should be implemented at the functional unit level.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF **recommends** that the various *Nephrops* FUs are managed separately.

1.1.3. Norway lobster (*Nephrops norvegicus*) in the Farn Deep (FU 6)

FISHERIES: Total landings from the Farn deep decreased from 2703 t in 2009 to 1443 t in 2010, a decrease of around 50 % to the level of 2008 but still far below the level in 2006. The UK fleet has accounted for virtually all landings from the Farn Deeps. Estimated discarding during this period has fluctuated around 40% by weight of the catch in the Farn Deeps.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is based UWTV surveys of absolute abundance. The method used to raise the abundances in previous years has been found to be statistically flawed and a new raising procedure has been developed to avoid these errors. The 2010 assessment has reworked the abundance indices back to 2007, resulting in a change in the MSY $B_{trigger}$ proxy.
At the ICES Benchmark Workshop on *Nephrops* in 2009 major sources of bias were quantified for the TV surveys and an overall bias correction factor derived which, when applied to the estimates of abundance from the UWTV surveys, allows them to be treated as absolute abundance levels.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY	MSY $B_{trigger}$	879 million	Bias-corrected UWTV survey index at start of current decline (2007) as measured by a geostatistical method.
Approach	F_{MSY}	Harvest rate 8%.	Equivalent to $F_{35\%SPR}$ male sin 2011.
Precautionary	$F_{0.1}$	Not agreed.	
Approach	F_{max}	Not agreed.	

STOCK STATUS: The UWTV survey indicates that the stock status has been fluctuating around MSY $B_{trigger}$ since 2007. Changes in survey methodology in 2007 make comparison with the preceding series difficult.

F (Fishing Mortality)			
	2008	2009	**2010**
MSY (F_{MSY})	✓	✗	✓ Appropriate
Precautionary approach (F_{pa},F_{lim})	?	?	? Undefined

SSB (Spawning-Stock Biomass)			
	2008	2009	**2010**
MSY ($B_{trigger}$)	✓	✗	✓ Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	? Undefined

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY transition that landings in 2012 should be no more than 1400 t.

To protect the stock in this functional unit (FU), management should be implemented at the functional unit level.

MSY approach

Following the ICES MSY framework implies a harvest rate of 8%, resulting in landings of 1300 t in 2012.

Following the transition scheme towards the ICES MSY framework implies fishing mortality to be reduced to (0.6*F2010 + 0.4*FMSY) = 8.2%, corresponding to landings of no more than 1400 t in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe that a partial TAC for 2012 of 1400 t should be proposed for FU 6 *Nephrops* based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF **recommends** that the various *Nephrops* FUs in the North Sea are managed separately.

1.1.4. Norway lobster (*Nephrops norvegicus*) in Fladen Ground (FU 7) (Division IVa)

FISHERIES: There is only one Functional Unit in this area: FU 7 (Fladen Ground). Small quantities of landings are taken outside the main Fladen Ground Functional Unit.The fleet fishing the Fladen Ground for *Nephrops* comprises approximately 100 trawlers, which are predominantly Scottish (> 97%), based along the Scottish NE coast. Nearly three quarters of the landings are made by single-rig vessels and one-quarter by twin-rig vessels. 80mm mesh is the commonest mesh size. Nearly 40% of the *Nephrops* landings at Fladen are reported as by-catch, in fisheries which may be described as mixed. In 2010 total landings amounted to 12825 t, a 4% decrease compared to 2009 landings. U.K (Scotland) accounted for 99 %, the remaining part being Danish. Discarding rates seem to have decreased in recent years to around 5% by number.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is based UWTV surveys of absolute abundance. At the ICES Benchmark Workshop on *Nephrops* in 2009 major sources of bias were quantified for the surveys and an overall bias correction factor derived which, when applied to the estimates of abundance from the UWTV survey, allows them to be treated as absolute abundance levels.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY	MSY $B_{trigger}$	2767 million individuals	Bias-adjusted lowest observed UWTV survey estimate of abundance
Approach	F_{msy}	Harvest ratio 10.3%	Equivalent to $F_{0.1}$ combined sex in 2011
Precautionary Approach	Not defined		

Harvest rate reference points, 2011

	Male	Female	Combined
F_{max}	16.2 %	24.1 %	18.5 %
$F_{0.1}$	9.5 %	12.1 %	10.3 %
$F_{35\%}$	11.4 %	14.4 %	12.4 %

STOCK STATUS:

F (Fishing Mortality)	2008	2009	**2010**
MSY (F_{MSY})	✓	✗	✓ Appropriate
Precautionary approach (F_{pa},F_{lim})	?	?	? Undefined
SSB (Spawning-Stock Biomass)	2008	2009	**2010**
MSY ($B_{trigger}$)	✓	✗	✓ Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	? Undefined

The stock remains at a high level, well above MSY $B_{trigger}$. The harvest rate has been increasing but is still below F_{MSY}.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 14 100 t.

To protect the stock in this functional unit (FU), management should be implemented at the functional unit level.

MSY approach

Following the ICES MSY framework implies a harvest rate lower than 10.3%, corresponding to landings of less than 14 100 t in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. T The rules for category 2 prescribe that a partial TAC for 2012 of 14100 t should be proposed for FU 7 *Nephrops* based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF **recommends** that the various *Nephrops* FUs in the North Sea are managed separately.

1.1.5. Norway lobster (*Nephrops norvegicus*) in Firth of Forth (FU 8)

FISHERIES: Landings from the Firth of Forth fishery are predominantly reported from Scotland, with very small contributions from England. The area is periodically visited by vessels from other parts of the UK. Estimated discarding rates are 43% by number (24% by weight) in the Firth of Forth. Similar to levels recorded

since the beginning of the data series in 1985. During the years 2007-09 annual landings were around 2500 t, but declined to 1871 t in 2010.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is based UWTV surveys of absolute abundance. At the ICES Benchmark Workshop on *Nephrops* in 2009 major sources of bias were quantified for the TV surveys and an overall bias correction factor derived which, when applied to the estimates of abundance from the UWTV survey, allows them to be treated as absolute abundance levels.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	292 million individuals.	Bias-adjusted lowest observed UWTV survey estimate of abundance.
	F_{MSY}	Harvest rate 16.3%.	Equivalent to F_{max} combined sex in 2011.
Precautionary Approach	Not defined.		

	Male	Female	Combined
F_{max}	12.7 %	26.7 %	16.3 %
$F_{0.1}$	7.7 %	15.2 %	9.4 %
$F_{35\%}$	9.4 %	18.3 %	12.7 %

STOCK STATUS:

F (Fishing Mortality)	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined

SSB (Spawning-Stock Biomass)	2008	2009	**2010**	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

The stock remains at a high level, well above MSY $B_{trigger}$. The harvest rate remains slightly above F_{MSY}.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the transition to the MSY approach that landings in 2012 should be no more than 1700 t.

To protect the stock in this functional unit (FU), management should be implemented at the functional unit level.

MSY approach

To follow the ICES MSY framework the harvest rate should be reduced to 16.3%, corresponding to maximum landings of 1600 t in 2012.

To follow the transition scheme towards the ICES MSY framework the harvest rate should be reduced to 17.5% (0.6* F_{2010}+ 0.4* F_{MSY}), corresponding to landings of no more than 1700 t in 2012 (where F_{2010} is the observed harvest rate in 2010 (18.4%)).

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe that a partial TAC for 2012 of 1700 t should be proposed for FU 8 *Nephrops* based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF **recommends** that the various *Nephrops* FUs in the North Sea are managed separately.

1.1.6. Norway lobster (*Nephrops norvegicus*) in Moray Firth (FU 9)

FISHERIES: Landings from this fishery are predominantly reported from Scotland, with very small contributions from England in the mid-1990s, but not recently. About three quarters of the landings are made by single-rig trawlers, a high proportion of which use a 70-mm mesh. In 1999, twin-rig vessels predominantly used a 100 mm mesh, with 90% of the twin-rig landings made using this mesh size. Legislative changes in 2000 permitted the use of an 80 mm mesh. Total estimated landings in 2010 were 1032 t, a minor decline compared to 2009 landings.

Discarding rates averaged over the period 2006 to 2010 for this stock were about 10% by number. This represents a reduction in discarding rate compared to the average for the period 2003 to 2005.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is based UWTV surveys of absolute abundance. At the ICES Benchmark Workshop on *Nephrops* in 2009 major sources of bias were quantified for the TV survey and an overall bias correction factor derived which, when applied to the estimates of abundance from the UWTV survey, allows them to be treated as absolute abundance levels.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY	MSY $B_{trigger}$	262 million individuals.	Bias-adjusted lowest observed UWTV survey estimate of abundance (1997).
Approach	F_{MSY}	Harvest rate 11.8%.	Proxy, equivalent to $F_{35\%SPR}$ combined sex in 2011.
Precautionary Approach	Not defined.		

	Male	Female	Combined
F_{max}	12.3 %	23.8 %	14.9 %
$F_{0.1}$	7.2 %	11.6 %	7.8 %
$F_{35\%}$	9.1 %	17.1 %	11.8 %

STOCK STATUS:

F (Fishing Mortality)	2008	2009	**2010**	
MSY (F_{MSY})	✗	✓	✓	Below target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined
SSB (Spawning Stock Biomass)	2008	2009	**2010**	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

The stock remains above MSY $B_{trigger}$. The harvest rate has declined since 2006 and is now at F_{MSY}.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 1100 t.

To protect the stock in this functional unit (FU), management should be implemented at the functional unit level.

MSY approach

Following the ICES MSY framework implies the harvest rate should be less than 11.8%, resulting in landings of less than 1100 t in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe that a partial TAC for 2012 of 1100 t should be proposed for FU 9 *Nephrops* based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF **recommends** that the various *Nephrops* FUs in the North Sea are managed separately.

1.1.7. Norway lobster (*Nephrops norvegicus*) in the Noup (FU 10)

FISHERIES: Landings from this fishery are predominantly reported from Scotland. Total landings declined from 173 t in 2008 to 89 t in 2009 and declined further to only 38 t in 2010.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on LPUEs and size composition data. There is only limited UWTV survey data on abundance and there is no assessment based on UWTV survey data. Biennial advice (for 2011 and 2012) for this FU was provided in 2010.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$		No reference points are defined
	F_{msy}		No reference points are defined
Precautionary Approach	Not defined		

STOCK STATUS:

F (Fishing Mortality)		
	2008 - 2010	
Qualitative evaluation	?	Insufficient information

SSB (Spawning-Stock Biomass)		
	2008 – 2010	
Qualitative evaluation	?	Insufficient information

There are no LPUE figures available (no reliable effort data), and no discard sampling is taking place. Therefore there is no assessment-based advice for 2011 and 2012.

The state of the stock is unknown.

RECENT MANAGEMENT ADVICE:

The 2010 advice for this *Nephrops* stock was biennial and valid for 2011 and 2012 (see text table below from ICES, 2010) and indicated that there is no basis for advice. Based on the 2012 advisory framework in these circumstances, ICES advises on the basis of precautionary considerations that catches should be reduced.

To protect the stock in this functional unit (FU), management should be implemented at the functional unit level.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with ICES, that the state of the stock is unknown, and that precautionary considerations should be the basis for advice. However, as the observed declining catches from very few vessels, do not give any information on stock level or status, STECF cannot further specify any adequate catch level.

1.1.8. Norway lobster (*Nephrops norvegicus*) in the Norwegian Deep, FU 32 (Division IVa, East of 2° E + rectangles 43 F5-F7).

FISHERIES: Landings from this area have declined steadily since 2005. in 2005 landings were 1089 t, in 2010 landings were on ly 407 t. The majority of the landings from this FU are taken by Denmark (> 80%) and Norway. Peak landing of around 1200 t were recorded in 2002. The decline in landings is due to substantial decreases in Danish effort for *Nephrops* in the Norwegian Deep.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Information on this stock is inadequate to provide advice based on precautionary limits. Biennial advice (for 2011 and 2012) for these two FUs were provided in 2010. The perception of the stock status is based on Danish LPUE data.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	-	No reference points are defined
	F_{msy}	-	No reference points are defined
Precautionary Approach	Not defined		

STOCK STATUS:

F (Fishing Mortality)		
	2008 - 2010	
Qualitative evaluation	?	Insufficient information

SSB (Spawning-Stock Biomass)		
	2008 – 2010	
Qualitative evaluation	?	Insufficient information

Landings per unit effort (lpue) have been relatively stable over the last 16 years and suggest that current levels of exploitation are sustainable. A slight increase in mean size in the catches in 2007 could indicate a reduced exploitation pressure.

RECENT MANAGEMENT ADVICE: The 2010 advice for this *Nephrops* stock is biennial and valid for 2011 and 2012 (see text table below from ICES, 2010). This year ICES adopt the transition to the MSY approach as the basis for advice, which corresponds to reducing catches.

To protect the stock in this functional unit (FU), management should be implemented at the functional unit level.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.
Historic average annual landings have been approximately 1000 t (2002–2007), while recent average landings are 575 t (2008–2009).

STECF COMMENTS: STECF agrees with the ICES that the state of the stock is unknown and the advice to reduce catches in 2012. However, STECF notes that for this stock there have been no signs of decline in stock, and the decreased landings are due to decreased targeting of *Nephrops* in FU 32.

1.1.9. Norway lobster (*Nephrops norvegicus*) in Horns Reef (FU 33)

FISHERIES: For several years Denmark was the only country exploiting *Nephrops* in this FU, and accounted for more than 90% of total landings up to 2005. However in recent years Germany and Netherlands have expanded their share of this stock. In 2007 total landings amounted to 1,467 t, and were the highest recorded. In 2010 landings had declined to a total of 806 t

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Biennial advice (for 2011 and 2012) for this FU has been provided in 2010. Information on this stock is considered inadequate to provide advice based on precautionary limits. The perception of the stock is based on LPUE and length distribution in the catches.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	-	No reference points are defined
	F_{msy}	-	No reference points are defined
Precautionary Approach	Not defined		

STOCK STATUS:

F (Fishing Mortality)		
	2008 - 2010	
Qualitative evaluation	?	Insufficient information

SSB (Spawning-Stock Biomass)		
	2008 – 2010	
Qualitative evaluation	?	Insufficient information

The state of this stock is unknown. LPUE has been increasing up to 2008, probably reflecting increase in gear efficiency (technological creep) in the last years. The mean sizes in 2005 catches and the increased LPUEs in the subsequent years could indicate a high recruitment in 2005. The development in 2009 then suggests that the contribution of the 2005 recruitment to the stock now has faded.

RECENT MANAGEMENT ADVICE: The 2010 advice for this *Nephrops* stock is biennial and valid for 2011 and 2012 (see text table below from ICES, 2010). This year ICES adopts the transition to the MSY approach as basis for advice, which corresponds to reducing catches.

To protect the stock in this functional unit (FU), management should be implemented at the functional unit level.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

1.2. Northern shrimp (*Pandalus borealis*) on the Fladen Ground (Division IVa)

The stock summary and advice for Northern shrimp (*Pandalus borealis*) on the Fladen Ground (Division IVa) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011 and is reproduced below.

FISHERIES: In the EU zone of the North Sea, *Pandalus* on the Fladen Ground (Div. IVa) is the main shrimp stock exploited, which has been exploited. This stock has been exploited mainly by Danish and UK trawlers with the majority of landings taken by the Danish fleet. Historically, large fluctuations in this fishery have been frequent, for instance between 1990 and 2000 annual landings ranged between 500 t and 6000 t. However since 2000 a continuous declining trend is evident, and in 2004 and 2005 recorded landings dropped to below 25 t. No catches were recorded in 2006-2008. Information from the fishing industry in 2004 gives the explanation that this decline is caused by low shrimp abundance, low prices on small shrimp characteristic for the Fladen Ground and high fuel prices.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. No assessment of this stock has been made since 1992, due to insufficient assessment data.

REFERENCE POINTS: There is no basis for defining precautionary reference points for this stock.

STOCK STATUS:

F (Fishing Mortality)			
	2007	2008	2009
MSY (F_{msy})	?	?	?

Precautionary approach (F_{pa},F_{lim})	?	?	?

	UWTV abundance		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

There is a total lack of separate, fishery independent data. The most recent analytical assessment of this stock was presented in the 1992 ACFM Report (ICES, 1992). Landings have declined since 2000, and since 2006 no catches have been recorded. Part of the explanation for this development is the low price for shrimp combined with the rather high fuel costs. No monitoring of this stock has taken place, and recent years' drop in landings is at least partly due to a decline demand for these shrimp. However, it cannot be ruled out that the drop also reflects a decline in the stock.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	Landings in 2011
Transition to an **MSY approach** with caution at low stock size	n/a
Cautiously avoid impaired recruitment (**Precautionary Approach**)	Less than 1400 t and data collection program for fisheries
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

MSY considerations

The available information is inadequate to evaluate stock trends. The state of the stock is therefore unknown and there is no basis for an advice. The stock trend and exploitation level are unknown.

PA considerations

In the absence of information on stock development, ICES recommends that effort should not be allowed to expand to levels above the average for the years prior to the absence of fishing activities (1999–2003), corresponding to average landings of 1400 t, and that the fishery must be accompanied by mandatory programmes to collect catch and effort data on both target and bycatch species.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241), this stock is classified under category 6 since the state of the stock is unknown but there is quantitative advice for this stock. There is no TAC for this stock.

STECF COMMENTS: STECF agrees with the ICES recommendation
With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that Northern shrimp (Pandalus borealis) on Fladen Ground (Division IVa) should be classified as a category 11 stock.

Accordingly STECF notes that for the rules of the above category there is no basis for other than a TAC based on recent catch levels. However, STECF agrees with ICES and recommends that, if fisheries on this stock is resumed, that effort should not be allowed to expand to levels above the average for the years prior to the present absence of fishing activities (1999-2003), corresponding to average landings of 1400 t.

1.3. Northern shrimp (*Pandalus borealis*) in Division IIIa (West) and Division IVa East (Skagerrak and Norwegian Deeps)

The stock summary and advice for Northern shrimp (*Pandalus borealis*) in Division IIIa (West) and Division IVa East (Skagerrak and Norwegian Deeps) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this

stock is given in the Consolidated review of advice for stocks of Community interest for 2011 and is reproduced below.

FISHERIES: *Pandalus borealis* is fished by bottom trawls at 150–400 m depth throughout the year by Danish, Norwegian and Swedish fleets. Total landings have varied between 10,000 and 15,000 t in the period 1985- 2008. Discarding of small shrimp takes place, mainly due to high grading. In 2009 total landings were around 11000 t, a 15% decrease compared to 2008 landings, while estimated catches (including discards) were around 12,000 t.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. In recent years several assessment models, including both cohort based and stock production models, have been applied for this stock. A major problem has been (and still is) to obtain realistic data for the predation mortality on this stock, which is believed to have stronger influence on the stock fluctuations than the fishery.

REFERENCE POINTS: Limit reference points have not been defined for this stock.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	UWTV abundance		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

The state of the stock is unknown, but there are indications that the stock abundance is decreasing. There is no information on the exploitation status. The LPUEs from Denmark and Norway have been fluctuating since the mid-1990s, but in recent years with a downward trend. Also abundance indices from Norwegian survey indicate a decrease in stock abundance since 2007, and recruitment indices (as 1 year old) from the Norwegian survey indicate decreasing recruitment since 2007, which may imply a further decline in biomass in 2011.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	**Landings in 2011**
Transition to an **MSY approach** with caution at low stock size	Less than 8800 t Reduce discarding and sorting grids should be mandatory.
Cautiously avoid impaired recruitment (**Precautionary Approach**)	Less than 8800 t Reduce discarding and sorting grids should be mandatory.
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	

No analytical assessment can be presented for this stock. Therefore, fishing possibilities cannot be projected.

The management of this stock should address the discarding of small shrimps, which occurs mainly in the Swedish fleet due to high-grading as a consequence of restrictive TACs. At present (2009) the estimated discards amount to 7% of the total catch. All vessels, including the increasing number of small Norwegian vessels (<11 m), should be required to fill in and deliver logbooks. Additionally, sorting grids should be mandatory in this fishery in all areas to minimize by-catch.

MSY considerations

The state of the stock is unknown but there are indications that the stock abundance is decreasing. There is no information on the exploitation status. Following the ICES MSY framework implies that catches should be reduced from recent level at rate greater than the rate of stock decrease. Biomass indices from survey suffered a 30% decrease from 2009 to 2010. This implies landings of 8800 tonnes in 2011, which correspond to a decrease of at least 30% of the average landings in 2007–2009 (12,500 t).

PA considerations

On the basis of the current declining stock level and very low level of recruitment index, a reduction in landings is required. A reduction of at least 30% of the recent landings would be an appropriate option. This corresponds to landings of 8800 t in 2011.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified as a category 6 stock because the state of the stock is unknown but survey indices indicate a decreasing trend in the biomass. This would imply a 15% decrease in TAC for 2011 compared to the 2010 TAC.

STECF COMMENTS: STECF agrees with ICES that the state of the stock is uncertain and that survey indices indicate decline in both recruitment and stock biomass in recent years., STECF notes that there have been large fluctuations since 1990s, both in recruitment and stock size. However, the continuous decline of both indices from 2007 to 2010 give reason for caution. In relation to precautionary considerations STECF therefore agrees with ICES that catches from this stock should be reduced significantly. STECF also agrees with ICES that the management of this stock should address the discarding of small shrimps, due to high-grading as a consequence of restrictive TACs. Furthermore, STECF endorses that sorting grids facilitating the escape of fish should be mandatory in this fishery as they are in all other *Pandalus borealis* fisheries in the North Atlantic.

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that Northern shrimp (Pandalus borealis) Division IIIa (West) and Division IVa East falls under Category 6.

Accordingly STECF notes that the rule 5b for the above category would imply a TAC in 2011 of 12373 t, based on a 15% reduction on the 2010 TAC.

1.4. Cod (*Gadus morhua*) in the Kattegat

FISHERIES: Cod in the Kattegat is exploited by Denmark, Sweden, and Germany. The fishery is conducted by both trawl and gillnets. Landings fluctuated between 4,000 and 22,000 t (1971-2001). Landings have decreased continuously since then. Reported landings were 155 t in 2011. Fishery-independent information indicates that removals from the stock are substantially higher than reported landings and that the mismatch between TAC/official landings and the total removals has increased in the most recent years.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is considered indicative of trends only. The assessment is based on the recently developed stochastic state-space model (SAM) that provides statistically sound estimates of uncertainty in the model results. The model allows estimating potential additional removals from the stock, not represented by reported landings. The stock estimates for these years consequently rely more on survey information.

MANAGEMENT AGREEMENT: The EU has adopted a long-term plan for cod stocks and the fisheries exploiting those stocks (Council Regulation (EC) 1342/2008). This regulation repeals the recovery plans in Regulation (EC) No 423/2004, and has the objective of ensuring the sustainable exploitation of the cod stocks on the basis of maximum sustainable yield while maintaining a target fishing mortality of 0.4 on specified age groups.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
Management Plan	SSB_{MP}	6400	B_{lim}
	F_{MP}	0.4	Same as for other cod stocks
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	6400 t	lowest observed SSB before the late 1990s.
	B_{pa}	10 500 t	B_{lim}*exp(1.645*0.3).
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

F (Fishing Mortality)	2008	2009	**2010**
MSY (F_{MSY})	?	?	? Unknown
Precautionary approach (F_{pa},F_{lim})	?	?	? Unknown
Management plan (F_{MP})	?	?	? Unknown

SSB (Spawning Stock Biomass)	2009	2010	**2011**
MSY ($B_{trigger}$)	?	?	? Undefined
Precautionary approach (B_{pa},B_{lim})	✗	✗	✗ Reduced reproductive capacity
Management plan (SSB_{MP})	✗	✗	✗ Below target

Spawning stock biomass has been at a historically lowest level since 2000. Recruitment in recent years has been among the lowest in the time series. Current level of fishing mortality is uncertain and is likely somewhere in between the estimates from the two runs, with and without estimating unallocated removals.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that there should be no directed fisheries and bycatch and discards should be minimised.

Other considerations

Due to uncertainty in the recent estimates, especially concerning fishing mortality, reliable predictions cannot be presented.

Management plan

According to the long-term management plan, the fishing mortality in 2012 shall be reduced by 25 % compared with the fishing mortality rate in 2010, unless the target 0.4 is reached. The current level of fishing mortality on cod in the Kattegat cannot be reliably estimated. According to Article 9 in the management plan, TAC should be reduced by 25 % in cases when it is advised that the catches of cod should be reduced to the lowest possible level. An exploratory evaluation (see section below) that assumed no bias in the TAC implementation shows that SSB will recover before 2015 to within precautionary limits; however, this evaluation is not expected to be realistic in a situation where unaccounted removals may be 5-8 times the TAC.

Precautionary considerations

The stock size is considered to be far below possible reference points, while the exploitation status is uncertain. Therefore, there should be no directed fisheries and bycatch and discards should be minimised.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.The rules for category 1 prescribe that for 2012, a TAC for cod in Kattegat of 142.5t should be proposed. (This figure is calculated on the basis of a 25 % reduction in TAC. See Article 9 of long-term management plan.).

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that, under article 12 of the management plan fishing effort is adjusted by the same percentage as the TAC (25% reduction).

Stock recovery

STECF concludes that the stock is not recovering.

1.5. Cod (*Gadus morhua*), in the North Sea (IIa, IIIa Skagerrak, IV and VIId)

FISHERIES: North Sea cod are exploited by fleets from Belgium, Denmark, The Netherlands, Germany, France, Sweden, Norway, and UK. Small catches are also taken by fleets from Poland and the Faroe Islands. Cod are taken mainly by mixed fisheries using otter trawls, seine nets, gill nets, long-lines and beam trawl. The stock is managed by TAC through joint negotiation between the EU and Norway, technical and supporting effort regulations in units of days at sea per vessel since 2003. Historically, landings peaked at about 350,000 t in the early 1970s, subsequently declining to around 200,000 t by 1988. From 1989 until 1998, landings remained between about 100 000 t and 140,000 t. Reported landings decreased sharply in 1999 to 96,000 t, and then declined steadily to 24,400 t in 2007. Reported landings for 2008, 2009 and 2010 were about 26 800 t, 30 800t and 37 000t respectively. The assessment area for this stock includes ICES Divisions IIIa (Skagerrak), VIId and Sub-area IV, which are different management areas and for which separate TACs are set.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment used the age-based model (SAM) incorporating landings and discards, and calibrated with one survey indicex (from IBTS quarter 1). For ICES Subarea IV and Divisions VIId, discards were estimated from the Scottish discards sampling program up until 2005, raised to the total international fleet. For 2006, Denmark provided its own discard estimates. For 2007, 2008 and 2009 Scottish, Danish, German, and England & Wales discard estimates were combined and used to raise landings-at-age for remaining nations in Subarea IV. Discards in Division IIIa were based on observer estimates. For 2006-2010, Danish and Swedish discard estimates were combined to raise landings-at-age from the remaining nations in Division IIIa.

REFERENCE POINTS:

	Type	Value	Technical basis
Management Plan	SSB_{MP}	150 000 t	= B_{pa}
	F_{MP}	0.4	Mortality rate when SSB > SSB_{MP}.
MSY Approach	MSY $B_{trigger}$	150 000 t	The default option of B_{pa}
	F_{MSY}	0.19	F_{max} 2010, within the range of fishing mortalities consistent with F_{MSY} (0.16–0.42)
Precautionary approach	B_{lim}	70 000 t	B_{loss} (~1995)
	B_{pa}	150 000 t	B_{pa} = Previous MBAL and signs of impaired recruitment below 150 000 t.
	F_{lim}	0.86	F_{lim} = F_{loss} (~1995).
	F_{pa}	0.65	F_{pa} = Approx. 5th percentile of F_{loss}, implying an equilibrium biomass > B_{pa}.

MANAGEMENT AGREEMENT: In 2005 the EU and Norway revised their initial agreement from 1999 and agreed to implement a long-term management plan for the cod stock. This plan was again updated in December 2008 and entered into force on 1 January 2009. The plan aims to be consistent with the precautionary approach and is intended to provide for sustainable fisheries and high yield leading to a target fishing mortality to 0.4. The main changes between the 2009 and 2005 plans is a phasing (transitional and long-term phase) and the inclusion of an F reduction fraction. That is:

Transitional arrangement:
F will be reduced as follows: 75 % of F in 2008 for the TACs in 2009, 65 % of F in 2008 for the TACs in 2010, and applying successive decrements of 10 % for the following years.
The transitional phase ends as from the first year in which the long-term management arrangement leads to a higher TAC than the transitional arrangement.

F reduction fraction
If the size of the stock on 1 January of the year prior to the year of application of the TACs is:

- Above the precautionary spawning biomass level, the TACs shall correspond to a fishing mortality rate of 0.4 on appropriate age groups;
- Between the minimum spawning biomass level and the precautionary spawning biomass level, the TACs shall not exceed a level corresponding to a fishing mortality rate on appropriate age groups equal to the following formula:
- 0.4 - (0.2 * (Precautionary spawning biomass level - spawning biomass) / (Precautionary spawning biomass level - minimum spawning biomass level))
- At or below the limit spawning biomass level, the TAC shall not exceed a level corresponding to a fishing mortality rate of 0.2 on appropriate age groups.

The plan shall be subject to triennial review, the first of which will take place before 31 December 2011.

The EU has adopted a long-term plan for this stock with the same aims as the EU-Norway plan (Council Regulation (EC) 1342/2008).

ICES has evaluated the EU management plan in 2009 and considers it to be in accordance with the precautionary approach if it is implemented and enforced adequately. Discarding in excess of the assumptions under the management plan will affect the effectiveness of the plan. The evaluation is most sensitive to assumptions about implementation error (i.e. TAC and effort overshoot and the consequent increase in discards).

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010
MSY (F_{MSY})	✗	✗	✗ Above target
Precautionary approach (F_{pa}, F_{lim})	○	○	○ Increased risk
Management plan (F_{MP})	✗	✗	✗ Above target
SSB (Spawning-Stock Biomass)	2009	2010	2011
MSY ($B_{trigger}$)	✗	✗	✗ Below trigger

Precautionary approach (B_{pa},B_{lim})	✗	✗	✗	Reduced reproductive capacity
Management plan (SSB_{MP})	✗	✗	✗	Below trigger

There has been a gradual improvement in the status of the stock over the last few years. SSB has increased from the historical low in 2006, but remains below Blim. Fishing mortality declined from 2000, but is estimated to be well above FMSY, and is just above Fpa. Recruitment since 2000 has been poor. Although discards are still high, there has been a decreasing trend since 2008.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the EU–Norway management plan that landings in 2012 should be no more than 31 800 t.

Other considerations

Management plan

The EU–Norway agreement management plan as updated in December 2008 aims to be consistent with the precautionary approach and is intended to provide for sustainable fisheries and high yield leading to a target fishing mortality of 0.4 (for details see Annex 6.4.2).

The EU has adopted a long-term plan for this stock with the same aims (Council Regulation (EC) 1342/2008). In addition to the EU–Norway agreement the EU plan also includes effort restrictions, reducing kW-days available to community vessels in the main metiers catching cod in direct proportion to reductions in fishing mortality until the target F of 0.4 has been reached. This implies a 15.4% reduction in effort in 2011.

In both plans fishing mortality should be reduced to levels corresponding to 75% of F2008 in 2009 and 65% of F2008 in 2010. Until the long-term phase of the management plans has been reached, further annual reductions of 10% must be applied which lead to an F in 2012 equal to 45% of F2008. This would lead to a TAC reduction within the limits of the 20% TAC constraint. According to these rules, landings should be 31 800 t in total for Subarea IV and Divisions IIIa West and VIId in 2012.

MSY approach

Following the ICES MSY framework implies fishing mortality to be reduced to 0.08 (lower than FMSY because SSB 2012 < MSY Btrigger), resulting in landings of less than 9500 t in 2012. This is expected to lead to an SSB of 134 600 t in 2013.

To follow the transition scheme towards the ICES MSY framework the fishing mortality must be reduced to (0.6*0.68) + (0.4*(0.19*0.40)) = 0.44, which is lower than Fpa. This results in landings of less than 42 000 t in 2012, which is expected to lead to an SSB of 95 100 t in 2013.

The stock is below Blim and recruitment remains poor. Therefore, a more rapid transition to the MSY framework may be necessary to rectify the situation. ICES highlights catch options for transition periods ranging from one to four years (2012 to 2015, respectively).

PA approach

Even a zero catch in 2012 is not expected to result in SSB reaching Bpa in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.The rules for category 1 prescribe that for 2012, a TAC for cod in the North Sea (IIa, IIIa Skagerrak, IV and VIId) of 31 800t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that the ICES advice for catch options in 2012 is based on the assumption that F in 2011 will decline in line with the cod plan. The STECF/ICES EWG-11-07 has evaluated the multi-annual plan for cod North Sea and found that over the last few years there has been a negligible decline in F. If F in 2011 does not

decline to the level intended by the long-term plan, the outlook for 2012 will be different to the ICES forecast. Hence, for information, STECF provides an additional catch forecast (Table 1.5.1) based on the alternative assumption that F in 2011 does not decline i.e. that $F_{2011}=F_{2010}$.

TABLE 1.5.1
Basis: mean F (2011) = mean F (2010) = 0.68; Recruitment (2011) re-sampled 1998-2010 = 107 million; SSB (2012) = 60.7; Removals (2011) 81700;

Rationale	Land[1] (2012)	Basis	F_{total} (2012)	F_{land} (2012)	F_{disc} (2012)	F_{unal}[2] (2012)	Disc (2012)	Unal[2] (2012)	SSB (2013)	%SSB[3] Change	%TAC[4] Change
MSY framework	7.9	$F_{MSY}*SSB_{2011}/B_{trigger}$	0.08	0.05	0.03	0.01	2.0	2.8	124.4	105	-75
MSY transition	38.3	Transition rule	0.44	0.25	0.15	0.04	10.2	13.5	87.6	44	19
Management Plan	29.2	$F_{08}*0.45$	0.32	0.18	0.11	0.03	7.6	10.3	98.6	62	-9
Zero Catch	0.0	F=0	0.00	0.00	0.00	0.00	0.0	0.0	134.1	121	-100
Status quo	53.6	F_{sq}	0.68	0.38	0.23	0.07	14.6	19.0	69.2	14	66
	18.6	F_{MSY}	0.19	0.11	0.06	0.02	4.8	6.5	111.4	84	-42
TAC Constraint	38.6	TAC_{2011}+20%	0.44	0.25	0.15	0.04	10.3	13.6	87.3	44	20
	25.9	TAC_{2011}-20%	0.27	0.15	0.09	0.03	6.8	9.1	102.6	69	-20

Units: '000 tonnes.
[1] Landings do not include unallocated mortality.
[2] Unallocated removals (calculated by dividing total by average catch multiplier in last three years).
[3] SSB 2013 relative to SSB 2012.
[4] Landings 2012 (not including unallocated removals) relative to TAC 2011.

STECF notes that according to the management plan, assuming a one to one relationship between effort and F, fishing effort for the main fleets that catch 80% of cod should be reduced by 18.2% in 2012 compared to 2011.

STECF also notes that the implied effort to achieve a fishing mortality on cod in 2012 of F=0.32 is a 45% reduction on the F assumed for 2011 (F=0.58) in the ICES forecast and a 53% reduction if F in 2011 remains at F_{2010}=0.68.

The STECF has performed annual monitoring of effort trends since 2004. Overall effort (kW-days) by demersal trawls, seines, beam trawls, and gillnets in the North Sea, Skagerrak, and Eastern Channel had been substantially reduced (−30% between 2003 and 2009; STECF, 2011). Following the introduction of days at sea regulations in 2003, there was a substantial switch from the larger mesh (>100 mm, TR1) gear to the smaller mesh (70–99 mm, TR2) gear. Subsequently, effort by TR1 has been relatively stable, whereas effort in TR2, beam trawl (80–120 mm, BT2), and gillnet has shown a continuous decline (−23%, −38%, and −31%, respectively, between 2003 and 2009). Preliminary analyses suggested that correlation between F and effort trends were significant for TR2, BT2 and GN1 fleets. Prior to 2009, the observed reductions in effort were largely attributable to decommissioning of vessels and reductions in days at sea under the previous cod recovery plan. From 2009 on though, these patterns may change, as increasing proportions of effort fall under derogations of the cod management plan (articles 11 and 13), which reward cod avoidance and discard reduction behaviour with smaller reductions in effort.

STECF notes that the advice for cod in Divisions IIa, IIIa Skagerrak, IV and VIId for 2012 may be subject to change pending the results of a potential re-assessment in the light of additional new data from surveys undertaken in the summer of 2011. Any such change in the advice will be incorporated in the Consolidated STECF review of advice for 2012, which will be published in November 2011.

Stock recovery

STECF concludes that while the spawning stock biomass is recovering, F has not declined at the rate stipulated by the provisions of the long-term plan. According to the long-term plan, F in 2010 should have reduced to F=0. 45 but the 2011 assessment indicates that F2010 was F=0.68. Similarly the plan prescribes that F in 2012 should be F=0.32, which represents a 53% reduction on the estimated F for 2010.

STECF notes that in relation to Article 10(2) of the long-term plan for cod stocks, the term "failing to recover properly" is undefined. Hence STECF is unable to advise whether the North Sea cod stock is failing to recover properly.

1.6. Haddock (*Melanogrammus aeglefinus*) in IIa (EU zone), in Sub-area IV (North Sea) and Division IIIa (Skagerrak- Kattegat)

FISHERIES: North Sea haddock is exploited predominantly by fleets from the UK (Scotland), Norway and Denmark. Most landings are for human consumption and are taken by towed gears, although there is a small by-catch in the small-mesh industrial fisheries. Substantial quantities are discarded in some years when new year-classes recruit to the fishery. Over 1963-2006, catches have ranged from 55,000 t to 930,000 t. In recent years catches have decreased and the estimates for 2005 to 2010 represent the lowest on record. A contributory factor to the lower catches in recent years has been the maintenance of low fishing mortality rate.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. The age-based assessment model (XSA) is calibrated with three survey indices. Discards and industrial by-catch data were included in the assessment. Discards were estimated from the discards sampling programme from several countries, with most observations coming from Scotland.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
Management Plan	F_{MP}	0.3	
	SSB_{MP}	100 000 t	Trigger value B_{lim}
MSY Approach	MSY $B_{trigger}$	140 000 t	Default to value of B_{pa}
	F_{MSY}	0.3	Provisional proxy is the management target F_{mgt}, within the range of Fishing mortalities consistent with F_{MSY} (0.25 – 0.48)
Precautionary Approach	B_{lim}	100 000 t	Smoothed B_{loss}.
	B_{pa}	140 000 t	$B_{pa} = 1.4 * B_{lim}$.
	F_{lim}	1.0	$F_{lim} = 1.4 * F_{pa}$.
	F_{pa}	0.7	10% probability that SSBMT < B_{pa}.

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	✓	✓	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	✓	✓	✓	Harvested sustainably
Management plan (F_{MP})	✓	✓	✓	Below target

SSB (Spawning Stock Biomass)	2009	2010	2011	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	✓	✓	✓	Full reproductive capacity
Management plan (SSB_{MP})	✓	✓	✓	Above trigger

Fishing mortality has been below Fpa and SSB has been above MSY Btrigger since 2001. Recruitment is characterized by occasional large year-classes, the last of which was the strong 1999 year class. Apart from the 2005 and 2009 year classes which are about average, recent recruitment has been poor.

MANAGEMENT AGREEMENT: In 1999 the EU and Norway agreed to implement a long-term management plan for the haddock stock, which is consistent with the precautionary approach and which is intended to constrain harvesting within safe biological limits (SSB > B_{lim}) and is designed to provide for sustainable fisheries and high potential yield (F_{HCR} = 0.3). A revised management plan was implemented in January 2009.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the EU-Norway management plan that landings in 2012 should be 41 575 t.

Other considerations

Management plan

In 2008 the EU and Norway agreed a revised management plan for this stock, which states that every effort will be made to maintain a minimum level of SSB greater than 100 000 t (Blim). Furthermore, fishing was restricted on the basis of a TAC consistent with a fishing mortality rate of no more than 0.30 for appropriate age groups, along with a limitation on interannual TAC variability of ±15%. Following a minor revision in 2008, interannual quota flexibility ("banking and borrowing") of up to ±10% is permitted (although this facility has not yet been used). The stipulations of the management plan have been adhered to by the EU and Norway since its implementation in January 2007.

Following the management plan implies a TAC of 41 575 t in 2012 which is expected to lead to a TAC increase of 15% and an F increase of 23%.

MSY approach

Following the ICES MSY framework implies fishing mortality to be increased to 0.3, resulting in human consumption landings of less than 43 000 t in 2012. This would be expected to lead to an SSB of 227 000 t in 2013.

PA approach

The fishing mortality in 2011 should be no more than Fpa corresponding to human consumption landings of less than
86 000 t in 2011. This is expected to keep SSB above Bpa in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.The rules for category 1 prescribe that for 2012, a TAC for haddock in Divisions IIa, IV and IIIa of 41 575t should be proposed.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that the measures prescribed by the management plan, if fully implemented and enforced will maintain fishing mortality at or around F_{msy}.

The STECF has performed annual monitoring of effort trends since 2004. Overall effort (kW-days) by demersal trawls, seines, beam trawls, and gillnets in the North Sea, Skagerrak, and Eastern Channel had been substantially reduced (−30% between 2003 and 2009; STECF, 2011). Following the introduction of days at sea regulations in 2003, there was a substantial switch from the larger mesh (>100 mm, TR1) gear to the smaller mesh (70–99 mm, TR2) gear. Subsequently, effort by TR1 has been relatively stable, whereas effort in TR2, beam trawl (80–120 mm, BT2), and gillnet has shown a continuous decline (−23%, −38%, and −31%, respectively, between 2003 and 2009).

STECF notes that the advice for haddock in Divisions IIa, IV and IIIa for 2012 may be subject to change pending the results of a potential re-assessment in the light of additional new data from surveys undertaken in the summer of 2011. Any such change in the advice will be incorporated in the Consolidated STECF review of advice for 2012, which will be published in November 2011.

1.7. Saithe (*Pollachius virens*) in Divisions IIa (EU zone), IIIa, Subareas IV (North Sea) and VI (West of Scotland).

FISHERIES: In the various areas over which this stock is distributed, saithe are primarily taken in a direct trawl fishery in deep water along the Northern Shelf edge and the Norwegian Trench. In the first quarter of the year the fisheries are directed towards spawning aggregations, while smaller fish are targeted during the rest of the year. Gill-nets are also used, and there is still a small purse seine fishery in Norwegian coastal waters. Norway has introduced 120 mm mesh size in trawls, but in EU waters 110 mm may still be used by the EU fleets. Saithe is also taken as part of the mixed roundfish fishery. The stock is exploited by nations including Norway, France, Germany, the UK, Ireland, Spain and Denmark. Between 1967-2006, ICES Working Group reported landings have varied between 88,326t and 343,967t and have been relatively stable over the last 21 years (mostly just over 100,000 t). In 2010 landings were 102,543t. The stock is managed by TAC. Separate TACs are set for Saithe in IIa (EU zone), IIIa, North Sea combined (Sub-area IV) and Sub-area VI.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on an age-based assessment (XSA) calibrated using data from three commercial cpue series and indices from three surveys. There are no discard estimates for the majority of this fishery. Discarding of saithe occurs in the non-targeted fisheries, but the level of discard is considered to be small compared to the total catch of saithe.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
Management Plan	SSB_{MP}	200 000 t	B_{pa}
	F_{MP}	0.3	Or lower depending on SSB in relation to SSB target.
MSY Approach	MSY $B_{trigger}$	200 000 t	Default value B_{pa}
	F_{MSY}	0.3	Stochastic simulation using hockey-stick stock–recruitment.
Precautionary approach	B_{lim}	106 000 t	B_{loss} = 106 000 t (estimated in 1998).
	B_{pa}	200 000 t	Affords a high probability of maintaining SSB above B_{lim}.
	F_{lim}	0.6	F_{loss} the fishing mortality estimated to lead to stock falling below B_{lim} in th term.
	F_{pa}	0.4	Implies that $B_{eq} > B_{pa}$ and $P(SSB_{MT} < B_{pa}) < 10\%$.

STOCK STATUS:

F (Fishing Mortality)	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	✓	○	○	Increased risk
Management plan (F_{MP})	✗	✗	✗	Above target

SSB (Spawning-Stock Biomass)	2009	2010	**2011**	
MSY ($B_{trigger}$)	✓	✗	✗	Below trigger
Precautionary approach (B_{pa},B_{lim})	✓	○	○	Increased risk
Management plan (SSB_{MP})	✓	✗	✗	Below trigger

The status of the stock has deteriorated in the last few years. SSB is estimated to have been above Bpa from 2001–2008 but has substantially declined during the last three years towards Blim. From 2001–2007, F has been at or below the fishing mortality target of the management plan (0.3), but has now increased to Flim. Because of lack of input data, no assessment was conducted in 2010, and these trends could not be recognized until now.

MANAGEMENT AGREEMENT:

In 2008 EU and Norway renewed the existing agreement on *"a long-term plan for the saithe stock in the Skagerrak, the North Sea and west of Scotland, which is consistent with a precautionary approach and designed to provide for sustainable fisheries and high yields. The plan shall consist of the following elements.*

1. *Every effort shall be made to maintain a minimum level of Spawning Stock Biomass (SSB) greater than 106,000 tonnes (Blim).*

2. *Where the SSB is estimated to be above 200,000 tonnes the Parties agreed to restrict their fishing on the basis of a TAC consistent with a fishing mortality rate of no more than 0.30 for appropriate age groups.*
3. *Where the SSB is estimated to be below 200,000 tonnes but above 106,000 tonnes, the TAC shall not exceed a level which, on the basis of a scientific evaluation by ICES, will result in a fishing mortality rate equal to 0.30-0.20*(200,000-SSB)/94,000.*
4. *Where the SSB is estimated by the ICES to be below the minimum level of SSB of 106,000 tonnes the TAC shall be set at a level corresponding to a fishing mortality rate of no more than 0.1.*
5. *Where the rules in paragraphs 2 and 3 would lead to a TAC which deviates by more than 15 % from the TAC of the preceding year the Parties shall fix a TAC that is no more than 15 % greater or 15 % less than the TAC of the preceding year.*
6. *Notwithstanding paragraph 5 the Parties may where considered appropriate reduce the TAC by more than 15 % compared to the TAC of the preceding year.*
7. *A review of this arrangement shall take place no later than 31 December 2012.*
8. *This arrangement enters into force on 1 January 2009."*

RECENT MANAGEMENT ADVICE:

Given the recent poor recruitment and low SSB ICES advises that paragraph 6 of the EU–Norway management plan be invoked to reduce the catches beyond the 15% TAC reduction (i.e. below 87 544 t).

Other considerations

Management plan

The EU–Norway agreement management plan does not clearly state whether the SSB in the intermediate year or the SSB in the beginning or end of the TAC year should be used to determine the status of the stock. ICES interprets this as being the SSB in the beginning of the intermediate year (2011). Since SSB in the beginning of 2011 is above Blim, but below Bpa, § 3 of the harvest control rule applies. This would result in an F of 0.16 and a TAC of 33 000 t, which implies a change of more than 15%. The 15% TAC constraint (§ 5) leads to a TAC of 87 544 t, which results in SSB in 2013 of 111 000 t. In addition the management plan opens up for reductions of more than 15% where considered appropriate (§ 6).

The EU–Norway agreement management plan was evaluated by ICES in 2008 to be precautionary in the short term (~5 years). However, the HCRs in the management plan are not clear enough when the stock falls below the SSB of 200 000 t. The change in fishery distribution and stock productivity (lower growth and recruitment) imply that a re-evaluation of the management plan is needed.

MSY approach

Following the ICES MSY framework implies a fishing mortality of FMSY*SSB2012/MSY Btrigger = 0.16, which results in landings of less than 33 000 t in 2012.

The MSY transition implies a fishing mortality of (0.6*F2010)+(0.4*0.16) = 0.42, above Fpa. Therefore the scheme will lead to F = Fpa = 0.4 and landings of 75 000 t in 2012.

PA approach

Bpa cannot be reached by 2013 even with a zero catch. Advice based on the precautionary approach would give landings of 0 t in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.The rules for category 1 prescribe that for 2012, a TAC for saithe in Divisions IIa (EU zone), IIIa, Subareas IV (North Sea) and VI (West of Scotland) of 87 544 t should be proposed. If Article 6 of the EU_Norway management plan is invoked, this would imply that a TAC set at less than 87,544 t could be proposed.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that although saithe is assessed together in area IV and VI, TACs are set separately for areas IV and VI. Saithe in the North Sea are mainly taken in a directed trawl fishery. STECF therefore considers the management advice for saithe in the North Sea to be compatible with the advice for North Sea cod provided the fishery for saithe can be shown to comply with the advice from ICES on fisheries with an incidental catch of cod.

The fishery in Subarea VI consists largely of a directed deep-water fishery operating on the shelf edge but includes a mixed fishery operating on the shelf. Therefore STECF considers the management advice for saithe in area VI must take into account the management adopted for area VI cod (catches in 2012 should be reduced to the lowest possible level).

1.8. Whiting (*Merlangius merlangus*), Skagerrak & Kattegat (IIIa)

FISHERIES: The majority of whiting landed from the Skagerrak and Kattegat are taken as by-catch in the small-mesh industrial fisheries. Some are also taken as part of a mixed demersal fishery. As in the North Sea stock, landings decreased in the Skagerrak and Kattegat drastically and were below 2,000 t since 1997. Nominal landings for 2010 were 245 t.

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

REFERENCE POINTS:

No reference points have been defined for this stock

STOCK STATUS:

F (Fishing Mortality)		
	2008 - 2010	
Qualitative evaluation	?	Insufficient information

SSB (Spawning Stock Biomass)		
	2008 - 2010	
Qualitative evaluation	?	Insufficient information

The available landing data provide insufficient information on the stock status.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches should be reduced.

Other considerations

No reliable assessment can be presented for this stock. Therefore, fishing possibilities cannot be projected.

Precautionary considerations

The available information is insufficient to evaluate stock trends and exploitation status. Therefore, catches should be reduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice for 2012.

STECF agrees with the ICES assessment that the state of the stock is unknown.

1.9. Whiting (*Merlangius merlangus*) in Subarea IV (North Sea) and Division VIId (Eastern Channel)

FISHERIES: Whiting are taken as part of a mixed fishery, as well as a by-catch in fisheries for *Nephrops* and industrial species. Substantial quantities are discarded. Historically total catches have varied considerably ranging between 25,000 and 153,000 t. In 2010, the Working Group estimated that about 31 550 t were caught. The human consumption landings were around 18 220 t with a TAC for 2009 of 12 897 t.

Whiting are caught in mixed demersal roundfish fisheries, fisheries targeting flatfish, the *Nephrops* fisheries, and the Norway pout fishery. The current minimum mesh-size in the targeted demersal roundfish fishery in the northern North Sea has resulted in reduced discards from that sector compared with the historical discard rates. Mortality has increased on younger ages due to increased discarding in the recent year as a result of recent changes in fleet dynamics of *Nephrops* fleets and small mesh fisheries in the southern North Sea. The by-catch of whiting in the Norway pout and sandeel fisheries is dependent on activity in that fishery, which has recently declined after strong reductions in the fisheries. These are low values based on the assumption of a similar by-catch rate to that observed in previous years, when the industrial fisheries were at a low level. A larger catch allocation for by-catch may be required if industrial effort increases.

Catches of whiting in the North Sea are also likely to be affected by the effort reduction seen in the targeted demersal roundfish and flatfish fisheries, although this will in part be offset by increases in the number of vessels switching to small mesh fisheries.

Recent measures to improve survival of young cod, such as the Scottish Credit Conservation Scheme, and increased uptake of more selective gear in the North Sea and Skagerrak, should be encouraged for whiting.

The minimum mesh size increased to 120 mm in the northern area in 2002 and this may have contributed to the substantial decrease in reported landings. Landings compositions from the northern area, in 2006 and 2007, indicate improved survival of older ages. In addition, the total number of fish discarded appears to have been significantly reduced since 2003, from around 60% in 2003 to around 27% in 2009.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. The stock assessment is based on an XSA assessment, calibrated with two survey indices. Commercial catch-at-age data were disaggregated into human consumption, discards, and industrial by-catch components.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
Management Plan	SSB_{MP}	Undefined.	
	F_{MP}	0.3	
MSY Approach	MSY $B_{trigger}$	Undefined.	
	F_{MSY}	Undefined.	
Precautionary approach	B_{lim}	Undefined.	
	B_{pa}	Undefined.	
	F_{lim}	Undefined.	
	F_{pa}	Undefined.	

STOCK STATUS:

F (Fishing Mortality)			
	2008	2009	**2010**
MSY (F_{MSY})	?	?	? Undefined
Precautionary approach (F_{pa},F_{lim})	?	?	? Undefined
Qualitative evaluation	→	→	→ Stable

SSB (Spawning-Stock Biomass)			
	2009	2010	**2011**
MSY ($B_{trigger}$)	?	?	? Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	? Undefined
Qualitative evaluation	↗	↗	↗ At recent average

SSB in 2010 is slightly higher than in 2009 and is around the long-term average. Fishing mortality has been stable since 2003. Recruitment has been very low between 2003 and 2007, with above-average recruitments estimated in 2008 and 2009. Whiting is no longer considered to be in a period of impaired recruitment.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the EU–Norway interim management plan TAC of 24 300 t (human consumption for the combined area) in 2012.

Other considerations

Management plan

The response to the Joint EU–Norway request on the management of whiting in Subarea IV (North Sea) and Division VIId (Eastern Channel) from ICES in September 2010 stated that "maintaining fishing mortality at its current level of 0.3 would be consistent with long-term stability if recruitment is not poor" (ICES, 2010). Consequently the EU and Norway have agreed to interim management of whiting at this level of total fishing mortality for 2011, conditional on a 15% TAC constraint. ICES are in the process of developing and evaluating the management plan (ICES,2011b).

Following the management plan for 2011 in 2012 as well implies a TAC of 24 300 in 2012, which corresponds to a 15% increase in TAC and an effort decrease of 4% in 2012. The implied TACs for Subarea IV and Division VIId would be 17 000 t and 7300 t.

MSY approach

There are no reference points to enable MSY advice.

PA considerations

There are no reference points to enable precautionary advice.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.The rules for category 1 prescribe that for 2012, a TAC for whiting in Subarea IV and Division VIId of 24 300t should be proposed.

STECF COMMENTS:
STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

The STECF has performed annual monitoring of effort trends since 2004. Overall effort (kW-days) by demersal trawls, seines, and beam trawls in the North Sea, Skagerrak, and Eastern Channel has been substantially reduced since 2002 (STECF, 2011). Following the introduction of days-at-sea regulations in 2003, there was a substantial switch from the larger mesh (>100 mm, TR1) gear to the smaller mesh (70–99, TR2) gear. Subsequently, effort by TR1 has been relatively stable, whereas effort in TR2 and beam trawl (80–120 mm, BT2) has shown a continuous decline (−23% in 70–99 mm trawl between 2003 and 2009).

STECF notes that the advice for whiting in Divisions IV and VIId for 2012 may be subject to change pending the results of a potential re-assessment in the light of additional new data from surveys undertaken in the summer of 2011. Any such change in the advice will be incorporated in the Consolidated STECF review of advice for 2012, which will be published in November 2011.

1.10. Anglerfish (*Lophius piscatorius)* in IIa (EU zone), North Sea IV, IIIa

FISHERIES: Anglerfish are taken as a by-catch by towed gears in the Skagerrak (IIIa), Northern North Sea and IIa, with an increasing directed trawl fishery in the deeper areas of the Northern North Sea (where 90% or more of the Area IV landings are taken). The fishery is dominated by the Scottish fleet, which takes around 70% to 90% of the total landings in this area. ICES estimates of landings of anglerfish from the North Sea show a rapid increase in the late 1980s from about 10000 t to about 27000 t (1997) followed by a decrease between 9 500 t and 12 000 t in the last 8 years. Provisional official landings for 2010 are given as 8 606 t.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. The stock in the North Sea was formerly treated as a separate assessment unit, but the assessment has since 2004 been combined with that in Sub-Area VI – see Section 2.10.

STECF COMMENTS: ICES considers Anglerfish in Sub-areas IV and VI and Division IIIa a single stock. For management purposes, anglerfish on the entire Northern Shelf are currently, split into 3 management units: 1) Sub-area VI (including Vb (EC), XII and XIV), 2) the North Sea (including IIIa and the EU waters of IIa), and 3) IIa, Norwegian waters. However, it is noticed by ICES, that anglerlfish in IIIa has not been included in the EU management (annual "Council Regulations of the fishing opportunities etc."). Since there are no national regulations for anglerfish in IIIa, STECF **recommends** that IIIa is included in the EU management as well as in the EU-Norway agreement.

1.11. Brill (*Scopthalmus rhombus*) in the North Sea

FISHERIES: Brill is mainly caught as a valuable by-atch species in the beam-trawl fisheries targeting flatfish, and to a lesser extent in the otter trawl and fixed-net fisheries. Locally, a minimum landing size of 30 cm is used. Landings have fluctuated between 1000 t and 1500 t for most of the available time series (1973-2008). In the period 1991-1994 landings between 1500 t and 2400 t have been recorded.
A precautionary TAC (including turbot) in areas IIa and IV for 2011 was set to 4 642 t.

REFERENCE POINTS:

No reference points have been defined.

STOCK STATUS:

F (Fishing Mortality)		
	2007–2009	
Qualitative evaluation	?	Insufficient information
SSB (Spawning-Stock Biomass)		
	2007–2009	
Qualitative evaluation	?	Insufficient information

The available information is inadequate to evaluate stock trends. There is no information on the stock identity of this species.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches should not increase.

Other considerations

No reliable assessment can be presented. The main cause of this is lack of data. Therefore, fishing possibilities cannot be projected.

Precautionary considerations

The available information is insufficient to evaluate stock trends and exploitation status. Landings have been relatively stable since 1998. Effort for the main fleet with brill bycatches (beam trawls) in the North Sea and Skagerrak has declined 40% between 2003 and 2009. Based on these considerations ICES advises that catches should not increase.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice for 2012.

STECF notes that the advice is given for brill in Subarea IV and Divisions IIIa and VIId,e. However, as around 60% of the brill is caught in the North Sea, STECF consider the advice is also appropriate for the North Sea alone.

STECF notes that brill is mainly a bycatch species in fisheries for plaice and sole. TACs may not be appropriate as a management tool to control fishing mortality for bycatch species.

1.12. Dab (*Limanda limanda*) IIa (EU zone), North Sea

FISHERIES: Dab is a bycatch in the fishery for flatfish, shrimp and demersal species, mainly in the beam trawl fisheries. Dab catches are generally discarded based on the availability of target species and market price.Landings have fluctuated around 7 000t from 1973 until 1983. Between 1984 and 1997 they amounted up to around 4 000t. Since the record high values in the period 1998-2000 of about 13 000t, landings have steadily decreased to 8 029 t in 2008.

A precautionary TAC (including flounder) in areas IIa and IV for 2011 was set to 18 434 t.

REFERENCE POINTS:

No reference points have been defined.

STOCK STATUS:

F (Fishing Mortality)		
	2007 – 2009	
Qualitative evaluation	?	Insufficient information

TSB (Total Stock Biomass)		
	2007 – 2009	
Qualitative evaluation	↗	Increase in the main area

There is no information on the stock identity of this species. Landing data are not complete and are probably not indicative for catches since discard rates are variable. The mixed TAC with flounder reduces the accuracy of catch statistics per species. Different surveys (Figure 6.4.28.2) show a stable to increasing total biomass for the main area (IV) in which the fisheries are conducted.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches should not increase.

Other considerations

No reliable assessment can be presented. The main cause of this is lack of data (exact catches and biological survey results). Therefore, fishing possibilities cannot be projected.
Precautionary considerations

The available information shows an increase in total biomass for the main area (IV) in which the fisheries are conducted. Exploitation status is unknown. Effort for the main fleet with dab bycatches (beam trawls) in the North Sea and Skagerrak has declined 40% between 2003 and 2009. Based on these considerations ICES advises that catches should not increase.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advise for 2012.

STECF notes that the advice is given for dab in IIIa and North Sea However, as around 90% of the dab is caught in the North Sea, STECF consider the advice is also appropriate for the North Sea alone.

STECF notes that dab is mainly a bycatch species in fisheries for plaice and sole. TACs may not be appropriate as a management tool to control fishing mortality for bycatch species.

1.13. Flounder (*Platichthys flesus*) - IIa (EU zone), North Sea

FISHERIES: Flounder is a bycatch in the fishery for flatfish and demersal species, mainly in the beam trawl fisheries. Discard rates can vary considerably, depending on availability of the main target species and market price. Landings have fluctuated around 2 500t from 1973 until 1983 and around 1500t between 1984 and 1997. Since the record high values in 1998 of 5 560t, landings have fluctuated around 3 500t with a 2008 landings of 2 895t.

A precautionary TAC (including dab) in areas IIa and IV for 2011 was set to 18 434 t.

REFERENCE POINTS:

No reference points have been defined.

STOCK STATUS:

F (Fishing Mortality)		
	2007 – 2009	
Qualitative evaluation		Insufficient information

TSB (Total Stock Biomass)		
	2007 – 2009	
Qualitative evaluation		Increase in the main area

The available survey information indicates stable (IIIa) or increasing (IV) stock abundance. Subarea IV is the main fishing area where around 87% of the landings are taken. There is no information on the stock identity of this species. Landing data are not indicative for catches since discard rates are variable.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches should not increase.

Other considerations

No reliable assessment can be presented. The main cause of this is lack of data (exact catches and biological survey results). Therefore, fishing possibilities cannot be projected.

Precautionary considerations

The available information shows an increase in total biomass for the main area (IV) in which the fisheries are conducted. Exploitation status is unknown. Effort for the main fleet with flounder bycatches (beam trawls) in the North Sea and Skagerrak has declined 40% between 2003 and 2009. Based on these considerations ICES advises that catches should not increase.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advise for 2012.

STECF notes that the advice is given for dab in IIIa and North Sea However, as around 90% of the flouder is caught in the North Sea, STECF consider the advice is also appropriate for the North Sea alone.

STECF notes that flounder is mainly a bycatch species in fisheries for plaice and sole. TACs may not be appropriate as a management tool to control fishing mortality for bycatch species.

1.14. Lemon sole (*Microstomus kitt*) in the North Sea

FISHERIES: Lemon sole are generally caught in mixed fisheries by beam trawlers and otter trawlers. There is no minimum landing size for lemon sole Landings have fluctuated between 5 000 t and 8 000t in the period 1973-2001. Since then, landings have been stable just below 4 000t. The 2008 landings are 3 466t.

A precautionary TAC (including witch) in areas IIa and IV for 2011 was set to 6 391 t.

REFERENCE POINTS:

No reference points have been defined.

STOCK STATUS:

F (Fishing Mortality)		
	2007–2009	
Qualitative evaluation		Insufficient information

TSB (Total Stock Biomass)		
	2007–2009	
Qualitative evaluation		Stable

The available survey information indicates stable abundance in recent years at a high level. There is no information on the stock identity of this species. Landings data show a declining long-term trend.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches should not increase.

Other considerations

No reliable assessment can be presented. The main cause of this is lack of data (e.g. age, effort, and cpue data for countries that take the majority of landings). Therefore, fishing possibilities cannot be projected.

Precautionary considerations

The available survey information indicates stable abundance in recent years at a high level. There is no information on the stock identity of this species. Landings data show a declining long-term trend. Effort for the main fleet with lemon sole bycatches (otter trawls) in the North Sea and Skagerrak has declined 23% between 2003 and 2009. Based on these considerations ICES advises that catches should not increase.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advise for 2012.

STECF agrees with the ICES advice. STECF considers that since advice for both witch and lemon sole is now available from ICES it may be appropriate to adopt separate management measures to regulate exploitation of these stocks.

STECF notes that the advice is given for lemon sole in IIIa, IV and VIId. There is no TAC set for lemon sole in IIIa and VIId. As around 90% of the lemon sole is caught in the North Sea, STECF consider the advice is appropriate for the North Sea alone.

1.15. Megrim (*Lepidorhombus whiffiagonis.*) in IIa (EU zone), North Sea

Megrim in IIa and IV are assessed together with megrim in Subarea Vb (EU Zone), VI, XII and XIV. The stock summary and advice is given in Section 2.12.

1.16. Plaice (*Pleuronectes platessa*) in Kattegat and Skagerrak (Division IIIa)

FISHERIES: Plaice is caught all year round with predominance from spring to autumn. The plaice catches in this area are taken in fisheries using seine, trawl and gill nets targeting mixed species for human consumption. Plaice is an important by-catch in a mixed cod-plaice fishery. Denmark and Sweden account for the majority of the landings while only minor landings are taken the German, Norwegian and, occasionally, vessels from Belgium and the Netherlands. Landings fluctuated between 7 700 and 16 500 t. (1980-1999). Landings in 1998 1999 and 2000 were amongst the lowest around 8 500 t. The landings increased to 11 560 t in 2001 but subsequently decreased and amounted to 6 905 in 2005 and 9 400 in 2006 compared to a TAC of 9,600 t. Landings in 2007, 2008, 2009 and 2010 are estimated to be 8 800 t, 8 600 t, 6 700 t and 9 095 t respectively.

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

REFERENCE POINTS: No

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Undefined	
	F_{msy}	Undefined	
Precautionary approach	B_{lim}	Undefined	
	Bpa	24 000 t	smoothed Bloss (no sign of impairment).
	F_{lim}	Undefined	
	F_{pa}	0.73	F_{med}

STOCK STATUS:

F (Fishing Mortality)	
	2008-2010
Qualitative evaluation	? Insufficient information

SSB (Spawning-Stock Biomass)	
	2008-2010
Qualitative evaluation	? Insufficient information

The assessment is exploratory only and the different approaches give uncertain and conflicting results with regard to trends in SSB and recruitment. Survey information (covering mainly the less fished eastern side of the area) indicates that there have been a number of large year classes over the period 2000–2006, but that the recent year classes have been lower. Fishing mortality is unknown. The level of mixing with the increasing North Sea plaice stock is unknown, but likely high in the Skagerrak. Catches are mainly taken close to the border with the North Sea, and have increased in 2010.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches in 2012 should be reduced. This advice does not take into account the mixing with the increasing North Sea plaice stock in the Skagerrak.

Other considerations

No reliable assessment can be presented for this stock and therefore, fishing possibilities cannot be projected.

Precautionary considerations

There is conflicting information on stock trends, and stock status and fishing mortality are unknown. Therefore, catches in 2012 should be reduced. This advice does not take into account the mixing with the increasing North Sea plaice stock in the Skagerrak.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that fisheries for plaice in Division IIIa are linked to those exploiting sole and that this linkage should be taken into account when implementing management rules for either stock.

1.17. Plaice (*Pleuronectes platessa*) in Subarea IV (North Sea)

FISHERIES: North Sea plaice is taken mainly in a mixed flatfish fishery by beam trawlers in the southern and south eastern North Sea with a minimum mesh size of 80 mm. This mesh size catches plaice under the minimum landing size of 27 cm, which induces high discard rates (in the range of 50% by weight). Directed fisheries are also carried out with seine and gill net, and by beam trawlers in the central North Sea with a minimum mesh size of 100 - 120 mm depending on area. Fleets involved in this fishery are the Netherlands, UK, Belgium, Denmark, France, Germany and Norway. Landings fluctuated between 70 000 and 170 000 t (1987-2002) and are predominantly taken by EU fleets. The 2003, 2004, 2005, 2006 and 2007 landings of 66 500 t, 61 400t 55 700 t, 57 900 t and 49 700 t respectively were the lowest recorded since 1957. Landings in 2008 reached a record low of 48 900 t. The 2010 landings are 60 700 t.

The combination of days-at-sea regulations, high oil prices, and the decreasing TAC for plaice and the relatively stable TAC for sole, appear to have induced a more southern fishing pattern in the North Sea. This concentration of fishing effort results in increased discarding of juvenile plaice that are mainly distributed in those areas. This process could be aggravated by movement of juvenile plaice to deeper waters in recent years where they become more susceptible to the fishery. Also the lpue data show a slower recovery of stock size in the southern regions that may be caused by higher fishing effort in the more coastal regions.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on an age-based assessment using landings and discards, calibrated with three survey indices.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
Management Plan	SSB_{MP}	230 000 t	Stage one: Article 2.
	F_{MP}	0.6 0.3	Stage one: Article 2; Stage two: Article 4.
MSY Approach	MSY $B_{trigger}$	230 000 t	Default to value of B_{pa}.
	F_{MSY}	0.25	Simulation studies and equilibrium analyses taking into account a number of possible stock–recruitment relationships (range of 0.2–0.3).
Precautionary approach	B_{lim}	160 000 t	B_{loss} = 160 000 t, the lowest observed biomass in 1997 as assessed in 2004.
	B_{pa}	230 000 t	Approximately 1.4 B_{lim}.
	F_{lim}	0.74	F_{loss} for ages 2–6.
	F_{pa}	0.60	5th percentile of F_{loss} (0.6) and implies that $B_{eq}>B_{pa}$[1)] and a 50% probability that $SSB_{MT} \sim B_{pa}$.

MANAGEMENT AGREEMENTS: The management agreement (1999), previously agreed between the EU and Norway was not renewed for 2005 and since that year has not been in force. A multiannual plan for fisheries exploiting stocks of plaice and sole in the North Sea was established on 11 June 2007 (Council Regulation (EC) No 676/2007). This plan has two stages. The first stage aims at an annual reduction of fishing mortality by 10% in relation to the fishing mortality estimated for the preceding year, with a maximum change in TAC of +or- 15% until the precautionary reference points are reached for both plaice and sole in two successive years. ICES has interpreted the F for the preceding year as the estimate of F for the year in which the assessment is carried out. The basis for this F estimate in the preceding year will be a constant application of the procedure used by ICES in 2007. In the second stage, the management plan aims for exploitation at F = 0.3.

ICES has evaluated this management plan and considers it precautionary.

STOCK STATUS:

	F (Fishing Mortality)			
	2008	2009	**2010**	
MSY (F_{MSY})	✓	✓	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	✓	✓	✓	Harvested sustainably

Management plan (F_{MP})	✓	✓	✓ Below target
SSB (Spawning-Stock Biomass)			
	2009	2010	**2011**
MSY ($B_{trigger}$)	✓	✓	✓ Above trigger
Precautionary approach (B_{pa},B_{lim})	✓	✓	✓ Full reproductive capacity
Management plan (SSB_{MP})	✓	✓	✓ Above target

The stock is well within precautionary boundaries, and has reached its highest levels in recorded history. Recruitment has been around the long-term average from 2005 onwards.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the first stage of the EU management plan (Council Regulation No. 676/2007) that landings in 2012 should be no more than 84 410 t. ICES notes that according to the management plan, transitional arrangements to the second stage of the plan should be established since both North Sea plaice and sole have now been within safe biological limits for two consecutive years.

Other considerations

Management plan

Both the North Sea plaice and sole stocks have been within safe biological limits in the last two years. According to the management plan (Article 3.2), this signals the end of stage one. Transitional arrangements for stage two (Article 5) should amend the objectives and the procedures for setting TACs and effort limitations, but these have not been decided on yet. Therefore, ICES advice is limited to the procedures defined for stage one.

Following the first stage of the EU management plan would imply increasing F to the target value of 0.3, with a maximum TAC increase of 15%. For 2012 the latter applies, resulting in a TAC of 84 410 t (F = 0.29). This is expected to increase the SSB to 587 600 t in 2013.

Following the second stage of the EU management plan would imply increasing F to the target value of 0.3 without TAC constraint (Article 4). This would result in a TAC of 87 100 t. This is expected to increase the SSB to 583 400 t in 2013.

ICES has evaluated this management plan and considers it precautionary.

MSY approach

Following the ICES MSY framework implies fishing mortality to be increased to 0.25, resulting in landings of 74 000 t in 2012. This is expected to lead to an SSB of 604 700 t in 2013.

Given that the current (2010) estimate of fishing mortality is only slightly below FMSY there is no need to follow a transition scheme towards this reference value.

PA approach

The fishing mortality in 2012 should be no more than Fpa (0.6) corresponding to landings of less than 155 500 t in 2012. This is expected to keep SSB above Bpa in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.The rules for category 1 prescribe that for 2012, a TAC for plaice in Subarea IV of 84 410 t should be proposed.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

The STECF has performed annual monitoring of effort trends since 2004. Overall effort (kW-days) by demersal trawls, seines, beam trawls, and gillnets in the North Sea, Skagerrak, and Eastern Channel had been substantially reduced (−30% between 2003 and 2009; STECF, 2011). Effort by beam trawl in both small mesh

size (80–120 mm, BT2) and large mesh size (BT1) has shown a continuous decline (−38% and −70% ,respectively, between 2003 and 2009).

STECF notes that there are more northerly areas of the North Sea where concentrations of plaice are much higher than sole. North of 56°N (Council Reg. 2056/2001) the mandatory 120mm mesh nets will catch plaice with negligible sole catches. A fishery to take plaice independently of sole is therefore possible in these more northerly areas of the North Sea.

STECF notes that the advice for plaice in Divisions IV for 2012 may be subject to change pending the results of a potential re-assessment in the light of additional new data from surveys undertaken in the autumn of 2011. Any such change in the advice will be incorporated in the Consolidated STECF review of advice for 2012, which will be published in November 2011.

1.18. Plaice (*Pleuronectes platessa*) in Division VIId (Eastern English Channel)

FISHERIES: Countries involved in this fishery are Belgium, France and the UK. Plaice is mainly caught in 80 mm beam-trawl (Belgian and English) fisheries for sole or in mixed demersal fisheries using otter trawls (mainly French). There is also a directed fishery during parts of the year by inshore trawlers and netters. Fisheries operating on the spawning aggregation in the beginning of the year catch plaice that originate from the North Sea, Divisions VIId and VIIe components. Since the 80 mm mesh size does not match the minimum landing size for plaice (27 cm), a large number of undersized plaice are discarded, but no discard time-series is available yet.

Landings fluctuated between 2,000 and 10,000 t (1976-2007). Landings fluctuated hardly in the last decennia but declined slightly from 5,800 t in 2002 to 3,500 t in 2008 and 2009. The landings for 2010 are 3 800 t.

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:

No reference points are defined for this stock.

STOCK STATUS:

F (Fishing Mortality)		
		2008-2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	↘	Indications of reduction
SSB (Spawning-Stock Biomass)		
		2009-2011
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	↗	Slight increase, from lowest level

The assessment is to be used only for trends. Fishing mortality has declined since the mid 1990s and is presently among the lowest in the time-series. Spawning-stock biomass declined from the 1990s to a record low (2003–2008) and has subsequently slightly increased.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches of plaice should not be allowed to increase in 2012, and discarding should be reduced.

Other considerations

No reliable assessment can be presented for this stock (ICES, 2010a). Additional work is required to allow the incorporation of discards estimates in the assessment, improve the relevance of the commercial tuning series, and examine the sensitivity of the assessment to the 65% adjustment to the Q1 catch-at-age. Therefore, no forecast is presented.

Precautionary considerations

The SSB is considered to be slightly increasing in recent years, while the exploitation rate is being reduced. Therefore, catches of plaice should not be allowed to increase and measures to reduce discarding should be introduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF reiterates its previous comment that due to the minimum mesh size (80 mm) in the mixed beam trawl fishery, a large number of undersized plaice are discarded. Discard estimates are not included in the assessment. The 80-mm mesh size is not matched to the minimum landing size of plaice (27 cm). Measures taken specifically directed at sole fisheries will also impact the plaice fisheries.

1.19. Sole (*Solea solea*) in Division IIIa

FISHERIES: The fishery is mainly conducted by Denmark, with smaller landings taken by Germany and Sweden. Significant amounts of sole are taken as by-catch in the fishery for *Nephrops*. Landings fluctuated between 200 t and 1,400 t (1971-2007). In 2008, 2009 and 2010 landings were 655 t, 640 t and 538 trespectively.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. The advice is based on an age-based assessment using cpue data from three commercial tuning series (reference fleets) and one scientific survey series. During the period 2002–2004 there was considerable misreporting due to limiting TACs and weekly quota, which were included in the assessment. Since mid-2005, the increase in TAC and improved control are believed to have resulted in insignificant misreporting.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	2000 t	lowest observed SSB excluding 1984-85 low SSB's (WKFLAT 2010).
	F_{MSY}	0.38	Provisional value based on Stochastic simulations. F associated with highest y and low prob. of SSB<Btrigger (WKFLAT 2010).
Precautionary Approach	B_{lim}	Undefined.	
	B_{pa}	Undefined.	
	F_{lim}	0.47	F_{med} 98 excluding the abnormal years around 1990.
	F_{pa}	0.30	Consistent with F_{lim}.

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	✗	✓	✓	Below target
Precautionary approach (F_{pa},F_{lim})	✗	○	○	Increased risk

SSB (Spawning-Stock Biomass)	2009	2010	2011	
MSY ($B_{trigger}$)	✓	✗	✗	Below target
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

SSB has decreased from 2005, and has fluctuated around MSY $B_{trigger}$ since 2008. Fishing mortality has been stable since 2005, just below F_{MSY}. Recruitment has been about average since 2003.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 610 t.

Other considerations

MSY approach

Because SSB in the beginning of 2012 is below MSY Btrigger, the ICES MSY framework implies a fishing mortality of FMSY *SSB2012/MSY Btrigger of 0.36. This results in landings of no more than 610 t in 2012. This is expected to lead to an SSB of 2 000 t in 2013.

PA approach

The fishing mortality in 2011 should be no more than Fpa, corresponding to landings of no more than 520 t in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2.The rules for category 2 prescribe that for 2012, a TAC for sole in Division IIIa of 610 t should be proposed.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that based on recent simulations (WKFLAT 2010), Fmsy is higher then Fpa. STECF therefore concludes that the Fpa value of 0.3 established in 1999 is inappropriate and needs to be revised to reflect more recent information on the stock.

1.20. Sole (*Solea solea*) in Sub-area IV (North Sea)

FISHERIES: Sole is mainly taken by beam trawl fleets in a mixed fishery for sole and plaice in the southern part of the North Sea. A relatively small part of the catch is taken in a directed fishery by gill-netters in coastal areas, mostly in the 2nd quarter of the year. The stock is exploited predominantly by The Netherlands with smaller landings taken by Belgium, Denmark, France, Germany and the UK. Landings have fluctuated between 11,000 and 35 000 t (1957-2007). The landings in 2008, 2009 and 2010 are around 14 100 t, 14 000 t and 12 600 t.

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

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
Management Plan	SSB_{MP}	35 000 t	Stage one: Article 2.
	F_{MP}	0.4 0.2	Stage one: Article 2; Stage two: Article 4.
MSY Approach	MSY $B_{trigger}$	35 000 t	Default to value of B_{pa}.
	F_{MSY}	0.22	Median of stochastic MSY analysis assuming Ricker Stock-Recruit relationsh (range of 0.2-0.25).
Precautionary Approach	B_{lim}	25 000 t	B_{loss}
	B_{pa}	35 000 t	B_{pa}1.4*B_{lim}
	F_{lim}	Not defined.	
	F_{pa}	0.4	F_{pa} = 0.4 implies $B_{eq} > B_{pa}$ and $P(SSB_{MT} < B_{pa}) < 10\%$

MANAGEMENT AGREEMENTS: A multiannual plan for fisheries exploiting stocks of plaice and sole in the North Sea was established on 11 June 2007 (Council Regulation (EC) No 676/2007). This plan has two stages. The first stage aims at an annual reduction of fishing mortality by 10% in relation to the fishing

mortality estimated for the preceding year, with a maximum change in TAC of +or- 15% until the precautionary reference points are reached for both plaice and sole in two successive years. ICES has interpreted the F for the preceding year as the estimate of F for the year in which the assessment is carried out. The basis for this F estimate in the preceding year will be a constant application of the procedure used by ICES in 2007. In the second stage, the management plan aims for exploitation at F = 0.2.

ICES has evaluated the agreed long-term management plan (Council Regulation (EC) No. 676/2007) and concluded that it leads on average to a low risk of $B < B_{lim}$ within the next 10 years. ICES conclude that for sole the management plan can be provisionally accepted as precautionary.

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	✓	✓	✓	Harvested sustainably
Management plan (F_{MP})	✓	✓	✓	Below target
SSB (Spawning-Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	✗	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	o	✓	✓	Full reproductive capacity
Management plan (SSB_{MP})	✗	✓	✓	Above target

SSB has fluctuated around the precautionary reference points for the last decade and is estimated to be above Bpa in 2010. Fishing mortality has shown a declining trend since 1995 and is estimated to be below Fpa since 2008.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the first stage of the EU management plan (Council Regulation No. 676/2007) that landings in 2012 should be no more than 15 700 t. ICES notes that according to the management plan, transitional arrangements to the second stage of the plan should be established since both North Sea sole and plaice have now been within safe biological limits for two consecutive years.

Other considerations

Management plan

Both the North Sea sole and plaice stocks have been within safe biological limits in the last two years. According to the management plan (Article 3.2), this signals the end of stage one. Transitional arrangements for stage two (Article 5) should amend the objectives and the procedures for setting TACs and effort limitations, but these have not been decided on yet. Therefore, ICES advice is limited to the procedures defined for stage one.

Following the first stage of the EU management plan would imply a 10% reduction of F to 0.31, resulting in a TAC of 15 700 t in 2012 and implying a 10% reduction in fishing effort. This is expected to lead to an SSB of 45 600 t in 2013. The TAC increase of 11% is within the 15% bounds of the management plan TAC change constraints.

Following the second stage of the EU management plan would imply decreasing F to 0.2 (Article 4), resulting in a TAC of 11 000 t in 2012. This is expected to lead to an SSB of 50 100 t in 2013.

ICES has evaluated this management plan and considers it can be accepted as precautionary.

MSY approach

Following the ICES MSY framework implies fishing mortality to be reduced to 0.22 (F_{MSY}, as SSB 2012 > MSY $B_{trigger}$), resulting in landings of less than 11 800 t in 2012. This is expected to lead to an SSB of 49 300 t in 2013.

Following the transition scheme towards the ICES MSY framework implies fishing mortality to be reduced to ((0.34*0.6) + (0.22 *0.4)) = 0.29, which will result in landings of less than 15 100 t in 2012. This is expected to lead to an SSB of 46 200 t in 2013.

PA approach

The precautionary F_{pa} for North Sea sole is 0.4. This would lead to landings of 19 700 t in 2012 (a 40% increase in TAC) and an SSB of 41 700 t in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.The rules for category 1 prescribe that for 2012, a TAC for sole in Subarea IV of 15 700 t should be proposed.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

The STECF has performed annual monitoring of effort trends since 2004. Overall effort (kW-days) by demersal trawls, seines, beam trawls, and gillnets in the North Sea, Skagerrak, and Eastern Channel had been substantially reduced (−30% between 2003 and 2009; STECF, 2011). Effort by beam trawl in both small mesh size (80–120 mm, BT2) and large mesh size (BT1) has shown a continuous decline (−38% and −70% ,respectively, between 2003 and 2009).

STECF notes that the advice for sole in Subarea IV for 2012 may be subject to change pending the results of a potential re-assessment in the light of additional new data from surveys undertaken in the autumn of 2011. Any such change in the advice will be incorporated in the Consolidated STECF review of advice for 2012, which will be published in November 2011.

1.21. Sole (*Solea solea*) in Division VIId (Eastern English Channel)

FISHERIES: The main fleets, fishing for sole in Division VIId, are Belgian and English offshore beam trawlers (> 300 HP), which also take plaice as a by-catch. These fleets also operate in other management areas. French offshore trawlers targeting roundfish also take sole as a by-catch. Also numerous inshore < 10 m boats on the English and French coasts target sole in the spring and autumn mainly using fixed nets. Between 1986–1997, the total landings have been fluctuating around 4,500t. In 1998 the lowest landings were observed (3,400t), since 2000 the landings have increased to 5,000t in 2003 and fluctuated around that high value for the next 7 years. Landings in 2008 are slightly lower at 4,500 tonnes. The landings for 2009 were at record high (5 300 t). In 2010 they amount to 4 400 t..It should be noted that although sometimes official landings were declared according agreed TAC's, it is apparent that since 1997 the uptake was always lower than the TAC.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Although corrected for, the analytical assessments, using catch-at-age and CPUE data from commercial fleets and surveys are considered uncertain due to under-reporting from the inshore fleet and mis-reporting by beam trawlers.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	8000 t	Bpa
	F_{msy}	0.29	Stochastic simulations assuming smooth hockey stick relationship
Precautionary approach	B_{lim}	Not defined	Poor biological basis for definition
	B_{pa}	8000 t	This is the lowest observed biomass at which there is no indication of impaired recruitment. Smoothed B_{loss}
	F_{lim}	0.55	F_{loss}, but poorly defined; analogy to North Sea and setting of 1.4 F_{pa} = 0.55. This is a fishing mortality at or above which the stock has shown continued decline.
	F_{pa}	0.4	Between F_{med} and 5th percentile of F_{loss}; SSB>B_{pa} and probability (SSB_{mt}<B_{pa}), 10%: 0.4.

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	2010	
MSY (F_{MSY})	✗	✗	✗	Above trigger
Precautionary approach (F_{pa},F_{lim})	✓	○	○	Risk harvested unsustainably

SSB (Spawning-Stock Biomass)				
	2009	2010	2011	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	✓	✓	✓	Full reproductive capacity

The spawning-stock biomass has increased since 2002 and is above MSY Btrigger. Since 2005, fishing mortality has been slightly above Fpa. The 2008 year class is the highest in the time-series and the 2001, 2004, and 2005 year classes were above average.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the transition to the MSY approach that landings in 2012 should be no more than 5600 t.

Other considerations

MSY approach

Following the ICES MSY framework implies fishing mortality to be reduced to 0.29 resulting in landings of less than 4300 t in 2012. This is expected to lead to a record high SSB of 15 000 t in 2013.

Following the transition scheme towards the ICES MSY framework implies that (F(2010)*0.6) + (0.4*FMSY) is 0.39, resulting in landings of less than 5600 t in 2012. This is expected to lead to an SSB of 13 600 t in 2013.

PA approach

The fishing mortality in 2012 should be no more than Fpa, corresponding to landings of less than 5700 t in 2012. This is expected to keep SSB well above Bpa in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2.The rules for category 2 prescribe that for 2012, a TAC for sole in Division VIId of 5 600 t should be proposed.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that the 80mm mesh size in the mixed beam trawl fishery is not matched to the minimum landing size of plaice. Measures to reduce plaice discarding in the sole fishery would greatly benefit the plaice stock and future yields Mesh enlargement would reduce the catch of undersized plaice, but would also result in short-term loss of marketable sole. Furthermore, an increase in the minimum landing size of sole could provide an incentive to fish with larger mesh sizes and therefore mean a reduction in the discarding of plaice.

1.22. Turbot (*Psetta maxima*) in the North Sea

FISHERIES: Turbot is a valuable bycatch in the fishery for flatfish and demersal species and takes place with beam trawls, otter trawl and static gear. There is a targeted gill net fishery that takes less than 10% of the total catch. Discarding in the trawl fisheries for turbot is low. No official minimum landing size has been set, but part

of the fisheries adopted a voluntary minimum landing size of 30 cm. A reduction in fishing effort on target flatfish species such as plaice and sole may have influenced the level of bycatch.
Landings have fluctuated between 4000 t and 6 000 t until 1995. Since then they have stabalised at a level of 3 000t – 4000 t. A precautionary TAC (including brill) in areas IIa and IV for 2011 was set to 4 642 t.

REFERENCE POINTS:

No reference points have been defined.

STOCK STATUS:

F (Fishing Mortality)		
	2007 - 2009	
Qualitative evaluation		Insufficient information

TSB (Total Stock Biomass)		
	2007 – 2009	
Qualitative evaluation		Stable

A trends based assessment for turbot in the North Sea is presented, which is taken to represent the stock throughout the area. Landings have been stable since 1995, and fishing mortality has declined since 2002. Recruitment has shown an increase since 2000 and total stock biomass has been stable in that period.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches should not increase.

Other considerations

No reliable assessment can be presented. The main cause of this is a lack of data. Therefore, fishing possibilities cannot be projected.

Precautionary considerations

The available information suggests that total stock biomass varies without trend, and fishing mortality has decreased recently. Effort for the main fleet with turbot bycatches (beam trawls) in the North Sea and Skagerrak has declined 40% between 2003 and 2009. Based on these considerations ICES advises that catches should not increase.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice for 2012.

STECF notes that the advice is given for turbot in Subarea IV and Division IIIa. However, as around 90% of the turbot is caught in the North Sea, STECF consider the advice is also appropriate for the North Sea alone.

STECF notes that turbot is mainly a bycatch species in fisheries for plaice and sole. TACs may not be appropriate as a management tool to control fishing mortality for bycatch species.

1.23. Witch (*Glyptocephalus cynoglossus*) in the North Sea

FISHERIES: Witch is caught both as a target species and by-catch in IIIa. In the North Sea it is mainly taken as by-catch. It is a valuable by-catch species in mixed fisheries targeting *Nephrops*. In the deeper parts of IIIs and the North Sea. A few Danish seine fisheries have been targeting this species in IIa In 2010 recorded landings landings were around 1500 t.

A precautionary TAC (including lemon sole) in areas IIa and IV for 2011 was set to 6 391 t.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Assessment data are available for this species, especially from the IIIa fisheries (Denmark and Sweden). However, these data are considered insufficient at present for assessment of this stock and ICES has not assessed this stock.

REFERENCE POINTS:

No reference points have been defined.

STOCK STATUS:

F (Fishing Mortality)		
	2007–2009	
Qualitative evaluation	?	Insufficient information

TSB (Total Stock Biomass)		
	2007–2009	
Qualitative evaluation	→	Stable

The available survey information indicates a declining trend of abundance since 2000 and recent indices are low. There is no information on the stock identity of this species. Landing data show a decline over the same period.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches should be reduced.

Other considerations

No reliable assessment can be presented.

Precautionary considerations

The available survey information indicates a declining trend of abundance since 2000 and recent indices are low. There is no information on the stock identity of this species. Landing data show a decline over the same period. Based on these considerations ICES advises that catches should be reduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice. STECF considers that since advice for both witch and lemon sole is now available from ICES it may be appropriate to adopt separate management measures to regulate exploitation of these stocks.

STECF notes that the advice is given for witch in IIIa, IV and VIId. However, as around 95% of the witch is caught in the North Sea, STECF consider the advice is also appropriate for the North Sea alone.

STECF notes that witch is mainly a bycatch species in mixed fisheries. TACs may not be appropriate as a management tool to control fishing mortality for bycatch species.

1.24. Norway pout (*Trisopterus esmarki*) in IIa, IIIa and the North Sea

FISHERIES: The fishery is mainly by Danish and Norwegian vessels using small mesh trawls in the northern North Sea.

The stock is managed by TACs. Landings fluctuated between 110,000 and 735,000 t. in the period 1971-1997, and apart from 2000 (184,000 t) decreased substantially in the following years. The fishery was closed in 2005, reopened in 2006 and closed again in 2007. Landings in 2008 and 2009 were 36,100 t and 54,500 t respectively. Due to the very high 2009 recruitment landings increased to 126,000 t in 2010.

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

The stock is assessed twice a year. The spring assessment provides stock status up to 1st of April of the current year and a revised forecast for the current year. The autumn assessment provides stock status for the current year and a forecast of fishing possibilities in the next year.

MANAGEMENT OBJECTIVES: No management objectives have been set for this stock. Due to the short-lived nature of this species a preliminary TAC is set every year, which is updated on the basis of in year advice.

ICES has evaluated and commented on three management strategies, following requests from managers – fixed fishing mortality (0.35), fixed TAC (50,000 t), and a variable TAC escapement strategy. The evaluation shows that all three management strategies are capable of generating stock trends that stay away from B_{lim} with a high probability in the long-term and are therefore considered to be in accordance with the precautionary approach.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{escapement}$	150 000 t	= B_{pa}
	F_{MSY}	Undefined.	None advised.
Precautionary approach	B_{lim}	90 000 t	B_{lim} = B_{loss}, the lowest observed biomass in the 1980s.
	B_{pa}	150 000 t	= B_{lim} $e^{0.3*1.65}$
	F_{lim}	Undefined.	None advised.
	F_{pa}	Undefined.	None advised.

STOCK STATUS:

F (Fishing Mortality)			
	2008 2009	**2010**	
MSY (F_{MSY})	? ?	?	Undefined
Precautionary approach (F_{pa},F_{lim})	? ?	?	Undefined
Qualitative evaluation	↗ ↗	↗	Below average

SSB (Spawning-Stock Biomass)			
	2009 2010	**2011**	
MSY ($B_{trigger}$)	✓ ✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	✓ ✓	✓	Full reproductive capacity

The stock size has increased since 2004 and is above MSY $B_{escapement}$. Recruitment was well above average in 2009, but very low in 2010. Fishing mortality has been lower than the natural mortality for this stock and has decreased in recent years to well below the long-term average F (0.6). The status of the stock is mainly determined by natural processes and recruitment.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY approach that landings in 2011 should be no more than 6,000 t.

Management strategy options

ICES has evaluated and commented on three management strategies, although these have not yet been decided on. Following the escapement strategy (maintaining SSB above a 150 000 t by 1st of January 2011) results in catches of less than 6,000 t in 2011, corresponding to F around 0.02. Under a fixed F management strategy with F around 0.35, catches of around 82,000 t can be taken in 2011. Under a fixed TAC strategy a TAC of 50,000 t can be taken in 2011, corresponding to an F around 0.21. In recent years the escapement strategy has been used.

MSY approach

To maintain the spawning-stock biomass above a reference level of MSY $B_{escapement}$ by 1st of January 2012 a catch of no more than 6,000 t can be taken in 2011. This implies that fishing mortality needs to be reduced significantly from 2010 to 2011.

PA approach

This is the same as the MSY approach.

FISHING OPPORTUNITIES for 2011 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe that for 2011, a TAC for Norway pout in IIa, IIIa and IV of 6,000 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011. A preliminary advice for 2012 will be provided by ICES in October 2011.

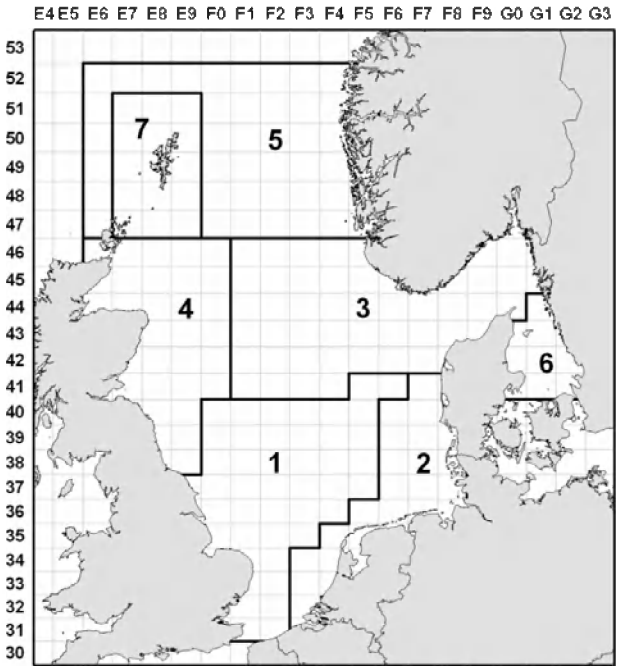
STECF notes that ICES has assessed three different harvest strategies all of which give radically different outcomes for 2011 but which are all consistent with the precautionary approach. There is a need for managers to agree on which approach is to be used in future so that the consistency with the precautionary approach is maintained.

1.25. Sandeel (*Ammodytidae*) in the North Sea (IV), Skagerrak and Kattegat (IIIa)

The most recent advice for sandeel by ICES was provided in February 2011 and subsequently reviewed by STECF. Hence, the following text remains unchanged from the STECF response to request for in-year management advice for sandeel in the North Sea and Skagerrak (Scientific, Technical and Economic Committee for Fisheries (STECF) – Opinion by written procedure - Request for in-year management advice for sandeel in the North Sea and Skagerrak (STECF-OWP-11-02) (eds. Casey J. & Doerner H). 2011. Office for Official Publications of the European Communities, Luxembourg, ISBN 978-92-79-19664-5, JRC63888, 46 pp.)

Prior to 2010, ICES presented advice for this area in three units: North Sea excluding Shetland area, the Shetland area and Skagerrak-Kattegat. Based on the results from a benchmark assessment, September 2010, ICES will present advice for the North Sea sandeel divided into 7 areas from 2010 onwards (see text table below). This change was made to better reflect the stock structure of sandeel in the North Sea and to enable management to direct action avoiding local depletions, as has been repeatedly advised in recent years. The level of information available per area differs and the level of detail per advice will differ accordingly.

Section	Sandeel Area (SA)	Name	Rectangles
1.5.1	1	Dogger Bank area	31-34 E9-F2; 35 E9- F3; 36 E9-F4; 37 E9-F5; 38-40 F0-F5; 41 F5-F6
1.5.2	2	South Eastern North Sea	31-34 F3-F4; 35 F4-F6; 36 F5-F8; 37-40 F6-F8; 41 F7-F8
1.5.3	3	Central Eastern North Sea	41 F1-F4; 42-43 F1-F9; 44 F1-G0; 45-46 F1-G1; 47 G0
1.5.4	4	Central Western North Sea	38-40 E7-E9; 41-46 E6-F0
1.5.5	5	Viking and Bergen Bank area	47-51 E6 + F0-F5; 52 E6-F5
1.5.6	6	Division IIIa East (Kattegat)	41-43 G0-G3; 44 G1
1.5.7	7	Shetland area	47-51 E7-E9



Map of Sandeel Areas (SA)

Following STECF's review of ICES advice on sandeel provided in October 2010, dredge survey information from December 2010 became available and has been used by ICES to estimate recruitment for 2010 and to conduct forecasts for 2011. Update advice from ICES is given for sandeel areas 1, 2, 3 and 4. For the other three areas ICES advice is unchanged from October 2010.

FISHERIES: Sandeel is taken by trawl with codend mesh sizes of less than 16 mm. The fishery is seasonal, taking place from April to July. Most of the catch consists of *Ammodytes marinus*, but other sandeel species are caught as well. By-catch of other species is low. Sandeels are largely stationary after settlement and the sandeel must be considered as a complex of local populations.

The stocks are exploited predominantly by Denmark and Norway, with minor landings taken by the UK, Sweden, Germany and the Faroes. Landings fluctuated between 550,000 t and 1,200,000 t in the period 1980 to 2002 with the highest catches observed in 1997. Catches dropped in 2003 and have since then been well below average reaching a minimum of 177,000 t in 2005. Catches in 2010 amount to 395,000 t. Catch possibilities are largely dependent on the size of the recruiting year-class.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Analytical assessments are available for sandeel in Area 1-3. Catches in the remaining areas have been less than 1% of the total since 2005, but considerably higher before 2005. The assessment of the North Sea sandeel is based on a seasonal age-based assessment using total commercial effort and fisheries independent data from dredge surveys.

MANAGEMENT OBJECTIVES: No management objectives have been set for this stock. Two management systems are in operation for the sandeel in the North Sea, Skagerrak and Kattegat. The EU management system covers the sandeel fisheries in EU waters and the Norwegian system covers the fisheries in Norwegian waters.

Preliminary quotas for sandeel in EU waters were set agreed by the European Council in December 2010 on the basis of the ICES and STECF autumn 2010 advice. The Council furthermore agreed that the Commission should endeavour to revise the quotas by 1st of March 2011 based on update advice from ICES and STECF. Additional real time monitoring in the beginning of the fishing season (April) might be necessary to provide catch options for sandeel in Area 3 due to the relatively low quality of the dredge survey in this area.

RECENT MANAGEMENT ADVICE:

For short-lived species such as sandeel, the ICES interpretation of the MSY concept uses Bpa estimates as the default value for MSY $B_{escapement}$. Advice is based upon the stock being at least MSY $B_{escapement}$ in the year after the

advised fishery has taken place. The escapement strategy should allow for sufficient stock to remain for successful recruitment whilst providing adequate resource for predators of sandeel. ICES provides advice separately for the 7 areas.

STECF COMMENTS:

STECF notes the improvements made by ICES on the area based stock assessment of sandeel in the North Sea by applying the new statistical assessment model which makes use total international fishing effort and fishery independent data from dredge surveys.

STECF notes that 2010 dredge survey results were available for Area 1, 2, 3 and 4 but not for the remaining areas. The dredge survey results confirmed a large 2009 year class in Area 1, 2 and 4 and a modest year class in area 3. For all areas covered by the dredge survey the 2010 year class was estimated to be low.

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that sandeel in all areas fall under Category 5, because sandeel is short-lived. Because STECF is unable to provide specific advice for management of Area 5-7 sandeel, these stocks may also be classified under Category 11. STECF notes that the rules for Category 11 prescribe that TACs should be adjusted towards recent real catch levels but should not be changed by more than 15% per year or Member States should develop an implementation plan to provide advice within a short time. Furthermore, where appropriate, there should be no increase in fishing effort. STECF notes that the recent catch levels have been zero (Area 5, Viking Bank; Area 7, Shetland) or low (Area 6, Kattegat; average (since the stock collapse in 2003)=423 t). There is no separate TAC by these areas. STECF therefore notes that a way of implementing the rules for category 11 could be "No increase in effort". Such effort limitation would allow higher landings from Area 6 in case of higher recruitment.

Furthermore, STECF notes the ICES approach for MSY based management of a short-lived species as sandeel is the escapement strategy, i.e. to maintain SSB above MSY $B_{escapement}$ after the fishery has taken place. For some areas the ICES preliminary outlook table indicates that the escapement strategy would imply a several-fold increase in F in 2011 if recruitment (age 0) in 2010 is of average strength. However, taking the historical F and stock development into account, STECF agrees with the ICES recommendation for the development of F reference points (F ceiling).

1.25.1. Sandeel (*Ammodytidae*) in Area-1 (The Dogger bank area)

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{escapement}$	215 000 t	= B_{pa}
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	160 000 t	Median SSB in the years (2000-2006) of lowest SSB and no impaired recruitment (WKSAN, 2010)
	B_{pa}	215 000 t	$B_{pa}=B_{lim}*exp^{(\sigma*1.645)}$ with σ=0.18 estimated from assessment uncertainty in the terminal year (WKSAN, 2010)
	F_{lim}	Not defined	
	F_{pa}	Not defined	

MANAGEMENT AGREEMENTS: No specific management objectives are known to STECF.

STOCK STATUS:

	F (Fishing Mortality)		
	2008	2008	2010
MSY (F_{msy})	?	?	?
Precautionary approach	?	?	?

(F_{pa},F_{lim})			

	SSB (Spawning Stock Biomass)		
	2009	2010	2011
MSY ($B_{escapement}$)	⊕	⊕	⊕
Precautionary approach (B_{pa},B_{lim})	⊕	⊕	⊕

The stock at the start of 2011 is expected to be at full reproductive capacity owing to the large recruitment in 2009. Fishing mortality decreased in 2005 from a high level and has since fluctuated without trend.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that the catch in 2011 should be less than 320 000 t to maintain SSB in 2012 above MSY $B_{escapement}$.

MSY approach

Following the ICES MSY framework for a short lived species the fishery in 2011 should allow for sufficient stock (MSY $B_{escapement}$) to remain for successful recruitment. This implies a catch of less than 320 000 t in 2011.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified under category 5, because this is a short lived species. ICES notes that the TAC and the stock assessment areas do not match.

Additional considerations

Uncertainties in assessment and forecast
The dredge survey results are sufficiently robust to provide a reliable estimate of the incoming 1-group. Hence, fishing opportunities for 2011 can be established based on this information.

Management plans
A management plan needs to be developed. The ICES approach for MSY based management of a short-lived species as sandeel is an escapement strategy, i.e. to maintain SSB above MSY $B_{escapement}$ after the fishery has taken place. With the current MSY $B_{escapement}$ at Bpa (215 000 t) the outlook table indicates that the 2011 catch according to the MSY approach will require an F at 0.70, which is twice the F value in 2010. However, taking the historical F and stock development into account an F value above 0.6 is probably not recommendable. As effort is assumed proportional to F, effort must be doubled to take the TAC in 2012. A management plan should include an upper limit on effort estimated on the basis of the effort applied in the most recent years.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011.

See the general STECF notes on sandeel in the introduction section to sandeel.

1.25.2. Sandeel (*Ammodytidae*) in Area-2 (South Eastern North Sea)

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{escapement}$	100 000 t	= B_{pa}
	F_{MSY}	Not defined	

Precautionary Approach	B_{lim}	70 000 t	Median SSB in the years (2000-2006) of lowest SSB and no impaired recruitment (WKSAN, 2010)
	B_{pa}	100 000 t	$B_{pa}=B_{lim}*exp^{(\sigma*1.645)}$ with $\sigma=0.23$ estimated from assessment uncertainty in the terminal year (WKSAN, 2010)
	F_{lim}	Not defined	
	F_{pa}	Not defined	

MANAGEMENT AGREEMENTS: No specific management objectives are known to STECF.

STOCK STATUS:

	F (Fishing Mortality)		
	2008	2008	2010
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2009	2010	2011
MSY ($B_{escapement}$)	+	−	+
Precautionary approach (B_{pa},B_{lim})	+	o	+

Due to low value of F (around 0.1) since 2007 and the strong 2009 year class, SSB in 2011 is estimated more than twice as high as B_{pa}.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that catch in 2011 should be less than 34 000 t in 2011 to maintain SSB in 2012 above MSY $B_{escapement}$.

MSY approach

Following the ICES MSY framework for a short lived species the fishery in 2011 should allow for sufficient stock (MSY $B_{escapement}$) to remain for successful recruitment. This implies a catch of less than 34 000 t in 2011.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified under category 5, because this is a short-lived species.

Additional considerations

Uncertainties in assessment and forecast

There appears to be a sufficiently robust relationship between the recruitments in SA 1 and SA 2 to be able to use the same data sources and procedures from SA 1 for the estimation of the incoming year class strength. The dredge survey was expanded in 2010 to cover area 2.

Management plans

A management plan needs to be developed. The ICES approach for MSY based management of a short-lived species as sandeel is the escapement strategy, i.e. to maintain SSB above MSY $B_{escapement}$ after the fishery has taken place. Such an approach does not include an upper limit on F. However, taking the historical F and stock development into account an F value above 0.4-0.5 is probably not recommendable. Such an F ceiling can be expressed as an effort limit for management usage as fishing mortality is assumed proportional to effort.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011.

See the general STCEF notes on sandeel in the introduction section to sandeel (section 1.25).

1.25.3. Sandeel (*Ammodytidae*) in Area-3 (Central Eastern North Sea)

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{escapement}$	195 000 t	= B_{pa}
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	100 000 t	The highest SSB (in 2001) in the period (2001-2007) with the lowest SSB and low recruitment (WKSAN, 2010)
	B_{pa}	195 000 t	$B_{pa}=B_{lim}*exp^{(\sigma*1.645)}$ with σ=0.40 estimated from assessment uncertainty in the terminal year (WKSAN, 2010)
	F_{lim}	Not defined	
	F_{pa}	Not defined	

MANAGEMENT AGREEMENTS: No specific management objectives are known to ICES.

STOCK STATUS:

	F (Fishing Mortality)		
	2008	2008	2010
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2009	2010	2011
MSY ($B_{escapement}$)	−	+	+
Precautionary approach (B_{pa},B_{lim})	−	+	+

The stock has increased from the record low SSB in 2004 at half of Blim to above Bpa in 2010. SSB in 2011 is estimated to be below B_{pa}. Recruitment was above the long term mean in 2001 and has been below since. F has been below the long term mean since 2004, however highly variable between years.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that no catches of sandeel in area 3 should be allowed in 2011.

MSY approach

Following the ICES MSY framework for a short lived species the fishery in 2011 should allow for sufficient stock (MSY $B_{escapement}$) to remain for successful recruitment. ICES advises a zero catch in 2011 as even this will not allow SSB to increase above MSY $B_{escapement}$ in 2012.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified under category 5, because this is a short-lived species. ICES notes that the TAC and the stock assessment areas do not match.

Additional considerations

Uncertainties in assessment and forecast

The assessment is considered less robust than the assessments for SA 1 and SA 2.

No Norwegian effort data are available to ICES with the appropriate resolution. Norwegian fishing effort has therefore been estimated on the basis of Norwegian landings and the assumption that Danish and Norwegian CPUE are similar. Observed Norwegian effort would probably increase the quality of the assessment as the Norwegian fleet generally fishes more northerly than the Danish fleet, especially in the most recent years with Danish limitations on the access to the Norwegian EEZ.

The dredge survey covers mainly the southern part of SA 3. A northerly extension of the survey area and coverage of the Skagerrak area would probably increase the quality of the survey results for assessment purpose.

ICES concluded in 2010 that the dredge survey estimates of the incoming year class appear less robust for area 3 and it is therefore appropriate that in-season monitoring (e.g. acoustic monitoring and age-based commercial CPUE) should continue in area 3. The survey index for the 2010 year-class is very low and outside the range of previously observed values; this might reflect a very low recruitment or simply poor survey coverage. However, the ICES advice from October 2010 indicated that even with zero TAC in 2011 a recruitment higher than 60% of long term average would be required to increase SSB above MSY $B_{escapement}$ in 2012.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011.

See the general STCEF notes on sandeel in the introduction section to sandeel.

STECF notes that in 2010, ICES concluded that the dredge survey estimates of the incoming year class

appeared to have been less robust for area 3 and that it was therefore appropriate that in-season monitoring (e.g. acoustic monitoring and age-based commercial cpue) continue in area 3.

While acknowledging that the very low dredge survey index for the 2010 year class might reflect very low recruitment or poor survey coverage, STECF considers that its advice not to allow any catches of sandeel from area 3 of the North Sea in 2011 is appropriate, especially given that the latest assessment indicates that even with a zero TAC in 2011, a recruitment greater than 60% of the long-term average would be required to increase SSB above MSY $B_{escapement}$ in 2012.

However, as outlined by ICES the assessment of the sandeel stock in area 3 is less robust than the assessments for area 1 and 2 and is dependent on in-year CPUE data from the commercial fishery. A complete closure of the EU sandeel fishery in area 3 will therefore compromise ICES' ability to assess the state of the sandeel stock at the end of 2011 and provide appropriate management advice for 2012. A restricted monitoring fishery in 2011 would provide essential information for such an assessment.

STECF therefore advises that a limited monitoring fishery for sandeel in area 3 in 2011 would be appropriate to provide essential CPUE data for an assessment of the stock of sandeel in are 3 at the end of 2011 and provision of management advice for 2012.

STECF also advises that a monitoring fishery should aim to provide the CPUE data required for the assessment but catches should be restricted to a level that does not constitute a risk to the stock. STECF notes that according to the forecast table provided by ICES for area 3, a catch of 10,000 t in 2011 would result in a fishing mortality of F=0.1 and a reduction in the spawning stock biomass of 5% compared to the no fishing scenario. STECF therefore advises that catches of sandeel from a monitoring fishery in area 3 in 2011 should not be allowed to exceed 10,000 t.

1.25.4. Sandeel (*Ammodytidae*) in Area-4 (Central Western North Sea)

REFERENCE POINTS: No reference points are defined for this stock.

MANAGEMENT AGREEMENTS: No specific management objectives are known to ICES.

STOCK STATUS:

	F (Fishing Mortality)		
	2008	2008	**2010**
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?
Qualitative evaluation	→	→	→

	SSB (Spawning Stock Biomass)		
	2009	2010	**2011**
MSY ($B_{escapement}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?
Qualitative evaluation	?	↗	↗

Catch and survey data are not sufficient for a traditional age-based assessment, however the very limited effort applied in the area indicates a very low fishing mortality. The results from the dredge survey show a high recruitment in 2009 as observed in Areas 1 and 2. This is expected to lead to a considerable increase in SSB for 2011.

RECENT MANAGEMENT ADVICE: For 2011, ICES advises that a catch between 5000 and 10 000 tonnes is likely to impose a low risk to the sandeel stock in area 4. This is based on precautionary considerations founded on fishery independent data indicating an increasing stock size in recent years.

PA considerations

The fishery independent data indicate that the recruitment was high in 2009 and low in 2010 as observed in SA 1 and SA 2. Given the large 2009 year class and the moratorium of Firth of Forth since 2000, ICES advises that

a TAC in the range of 5000–10 000 t is likely to imply a low risk of overfishing while allowing catches at the low end of the historical range.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified under category 5, because this is a short-lived species. ICES notes that the TAC and the stock assessment areas do not match.

Additional considerations

It is important to continue the Scottish dredge survey in this area, even though the overlap between this survey and the commercial CPUE time series is currently too short to provide reliable estimates of incoming 1-group strength. Little or no information is available for this area from the in-year monitoring system in recent years because of low fishing effort. Until there is sufficient overlap in the time series of dredge survey and commercial data there will be no scientific basis to present a catch forecast.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011.

See the general STECF notes on sandeel in the introduction section to sandeel.

1.25.5. Sandeel (*Ammodytidae*) in Area-5 (Viking and Bergen Bank area)

REFERENCE POINTS: No reference points are defined for this stock.

MANAGEMENT AGREEMENTS: No specific management objectives are known to STECF.

STOCK STATUS:

	F (Fishing Mortality)		
	2008	2008	**2010**
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2009	2010	**2011**
MSY ($B_{escapement}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

Only catch statistics are available for this stock. The available information is inadequate to evaluate stock status or trends. The state of the stock is therefore unknown.

RECENT MANAGEMENT ADVICE: There is no basis for an advice. Therefore no increase of the fisheries should take place unless there is evidence that this will be sustainable.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock assessment area is classified under category 11 because there is no advice for this area

STECF COMMENTS: STECF agrees with the ICES assessment that the state of the stock is unknown.
See the general STCEF notes on sandeel in the introduction section to sandeel.

1.25.6. Sandeel (*Ammodytidae*) in Area-6 (Division IIIa East (Kattegat))

REFERENCE POINTS: No reference points are defined for this stock.

MANAGEMENT AGREEMENTS: No specific management objectives are known to STECF.

STOCK STATUS:

	F (Fishing Mortality)		
	2008	2008	2010
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2009	2010	2011
MSY ($B_{escapement}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

Only catch statistics are available for this stock. The available information is inadequate to evaluate stock status or trends. The state of the stock is therefore unknown.

RECENT MANAGEMENT ADVICE: There is no basis for an advice. Therefore no increase of the fisheries should take place unless there is evidence that this will be sustainable.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock assessment area is classified under category 11 because there is no advice for this area. ICES notes that the TAC and the stock assessment areas do not match.

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

1.25.7. Sandeel (*Ammodytidae*) in Area-7 (Shetland area)

REFERENCE POINTS: No reference points are defined for this stock.

MANAGEMENT AGREEMENTS: No specific management objectives are known to ICES.

STOCK STATUS:

	F (Fishing Mortality)		
	2008	2008	2010
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2009	2010	2011
MSY ($B_{escapement}$)	?	?	?

Precautionary approach (B_{pa}, B_{lim})	?	?	?

Only catch statistics are available for this stock. The available information is inadequate to evaluate stock status or trends. The state of the stock is therefore unknown.

RECENT MANAGEMENT ADVICE: There is no basis for an advice.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock assessment area is classified under category 11 because there is no advice for this area. ICES notes that the TAC and the stock assessment areas do not match.

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

1.26. Rays and skates in the North sea

The stock summary and advice for rays and skates in the North Sea will not be updated in 2011. The text below relates to the most recent advice from ICES which was issued in 2010.

FISHERIES: Rays and skates are taken as target and by-catches in most demersal fisheries in the ICES area, including the North Sea and with the exception of the Baltic. Most ray and skate landings are by-catches in trawl and seine fisheries. There are, however, a number of small-scale fisheries using large meshed tangle nets directed at thornback ray, and there have been directed longline fisheries for common skate.

Prior to the introduction of a generic TAC for all skate and rays species in North Sea in 1999 there has been no obligation for fishermen to record catches in the logbooks. As a consequence, there is a lack of information on the fisheries for rays. Statistical information by species is also limited because few European countries differentiate between species in landings statistics and they are collectively recorded as skates and rays.

Ray fisheries occur in coastal waters and tend to be seasonal, and size selection in towed gears is minimal owing to the shape of rays, though selection on board has occurred to comply with the market's preference for larger fish.

Overall landing figures for Rays and Skates in the North Sea have decreased in the last 15 years from more than 6,000 t in the mid 90ties to 2,500 t in 2008.

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

REFERENCE POINTS: There are no agreed reference points for rays and skates in the North Sea.

STOCK STATUS: No reliable assessments can be presented for these stocks. The main cause of this is the lack of species specific landings data. In the absence of formal stock assessments and defined reference points for the species and stocks of skates (members of the family Rajidae) a qualitative evaluation of the status of individual species/stocks is provided in the table above, based on surveys and landings.

RECENT MANAGEMENT ADVICE: The most recent advice for this stock was provided by ICES in 2010 and covers 2011 and 2012. ICES advice for 2011 and 2012 is provided in the table below.

Species	Area	State of stock	Advice
Common skate *Dipturus batis* complex	IVa (likely merging with VI & IIa)	Depleted	Zero catch. Retain on prohibited species list
Thornback ray *Raja clavata*	IVc, VIId	Stable/increasing	Status quo catch
	IVa,b	Uncertain	Reduce catch from recent level
Spotted ray *Raja montagui*	IVb,c	Stable/increasing	Status quo catch

Starry ray *Amblyraja radiate*	IVa,b, IIa	Stable	Status quo catch
Cuckoo ray *Leucoraja naevus*	IVa,b (may extend into VI)	Stable	Status quo catch
Blonde ray *Raja brachyuran*	IVc, VIId (patchy occurrence)	Uncertain	No advice
Undulate ray *Raja undulate*	VIId, merges with VIIe	Uncertain. Locally common in discrete areas	No target fishery

Since 1999 there is a TAC for rays and skates in the North Sea. For 2009 and 2010 there were separate TACs for IIa and IV, for IIIa and for VIId. Since 1999 the TAC has gradually been reduced and since 2006 the TAC is believed to have become restrictive. If fishers do not change their practices this must either lead to an increase of discarding and/or to misreporting.

MSY approach
An estimate of fishing mortality is not available. Demersal elasmobranchs are long-lived stocks, and no population estimates are available. Further information is required on each of these stocks before MSY reference points can be identified. Until that time, fisheries should not expand beyond recent average landings (2006-2008) of 2 700 t for the main species.

PA approach
No targeted fishing should be permitted for *Raja undulata* and the *Dipturus batis* complex.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final these stocks are classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stocks and the advice for 2011 and 2012.

1.27. Spurdog (*Squalus acanthias*) in the North Sea

Spurdog in the North Sea is assessed as part of the spurdog stock in the North East Atlantic and the stock summary and advice is given in section 7.6.

1.28. Other Demersal elasmobranches in the North Sea, Skagerrak and Eastern channel

The stock summary and advice for other demersal elasmobranches in the North Sea, Skagerrak and Eastern channel will not be updated in 2011. The text below relates to the most recent advice from ICES which was issued in 2010.

FISHERIES: Historically the increase of commercial fisheries directed at elasmobranch species, and their economic value, rank them low among marine commercial fisheries (Bonfil 1994). In the Northeast Atlantic, although some elasmobranchs are taken in directed fisheries, the majority are landed as bycatch from fisheries targeting commercial teleost species. Recreational fisheries, including charter angling, may be an important component of the tourist industry in some areas.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. The assessment is based on survey and landing trends.

REFERENCE POINTS: There are no agreed reference points for other demersal elasmobranches in the North Sea, Skagerrak and Eastern channel.

STOCK STATUS:

In the absence of formal stock assessments and defined reference points for *Mustelus* and *Squatina* in this ecoregion, the following provides a qualitative evaluation of the general status of the major species, based on surveys and landings.

Species	Area	State of stock
Mustelus spp. (smooth hounds)	IVa,b,c, VIId	Increasing
Squatina squatina (angel shark)	IVa,b,c, VIId	Presumed extirpated in this ecoregion

RECENT MANAGEMENT ADVICE:

Advice for 2011 and 2012 by individual stocks

Species	Area	Advice
Mustelus spp. (smooth hounds)	IVa,b,c, VIId	Status quo catch
Squatina squatina (angel shark)	IVa,b,c, VIId	Zero catch. Retain on prohibited species list

Outlook for 2011-2012

No reliable assessments can be presented for these stocks. The main cause of this is the lack of species specific landings data. If fishers do not change their practices this must either lead to an increase of discarding and/or to misreporting.

MSY transition scheme

An estimate of fishing mortality is not available. Demersal elasmobranchs are long-lived stocks, and no population estimates are available. Further information is required on each of these stocks before MSY reference points can be identified.

Policy paper

In the light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) the stocks of these species are classified under a range of categories.

Species	Area	Policy Category
Mustelus spp. (smooth hounds)	IVa,b,c, VIId	No TAC is in place, but Annex III, Rule 8. Annex IV Rule 4 would apply.
Squatina squatina (angel shark)	IVa,b,c, VIId	Annex III, Rule 10

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

1.29. Herring (*Clupea harengus*) in the North Sea (Sub-area IV) including components of this stock in Divs. IIa, IIIa and VIId

Based on the distributions of the spawning grounds, larvae drift, nursery areas and migration of the adults, three main stock units of herring have been defined in the North Sea:

- Buchan herring. Spawn July to September in the Orkney Shetland area and off the Scottish east coast. Nursery areas are along the east coast of Scotland and the Skagerrak and Kattegat.
- Banks herring. Spawn August to September, off English east coast. Historically spawning also took place on the western edge of the Dogger Bank. Nursery areas are off the English east coast and Danish west coast.
- Downs herring. Spawn December to February in the southern North Sea and Eastern Channel. Nursery areas are off the English east coast, Dutch coast, Danish west coast and in the German Bight.

In addition to the three main stock units a number of small spring spawning units exist, spawning in coastal area in the eastern North Sea.

The stock complexity of herring in the North Sea is further complicated by the appearance in the north-eastern North Sea of herring belonging to herring populations spawning in the spring in the western Baltic, Skagerrak and Kattegat. Herring from these populations migrate into the North Sea in summer and autumn.

Although the three main North Sea herring stocks include summer, autumn and winter spawners they are often named autumn spawners to distinguish them from the spring spawning stocks.

FISHERIES: The North Sea autumn spawning herring is exploited by Belgium, Denmark, France, Faroe Islands, Germany, Netherlands, Norway, Sweden, and UK. Four main fisheries exploit the stock:

- Fleet A: Directed herring fisheries with purse-seiners and trawlers (32 mm minimum mesh size) in the North Sea and eastern Channel.
- Fleet B: Herring taken as by-catch in the small-mesh fisheries in the North Sea under EU regulations (mesh size less than 32 mm).
- Fleet C: Directed herring fisheries in Skagerrak and Kattegat with purse-seiners and trawlers (32 mm minimum mesh size).
- Fleet D: By-catches of herring caught in the small-mesh fisheries (mesh size less than 32 mm) in Skagerrak and Kattegat.

At present, the fishery on the stock is managed by five separate TACs in three different management areas (Skagerrak and Kattegat, Northern and Central North Sea, and Southern North Sea and Eastern Channel) through joint arrangements by EU and Norway. For both the North Sea and the Skagerrak and Kattegat two separate TAC's are set, one for each of the four fleets.

Most catch data reported by ICES were official landings, but for some nations catch estimates have been corrected by ICES for unallocated and misreported catch. Discard data are either incomplete or entirely missing. ICES catch includes unallocated and misreported landings, discards and slipping. Denmark and Norway provided information on by-catches of herring in the industrial fishery. The catch estimate for the North Sea and eastern Channel in 2010 by ICES amounts to 175,000 t. The total TAC was 178,000t.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. The age-based assessment is based on landings from Subarea IV and Division IIIa and VIId and on four survey time series (Acoustic 1–9+ ring index, IBTS age 1–5+, 0-group and larvae SSB indices).

REFERENCE POINTS:

	Type	Value	Technical basis
Management plan	F_{MP}	$F_{0\text{-}1} = 0.05$ $F_{2\text{–}6} = 0.25$	If SSB greater than SSB_{MP} upper trigger of 1.5 million t (based on simulations).
		$F_{0\text{-}1} = 0.05$ $F_{2\text{–}6} = 0.25 - (0.15*(1500000-SSB)/700000)$	If SSB between SSB_{MP} triggers 0.8 and 1.5 million t (based on simulations).
		$F_{0\text{-}1} = 0.04$ $F_{2\text{–}6} = 0.10$	If SSB less than SSB_{MP} lower trigger of 0.8 million t (based on simulations).
MSY Approach	MSY $B_{trigger}$	not defined	
	F_{MSY}	0.25	Simulations under different productivity regimes, research between 1996 and 2010.
Precautionary approach	B_{lim}	800 000 t	<: 0.8 million t; poor recruitment has been experienced. Defined in 1997/2008.
	B_{pa}	1.3 million t	B trigger in the previous harvest control rule.
	F_{lim}	not defined	
	F_{pa}	$F_{2\text{-}6} = 0.25$	Target Fs in the harvest control rule.

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	2010	
MSY (F_{MSY})	✓	✓	✓	Below target
Precautionary approach (F_{pa})	✓	✓	✓	Harvested sustainably
Management plan (F_{MP})	✓	✓	✓	Below target

SSB (Spawning Stock Biomass)*				
	2008	2009	2010	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	o	✓	✓	Full reproductive capacity
Management plan (SSB_{MP})	o	o	o	Between lower and upper trigger

ICES classifies the stock as being at full reproductive capacity and as being harvested sustainably and below management plan and FMSY targets. The year classes from 2002 to 2007 are estimated to be among the weakest since the late 1970s. The year classes 2008 and 2009 are estimated to be above the long-term geometric mean, but ICES considers that the stock is still in a low productivity phase.

MANAGEMENT AGREEMENTS: In November 2008 EU-Norway have agreed on an adjusted management plan taking account of periods of poor recruitment. The elements of the plan are as follows:

1. *1. Every effort shall be made to maintain a minimum level of Spawning Stock Biomass (SSB) greater than 800,000 tonnes (Blim).*
2. *2. Where the SSB is estimated to be above 1.5 million tonnes the Parties agree to set quotas for the directed fishery and for by-catches in other fisheries, reflecting a fishing mortality rate of no more than 0.25 for 2 ringers and older and no more than 0.05 for 0 - 1 ringers.*
3. *3. Where the SSB is estimated to be below 1.5 million tonnes but above 800,000 tonnes, the Parties agree to set quotas for the direct fishery and for by-catches in other fisheries, reflecting a fishing mortality rate on 2 ringers and older equal to:*
4.
    5. *0.25-(0.15*(1,500,000-SSB)/700,000) for 2 ringers and older,*
    6. *and no more than 0.05 for 0 - 1 ringers*
    7.
8. *4. Where the SSB is estimated to be below 800,000 tonnes the Parties agree to set quotas for the directed fishery and for by-catches in other fisheries, reflecting a fishing mortality rate of less than 0.1 for 2 ringers and older and of less than 0.04 for 0-1 ringers.*
9. *5. Where the rules in paragraphs 2 and 3 would lead to a TAC which deviates by more than 15 % from the TAC of the preceding year the parties shall fix a TAC that is no more than 15 % greater or 15 % less than the TAC of the preceding year.*
10. *6. Notwithstanding paragraph 5 the Parties may, where considered appropriate, reduce the TAC by more than 15 % compared to the TAC of the preceding year.*
11. *7. By-catches of herring may only be landed in ports where adequate sampling schemes to effectively monitor the landings have been set up. All catches landed shall be deducted from the respective quotas set, and the fisheries shall be stopped immediately in the event that the quotas are exhausted.*
12. *8. The allocation of the TAC for the directed fishery for herring shall be 29 % to Norway and 71 % to the Community. The by-catch quota for herring shall be allocated to the Community.*
13. *9. A review of this arrangement shall take place no later than 31 December 2011.*
14. *10. This arrangement enters into force on 1 January 2009.*

In 2011 ICES examined the management plan and concluded that the management plan appears to operate well in relation to the objectives of consistency with the precautionary approach and a rational exploitation pattern.

The EU–Norway agreement calls for a review of the current plan no later than December 2011. With the current rate of increase in the stock size, the main unsatisfactory issue relative to achieving simultaneous stable and high yields appears to be the 15% inter annual variability limit on TAC change.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the agreed EU/Norway management plan that catches in 2012 should be no more than 248,000t, including 230,000t for the A-fleet.

Management plan

The agreed management plan (Annex 6.4.16) between EU and Norway has been evaluated (ICES, 2011b) and ICES concluded that the plan is consistent with the precautionary approach and the MSY approach. The management plan has primacy over the ICES MSY framework when providing advice.

Following the agreed management plan between EU and Norway implies imposing the maximum 15% increase in TAC which results in a TAC of 230,000t for the A fleet in 2012, which would lead to an SSB of 2.0 million tonnes at spawning time in 2012.

MSY approach

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

Following the ICES MSY framework implies raising the fishing mortality to 0.25, resulting in catch of less than 478,000 t in 2012. This is expected to lead to an SSB of more than 1.8 million tonnes in 2012.

Precautionary approach

The fishing mortality in 2012 should be no more than Fpa, corresponding to catches of less than 478,000 t in 2012. The SSB is expected to remain above Bpa in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1. The rules for category 1 prescribe that for 2012, a TAC for fleet A of 230,000 t and for fleet B of no more than 17,900 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2011.

STECF notes that the 15% constraints on inter-annual variation in TAC is likely to result in TAC's for fleet A for the coming years that is substantially lower than the catch taken when fishing at F_{MSY}. For 2012 the MSY is twice the management plan TAC and it may take more than five years to reach the MSY level.

1.30. Herring (*Clupea harengus*) in Divisions IVc and VIId (Downs spring-spawning herring)

FISHERIES: The Downs herring constitutes one of the three main stock units forming the North Sea herring stock and is included in the section on Herring (*Clupea harengus*) in the North Sea (Sub-area IV) including components of this stock in Divs. IIa, IIIa and VIId

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Assessment has only been made on the combined North Sea stock based on analysis of catch at age data calibrated with survey data. No separate assessment has recently been made for the Downs component of the stock.

REFERENCE POINTS: No reference points have been defined for Downs herring. The reference points for North Sea autumn spawning herring are given above.

STOCK STATUS: The stock has returned to its pre-collapsed state and is now again a major component of the stock.

RECENT MANAGEMENT ADVICE: See Section on herring in the North Sea and adjacent areas. The sub-TAC for Divisions IVc and VIId was established for the conservation of the spawning aggregation of Downs herring. The Downs herring has returned to its pre-collapsed state and is now again a major component of the stock. It is probable that exploitation of Downs herring has been relatively high. In the absence of data to the contrary ICES proposes that a share of 11% of the total North Sea TAC (average share 1989–2002) would still be appropriate for Downs herring.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1. STECF notes that in accordance with the

ICES advice, this corresponds to a TAC for fleet A for IVc and VIId be equal to 11% of the TAC for fleet A which under the agreed management plan corresponds to 25,300 t.

STECF COMMENTS: STECF agrees with the ICES advice.

1.31. Horse mackerel (*Trachurus trachurus*) in the North Sea (Divisions IIIa eastern part, IVbc, VIId).

The stock summary and advice for Horse mackerel (*Trachurus trachurus*) in the North Sea (Divisions IIIa eastern part, IVbc, VIId) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011 and is reproduced below.

Catches taken in Divisions IVb,c and VIId are regarded as belonging to the North Sea horse mackerel and in some years also catches from Division IIIa - except the western part of Skagerrak. The total catch taken from this stock in 2009 was 44,223 tonnes, which represents a 27% increase compared to 2008. In previous years most of the catches from the North Sea stock were taken as a by-catch in the small mesh industrial fisheries in the fourth quarter carried out mainly in Divisions IVb and VIId, but in recent years a large part of the catch was taken in a directed horse mackerel fishery for human consumption.

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

REFERENCE POINTS: No reference points are set for this stock, as there is insufficient information to estimate reference points.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa}, F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

The available information is inadequate to evaluate spawning stock or fishing mortality relative to risk, so the state of the stock is unknown. Since 1998 catches have been substantially higher than in the years prior to 1998 but the sustainability of these recent catches cannot currently be assessed. There is no obvious indication from these data that recent catches have been detrimental the stock. However, the status of the stock cannot be accurately determined because the available data are inadequate to estimate either the current population size or the intensity of fishing. Recent recruitments (2006–2008) may be weak.

MANAGEMENT AGREEMENTS: Since 2010, EU TAC for North Sea area includes Divisions IVb,c and VIId. In the past Division VIId was not considered in the North Sea TAC regulation area. The assessment area of North Sea horse mackerel also includes catches from Division IVa during the two first quarters of the year. TAC of Division IVa is included in a different management area together with Divisions IIa, VIIa-c, VIIe-k, VIIIa, VIIIb, VIIId, VIIIe, Sub-area VI, and EU and international waters of Division Vb and international waters of XII and XIV. There is no TAC for Division IIIa.

In June 2009, an agreement was concluded between contracting parties to the Coastal States on mackerel banning highgrading, discarding, and slipping from pelagic fisheries targeting mackerel, horse mackerel, and herring beginning in January 2010.

RECENT MANAGEMENT ADVICE: The ICES advice is that the state of the stock is unknown and there is no basis for an advice.

PA approach

Since 1998 catches have been substantially higher than in the years prior to 1998 but the sustainability of these recent catches cannot currently be assessed. However, indications from the fishery are that these catches have not resulted in a truncation of the age structure in the stock but recent recruitments (2006–2008) may be weak. This information is not sufficient to provide a basis for advice.

Policy paper

In the light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified under category 11.

STECF COMMENTS: STECF notes that the state of the stock is not known precisely.
With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that horse mackerel in the North Sea falls under Category 11. Due to the changes of TAC areas in 2010 for this stock, the historical TAC cannot be used as basis for the TAC advice under category 11. Recent average catches (2007-2009) for Division IIIa, Divisions IVb,c and VIId comprise 28,514 tonnes (landings) and 292 tonnes (discards). Accordingly STECF notes that the rules for the above category imply a TAC in 2011 at 28,514 tonnes.

STECF notes that a catch at age matrix is available for the period since 1995, which could have been used for e.g. catch curve analysis or similar simple analyses.

1.32. Mackerel (*Scomber scombrus*) - North Sea spawning component

The stock summary and advice for mackerel in in the North Sea is given in Section 7.5 (Combined Southern, Western and North Sea spawning components).

1.33. Sprat (*Sprattus sprattus*) in ICES Division IIIa

FISHERIES: The fisheries in IIIa are carried out by Denmark and Sweden using trawlers and along the Swedish coast by small purse seiners. Catches of sprat in Division IIIa averaged about 70,000 t in the 1970s, but since 1982 have typically been below 20,000 t. ICES estimates the catch in 2010 to be 9,000 t. The directed human consumption sprat fishery serves a very small market while most sprat catches are taken in an industrial fishery, where catches are limited by herring by-catch restrictions. This combination of factors has prevented full utilisation of the occasional strong year-classes (which, in general, emerge and disappear very quickly).

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

REFERENCE POINTS: No reference points have been proposed for sprat in Division IIIa.

STOCK STATUS:

F (Fishing Mortality)	
	2008 - 2010
Qualitative evaluation	? Insufficient information

SSB (Spawning Stock Biomass)	
	2008 – 2010
Qualitative evaluation	? Insufficient information

The available information is inadequate to evaluate stock status. The available survey results are not reliable indicators of sprat abundance in Division IIIa

MANAGEMENT OBJECTIVES: There are no explicit management objectives for this stock. As sprat in Division IIIa is mainly fished together with juvenile herring, the exploitation of sprat is limited by the restrictions imposed on fisheries for juvenile herring.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of precautionary considerations that catches should be reduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

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

STECF notes that the ICES advice is derived using the framework for advice for stocks without population size estimates.

STECF furthermore notes that ICES considers the sprat fishery to be opportunistic (and thus influenced by external factors such as abundance and price of other species). Therefore landings probably do not reflect the stock trends. Moreover, no other information on stock trends is available and future fishing opportunities cannot be forecast.

STECF has therefore no information to evaluate whether ICES advice to reduce catches is appropriate for sprat in Division IIIa.

1.34. Sprat (*Sprattus sprattus*) in the North Sea (Subarea IV)

FISHERIES: Denmark, Norway, Sweden and UK exploit the sprat in this area. The fishery is carried out using trawlers and purse seiners. There are considerable fluctuations in total landings, from a peak in 1975 of 641,000 t to a low in 1986 of around 20,000 t. In the last 10 years landings have been at or below 200,000 t. Estimated total landings in 2009 and 2010 were around 133,000 t and 143,000 t respectively.

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

MANAGEMENT OBJECTIVES: There are no explicit management objectives for this stock

REFERENCE POINTS: No reference points have been defined for this stock.

STOCK STATUS:

F (Fishing Mortality)		
	2008 - 2010	
Qualitative evaluation	?	Insufficient information

SSB (Spawning Stock Biomass)		
	2008 - 2010	
Qualitative evaluation	?	Insufficient information

The available information is inadequate to evaluate stock status and therefore the state of the stock is unknown. In the past, in-year assessments were done for this stock. In the absence of an analytical assessment, no in-year information for 2011 is available.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of precautionary considerations that catches should be reduced in 2011 and 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

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

STECF notes that the ICES advice is derived using the framework for advice for stocks without population size estimates.

STECF furthermore notes that ICES considers the sprat fishery to be opportunistic (and thus influenced by external factors such as abundance and price of other species). Therefore landings probably do not reflect the stock trends. Moreover, no other information on stock trends is available and future fishing opportunities cannot be forecast.

STECF has therefore no information to evaluate whether ICES advice to reduce catches is appropriate for sprat in the North Sea.

1.35. Grey Gurnard (*Eutrigla gurnardus*) in the North Sea.

STECF did not have access to any recent stock assessment information on grey gurnard in the North Sea.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

1.36. Red Gurnard (*Aspitrigla cuculus*) in the North Sea

STECF did not have access to any recent stock assessment information on red gurnard in the North Sea.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3

1.37. Pollack (*Pollachius pollachius*) in the North Sea (ICES Sub-area IV and Division IIIa)

FISHERIES: Pollack appears to be mainly caught as a by-catch in different fisheries. Total landings in 2009 were 2022 t. Other removals are unknown.

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

MANAGEMENT AGREEMENT: There are no specific management agreements for pollack in the North Sea.

REFERENCE POINTS: No biological reference points have been proposed for pollack in the North Sea.

STOCK STATUS:

F (Fishing Mortality)	
	2008-2010
Qualitative evaluation	? Insufficient information

SSB (Spawning Stock Biomass)	
	2008-2010
Qualitative evaluation	? Insufficient information

The landings data are insufficient to evaluate stock trends and therefore the state of the stock is unknown.

RECENT MANAGEMENT ADVICE: This is the first time that ICES analyses data for pollack in the North Sea. Currently there is no TAC for this species in this area and it is not clear whether there should be one or several management units. There is insufficient information to evaluate the status of pollack in the North Sea. Therefore, based on precautionary considerations, ICES advises that catches should not be allowed to increase in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS:

STECF agrees with the ICES advice that based on precautionary considerations, catches of pollack from the North Sea (ICES Subarea IV and Division IIIa) should not be allowed to increase in 2012. STECF notes that since 2000, the officially-reported landings of pollack from the North Sea have averaged 2,310 t annually, but the average annual catch is unknown.

1.38. Red mullet (*Mullus barbartus and Mullus surmelutuss*) in the North Sea

STECF did not have access to any stock assessment information on red mullet in the North Sea.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3

1.39. Sea bass (*Dicentrarchus labrax*) in the North Sea

STECF did not have access to any recent stock assessment information on sea bass in the North Sea.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

2. Eco-Region 2: Celtic Sea and west of Scotland

2.1. Norway lobster (*Nephrops norvegicus*) in ICES Div. Vb and Sub-area VI, (West of Scotland) and waters west of Ireland

There are no exploited *Nephrops* stocks in Div. Vb. In Sub-area VI and Divs. VIIb & VIIc (waters west of Ireland) the following functional units are considered by ICES:

FU no.	Name	ICES Divisions	Statistical rectangles
11	North Minch	VIa	44–46 E3-E4
12	South Minch	VIa	41–43 E2-E4
13	Clyde	VIa	39–40 E4-E5
16	Porcupine Bank	VIIc	31–36 D5–D6; 32–35 D7–D8
17	Aran Grounds	VIIb	34–35 D9–E0

Nephrops also occur in other areas not contained within the Functional Units. TV surveys in deep water suggest widespread distribution at low density, and surveys at Stanton Bank indicate a population there. Three *Nephrops* stocks (FUs) in Sub-area VI and one in Div. VIIb (FU 17) are currently assessed using UWTV surveys. On the basis of these, current stock abundance and harvest ratios are estimated.

MSY approach for stocks with UWTV surveys

There are no precautionary reference points defined for *Nephrops*. Under the ICES MSY framework, exploitation rates which are likely to generate high long-term yield (and low probability of stock overfishing) have been explored and proposed for each functional unit. Owing to the way *Nephrops* are assessed, it is not possible to estimate F_{msy} directly and hence proxies for F_{msy} are determined. Three stock-specific candidates for F_{msy} ($F_{0.1}$, $F_{35\%SpR}$ and F_{max}) were derived using a length-based per recruit analysis. There can be substantial differences in relative exploitation rates between the sexes in many stocks. To account for this, values for each of the candidates have been determined for males, females and the two sexes combined. The appropriate F_{msy} candidate has been selected for each Functional Unit independently according to the perception of stock

resilience, factors affecting recruitment, population density, knowledge of biological parameters and the nature of the fishery (relative exploitation of the sexes and historical Harvest Rate vs. stock status).

The table below illustrates the framework against which stocks were evaluated and appropriate F_{MSY} proxies chosen. In general, $F_{35\%SPR}$ was used unless there were stock-specific justifications for either higher or lower harvest ratios.
The combined sex F_{msy} proxy should be considered appropriate provided that the resulting percentage of virgin spawner per-recruit for males or females does not fall below 20%. In such a case a more conservative sex specific F_{msy} proxy should be picked instead of the combined proxy.

		Burrow Density (average numbers/m2)		
		Low <0.3	Med 0.3-0.8	High >0.8
Observed harvest rate or landings compared to stock status	>Fmax	F35%	Fmax	Fmax
	Fmax-F0.1	F0.1	F35%	Fmax
	<F0.1	F0.1	F0.1	F35%
	Unknown	F0.1	F35	F35%
Stock Size Estimates	Variable	F0.1	F0.1	F35%
	Stable	F0.1	F35%	Fmax
Knowledge of biological parameters	Poor	F0.1	F0.1	F35%
	Good	F35%	F35%	Fmax
History Fishery	Stable spatially and temporally	F35%	F35%	Fmax
	Sporadic	F0.1	F0.1	F35%
	Developing	F0.1	F35%	F35%

Where possible, a preliminary MSY $B_{trigger}$ was proposed based on the lowest observed UWTV abundance.

STECF COMMENTS: STECF notes that to the West of Scotland (which comprises three *Nephrops* Functional Units (FUs)) the present aggregated management approach (overall TAC for all FUs) runs the risk of unbalanced effort distribution. Adoption of management initiatives to ensure that effort can be appropriately controlled in smaller areas within the overall TAC area (Vb & VI) is recommended. Furthermore, STECF notes that the current aggregated management of all *Nephrops* FUs in this area as a single unit is a major obstacle for a management complying with the Commissions Communication on Fishing opportunities for 2012 (COM(2011)298 final) as the rules require a TAC for each stock (in this case FU). To facilitate the provision of landings for each FU consistent with the approach in COM(2011) 298-FINAL, STECF has derived 'partial TAC's for each FU. These values have been derived by distributing the 2011 Vb/VI TAC across FUs in proportion to the recent average landings (08-10) from each FU. (see below).

STECF notes that there also are *Nephrops* catches in "other rectangles" in Division VIa, e.g. from offshore areas adjacent to Stanton Bank where Irish fishers frequently operate from the shelf edge. To provide some guidance on appropriate future landings for these areas, the use of an average landings figure of around 290 tonnes could be considered (On the basis of ICES advice that catches from 'other areas' should not increase).

A summary of ICES advice and application of the rules in COM(2011) 298-FINAL for the West of Scotland FUs is given below. It should be noted, however, that despite the provision of a West of Scotland total advice in this table, STECF still **recommends** that *Nephrops* FUs should be managed separately.

	FU11	FU12	FU13		Other	Total
			F Clyde	Jura		
Average landings (08-10)	3186	4451	5492		289	13419
FU 'partial TAC' 2011	3249	4538	5599		295	13681[1)]
STECF Advice	3200	5500	4200	900	289	14089[2)]
Category	2	2	2			
Rule	MSY-HCR	MSY-HCR	MSY-HCR			
Policy	3200	5500	5100			

Landings in t.

[1)] 2011 TAC for Vb & VI

[2)] Sum of ICES advice

For FU 16 (Porcupine Bank) and FU 17 (Aran Grounds) a similar approach to calculate partial TAC's is presented in section 2.2 which deals with the remainder of the sub-area VII FU's..

2.1.1. Norway lobster (*Nephrops norvegicus*) in North Minch (FU 11)

FISHERY: The *Nephrops* fishery in this area is prosecuted entirely by UK (Scottish) vessels. Total effort by Scottish *Nephrops* trawlers has shown a gradual decreasing trend since 2002. Total *Nephrops* landings increased from about 3,000 t in 2005 to around 3800 t in 2008 but then fell in 2009 to 3497 t and to 2263 t in 2010. The recent decline is apparently largely due to market conditions. Available information indicates that landings from the late 1990s up to 2005 are most likely to be an underestimate of actual landings, but the reliability of landings figures has improved since 2006 with the introduction of buyers and sellers legislation. The *Nephrops* trawl fishery in this area takes by-catches of other species and has been observed to have extremely high discard rates of haddock and whiting in recent years. Creel fishing takes place mainly in the sea-loch areas of this FU (but has recently extended also to further offshore) accounting for 500-600 tonnes. Overall effort in creel numbers is not known.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment in 2011 is based on trends in population indicators and catch options derived from UWTV surveys as last year. At the ICES Benchmark Workshop on *Nephrops* in 2009 major sources of bias were quantified for each survey and an overall bias correction factor derived which, when applied to the estimates of abundance from the UWTV survey, allows them to be treated as absolute abundance levels.

The survey area in 2010 was extended and now corresponds to the VMS distribution of fishing effort. A correction ratio calculated as 1.41 (VMS area / Sediment area) was applied to back-calculate the abundance estimates in previous years.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	465 million individuals	Bias-adjusted lowest observed UWTV survey estimate of abundance
	F_{msy}	12.5% harvest rate	Equivalent to $F_{35\%SpR}$ combined sex in 2010
Precautionary Approach	Not defined		

MSY $B_{trigger}$ was revised to take account of VMS area and rescaling of the historic abundance estimates in 2011.

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✓	Below target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Not defined
SSB (Spawning-Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	?	Not defined

The harvest ratios (dead removals/TV abundance) has fluctuated around the F_{MSY} proxy. The stock has been above MSY $B_{trigger}$ for more than 10 years.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 3200 t.

MSY approach: Following the ICES MSY framework implies the harvest ratio for the North Minch Functional Unit to be less than 12.5 %, resulting in landings less than 3200 t in 2012.

No transition scheme applies as fishing mortality is below FMSY.

Additional considerations:

The *Nephrops* (TR2) fleet has been observed to have extremely high discard rates of haddock and whiting in recent years. The selectivity for this fleet needs to be improved.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM (2011) 298-final that FU 11 *Nephrops* is classified under Category 2. The rules for category 2 prescribe a partial TAC for FU 11 *Nephrops* in 2012 of 3200 t based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2012.

STECF notes that the TR2 fleet in this area has been observed to have extremely high discard rates of haddock and whiting in recent years and agrees that selectivity should be improved.

STECF further notes that the year range in the traffic light stock status table is incorrect There is no information on abundance in 2011 as the UWTV survey for this year has yet to be worked up and ICES advice is based on the 2010 value (should be 2008-10 rather than 2009-11).

2.1.2. Norway lobster (*Nephrops norvegicus*) in South Minch (FU 12)

FISHERY: The *Nephrops* fishery in this area is prosecuted largely by UK vessels with a small proportion of the landings by Irish vessels. Reported effort by all Scottish *Nephrops* trawlers has shown a gradual decreasing trend since 2001. Total *Nephrops* landings from this FU were above 5000 t in 2007 and 2008 but decreased to around 4300 t in 2009 and further declined to 3700 t in 2010. The recent decline is apparently largely due to market conditions. Available information indicates that landings from the late 1990s up to 2005 are most likely to be underestimates of actual landings. The reliability of landings figures improved from 2006 with the introduction of buyers and sellers legislation. The *Nephrops* trawl fishery in this area takes by-catches of other species and has been observed to have extremely high discard rates of haddock and whiting in recent years. Larger vessels operating on the western limits of the ground generally take higher by-catches of fish. Creel fishing takes place mainly in inshore areas (including the sea-lochs), but has extended further offshore in recent years and accounts for around 900 tonnes. Overall effort in creel numbers is not known.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment in 2011 is based on trends in population indicators and catch options derived from UWTV surveys as last year. At the ICES Benchmark Workshop on *Nephrops* in 2009 major sources of bias were quantified for each survey and an overall bias correction factor derived which, when applied to the estimates of abundance from the UWTV survey, allows them to be treated as absolute abundance levels.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	1016 million individuals	Bias-adjusted lowest observed UWTV survey estimate of abundance
	F_{msy}	12.3% harvest rate	Equivalent to $F_{35\%SpR}$ combined sex
Precautionary Approach	Not defined		

STOCK STATUS:

F (Fishing Mortality)			
	2008	2009	**2010**
MSY (F_{MSY})	✗	✗	✓ Below target
Precautionary	?	?	? Not defined

approach (F_{pa},F_{lim})			
SSB (Spawning-Stock Biomass)			
	2009	2010	**2011**
MSY ($B_{trigger}$)	✓	✓	✓ Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	? Not defined

The harvest ratios (dead removals/TV abundance) has fluctuated around the F_{MSY} proxy. The stock has been above MSY $B_{trigger}$ the full time-series.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 5500 t.

MSY approach: Following the ICES MSY framework implies the harvest ratio for the South Minch functional unit to be less than 12.3%, resulting in landings of less than 5500 t in 2012.

No transition scheme applies as fishing mortality is below FMSY.

Additional considerations: The *Nephrops* (TR2) fleet has been observed to have extremely high discard rates of haddock and whiting in recent years. The selectivity for this fleet needs to be improved.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe a partial TAC for 2012 of 5500 t for FU 12 *Nephrops* based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2012.

STECF notes that the TR2 fleet in this area has been observed to have extremely high discard rates of haddock and whiting in recent years and agrees that selectivity should be improved.

STECF further notes that the year range in the traffic light stock status table is incorrect. There is no information on abundance in 2011 as the UWTV survey for this year has yet to be worked up and ICES advice is based on the 2010 value.

2.1.3. Norway lobster (*Nephrops norvegicus*) in Firth of Clyde (FU 13), including Sound of Jura.

FISHERY: *Nephrops* landings from FU 13 are taken entirely by UK vessels. Total *Nephrops* landings increased in the recent years, from around 3,400 t in 2005 to around 6400 t in 2007, but have been somewhat lower in recent years and were 5700 t in 2010. Available information indicates that landings from the late 1990s up to 2005 most likely are underestimates of actual landings, but the reliability of landings figures has improved from 2006 with the introduction of buyers and sellers legislation. The *Nephrops* trawl fishery in this area takes by-catches of other species, mainly haddock, whiting and some cod. An increasing number of creel boats operate in the Clyde due to temporal and area bans on trawling. Creel landings were about 200 t in 2010. . Overall effort in creel numbers is not known.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment in 2011 is based on trends in population indicators and catch options derived from UWTV surveys as last year. At the ICES Benchmark Workshop on *Nephrops* in 2009 major sources of bias were quantified for each survey and an overall bias correction factor derived which, when applied to the estimates of abundance from the UWTV survey, allows them to be treated as absolute abundance levels.

REFERENCE POINTS:

Reference points – Firth of Clyde

	Type	*Value*	*Technical basis*
MSY	MSY $B_{trigger}$	579 millions	Lowest observed abundance estimate

Approach	F_{msy}	16.4% harvest rate	Equivalent to F_{max} combined sex
Precautionary Approach	Not agreed	Not defined	

Reference points – Sound of Jura

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	14.5% harvest rate	Equivalent to $F_{35\%SpR}$ combined sex
Precautionary Approach	Not agreed	Not defined	

STOCK STATUS:

Firth of Clyde

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Not defined

SSB (Spawning-Stock Biomass)	2009	2010	2011	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	?	Not defined

Sound of Jura

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	?	✓	✓	Below target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Not defined

SSB (Spawning-Stock Biomass)	2009	2010	2011	
MSY ($B_{trigger}$)	?	?	?	Not defined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Not defined

Harvest rates for *Nephrops* in the Firth of Clyde have been above the proposed F_{MSY} proxy since 2007. UWTV abundance remains well above the MSY $B_{trigger}$.

Harvest rates for *Nephrops* in the Sound of Jura have been well below the proposed F_{MSY} proxy in recent years. UWTV abundance remains higher than observed at the start of the series, but the series is too short and patchy to propose a MSY $B_{trigger}$.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 5100 t (4200 t for Firth of Clyde and 900 t for Sound of Jura).

Management of *Nephrops* should be implemented at the Functional Unit level. In this FU the two Subareas imply that additional controls maybe required to ensure that the landings taken in each Subarea are in line with the landings advice.

MSY approach: Following the ICES MSY approach implies the harvest ratio for the Firth of Clyde subarea to be reduced to less than 16.4%, resulting in landings of less than 4000 t in 2012. Following the transition scheme towards the ICES MSY framework implies the harvest ratio for the Firth of Clyde should be reduced to less than 17.1% (0.6 x harvest ratio(F_{2010}) + 0.4 x harvest ratio(F_{MSY})), resulting in landings of less than 4200 t in 2012.

Following the ICES MSY framework implies the harvest ratio for the Sound of Jura subarea to be less than 14.5%, resulting in landings of less than 900 t in 2012. For the Sound of Jura no transition is needed as the harvest rate is already below the F_{MSY} proxy.

Additional considerations:

An increasing number of creel boats operate in the Clyde. Creeling activity often takes place during the weekend when the trawlers are not allowed to fish. One third of the creelers operate throughout the year, the rest prosecute a summer fishery.

A seasonal closure to protect spawning cod is in place, but there is derogation for the *Nephrops* fleet and the Scottish Conservation Credits Scheme is in place to minimize cod catches.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final Nephrops in FU13 are classified under category 2. The rules for category 2 prescribe a partial TAC for 2012 of 5100 t for FU 13 *Nephrops* (4200 t for Firth of Clyde and 900 t for Sound of Jura) based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2012.

STECF notes that the year range in the traffic light stock status table is incorrect. There is no information on abundance in 2011 as the UWTV survey for this year has yet to be worked up and ICES advice is based on the 2010 value.

2.1.4. Norway lobster (*Nephrops norvegicus*) in FU 16, Porcupine Bank, Divisions VIIb,c,j,k

FISHERIES: Reported total landings for this FU have decreased significantly in recent years from 2003 t in 2007 to only 917 t in 2010. The majority of landings are taken by Irish, Spanish and to a lesser extent, UK vessels. There are concerns about the accuracy of the landings statistics for some fleets. The fishery takes place throughout the year with a peak between April and July. A seasonal closure was introduced between May-July 2010 that covers much of the stock distribution area. Most vessels are relatively large (between 20 and 35 m in total length) multi-purpose otter trawlers using single or twin rigs. Freezing of catches at sea has become increasingly prevalent since 2006. Fishing effort directed at *Nephrops* will also have bycatches of hake, megrim, and anglerfish in mixed fisheries.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is based on several indicators, including survey and commercial size, sex ratio and cpue, and lpue data. Analytical assessments are not feasible at present.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	Not defined	
Precautionary Approach	Not defined		

STOCK STATUS:

	F (Fishing Mortality)	
	2008-2010	
MSY (F_{MSY})	?	Undefined
Precautionary approach (F_{pa},F_{lim})	?	Undefined
Qualitative evaluation	✗	High exploitation rate

SSB (Spawning Stock Biomass)		
	2008-2010	
MSY ($B_{trigger}$)	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	Undefined
Qualitative evaluation	↗	Increasing, from critically low abundance

Effort, landings and size distribution indicate that exploitation rate has been high in the last 7 years. Survey information indicates that recruitment to the fishery has been very weak between 2004 and 2008 and the stock declined to a low level. The average recruitment observed in the 2009 survey has resulted in increased abundance and biomass in 2010. The fisheries lpue in 2010 is influenced by the seasonal closure introduced between May-July 2010.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the precautionary considerations that catches in 2012 should not increase to allow the stock to rebuild.

MSY approach: F*msy* has not been defined for this stock.

PA considerations*:* Effort, landings and size distribution data indicate that the stock is overfished. Biomass has increased in the last year. Therefore, catches should not increase to allow the stock to rebuild.

Additional considerations:
The *Nephrops* trawl fishery takes by-catches of other species, especially plaice, but also, whiting and cod. Selectivity of this fishery needs to be improved to reduce bycatches of cod, whiting and undersized plaice

The closure introduced between May and July 2010 was respected by the fleet. It has therefore afforded some protection to the majority of the stock area (~75%). For this part of the stock area fishing effort and mortality will have been reduced at a time of peak female emergence and typically high lpue and landings. The closure will also have inadvertently concentrated effort and fishing mortality ~25% of the stock area not currently covered by the closure.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final *Nephrops* in FU16 are classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012 that catches should not be allowed to increase.

STECF notes that the Nephrops trawl fleet in this area takes a by-catch of other species including cod, whiting and undersized plaice, and agrees that selectivity should be improved in this fishery.

2.1.5. Norway lobster (*Nephrops norvegicus*) in FU 17, Aran Grounds (Division VIIb)

FISHERIES: Reported landings (almost entirely by Irish vessels) from this FU were around 1000 t in 2010, an increase from 600 t in 2009. In the Aran Grounds landings and effort of twin rig vessels has increased to over 90 % of the fishery. Effort decreased in 2009 due to decommissioning of several vessels that actively participated in the fishery but effort in 2010 increased again. In recent years several newer vessels specialising in *Nephrops* fishing have participated in this fishery. These vessels target *Nephrops* on several other grounds within the TAC area and move around to optimise catch rates. Since the introduction of effort management associated with the cod long term plan (EC 1342/2008) there have been concerns that effort could be displaced towards the Aran and other *Nephrops* grounds where effort control has not been put in place.

The *Nephrops* trawl fishery takes bycatches of other species, especially plaice, but also, whiting, cod, hake, megrim and monkfish.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is based on an UWTV surveys. The F_{MSY} proxies were derived from Separable Cohort Analysis (SCA) and yield

per recruit analysis based on 2008 and 2009 sampling. However, the fit to the SCA model was problematic so F_{MSY} proxies are likely to be uncertain.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	HR 10.5%	Equivalent to $F_{35\%\ SPR}$ for combined sex in 2010
Precautionary Approach			No reference points are defined

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	✗	✓	✓	Below target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined

SSB (Spawning Stock Biomass)	2008	2009	2010	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

The UWTV surveys conducted since 2002 give estimates of abundance that have fluctuated widely without a significant trend. The generally low harvest rate (9% average) appears to have little impact on observed stock fluctuations and is below F_{MSY}.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 1100 t.

MSY approach: No MSY $B_{trigger}$ has been identified for this FU. Hence the ICES MSY framework has been applied only in relation to F_{MSY}. This implies harvest ratio of 10.5 %, resulting in landings of 1100 t in 2012.

Additional considerations: The *Nephrops* trawl fishery takes bycatches of other species, especially plaice, but also, whiting and cod. Selectivity of this fishery needs to be improved to reduce bycatches of cod, whiting and undersized plaice

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final *Nephrops* in FU17 are classified under category 2. The rules for category 2 prescribe a partial TAC for 2012 of 1100 t for FU 17 *Nephrops* based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that the Nephrops trawl fleet in this area takes a by-catch of other species including cod, whiting and undersized plaice, and agrees that selectivity should be improved in this fishery.

2.2. Norway lobster (*Nephrops norvegicus*) in Celtic and Irish Seas

Norway lobster in this region contains 4 Functional Units:

FU no.	Name	ICES Divisions	Statistical rectangles

14	Irish Sea East	VIIa	35–38E6; 38E5
15	Irish Sea West	VIIa	36E3; 35–37 E4–E5; 38E4
19	Ireland SW and SE coast	VII,g,j	31–33 D9–E0; 31E1; 32E1–E2; 33E2–E3
20–22	Celtic Sea	VIIg,h	28–30 E1; 28–31 E2; 30–32 E3; 31 E4

Of these, FU 14 (Irish Sea E.) and FU 15 (Irish Sea W.) are currently assessed on basis of UWTV surveys. On basis on the UWTV surveys current stock abundance and harvest ratios are estimated.

MSY approach

There are no precautionary reference points defined for *Nephrops*. Under the new ICES MSY framework, exploitation rates which are likely to generate high long-term yield (and low probability of stock overfishing) have been explored and proposed for each functional unit. Owing to the way *Nephrops* are assessed, it is not possible to estimate F_{msy} directly and hence proxies for F_{msy} are determined. Three stock-specific candidates for F_{msy} ($F_{0.1}$, $F_{35\%SpR}$ and F_{max}) have been derived from a length-based per recruit analysis.There may be strong difference in relative exploitation rates between the sexes in many stocks. To account for this values for each of the candidates have been determined for males, females and the two sexes combined. The appropriate F_{msy} candidate has been selected for each Functional Unit independently according to the perception of stock resilience, factors affecting recruitment, population density, knowledge of biological parameters and the nature of the fishery (relative exploitation of the sexes and historical Harvest Rate vs. stock status).

A decision making framework based on the table below was used in the selection of preliminary stock specific F_{msy} proxies. These may be modified following further data exploration and analysis. The combined sex F_{msy} proxy should be considered appropriate provided that the resulting percentage of virgin spawner per-recruit for males or females does not fall below 20%. In such a case a more conservative sex specific F_{msy} proxy should be picked over the combined proxy.

		Burrow Density (average numbers/m2)		
		Low <0.3	Med 0.3-0.8	High >0.8
Observed larvest rate or landings compared to stock status	>Fmax	F35%	Fmax	Fmax
	Fmax-F0.1	F0.1	F35%	Fmax
	<F0.1	F0.1	F0.1	F35%
	Unknown	F0.1	F35	F35%
Stock Size Estimates	Variable	F0.1	F0.1	F35%
	Stable	F0.1	F35%	Fmax
Knowledge of biological parameters	Poor	F0.1	F0.1	F35%
	Good	F35%	F35%	Fmax
History Fishery	Stable spatially and temporally	F35%	F35%	Fmax
	Sporadic	F0.1	F0.1	F35%
	Developing	F0.1	F35%	F35%

The lowest observed UWTV abundance has been proposed as a preliminary MSY $B_{trigger}$ for Nephrops in other areas. However, the time series for many of the UWTV surveys in Subarea VII are too short for such an approach to be used. For FU 15 where a longer series of survey trawl cpue was available this has been used to estimate a preliminary MSY $B_{trigger}$ (scaled to the UWTV abundance).

STECF COMMENTS: The management approach with an aggregated TAC is a major obstacle for the application of the rules in the Commissions Communication on Fishing opportunities for 2012 (COM(2011) 298-FINAL) which requires a TAC for each stock (in this case FU). It furthermore runs the risk of unbalanced effort distribution. This is known to have been a particular problem in the Porcupine bank (FU 16) in the past, where large increases in effort were followed by a substantial decline in the stock (and subsequently quotas were introduced for the FU 16 component of Sub-area VII for 2011). To facilitate the provision of landings for each FU consistent with COM(2011) 298-FINAL, STECF has derived 'partial TAC's for each FU. These

values have been derived by distributing the 2011 VII TAC across FUs in proportion to the recent average landings (08-10) from each FU excluding FU 16 for which separate quotas have been set for 2011 (see below).

STECF notes that there are also *Nephrops* catches in "other rectangles" in Sub-area VII (including the north-west coast of Ireland which has previously been treated as a separate FU (18)). To provide some guidance on appropriate future landings for these areas, the use of an average landings figure (2008-2010) of around 270 tonnes could be considered (On the basis of ICES advice that catches from 'other areas' should not increase).

A summary of ICES advice and application of rules in COM(2011) 298-FINAL for Sub-area VII is given below. It should be noted, however, that despite the provision of a Sub-area VII total in this table, STECF still **recommends** that *Nephrops* FUs should be managed separately. FUs 17 and 19 are dealt with in Section 2.1 but included in the table here for completeness.

	FU14	FU15	FU16	FU17	FU19	FU22	FU20-21	Other	Total
Average landings (08-10)	651	9526	914	894	807	2302	3035	269	18397
FU 'partial TAC' 2011	763	11172	1254[2)]	1049	947	2700	3559	315	21759[1)]
ICES Advice	960	9800	914[3)]	1100	Reduce catches	2300	Reduce landings	269	15343[4)]
Category	2	2	3	2	3	2	3		
Rule	MSY-HCR	MSY-HCR		MSY-HCR		MSY-HCR			
Policy	960	9800	NA	1100	NA	2300	NA	NA	NA

[1)] 2011 TAC VII.

[2)] Quota for FU 16 for 2011

[3)] On the basis of advice for no increase in catches, the average landings have been used to provide a numerical value.

[4)] Sum of ICES advice – uses numerical options when available, but does not include the FUs for which no numerical value is available.

2.2.1. Norway lobster (*Nephrops norvegicus*) in FU 14, Irish Sea East (Division VIIa)

FISHERIES: Prior to 2007 landings from this FU were believed to be underreported. However, new legislation in 2007 increased the reliability of the landings data. The landings have fallen from a peak of 960 t in 2007 to 560 t in 2010. Most of the landings are taken by the UK with the Republic of Ireland taking the remainder. The *Nephrops* trawl fisheries take by-catches of other species especially plaice, but also whiting and cod. In contrast to the overall effort reductions in Division VIIa, effort in FU 14 has remained relatively stable since 2001.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment in 2011 is based UWTV surveys of absolute abundance. The survey data have been revised in 2011. At the ICES Benchmark Workshop on *Nephrops* in 2009 the major sources of bias associated with UWTV survey estimates of absolute abundance were quantified and an overall bias correction factor derived.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	Not defined	No available reference. UWTV time series too short.
	F_{msy}	Harvest ratio 9.8 %	Equivalent to $F_{0.1}$ for combined sexes in 2011.
Precautionary Approach	Not defined		

STOCK STATUS:

F (Fishing Mortality)		
2008	2009	**2010**

MSY (F_{MSY})	✓	✓	✓	Below target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined
SSB (Spawning Stock Biomass)				
	2008	2009	**2010**	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

There is not a long enough time series to determine a candidate for MSY $B_{trigger}$. Current harvest rate is below the F_{MSY} proxy.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the transition to the MSY approach that landings in 2012 should be no more than 960 t.

MSY approach: Following the ICES MSY framework implies the harvest ratio to be no more than 9.8%, resulting in landings of 960 t in 2012.

Additional considerations: The *Nephrops* trawl fishery takes by-catches of other species, especially plaice, but also, whiting and cod. Selectivity of this fishery needs to be improved to reduce bycatches of cod, whiting and undersized plaice

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final *Nephrops* in FU14 are classified under category 2. The rules for category 2 prescribe a partial TAC for 2012 of 960 t for FU 14 *Nephrops* based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast for 2012. However, STECF believes that the basis for the advice is the MSY approach rather than the transition scheme as stated in the ICES advice as the current harvest ratio is already below F_{MSY}.

STECF notes that by-catches of cod, whiting and undersized plaice occur in this fishery and agrees that selectivity of this fishery should be improved.

2.2.2. Norway lobster (*Nephrops norvegicus*) in FU 15, Irish Sea West (Division VIIa)

FISHERIES: Prior to 2007, landings from this FU are believed to be underreported. However, new legislation in 2007 increased the reliability of the landings data. Estimated landings in 2008 were more than 10500 t from the Irish Sea West. Landings in 2009 and 2010 have been around 9000 t. Most of the landings are taken by the UK and the Republic of Ireland. The *Nephrops* trawl fisheries take by-catches of other species such as cod and particularly juvenile whiting. Around 16% of Irish vessels are using separator trawls and Swedish grids to reduce bycatch.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment in 2011 is based on trends in population indicators and catch options derived from UWTV surveys as last year. At the ICES Benchmark Workshop on *Nephrops* in 2009 the major sources of bias associated to UWTV survey estimates of absolute abundance were quantified and an overall bias correction factor derived.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	3 billion individuals	Minimum abundance observed based in a scaled trawl survey
	F_{msy}	HR 17.1%	Equivalent to F_{max} for combined sexes in 2010.
Precautionary Approach	Not defined		

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✓	Below target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined
SSB (Spawning Stock Biomass)				
	2008	2009	**2010**	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

This stock has sustained landings at around 9000 t for many years. The stock increased until 2003, based on information from the NI-NEP-Trawl-Summer survey. Since then, the stock has decreased, but is still at high levels and above MSY $B_{trigger}$. Recent harvest rates have fluctuated around F_{MSY}.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 9800 t.

MSY approach: Following the ICES MSY framework implies a harvest ratio to be less than 17.1%, resulting in landings of 9800 t in 2012.

Additional considerations: The Nephrops trawl fishery takes bycatches of other species, especially plaice, but also, whiting and cod. Selectivity of this fishery needs to be improved to reduce bycatches of cod, whiting and undersized plaice

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final *Nephrops* in FU15 are classified under category 2. The rules for category 2 prescribe a partial TAC for 2012 of 9800 t for FU 15 *Nephrops* based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2012.

2.2.3. Norway lobster (*Nephrops norvegicus*) in FU19, SW and SE Ireland (Divisions VII g, j)

FISHERIES: Reported landings for this FU were 833 t in 2009, but have fallen to just over 700 t in 2010. Similar to the situation in Aran Grounds the most recent change in the fishery is the proportion of twin-rig vessels, which has increased to over 90 % of the fleet in the past eight years. This implies a large increase in effective effort, even if such an increase is not observed in the nominal effort figures.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Lpue data are the only available indicator of stock trend. The accuracy of this is uncertain because of changes in fleet composition, targeting behaviour, fishing patterns and the patchy distribution of *Nephrops* within this area. Analytical assessments are not feasible at present.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	Not defined	
Precautionary Approach		Not defined	

STOCK STATUS:

F (Fishing Mortality)		
		2008-2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
SSB (Spawning Stock Biomass)		
		2008-2010
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	→	Stable

The available information is insufficient to evaluate the exploitation status. Commercial lpues have fluctuated without trend since 1995. Therefore, the state of the stock is unknown.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the precautionary considerations that catches in 2012 should be reduced.

PA considerations: The exploitation status is unknown and stock trends indicators have been stable. Therefore, ICES considers that catches should be reduced.

Additional considerations: *Nephrops* fisheries in this area are fairly mixed also landing megrim, anglerfish, haddock and other demersal species. The main discarded species are haddock, whiting and dogfish.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final *Nephrops* in FU19 are classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

2.2.4. Norway lobster (*Nephrops norvegicus*) in FU 20-22, Celtic Sea (Divisions VIIf, g, h)

FISHERIES: There are three Functional Units in the Celtic Sea area but FU 20 and 21 are treated together. Landings from these Functional Units are reported by France, the Republic of Ireland and the UK, the main contributors being France and Ireland. In 2010 total reported landings amounted to 4600 t, an almost 25 % decline compared to 2008. In 2010, the landings split between FU 20-21 and FU 22 was approximately 50:50, however this varies significantly between years with neither FU consistently contributing the majority of landings. There has been a considerable decrease in French landings and effort (due to decommissioning) whilst Irish landings have increased. There has also been increasing effort by Irish vessels targeting *Nephrops* in the Celtic Sea in recent years. Discarding is substantial, but varies between fleets and areas, with the French fleet discarding above the minimum landings size due to market requirements.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. For FUs 20 and 21, the advice is based on recent average landings and indicators for LPUE and CPUE. For FU 22 the assessment and advice is based on UWTV abundance estimates and indicators of mean size. At the ICES Benchmark Workshop on *Nephrops* in 2009 the major sources of bias associated to UWTV survey estimates of absolute abundance were quantified and an overall bias correction factor derived.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY} (whole FU20-22) harvest rate	Not defined	
	F_{MSY} (FU22) harvest rate	10.9%	*MSY under SCA model*
Precautionary		Not defined	

Approach			

STOCK STATUS:

FU 20-21

F (Fishing Mortality)	2008 - 2010	
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown

SSB (Spawning Stock Biomass)	2008 - 2010	
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative information	→	Stable

FU 22

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	✗	✓	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	?	?	?	Unknown

SSB (Spawning Stock Biomass)	2008	2009	2010	
MSY ($B_{trigger}$)	?	?	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	?	?	Unknown
Qualitative information	→	→	→	Stable

The status of the FU20-21 component of the stock is unknown. Landings are stable and the effort by the French and Irish fleets are showing opposite direction, respectively downward and upward. Overall, the effort is steadily decreasing since the early 90's. The lpues of the French and Irish fleets in this area, although variable, are very similar over the last 5 years (when the figures may be compared since the French fleet has mainly operated in FU20-21 during that period). The lpues alternate period of increasing and decreasing trends, so that the overall perception is mainly stability.

The FU 22 stock component is considered to be stable based on indicators (lpue, mean size) and recent UWTV survey data. There have been indications of strong recruitment in recent years (*e.g.* 2006) as underlined by the Irish UWTV survey in 2006 and by commercial lpue for Irish in 2007 and for French trawlers in 2008 and 2009.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the MSY approach that landings from FU22 in 2012 should be no more than 2300 t.

For the remaining areas FU20-21 ICES advise on the basis of precautionary considerations that landings should be reduced.

MSY approach: Following the ICES MSY framework implies the harvest ratio for the Smalls FU22 to be less than 10.9 %, resulting in landings of less than 2300 t in 2012.

Precautionary considerations: Considering the recent stable lpues and unknown exploitation status for FU20 and 21, catches should be reduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final *Nephrops* in FU20-21 are classified under category 3.

STECF notes that with reference to COM(2011) 298-final *Nephrops* in FU22 are classified under category 2. The rules for category 2 prescribe a partial TAC for 2012 of 2300 t for FU 22 *Nephrops* based on the MSY-HCR designed by ICES.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice basis for 2012. In addition, STECF agrees with the advised forecast catch options for 2012 for FU 22.

STECF notes that for FU 20-21 the ICES advice for a reduction in landings is inconsistent with the Precautionary Considerations (which are the basis for advice) which advise that catches should be reduced.

2.3. Cod (*Gadus morhua*) in Division VIa (West of Scotland)

FISHERIES: Cod is taken in mixed demersal fisheries and in Division VIa is now regarded as a by-catch species. The fleets involved include French vessels targeting saithe and Scottish whitefish trawlers. Landings are predominantly taken by EU fleets and were sustained at about 21,000 t until the late 1980s. Landings have since declined markedly to a value of about 220 t in 2009. Landings restrictions in the first half of the 1990s led to considerable misreporting. Legislation introduced in Britain and Ireland in 2006 has reduced misreporting. Observer data, however, show an increase in discards starting in 2006. The management area for this stock also includes cod in VIb, Vb, XII and XIV with a specified share allocated to VIa.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. A catch-at-age model using catch data up to 1994 tuned by survey data and utilizing survey information alone from 1995 onward was used to evaluate trends in spawning-stock biomass and recruitment. Trends in SSB are similar to results from a model based on survey data alone.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	22 000 t	B_{pa}
	F_{MSY}	0.19	Provisional proxy by analogy with North Sea cod F_{max}. Fishing mortalities in the range 0.17–0.33 are consistent with F_{MSY}.
Precautionary Approach	B_{lim}	14 000 t	B_{lim} = B_{loss}, the lowest observed spawning stock estimated in previous assessments.
	B_{pa}	22 000 t	Considered to be the minimum SSB required to ensure a high probability of maintaining SSB above B_{lim}, taking into account the uncertainty of assessments. This also corresponds with the lowest range of SSB during the earlier, more productive historical period.
	F_{lim}	0.8	Fishing mortalities above this have historically led to stock decline.
	F_{pa}	0.6	This F is considered to have a high probability of avoiding F_{lim}.

(unchanged since: 2010)

STOCK STATUS:

F (Fishing Mortality)		
	2008 -2010	
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	✗	Above poss. reference points

SSB (Spawning-Stock Biomass)			
	2009	2010	**2011**
MSY ($B_{trigger}$)	✗	✗	✗ Below trigger
Precautionary approach (B_{pa},B_{lim})	✗	✗	✗ Below B_{lim}

Total mortality is high, but cannot be accurately partitioned into fishing mortality and natural mortality. The spawningstock biomass continues to increase from an all time low in 2006, but remains well below B_{lim}. Recruitment has been estimated to be low over the last decade. The 2005 and 2008 year classes are estimated to be the largest since 1997 and comparable with the long term geometric mean.

MANAGEMENT OBJECTIVES:

The EU has adopted a long-term plan for cod stocks and the fisheries exploiting those stocks (Council Regulation (EC) 1342/2008 and 237/2010). This regulation repeals the recovery plans in Regulation (EC) No 423/2004, and has the objective of ensuring the sustainable exploitation of the cod stocks on the basis of maximum sustainable yield while maintaining a target fishing mortality of 0.4 on specified age groups.

The regulation is complemented by a system of fishing effort limitation (see EC 57/2010 for latest revision).

Because it is not possible at present to assess unaccounted mortality accurately, ICES cannot yet evaluate if the management plan is in accordance with the precautionary approach.

RECENT MANAGEMENT ADVICE
ICES advises on the basis of the precautionary considerations that catches in 2012 should be reduced to the lowest possible level.

The fishery is managed by a combination of TAC, area closures, technical measures, and effort restrictions. Current landings (i.e. TAC) effort and spatial management of fisheries catching cod in Division VIa are not controlling mortality levels. Catch (landings + discards) is six times the reported landings.

MSY approach: Estimates of F_{msy} for this stock are uncertain due to the absence of fisheries data in the assessment since 1994. However, the estimates are consistent with the proposed F_{msy} for the neighbouring North Sea cod stock. There is no estimate for current fishing mortality for this stock. However, it is likely that current F is above F_{msy}. SSB has declined to a very low level. Therefore, catches (mainly discards) of cod should be reduced to the lowest possible level.

PA Considerations: Given the low SSB and low recruitments in recent years, it is not possible to identify any non-zero catch which would be compatible with the precautionary approach. No targeted fishing should take place on cod in Division VIa. Bycatches including discards of cod in all fisheries in Division VIa should be reduced to the lowest possible level.

The 2008 year class is estimated to be more abundant and consequently additional measures (such as real time closures) to protect it are essential to ensure that it contributes to the rebuilding of the stock. It will be necessary to reduce all sources of fishing mortality on cod to as close to zero as possible if the stock is to recover above B_{pa} as quickly as possible.

Management plan:

The stock is considered data poor. Article 9(a) implies a TAC and associated effort reduction of 25%, translating to a TAC of less than 137 t. ICES considers that article 10(2) may also apply. ICES cannot yet evaluate if the management plan is in accordance with the precautionary approach.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1. The rules for category 1 prescribe that for 2012, a TAC of 137 t should be proposed.

STECF COMMENTS:
STECF agrees with ICES advice that on the basis of the precautionary considerations catches in 2012 should be reduced to the lowest possible level.

STECF notes that wheras the fishery is managed by a combination of TAC, area closures, technical measures, and effort restrictions, current management measures are not controlling mortality levels and that the total catch (landings + discards) is six times the reported landings (*i.e.* up to 83% discards).

At its cod recovery review subgroup (SGRST 07-02), STECF pointed out that changes in fishing behaviour following reductions in days at sea allocations (such as greater concentration in cod rich areas) may prevent delivery of the required reduction in F and that if managers wished to implement effort reductions through reduced days at sea allocations, additional supportive measures might also need to be considered.

Stock recovery
There has been a gradual improvement in the status of the stock over the last few years and SSB has increased from the historical low in 2006. STECF concludes that spawning stock biomass is recovering although it is not possible to determine whether F has declined.

STECF notes that in relation to Article 10(2) of the long-term plan for cod stocks, the term "failing to recover properly" is undefined. Hence STECF is unable to advise whether the cod stock west of Scotland (Division VIa) is failing to recover properly.

2.4. Cod (*Gadus morhua*) in Division VIb (Rockall)

FISHERIES: Rockall cod has been exploited predominantly by Scottish, Irish and Norwegian vessels using towed gears. Landings have fluctuated between 500 t and 2,000 t (1984-2000) but thereafter showed a steady decline to a level of about 60 t from 2005. In 2008 - 2010 landings fluctuated between 60 and 100t. The management area for this stock also includes cod in Vb, XII and XIV.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES but no explicit management advice is given for this stock.

REFERENCE POINTS: No reference points are defined for this stock.

STOCK STATUS: There is no information on the status of cod in Division VIb.

RECENT MANAGEMENT ADVICE: ICES advises that there is insufficient information to evaluate the status of the stock and that, therefore, based on precautionary considerations, no increase of the catch should take place unless there is evidence that this will be sustainable.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF notes that the state of the stock is unknown and agrees with the ICES advice that no increase in the catch should take place unless there is evidence that this will be sustainable,

STECF advises that because cod are taken in a mixed fishery with haddock, management measures adopted for VIb cod should also be consistent with the management measures adopted for VIb haddock.

2.5. Haddock (*Melanogrammus aeglefinus*) in Division VIa (West of Scotland)

FISHERIES: Haddock to the West of Scotland are taken as part of a mixed demersal fishery, with the biggest landings reported by UK (mainly Scottish) trawlers (2,414 tonnes in 2010 representing 83% of the landings); Irish trawlers (396 tonnes in 2010 representing 14% of the landings); and with smaller landings reported by other nations including France, Germany and Norway. Landings by non-EU fleets have not exceeding 50 tonnes over the reported period (2001 – 2010). Catches are widely distributed and are concentrated in several areas, e.g. Butt of Lewis and on the shelf west of the Outer Hebrides.

In 2006, landings of 5.833 tonnes were reported for this stock, representing an 80% increase on the (previous) record low landings of 2,561 tonnes reported in 2005. Subsequently reported landings fell to 3,773 tonnes in 2007 and varied between 2,850 to 2,900 tonnes between 2008 and 2010.

Recruitment to this stock has varied greatly over the entire time series, however. in recent years recruitment has shown a general and dramatic decline from >450 million in 2000 (the largest on record) to an estimated recruitment of approximately 8 million in 2008 and 2009. Last year's assessment forecasted a small increase in the recruitment for 2010 while the current recruitment forecast (for the 2011 year-class) is estimated to be ~15 million; higher than in 2010.
The total catch for haddock is estimated to be 5830 tonnes; 51% of these are discards. Splitting discards by fleet shows that *Nephrops* vessels (TR2) are responsible for ~88% of all discards while landing only 21 tonnes, less than 1% of the total landings (2882 tonnes).

In Scotland the 'Conservation Credits Scheme' (CCS) was implemented at the beginning of February 2008. The two central themes of CCS are aimed at reducing the amount of cod caught by (i) avoiding areas with elevated abundances of cod and (ii) the use of more species-selective gears. Within the scheme, efforts are also being made to reduce discards generally. Although the scheme is intended to reduce cod mortality, it may also affect the mortality of haddock, in either a positive or negative manner.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. In recent years a catch-at-age model using catch data up to 1994 tuned by survey data and utilizing survey information alone from 1995 onward was used to evaluate trends in spawning-stock biomass and recruitment and the model estimated total catch from the fishery without the ability to distinguish between landings and discards. From 2009 catch data were re-introduced for years since 2006

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	30 000 t	B_{pa}
	F_{MSY}	0.3	Provisional proxy by analogy with North Sea haddock. Fishing mortalities in the range 0.19–0.41are consistent with F_{MSY}.
Precautionary Approach	B_{lim}	22 000 t	B_{lim} = B_{loss}, the lowest observed spawning stock estimated since the reference point was established in 1998.
	B_{pa}	30 000 t	B_{pa} = B_{lim} *1.4. This is considered to be the minimum SSB required to obtain a high probability of maintaining SSB above B_{lim}, taking into account the uncertainty of assessments.
	F_{lim}	Not defined.	
	F_{pa}	0.5	The F below which there is a high probability of avoiding SSB< B_{pa}.

STOCK STATUS:

F (Fishing Mortality)	2008	2009	**2010**
MSY (F_{MSY})	✗	✓	✓ At target
Precautionary approach (F_{pa},F_{lim})	✓	✓	✓ Harvested sustainably

SSB (Spawning-Stock Biomass)	2009	2010	**2011**
MSY ($B_{trigger}$)	✗	✗	✗ Below trigger
Precautionary approach (B_{pa},B_{lim})	✗	✗	✗ Reduced reproductive capacity

The 2009 year class is strong relative to others in the recent period, but still below the long-term average. Nevertheless, this year class contributes to the rise of the SSB in 2011 estimated at 20.8 thousand tonnes. F has been above Fpa in most years since 1987, but dropped below Fpa in 2007 has been and at FMSY since 2008.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of MSY framework that landings in 2012 should be no more than 10,200 t. The selection pattern should be improved in the *Nephrops* (TR2) fleet to reduce its high proportion of discards.

Management plan

A management plan is under development. Following that would result in a 25% increase in landings. This would result in removals from the stock of 4,600 tonnes, and landings of 2,506 tonnes in 2012. This is expected to lead to an SSB of 50 000 tonnes in 2013. The management plan is not yet in operation and has not yet been fully evaluated by ICES. Therefore, the advice is not based on this plan.

ICES further recommends a management plan which would offer maximum protection to the haddock, recognizing that it is caught in a mixed fishery. Special attention needs to be given to the sporadic nature of the haddock recruitment and how to manage periods of low recruitment interspersed with large, occasional pulses. In recent years around 50% of the total catch in weight has been discarded, so restricting landings alone may not achieve the necessary increase in SSB.

MSY approach

Following the ICES MSY framework implies a fishing mortality less than 0.3, resulting in landings of 10 200 tonnes in 2012. This is expected to lead to an SSB of 40700 tonnes in 2013. Haddock is caught in a mixed fishery where other species such as cod and whiting are present.

PA approach

The fishing mortality in 2012 should be no more than F_{pa}, corresponding to landings of less than 15 700 t in 2012. This is expected to keep SSB above B_{pa} in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe that a TAC for 2012 of 10,200 t for haddock in Division VIa should be proposed based on the ICES MSY-transition scheme.

Applying the harvest rule in the proposed management plan for haddock in Division Via, would mean that a TAC for 2012 of 2,506 t should be proposed.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012. Fishing at F=0.3 in 2012 gives rise to predicted landings of haddock from VIa of 10,200 t assuming that the recent discarding (36% discard by weight) in the fishery remain constant. This represents about a four-fold increase on the TAC agreed for 2011 with only a minor (2.5%) increase in fishing mortality.

STECF notes that the provisions of Council Regulation (EC) 1288/2009 specifies that the percentage of cod, haddock and whiting that shall be retained on board by vessels operating in Division Via shall be no greater than 30% of the total catch on board. If the by-catch restrictions remain in place in 2012, it is likely that fishing at F=0.3 in 2012 will give rise to increased discarding of haddock. In an attempt to prevent any increase in discarding of haddock, it would now seem appropriate to permit a directed fishery for haddock in Division VIa.

STECF notes that the *Nephrops* (TR2) fleet in Division Via has been observed to have extremely high discard rates of haddock and whiting in recent years. The selectivity for this fleet needs to be improved to reduce the unwanted by-catch of these species.

STECF notes that the status of cod in Division VIa means that under the provisions of the long-term plan for cod, the available effort for vessels that exploit cod, haddock and whiting in Via is likely to be reduced further in 2012.

A management plan is under development for haddock in Via and STECF notes that the harvest rules in the plan would imply that the TAC for 2012 that would be proposed would correspond to a 25% increase in the TAC compared to 2011 equating to 4,600 t. STECF notes that the fishing mortality implied by a TAC of 4,600 t represents a 77% reduction on F 2010 and without a similar reduction in the fishing effort and/or haddock-avoidance measures, discarding of haddock will increase dramatically.

2.6. Haddock (*Melanogrammus aeglefinus*) in Division VIb (Rockall)

FISHERIES: The haddock stock at Rockall is an entirely separate stock from that on the continental shelf of the British Isles. Rockall haddock have lower growth rates and reach a lower maximum size than other haddock populations in the Atlantic.

Until recently the Rockall haddock fishery largely occurred in summer months, when conditions are easier and particularly when fishing at Rockall was more profitable compared with the North Sea or West of Scotland. A number of Irish vessels did however exploit this stock on a more regular basis.

Haddock are caught in a mixed fishery together with blue whiting and a number of non-assessed species such as grey gurnard. Traditionally Scottish and Irish trawlers target haddock, whilst Russian trawlers also fish for species such as gurnard. UK, Russian and Irish vessels account for the highest proportion of the landings, with smaller quantities taken by other nations including Iceland, France, Spain and Norway.

Since 1987 reported landings have varied between 2,300 t and 8,000 tonnes. For 2009 total landings were 3,400t. As part of this stock area now falls outside the EU EEZ there was an increase in activity by non-EU fleets, notably Russian Federation vessels, from 1999 onwards, although this has declined in recent years. Landings by non-EU fleets reached a peak in 2004, when reported landings by the Russian Federation amounted to 5,844 t or some 90% of the total. For 2010 the officially reported landings from the Russian Federation and Norway were 198 t and 65 t respectively Compared with 55 t and 71 t in 2009.

Effort by the Scottish and Irish fleets increased in recent years following a period of reduced effort 2004 – 2006, and anecdotal information suggests this is partly as consequence of effort restrictions introduced as part of the 2009 long-term plan for cod.

Following the NEAFC agreement in March 2001, an area of the NEAFC zone around Rockall was closed to fishing using demersal trawls; in spring 2002 part of the shallow water in the EU component also. Effort in the

rectangle containing the closure declined when the closure came into effect. There was also a decline in UK effort across the bank as a whole at this time, but an increase of effort in other areas of Division VIb. However, it is difficult to determine to what extent these closures have contributed to protecting juveniles.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. The assessment is based on catch numbers-at-age and one survey index (Scottish Groundfish Survey). Discarding occurs in part of the fishery and has been estimated and used in the assessment.The management body is NEAFC.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	9000 t	B_{pa}
	F_{MSY}	0.3	Provisional proxy by analogy with North Sea haddock. Fishing mortalities close to F_{sq} in 2010.
Precautionary Approach	B_{lim}	6000 t	B_{lim} = B_{loss}, the lowest observed spawning stock estimated in previous assessments.
	B_{pa}	9000 t	B_{pa} = B_{lim} * 1.4. This is considered to be the minimum SSB required to obtain a high probability of maintaining SSB above B_{lim}, taking into account the uncertainty of assessments.
	F_{lim}	Not defined.	Not defined due to uninformative stock recruitment data.
	F_{pa}	0.4	This F is adopted by analogy with other haddock stocks as the F that provides a small probability that SSB will fall below B_{pa} in the long term.

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✗	✓	✓	Below target
Precautionary approach (F_{pa},F_{lim})	✓	✓	✓	Harvest sustainably

SSB (Spawning-Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	✓	✓	✓	Full reproductive capacity

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY considerations that landings in 2012 should be no more than 3,300 t.

Management plans

The European Community and the Russian Federation have proposed a draft plan for the harvest control component of a long-term management plan for haddock at Rockall. NEAFC requests ICES to evaluate this component of the long-term management plan for Rockall haddock. This management plan is under development and is currently being evaluated.

MSY approach

A fishing mortality of 0.3 (= F_{MSY}) corresponds to landings of less than 3300 t in 2012 and is expected to lead to an SSB of 9600 t. Because F in 2010 is below F_{MSY}, no transition scheme is necessary. Further management measures should be introduced to reduce discarding of small haddock in order to maximize their contribution to future yield and SSB.

PA approach

A fishing mortality of 0.4 (= F_{pa}) corresponds to landings of 4200 t in 2012 and is expected to lead to an SSB of 8600 t which will be below B_{pa} in 2013. To keep SSB above B_{pa}, landings in 2012 should be less than 3800 t.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe that a TAC for 2012 of 3,300 t for haddock in Division VIb should be proposed based on the ICES MSY-transition scheme.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advised catch options for 2012.

STECF notes that the proposed revised management plan for Rockall haddock, has not been evaluared by ICES and that, consequently, the TAC proposed is derived from the ICES-MSY framework.

2.7. Saithe (*Pollachius virens*) in Div´s Vb (EU zone), VI, XII and XIV

The assessment has been combined with that in Sub-Area IV – see Section 1.7.

RECENT MANAGEMENT ADVICE:

Given the recent poor recruitment and low SSB ICES advises that paragraph 6 of the EU–Norway management plan be invoked to reduce the catches beyond the 15% TAC reduction (i.e. below 87 544 t).

Management plan

This stock is subject to an EU–Norway agreement management plan (as updated in December 2008 - Annex 6.4.12). This plan has been evaluated by ICES (ICES, 2008), and is considered by ICES to be consistent with the precautionary approach in the short term (< 5 years).

The EU–Norway agreement management plan does not clearly state whether the SSB in the intermediate year or the SSB in the beginning or end of the TAC year should be used to determine the status of the stock. ICES interprets this as being the SSB in the beginning of the intermediate year (2011). Since SSB in the beginning of 2011 is above B_{lim}, but below B_{pa}, § 3 of the harvest control rule applies. This would result in an F of 0.16 and a TAC of 33 000 t, which implies a change of more than 15%. The 15% TAC constraint (§ 5) leads to a TAC of 87 544 t, which results in SSB in 2013 of 111 000 t. In addition the management plan opens up for reductions of more than 15% where considered appropriate (§ 6).
The EU–Norway agreement management plan was evaluated by ICES in 2008 to be precautionary in the short term (~5 years). However, the HCRs in the management plan are not clear enough when the stock falls below the SSB of 200 000 t. The change in fishery distribution and stock productivity (lower growth and recruitment) imply that a re-evaluation of the management plan is needed.

MSY approach

Following the ICES MSY framework implies a fishing mortality of F_{MSY}*SSB2012/MSY $B_{trigger}$ = 0.16, which results in landings of less than 33 000 t in 2012. The MSY transition implies a fishing mortality of (0.6*F_{2010})+(0.4*0.16) = 0.42, above F_{pa}. Therefore the scheme will lead to F = F_{pa} = 0.4 and landings of 75 000 t in 2012.

PA approach

B_{pa} cannot be reached by 2013 even with a zero catch. Advice based on the precautionary approach would give landings of 0 t in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1. The rules for category 1 prescribe that for 2012, a TAC below 8,229 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES advice.

STECF notes that the TAC for saithe in Div´s Vb (EU zone), VI, XII and XIV is set according an EU/Norway management plan - evaluated by ICES as consistent with the precautionary approach - and a landings split based on the 1993–1998 average , i.e. 90.6% in Sub-area IV and Division IIIa and 9.4% in Sub-area VI.

Given the recent poor recruitment and low SSB ICES advises that paragraph 6 of the EU–Norway management plan be invoked to reduce the catches beyond the 15% TAC reduction (i.e. below 87 544 t). This results in a reduced catch in Div VI of less than 8,229t (i.e. below 9.4% of 87 544 t).

2.8. Whiting (*Merlangius merlangus*) in Division VIa (West of Scotland)

FISHERIES: Whiting occur throughout northeast Atlantic waters in a wide range of depths, from shallow inshore waters down to 200 m. Adult whiting are widespread throughout Division VIa, while high numbers of juvenile fish occur in inshore areas. There may be a degree of mixing of adult fish between IVa whiting and the VIa component off the northwest of Scotland.

Whiting has never been a particularly valuable species and is primarily taken as a bycatch with other species, such as haddock, cod and anglerfish. Scottish trawlers take most of the whiting catch in Division VIa, Ireland takes a smaller proportion of the catch and all the remaining catch is taken by EU vessels. Whiting in Division VIa are caught mainly by 80–120 mm trawls. There has been a reduction in trawl and seine effort, with a more moderate reduction by *Nephrops* trawlers. At present a higher proportion of the overall effort is by relatively small-meshed trawls. There has been a tendency to shift from the use of heavy groundgear (like rockhopper) to lighter groundgear.
Since 1987, human consumption landings declined from about 11,500 t to an historic low of 290 t reported officially in 2005. Reported landings for 2010 are 349 t. More than half of the annual catch weight comprises undersized or low-value whiting which are discarded; 83% of these discards come from the TR2 (*Nephrops*) fishery.

The increase in minimum mesh size from 100 to 120 mm in 2001/2002 (before the introduction of effort regulation 27/2005) partly caused a shift to 80-mm mesh sizes in the mixed fishery trawls, due to the loss of valuable *Nephrops* catches. Poorer selectivity at this mesh size may have led to increased discarding and high grading.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. In 2010 a survey-based assessment was used to evaluate trends in SSB, total mortality, and recruitment.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined.	
	F_{MSY}	Not defined.	
Precautionary Approach	B_{lim}	16 000 t	Blim = Bloss(1998), the lowest observed spawning stock estimated in previous assessments.
	B_{pa}	22 000 t	Bpa = Blim * 1.4. This is considered to be the minimum SSB required to have a high probability of maintaining SSB above Blim, taking into account the uncertainty of assessments.
	F_{lim}	1.0	Flim is the fishing mortality above which stock decline has been observed.
	F_{pa}	0.6	Fpa = 0.6 * Flim. This F is considered to have a high probability of avoiding Flim.

(unchanged since: 1998)

STOCK STATUS:

F (Fishing Mortality)		
		2008 - 2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	✓	At poss. reference points

SSB (Spawning-Stock Biomass)		
	2009 - 2011	
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	✗	Below poss. reference points

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the precautionary considerations that catches in 2012 should be reduced. The selection pattern should be improved in the *Nephrops* (TR2) fleet.

The state of the stock is unknown, but long-term information on the historical yield and catch composition and the survey-based assessment covering the more recent period all indicate that the present stock size is at a historical low. Fishing mortality estimates have declined since around 2005. Recruitment in the most recent years is estimated to be very low with an indication of an increase in 2010.

MSY considerations

Biomass has declined to record low level in recent years. Exploitation status is unknown with regards to MSY levels. To allow the stock to rebuild, catches (more than half of which are discarded) should be reduced. There are strong indications that TAC management control is not effective in limiting the catch.

PA considerations

Given that SSB is estimated at the lowest observed level recent recruitment (with the exception of the 2009 year class) has been weak. Catches in 2011 should be reduced to the lowest possible level.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011.

2.9. Whiting (*Merlangius merlangus*) in Division VIb (Rockall)

FISHERIES: Landings of whiting from Division VIb are negligible, 18t (preliminary) in 2010.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. No assessment has been carried out.

REFERENCE POINTS: No precautionary reference points or reference points related to fishing at MSY have been proposed.

STOCK STATUS: The state of the stock is unknown.

RECENT MANAGEMENT ADVICE: There is insufficient information to evaluate the status of this stock. Therefore, based on precautionary considerations, ICES advises that no increase of the catch should take place unless there is evidence that this will be sustainable.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

2.10. Anglerfish (*Lophius piscatorius)* in Vb (EU zone), VI, XII, XIV

FISHERIES: Anglerfish mature at large size, resulting in a high fraction of the catch consisting of immature fish. Catches of anglerfish on the northern shelf (from Division VIb to IIIa) come from the same biological stock. Spawning appears to occur largely in deep water off the edge of the continental shelf, although mature

females are rarely encountered. Anglerfish are caught widely in VIa with the highest catch rates occurring along the shelf edge in deeper waters.

Anglerfish are caught in a targeted anglerfish fishery in Sub-Area VI and as a bycatch in other demersal fisheries, including roundfish fisheries in Division VIa, the haddock fishery on Rockall Bank, *Nephrops* fisheries, and fisheries in deeper waters. In the North Sea, anglerfish are caught mainly as a bycatch in demersal fisheries for mixed roundfish and *Nephrops* and to a lesser extent in small meshed *Pandalus* fisheries.

Vessels from EU Member States take most of the catch. ICES estimates of landings of anglerfish in Division VI show a similar trend to those in the North Sea – a rapid increase in the late 1980s (from about 6,000 t in 1989 to about 18,000 t in 1996) followed by a continuous decline from 1996 to 5200 t in 2004 . No estimate of total landings has been available since 2005. Official landings in 2010 are around 4,038 t.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. The assessment area (Divisions IIa and IIIa & Subareas IV and VI) includes anglerfish from Sub-area IV. The information basis for anglerfish is being developed, with improvements to both industry related data and surveys. There is currently insufficient data to support an analytic assessment of the state of the stock.

REFERENCE POINTS:

ICES (2011) report that: "*No reference points have been defined for these stocks.* ICES (2011) further report that: *Because of recently identified problems with growth estimates, previous reference points are no longer considered to be valid.*

STOCK STATUS:

F (Fishing Mortality)		
		2008 -2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown

SSB (Spawning-Stock Biomass)		
		2008 - 2010
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	→	Stable

No analytical assessment can be presented for this stock. Because of major uncertainties concerning catch-at-age and effort data for anglerfish as well as limited knowledge about population dynamics, a forecast cannot be presented. Recent dedicated anglerfish surveys in Division IVa and Subarea VI indicate a decline in abundance since 2007; biomass has remained relatively stable in the last two years

MANAGEMENT OBJECTIVES: There are no explicit management objectives for this stock but the European Community and Norway are in discussions regarding the joint management of this shared stock.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches in 2012 should be reduced.

MSY approach

No advice available.

Precautionary considerations

Recent trends in abundance and biomass have shown different results, from reductions to relatively stable. The available information is insufficient to evaluate exploitation status. Therefore, catches should be reduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) – final

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012

STECF notes that information from several fisheries indicates that underreporting of total landings has been a problem in recent years due to restrictive individual vessel quotas.

STECF further notes that ghost fishing and discarding of fish not suitable for consumption due to long soaking times are considered to be a problem in some offshore gillnet fisheries targeting anglerfish in Subareas IV, VI, and VII. How effective the regulations (Council Regulation (EC) No. 43/2009) on gear length and soak time have been in mitigating this phenomenon is unknown.

2.11. Megrim (*Lepidorhombus whiffiagonis and Lepidorhombus boscii*) in ICES Subarea VI (West of Scotland and Rockall).

The stock summary and advice for megrim in Subarea VI is given together with Divisions Iva, Vb, XII and XIV in Section 2.12.

2.12. Megrim (*Lepidorhombus whiffiagonis.*) in IVa, Vb (EU zone), VI, XII & XIV

FISHERIES: The main fishery is in Sub-Area VI where megrim is taken as a by-catch in trawl fisheries targeting anglerfish, roundfish species and *Nephrops*. There is however increasing targeting of megrim in response to more restrictive fishing opportunities for other species. Since 2009, ICES also provides advice on megrim in Subarea IV (North Sea). This is because the spatial distribution of landings data and survey catches provide good evidence to suggest that megrim population is contiguous between Divisions IVa and VIa.

The main exploiters are the UK (≥ 80% of catch in the past 4 years), Ireland, France and Spain.

Between 1990 and 2008 nominal catchs of Megrim in Division VIa, VIb and subarea IV as officially reported to ICES have ranged from 1,920 t in 2005 to 6,148 t in 1996. Although combined landings generally declined between 1996 and 2005, they increased each year to 2008. Combined landings in 2010 were 2,050.

It is unclear if the trends in landings reflects trends in abundance or are a consequence of changes in trawl effort observed over the period.

- Recent reductions in effort in Scotland and Ireland are considered to have contributed to the decline of landings in Subarea VI.
- In 2009 new mesh regulations introduced in Division VIa have increased the mesh size from 100 to 120 mm (vessels >15 m); this will result in an increase in the length of first capture. This measure, coupled with further effort restrictions associated with the long-term management plan for cod (Council Regulation (EC) No 1342/2008), is likely to result in further effort displacement away from the shelf fisheries in Division VIa, with indications of effort switching to Rockall (Division VIb). However, at this stage it is not possible to quantify this until an integrated analysis of VMS and logbook data is conducted.
- Landings in VI are well below the TAC. Uptake by France, who account for 44% of the TAC, is very low (~11%).
- Official landings in Sub-area IV and Division IIa in recent years are close to the TAC.

Area misreporting has been prevalent as megrim catches were misreported from Subarea VI into Subarea IV, due to restrictive quotas for anglerfish (i.e. vessels targeting anglerfish misreported all landings including megrim from Subarea VI into Subarea IV). However, in the most recent years there is evidence to suggest that this has reversed as the subarea IV TAC has become more restrictive and increasing targeting of megrim in response to more restrictive fishing opportunities for other species e.g. cod. The extent of this problem is unknown and should be quantified through integrated logbook and VMS analysis.

In the past, management of the megrim stock has been linked to that for anglerfish on the assumption that landings were correlated in the fishery. This may no longer be true due to recent changes in the fishing pattern in the Scottish and Irish fleets, and the dynamics of the species are probably not linked.

SOURCE OF MANAGEMENT ADVICE:

The management advisory body is ICES.

ICES consider that there is little evidence to suggest that the megrim in Subarea IV and Division VIa are separate stocks and concluded that megrim in Divisions VIa and IVa should be treated as a single stock and megrim in Division VIb (Rockall) should be treated as a separate stock. Consequently it provides advice, separately, for each. In both cases these assessments are landings and survey trends based rather than analytical.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

Divisions IVa and VIa:

F (Fishing Mortality)		
	2008-2010	
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	→	Stable at low level

SSB (Spawning Stock Biomass)		
	2008-2010	
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	↗	Increasing

An exploratory state-space surplus production model indicates that the overall mortality rate has declined and stabilised at reduced levels in recent years and total biomass has increased. The exploratory state-space model is only considered to evaluate stock trends

Division VIb (Rockall)

F (Fishing Mortality)		
	2010	
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
SSB (Spawning Stock Biomass)		
	2010	
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	↗	increasing

No reliable assessment can be presented for this stock. The main cause of this is the lack of basic data. Trends in biomass in recent years have increased, but the exploitation rate is unknown

RECENT MANAGEMENT ADVICE:

Divisions IVa and VIa: ICES advises on the basis of precautionary considerations that there should be no increase in catch.
Division VIb (Rockall): ICES advises on the basis of precautionary considerations there should be no increase in catch.

PA considerations

Divisions IVa and VIa: Survey information shows an increasing trend in biomass and exploratory analysis shows that the exploitation has decreased substantially in recent years. Therefore, catches should not be allowed to increase.
Division VIb (Rockall): Trends in biomass in recent years have increased. However, because the exploitation rate is unknown, catches should not be allowed to increase.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

2.13. Plaice (*Pleuronectes platessa*) - Vb (EU zone), VI, XII, XIV

STECF did not have access to any stock assessment information on plaice in these areas.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

2.14. Sole (*Solea solea*) – VIIhjk

FISHERIES: Sole are predominantly caught within mixed species otter trawl fisheries in Division VIIj. These vessels target mainly hake, anglerfish, and megrim. Beam trawlers and seiners generally take a lesser catch of sole. The major participants in this fishery are Ireland, the UK and France with a smaller contribution from Belgium. Between 1973 and 1998 landings fluctuated between 650 t and 1,100 t (with the exception of 1978/79 when they fell to 450-550t). Since 1999 landings have generally been less than 500 t and since 2006 less than 300 t. Landings in 2010 were 255t .

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

REFERENCE POINTS: INSERT TABLE

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	0.31	Provisional proxy based on WGCSE 2010 estimate of F_{max}
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

(unchanged since 2010)

STOCK STATUS:

F (Fishing Mortality)		
	2008-2010	
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	✓	close to current proxy for F_{MSY}

SSB (Spawning Stock Biomass)		
	2009-2011	
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown

There is no accepted analytical assessment for this stock and the state of sole stock in Divisions VIIh–k is unknown. Exploratory estimates of mortality suggest that the current fishing mortality in VIIjk is close to current proxy for F_{MSY}.

RECENT MANAGEMENT ADVICE:

ICES advise on the basis of precautionary considerations that catches in 2012 should not increase.

Management plans

No specific management objectives are known to ICES.

MSY approach

Exploratory estimates of mortality suggest that the current fishing mortality in VIIjk is close to current proxy for F_{MSY}.

Precautionary considerations

The state of the stock biomass is unknown, but exploratory estimates of mortality suggest that recent fishing mortality for the major component of the catch is to close to F_{max} which is used as a proxy for F_{MSY} (Figure 5.4.10.3). Therefore, catches should not be allowed to increase in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice for 2012.

2.15. Sole (*Solea solea*) - VIIbc

FISHERIES: Ireland is the major participant in this fishery. Sole are normally caught in mixed species otter trawl fisheries in Division VIIb. These vessels mainly target other demersal fish species and *Nephrops*. Recent catches have varied between 77 t in 2000 and 43 t in 2010 and have been close to the TAC.

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

REFERENCE POINTS: No reference points have been proposed for this stock.

STOCK STATUS: The state of the stock is unknown and there is no basis for an advice.

RECENT MANAGEMENT ADVICE: There is insufficient information to evaluate the status of the stock. Therefore, based on precautionary considerations, ICES advises that no increase of the catch should take place unless there is evidence that this will be sustainable.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment that the state of the stock is unknown that no increase of the catch should take place unless there is evidence that this will be sustainable.

2.16. Norway pout (*Trisopterus esmarki*) in Division VIa (West of Scotland)

FISHERIES Total landings are available for this stock for the years 1971 – 2009. Landings during this period have varied considerable, from a high in 1987 of some 38,000 tonnes to less than 50 tonnes every year since 2005 and zero tonnes since 2007. Historically the majority of landings have been taken by Danish fleets with lesser catches by UK, Netherlands and Germany.

There are currently no dedicated fisheries for Norway Pout in Division VIa (West of Scotland).

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. ICES has not provided advice for 2012

REFERENCE POINTS: No fishing mortality or biomass reference points are defined for this stock.

STOCK STATUS: No assessment is conducted for this stock.

RECENT MANAGEMENT ADVICE:
There is insufficient information to evaluate the status of this stock. Therefore, based on precautionary considerations, ICES advises that no increase of the catches should take place unless there is evidence that this will be sustainable.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice that as there is insufficient information to evaluate the status of stock, based on precautionary considerations, no increase of the catches should take place unless there is evidence that this will be sustainable.

2.17. Sandeel (*Ammodytes spp. And Gymammodytes spp.*) in Division VIa

STECF did not have access to any recent stock assessment information on sandeel in Division VIa.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

2.18. Rays and skates in ICES Subareas VI and VII

The stock summary and advice for rays and skates in ICES Subareas VI and VII will not be updated in 2011. The text below relates to the most recent advice from ICES which was issued in 2010.

FISHERIES: Rays and skates are taken as target and by-catches in most demersal fisheries in the ICES area. There are some directed fisheries, for example, in VIIa, but most ray and skate landings are by-catches in trawl and in seine fisheries. A generic TAC introduced for all skate and rays species In North Sea in 1999 but not yet for Celtic Seas. Prior there has been no obligation for fishermen to record catches in the logbooks used for monitoring quota uptake of TAC species. As a consequence, there is a lack of information on the fisheries for

rays. Statistical information by species is also limited because few European countries differentiate between species in landings statistics and they are collectively recorded as skates and rays. The main exception is France, for which the cuckoo ray and the thornback ray are the most important species of skates and rays landed.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. The assessment is based on survey and landing trends.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

F_{MSY} is not currently definable for these stocks, unless further information is available, including a better assessment of the species composition of the landings. Reference points cannot be defined.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	**2009**
F_{msy}		?	
F_{pa} / F_{lim}		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY $B_{trigger}$		?	
B_{pa} / B_{lim}		?	

In the absence of defined reference points, the status of the stocks of demersal skates and rays (members of the family Rajidae) cannot be evaluated. The following provides a qualitative summary of the general status of the major species based on surveys and landings:

Species	**Area**	**State of stock**
Common skate complex	VI	Depleted. The stock likely extends into IIa and IVa
	VII	Depleted. Near extirpated from the Irish Sea (VIIa)
R.. clavata (thornback ray)	VI	Stable/increasing.
	VIIa,f,g	Stable/increasing.
	VIIe	Uncertain
R.. montagui (spotted ray).	VI	Stable/increasing.
	VIIa,f,g	Stable/increasing.
	VIIe	Uncertain
L. naevus (cuckoo ray)	VI	Uncertain. The stock area is not known, and may merge with sub-areas IV and VII. Survey catches in VIa are increasing.
	VII	Uncertain. The stock area is not known, and may merge with sub-areas VI and VIII. French LPUE in the Celtic Sea has declined. Survey catches appear stable
R. brachyura (blonde ray)	VIa	Uncertain. No trends are apparent from surveys.
	VIIa	Uncertain. No trends are apparent from surveys.
	VIIe	Uncertain
	VIIf	Uncertain. No trends are apparent from surveys.

R.. undulata (undulate ray)	VIIj	Uncertain. Locally common in discrete areas.
	VIId,e	Uncertain. Locally common in discrete areas.
R. microocellata (small-eyed ray)	VIIf	Stable/increasing.
L. circularis (sandy ray)	VI	Uncertain.
	VIIbc,h-k	Uncertain – stable/increasing in VIIj
R. fullonica (shagreen ray)	VI	Uncertain. There is a poor signal from surveys for this species.
	VIIbc,g-k	Uncertain. There is a poor signal from surveys for this species.
Dipturus oxyrinchus (long-nose skate)	VI-VII	Uncertain
Dipturus nidarosiensis (Norwegian skate)	VI	Uncertain

Stock trends from fishery-independent trawl surveys are available in most cases, however, for most stocks, it is not possible to identify whether overfishing takes place.

Landings of skates and rays in the Celtic Seas have generally declined, and this is associated with changes in species composition and relative abundance.
There is not enough information to assess the status of any species in the Rockall area. The assessments below refer to the other divisions within this eco-region.

RECENT MANAGEMENT ADVICE:

Advice Summary for 2011-2012

Management Objective (s)	**Landings in 2011 and 2012**
Transition to an **MSY approach** with caution at low stock size	Less than 9.9 thousand t for the main species
Cautiously avoid impaired recruitment (**Precautionary Approach**)	No target fishery on *Raja undulata* and *Dipturus batis* complex
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

Advice for 2011 and 2012 by individual stocks

Species	**Area**	**Advice**
Common skate complex (= *D. batis*, which has recently been differentiated into *D. flossasda* and *D. intermedia*, see Additional Considerations)	VI	No targeted fishery
	VII	No targeted fishery
R.. clavata (thornback ray)	VI	Status quo catch
	VIIa,f,g	Status quo catch
	VIIe	Status quo catch
R.. montagui (spotted ray).	VI	Status quo catch
	VIIa,f,g	Status quo catch
	VIIe	Status quo catch
L. naevus (cuckoo ray)	VI	Reduce from recent catch level
	VII	Reduce from recent catch level
R. brachyura (blonde ray)	VIa	No advice
	VIIa	No advice
	VIIe	No advice
	VIIf	No advice
R.. undulata (undulate ray)	VIIj	No targeted fishery
	VIId,e	No targeted fishery
R. microocellata (small-eyed ray)	VIIf	Status quo catch
L. circularis (sandy ray)	VI	No advice
	VIIbc,h-k	No advice
R. fullonica (shagreen ray)	VI	No advice
	VIIbc,g-k	No advice
Dipturus oxyrinchus (long-nose skate)	VI-VII	No advice
Dipturus nidarosiensis (Norwegian skate)	VI	No advice
Rostroraja alba (White skate)	VII	Retain on prohibited species list

Outlook for 2011-2012

No analytical assessment or forecast can be presented for these stocks. The main cause of this is the lack of a time-series of species specific landings data.

No targeted fishing should be permitted for *Raja undulata* and the *Dipturus batis* complex.

MSY approach

Advice by species/stock is provided in the table above. This advice is based on an application of the MSY approach for stocks without population size estimates. This advice applies to 2011 and 2012. Given the stable, possibly increasing stock trend for the main commercial skate species, as indicated by fishery-independent trawl surveys, but that the exploitation status is unknown, the catch should be maintained at recent levels.

Advice is provided based on an examination of the stock status of each of the different stocks in the divisions within the ecoregion, with the advice for the majority of the stocks provided.

Policy paper

In terms of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) the stocks in this multispecies complex are classified under a range of categories. The main commercial stocks are classified under categories 6-9, Annex IV, Rule 4. This implies an unchanged TAC.

However, the status of some other skate stocks is unknown, which following category 11 would suggest an adjustment in the TAC to recent catch levels, but by no more than 15%. This would imply a maximum reduction in TAC to 11,379 tonnes in 2011. TACs for individual species within the demersal elasmobranch assemblage are not appropriate, with the exception of a zero TAC for those stocks known to be severely depleted (i.e., *D. batis, R. undulata, S. squatina,* and *R. alba*).

Species	Area	Policy Category
Common skate complex	VI	Annex III, Category 10
	VII	Annex III, Category 10
R.. clavata (thornback ray)	VI	Annex III, Category 8. Annex IV Rule 4 applies
	VIIa,f,g	Annex III, Category 8. Annex IV Rule 4 applies
	VIIe	Annex III, Category 6, Annex IV, Rule 4 applies
R.. montagui (spotted ray).	VI	Annex III, Category 8. Annex IV Rule 4 applies
	VIIa,f,g	Annex III, Category 8. Annex IV Rule 4 applies
	VIIe	Annex III, Category 6, Annex IV, Rule 4 applies
L. naevus (cuckoo ray)	VI	Annex III, Category 9 Annex IV, Rule 4 applies
	VII	Annex III, Category 9 Annex IV, Rule 4 applies
R. brachyura (blonde ray)	VIa	Annex III, Category 11
	VIIa	Annex III, Category 11
	VIIe	Annex III, Category 11
	VIIf	Annex III, Category 11
R.. undulata (undulate ray)	VIIj	Annex III, Category 10
	VIId,e	Annex III, Category 10
R. microocellata (small-eyed ray)	VIIf	Annex III, Category 6, Annex IV, Rule 4 applies
L. circularis (sandy ray)	VI	Annex III, Category 11
	VIIbc,h-k	Annex III, Category 11
R. fullonica (shagreen ray)	VI	Annex III, Category 11
	VIIbc,g-k	Annex III, Category 11
Dipturus oxyrinchus (long-nose skate)	VI-VII	Annex III, Category 11
Dipturus nidarosiensis (Norwegian skate)	VI	Annex III, Category 11
Rostroraja alba (White skate)	VII	Annex III, Category 10

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

TACs for individual species within the demersal elasmobranch assemblage are not appropriate, with the exception of a zero TAC for those stocks known to be severely depleted (i.e., *D. batis, R. undulata, S. squatina,* and *R. alba*).

2.19. Catsharks and Nursehounds (*Sciliorhinus canicula and Sciliorhinus stellaris*) in Subareas VI and VII

The stock summary and advice for Catsharks and Nursehounds in Subareas VI and VII will not be updated in 2011. The text below relates to the most recent advice from ICES which was issued in 2010.

FISHERIES: This species is taken primarily as a by-catch in demersal fisheries targeting other species and a large proportion of the catch is discarded, although in some coastal areas there are seasonal small-scale directed fisheries.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. The assessment is based on survey and landing trends.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

F_{MSY} is not currently definable for these stocks, unless further information is available, including a better assessment of the species composition of the landings. Reference points cannot be defined.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
F_{msy}		?	
F_{pa} / F_{lim}		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY $B_{trigger}$		?	
B_{pa} / B_{lim}		?	

In the absence of formal stock assessments and defined reference points for *Scyliorhinus spp.* in this eco-region, the following provides a qualitative evaluation of the general status of the major species, based on surveys and landings.

Species	**Area**	**State of stock**
S. canicula (lesser spotted dogfish)	VI and VII	Stable/increasing in all areas.
S. stellaris (greater spotted dogfish)	VIIa,e,f	Locally common. Survey catches appear to be increasing in VIIa, but there is a poor signal in other areas due to low catches.

RECENT MANAGEMENT ADVICE:

Scyliorhinus canicula (Lesser-spotted dogfish)

Management Objective (s)	**Landings in 2011 and 2012**
Transition to an **MSY approach** with caution at low stock size	Maintain catch at recent level
Cautiously avoid impaired recruitment (**Precautionary Approach**)	Maintain catch at recent level

Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

There is no TAC in place for *Scyliorhinus canicula.*

Advice for 2011 and 2012 by individual stocks

Species	Area	Advice
S. canicula (lesser spotted dogfish)	VI and VII	Status quo catch
S. stellaris (greater spotted dogfish)	VIIa,e,f	No advice

Outlook for 2011-2012

No analytical assessment or forecast can be presented for these stocks. The main cause of this is the lack of a time-series of species specific landings data.

MSY approach

Advice by species/stock is provided in the table above. This advice is based on an application of the MSY approach for stocks without population size estimates. This advice applies to 2011 and 2012.

Policy paper

In terms of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) the stocks of *Scyliorhinus spp.* are classified under a range of categories.

Species	Area	Policy Category
S. canicula (lesser spotted dogfish)	VI and VII	No TAC is in place, but Annex III, Rule 8, Annex IV Rule 4 would apply.
S. stellaris (greater spotted dogfish)	VIIa,e,f	No TAC is in place , but Annex III, Category 11 would apply

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

2.20. Tope (*Galleorhinus galeus*) in ICES Subareas VI and VII

Previous stock summaries and advice for tope has been provided at the NE Atlantic regional level and at present, STECF is unable to provide additional information and advice for subareas VI and VII separately.

2.21. Other demersal elasmobranches West of Scotland

The stock summary and advice for other demersal elasmobranches West of Scotland will not be updated in 2011. The text below relates to the most recent advice from ICES which was issued in 2010.

FISHERIES: Historically the increase of commercial fisheries directed at elasmobranch species, and their economic value, rank them low among marine commercial fisheries (Bonfil 1994). In the Northeast Atlantic, although some elasmobranchs are taken in directed fisheries, the majority are landed as bycatch from fisheries targeting commercial teleost species. Recreational fisheries, including charter angling, may be an important component of the tourist industry in some areas.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. The assessment is based on survey and landing trends.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY	MSY $B_{trigger}$	Not defined	

Approach	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

F_{MSY} is not currently definable for these stocks, unless further information is available, including a better assessment of the species composition of the landings. Reference points cannot be defined.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})		?	
Precautionary approach (F_{pa},F_{lim})		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)		?	
Precautionary approach (B_{pa},B_{lim})		?	

In the absence of formal stock assessments and defined reference points for *Mustelus* and *Squatina* in this eco-region, the following provides a qualitative evaluation of the general status of the major species, based on surveys and landings.

Species	Area	State of stock
Mustelus spp. (smooth-hounds)	VII	The stock area is not known, but may merge with sub-areas IV, VI and VIII. Increasing in most surveys.
Squatina squatina (Angel shark)	VI,VII	Rare in this ecoregion, and near extirpated from parts of its former range

RECENT MANAGEMENT ADVICE:

Advice for 2011 and 2012 by individual stocks

Species	Area	Advice
Mustelus spp. (smooth-hounds)	VII	Status quo catch
Squatina squatina (Angel shark)	VI,VII	Retain on prohibited species list

There is not enough information to assess the status of any species in the Rockall area.

Outlook for 2011-2012

No analytical assessment or forecast can be presented for these stocks. The main cause of this is the lack of a time-series of species specific landings data.

MSY approach

Advice by species/stock is provided in the table above. This advice is based on an application of the MSY approach for stocks without population size estimates. This advice applies to 2011 and 2012.

Policy paper

In terms of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) the stocks of these species are classified under a range of categories.

Species	Area	Policy Category
Mustelus spp. (smooth-hounds)	VII	No TAC is in place, but Annex III, Rule 8, Annex IV Rule 4 would apply.
Squatina squatina (Angel shark)	VI,VII	Annex III, Category 10

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

2.22. Herring (*Clupea harengus*) in Division VIa North

FISHERIES: Historically, catches have been taken from this area by three fisheries:

1) A Scottish domestic pair trawl fleet and the Northern Irish fleet operating in shallower, coastal areas, principally fishing in the Minches and around the Island of Barra in the south; younger herring are found in these areas. This fleet has reduced in recent years.
2) The Scottish single-boat trawl and purse seine fleets, with refrigerated seawater tanks, targeting herring mostly in the northern North Sea, but also operating in the northern part of Division VIa (N). This fleet now operates mostly with trawls, but many vessels can deploy either gear.
3) An international freezer-trawler fishery has historically operated in deeper water near the shelf edge where older fish are distributed. These vessels are mostly registered in the Netherlands, Germany, France, and England, but most are Dutch owned.

In recent years the age structure of the catch of these last two fleets has become more similar. A stricter enforcement regime in the UK is responsible for the major decrease in area misreporting in 2006.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is based on catch data and an acoustic survey. This assessment is considered to be noisy but unbiased. Misreporting has decreased since 2006 and the quality of the catch data has improved.

REFERENCE POINTS:

	Type	Value	Technical basis
Management plan	SSB_{MGT}	Not defined.	
	F_{MGT}	F_{3-6} = 0.25	If SSB in TAC year ≥ 75 000 t ((EC) 1300/2008, Art. 3).
		F_{3-6} = 0.20	If SSB in TAC year <75 000 t and ≥ 50 000 t ((EC) 1300/2008, Art. 3).
		F_{3-6} = 0.00	If SSB in TAC year <50 000 t ((EC) 1300/2008, Art. 3).
MSY Approach	MSY $B_{trigger}$	Not defined.	
	F_{MSY}	0.25	Simulations under different productivity regimes (Simmonds and Keltz, 2007). HAWG 2010.
Precautionary approach	B_{lim}	50 000 t	Lowest reliable estimate of SSB.
	B_{pa}	Not defined.	
	F_{lim}	Not defined.	
	F_{pa}	Not defined.	

(unchanged since: 2010)

STOCK STATUS:

F (Fishing Mortality)			
	2008	2009	2010
MSY (F_{MSY})	✓	✓	✗ Above target
Precautionary approach (F_{pa},F_{lim})	?	?	? Undefined

Management plan (F_{MGT})	✓	✓	✗ Above target

SSB (Spawning-Stock Biomass)			
	2008	2009	**2010**
MSY ($B_{trigger}$)	?	?	? Undefined
Precautionary approach (B_{lim})	✓	✓	✓ Above limit

ICES considers that the stock over recent years has been fluctuating at a low level. Fishing mortality has fluctuated around F_{MSY} in recent years. Recruitment has been low since 2003.

MANAGEMENT AGREEMENT: The EU adopted a management plan on 18 December 2008 (Council Regulation (EC) 1300/2008) based on the following rule;

SSB in the year of the TAC	Fishing mortality	TAC constraint
SSB > 75 000 t	F = 0.25	20%
SSB < 75 000 t	F = 0.2	20%
SSB < 62 500 t	F = 0.2	25%
SSB < 50 000 t (B_{lim})	F = 0	-

ICES has evaluated the plan and concludes that it is in accordance with the precautionary approach.

Agreed Management Plan for VIaN herring: Council Regulation 1300/2008

1. Each year, the Council, acting by qualified majority on the basis of a proposal from the Commission, shall fix for the following year the TAC applicable to the herring stock in thearea west of Scotland, in accordance with paragraphs 2 to 6.

2. When STECF considers that the spawning stock biomass level will be equal or superior to 75 000 tonnes in the year for which the TAC is to be fixed, the TAC shall be set at a level which, according to the advice of STECF, will result in a fishing mortality rate of 0.25 per year. However, the annual variation in the TAC shall be limited to 20%.

3. When the STECF considers that the spawning stock biomass level will be less than 75 000 tonnes but equal or superior to 50 000 tonnes in the year for which the TAC is to be fixed, the TAC shall be set at a level which, according to the advice of STECF, will result in a fishing mortality rate of 0,2 per year. However, the annual variation of the TAC shall be limited to:

> *(a) 20% if the spawning stock biomass level is estimated to be equal or superior to 62 500 tonnes but less than 75 000 tonnes;*
>
> *(b) 25% if the spawning stock biomass level is estimated to be equal or superior to 50 000 tonnes but less than 62 500 tonnes.*

4. When STECF considers that the spawning stock biomass level will be less than 50 000 tonnes in the year for which the TAC is to be fixed, the TAC shall be set at 0 tonnes.

5. For the purposes of the calculation to be carried out in accordance with paragraphs 2 and 3, STECF shall assume that the stock will experiences a fishing mortality rate of 0,25 in the year prior to the year for which the TAC is to be fixed.

6. By way of derogation from paragraphs 2 or 3, if STECF considers that the herring stock in the area west of Scotland is failing properly to recover, the TAC shall be set at a level lower than that provided for in those paragraphs.

RECENT MANAGEMENT ADVICE
ICES advises on the basis of the agreed west of Scotland herring management plan that the TAC for 2012 should be set at 22 900 t.

MSY approach

Following the ICES MSY framework implies fishing mortality at $F_{MSY} = 0.25$, resulting in landings of less than 22 900 t in 2012. This is expected to lead to an SSB of 87 700 t in 2013. As no MSY $B_{trigger}$ has been identified for this stock, the ICES MSY framework has been applied with F_{MSY} without consideration of SSB in relation to MSY $B_{trigger}$.

Management plan

The EU management plan (Council Regulation (EC) 1300/2008) is based on the following rule;

SSB in the year of the TAC	Fishing mortality	Maximum TAC variation
SSB > 75 000 t	F = 0.25	20%
SSB < 75 000 t	F = 0.2	20%
SSB < 62 500 t	F = 0.2	25%
SSB < 50 000 t (B_{lim})	F = 0	-

Following the agreed management plan implies a TAC of 22 900 t in 2012 which is expected to lead to a TAC increase of 2%.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1. The rules for category 1 prescribe that, on the basis of the agreed west of Scotland herring management plan, the TAC for 2012 should be set at 22 900 t.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the management advice for 2010.

2.23. Herring (*Clupea harengus*) in the Clyde (Division VIa)

The most recent advice for this stock was provided by ICES in 2005. Hence, with the exception of the TAC proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidated STECF Review of Advice for 2011.

FISHERIES: There are two stock components present on the fishing grounds, resident spring-spawners and immigrant autumn-spawners. The UK exploits the small stock of herring in this area. TACs have been set at 800 t since 2006. Since 1999, annual landings have varied from no fishing in 2004 to around 600 t in 2007.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. No analytical assessment has been made in recent years and no independent survey data are available for recent years.

REFERENCE POINTS: No precautionary reference points have been proposed for this stock.

STOCK STATUS The available information is inadequate to evaluate stock trends, and the state of the stock is uncertain.

RECENT MANAGEMENT ADVICE: Until new evidence is obtained on the state of the stock, existing time and area restrictions on the fishery should be continued in 2010.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that herring in the Clyde falls under Category 11. Accordingly STECF notes that the rules for the above category imply the TAC in 2011 should be adjusted towards recent real catch levels, but should not change by more than 15% per year.

2.24. Herring (*Clupea harengus*) in Division VIa south and VIIbc

FISHERIES: Since 2008 only Ireland has recorded catches from this area. Between 1988 and 1999 catches varied between 26,109 and 43.969 tonnes. Catche have declined in recent years with 13,040 t report in 2008, falling to 10,241t in 2010.

The fishery exploits a mixture of autumn-and winter/spring-spawning fish. The winter/spring-spawning component is distributed in the northern part of the area. The main decline in the overall stock appears to have taken place on the autumn-spawning component.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Exploratory assessment runs showed similar trends in stock development over a range of assumptions.

REFERENCE POINTS:

	Type	Value	Technical basis
MSY Approach	MSY $B_{trigger}$	Undefined.	Under development.
	F_{MSY}	0.25	Stochastic simulations on segmented regression stock recruit relationship, under different productivity regimes.
Precautionary approach	B_{lim}	81 000 t	Lowest reliable estimate.
	B_{pa}	110 000 t	1.4 B_{lim}
	F_{lim}	0.33	F_{loss}
	F_{pa}	Undefined.	

STOCK STATUS:

F (Fishing Mortality)		
		2008-2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	✗	Above poss. reference points

SSB (Spawning-Stock Biomass)		
		2008-2010
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	✗	Below poss. reference points

No reliable assessment can be presented for this stock. The main cause of this is the lack of sufficiently long survey data series. Therefore, fishing possibilities cannot be projected. The assessment is indicative for trends only. Recent F is unknown, but is likely to be above F_{MSY} (0.25). The current level of SSB is uncertain, but is likely to be below possible reference points. Recruitment has been low since 2000.

RECENT MANAGEMENT ADVICE

ICES advises on the basis of precautionary considerations that landings in 2012 should be reduced.

Management plans

There is no explicit management plan for this stock.

MSY considerations

The stock trend is uncertain in recent years, but the stock is considered below possible reference points. Exploitation is considered to be above F_{MSY}. Therefore, catches should be reduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

2.25. Herring (*Clupea harengus*) in Division Vb and VIb.

No assessment is made for these areas and no information was available to STECF from these areas.

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that herring in Divisions Vb and VIb falls under Category 11. Accordingly STECF notes that the rules for the above category imply the TAC in 2011 should be adjusted towards recent real catch levels, but should not change by more than 15% per year.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011/298) - final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

2.26. Pollack (*Pollachius pollachius*) in western waters

STECF did not have access to any recent stock assessment information on Pollack in western waters.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

2.27. Greenland halibut (*Reinhartius hippoglossoides*) in western waters

Greenland halibut is a deep sea species and widely distributed in the Northeast Atlantic covering various ICES Divisions. The different management areas are those in
Norwegian waters and international waters (I and II),
Greenland waters and international waters (Va and XIV),
Icelandic waters (Va),
Faroese (Vb) and
EU waters of IIa and IV; EU and international waters of Vb and VI.
Low landings are also taken in international waters of XII.

For advice on the stock component in subareas V and VI refer to Section 4.6 which provides the stock summary and management advice covering the management areas in Greenland waters (XIV and Va), Icelandic waters (Va), Faroese waters Vb, European waters in VI as well as international waters in VI, XII and XIV.

2.28. Grey Gurnard (*Eutrigla gurnardus*) in western waters

STECF did not have access to any recent stock assessment information on grey gurnard in western waters.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

2.29. Red Gurnard (*Aspitrigla cuculus*) in western waters

STECF did not have access to any recent stock assessment information on red gurnard in western waters.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

2.30. Red mullet (*Mullus barbartus and Mullus surmelutuss*) in western waters

STECF did not have access to any recent stock assessment information on red mullet in western waters.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

2.31. Sea bass (*Dicentrarchus labrax*) in western waters

STECF did not have access to any recent stock assessment information on sea bass in western waters.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

2.32. Cod (*Gadus morhua*) in area VIIa (Irish Sea Cod)

FISHERIES: The Irish Sea cod fishery has traditionally been carried out by otter trawlers targeting spawning cod in spring and juvenile cod in autumn and winter. Activities of these vessels have decreased, whilst a fishery for cod and haddock using large pelagic trawls increased substantially during the 1990s. In recent years the pelagic fishery has also targeted cod during the summer. Cod are also taken as a by-catch in fisheries for *Nephrops*, plaice, sole and rays. Landings are taken entirely by EU fleets and were between 6,000 t and 15,000 t from 1968 to the late 1980s. There has since been a steep decline in landings to levels as low as 1,300 t in 2000. There has been a slight increase from this level in 2001 and 2002 (up to 2,700 t) but since then, landings have continuously declined to the record low value of 460 t in 2010. The quality of the commercial landings and catch-at-age data for this stock deteriorated in the 1990s following reductions in the TAC without associated control of fishing effort. Legislation introduced in Britain and Ireland in 2006 has reduced misreporting.

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. Reported landings are replaced by estimates derived from a port sampling scheme for the years 1991-1999. From 2000 the model estimates the removals needed for abundance estimates to follow the same trends as observed by surveys in the area.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	10 000 t	B_{pa}
	F_{MSY}	0.4	Provisional proxy. Fishing mortalities in the range of 0.25–0.54 are consistent with F_{MSY}
Precautionary Approach	B_{lim}	6000 t	B_{lim}= B_{loss}, lowest observed level.
	B_{pa}	10 000 t	B_{pa} = MBAL, this level affords a high probability of maintaining the SSB above B_{lim}. Below this value the probability of below-average recruitment increases.
	F_{lim}	1.00	F_{lim}= F_{med}
	F_{pa}	0.72	F_{pa}: F_{med}* 0.72. This F is considered to have a high probability of avoiding F_{lim}. Fishing mortalities above F_{pa} have been associated with the observed stock decline.

(unchanged since: 2010)

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary	✗	✗	✗	Harvested unsustainably

approach (F_{pa},F_{lim})			
SSB (Spawning-Stock Biomass)			
	2009	2010	2011
MSY ($B_{trigger}$)	✗	✗	✗ Below trigger
Precautionary approach (B_{pa},B_{lim})	✗	✗	✗ Reduce reproductive capacity

The fishing mortality in recent years is uncertain, but total mortality remains very high. The spawning stock biomass has declined ten-fold since the late 1980s and has had reduced reproductive capacity since the mid-1990s. The spawning stock biomass remains well below B_{lim}. With the exception of the 2009 year class, recruitment has been low for the last 9 years.

MANAGEMENT AGREEMENTS:

To rebuild the SSB of the stock, a spawning closure was introduced in 2000 for ten weeks from mid-February which was argued to maximize the reproductive output of the stock (EU Regulations 304/2000 and 549/2000). The measures were revised in 2001, 2002, 2003 and 2004, involving a continued, but smaller spawning ground closure, coupled with changes in net design to improve selectivity.

The EU has adopted a long-term plan for cod stocks and the fisheries exploiting those stocks (Council Regulation (EC) 1342/2008). This regulation repeals the recovery plans in Regulation (EC) No 423/2004, and has the objective of ensuring the sustainable exploitation of the cod stocks on the basis of maximum sustainable yield while maintaining a target fishing mortality of 0.4 on specified age groups.

The regulation is complemented by a system of fishing effort limitation (see EC 43/2009 for latest revision).

ICES has evaluated the management plan and found that all scenarios with the TAC constraints imposed (±20%) show very low probabilities of recovering the stock to B_{lim} by 2015. ICES therefore considers the management plan not to be in accordance with the precautionary approach. If the TAC constraint is taken off, the chances of recovering the stock before 2015 increase significantly, although they remain low.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of MSY approach that zero catches be taken in 2012.

Management plan(s)

Following the cod long term management plan (EC 1342/2008) the stock is considered data poor which implies using article 9(a). This results in a TAC and associated effort reduction of at least 25%. ICES considers that article 10(2) may also apply.

ICES (2009a,b) evaluated the plan and considers the management plan not in accordance with the precautionary approach.

MSY approach

Fishing mortalities in the range 0.25–0.54 are consistent with maximising long-term yield for cod in Division VIIa. This is consistent with the management plan target fishing mortality of 0.4. Given the low SSB and low recruitment it is not possible to identify any non zero catch which would be compatible with the MSY transition scheme. This implies no targeted fishing should take place on cod in Division VIIa. Bycatches including discards of cod in all fisheries in Division VIIa should be reduced to the lowest possible level and uptake of further technical measures to reduce discards

PA considerations

No targeted fishing should take place on cod in Division VIIa. Bycatches including discards of cod in all fisheries in Division VIIa should be reduced to the lowest possible level.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1. The rules for category 1 prescribe that for 2012 a TAC for cod in division VIIa of 380 t should be proposed.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2011.

The rules for category 1 prescribe that for 2012, a TAC for cod should be 380 t on the basis of a 25% reduction in the TAC and commensurate effort reduction of 25% for the gears described under the plan under article 9.

STECF further notes the considerable problems with the assessment for this stock. STECF believes that the bias and uncertainty in the assessment are being exacerbated by the deterioration in availability and reliability of catch and effort data although the recent implementation of stricter landings enforcement has improved the quality of the landings data from 2006 onwards.

Stock recovery

STECF concludes that the stock is not recovering.

2.33. Cod (*Gadus morhua*) in areas VIIe-k

FISHERIES: Cod in Divisions VIIe-k are taken as a component of mixed trawl fisheries. Landings are made mainly by French gadoid trawlers, which prior to 1980 were mainly fishing for hake in the Celtic Sea. Landings peaked in 1989 at 20,000 t following which they have been maintained between 6,000 and 13,000 t until 2003 since when landings have been between around 3,500 t. All landings are taken by EU fleets.

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 $B_{trigger}$	8800 t	Provisionally set at B_{pa}.
	F_{MSY}	0.40	Provisional proxy based on F_{max} (ICES, 2011).
Precautionary Approach	B_{lim}	6300 t	$B_{lim} = B_{loss}$ (B76), the lowest observed spawning-stock biomass.
	B_{pa}	8800 t	$B_{pa} = B_{lim} * 1.4$. Biomass above this value affords a high probability of maintaining SSB above B_{lim}, taking into account the variability in the stock dynamics and the uncertainty in assessments.
	F_{lim}	0.90	The fishing mortality estimated to lead to potential collapse.
	F_{pa}	0.68	F_{pa} = 5th percentile of F_{loss}. This F is considered to have a high probability of avoiding F_{lim} and maintaining SSB above B_{pa} in the medium term (assuming normal recruitment), taking into account the uncertainty assessments.

(unchanged since: 2011)

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	✓	✓	✓	Harvested sustainably
SSB (Spawning-Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	✗	✗	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	✓	✓	✓	Full reproductive capacity

More than 80% of the landings consist of 3 age groups (1–3) over the available time-series (Figure 5.4.2.4). Therefore the stock is highly dependent on incoming recruitment. Various sources indicate that the recruitment of the 2009 year class is the strongest since 2000. SSB is above B_{pa} and is expected to increase to a high level in the near future because of decreasing fishing mortality and strong incoming recruitment. However, it is known that discard rates have increased in some fleets in 2010, and this discard information is incomplete in the assessment; this means that the assessed and predicted stock size may be overestimated. Fishing mortality has been substantially decreasing since the late 1990s while landings are stable and close to their lowest historical levels. Current fishing mortality is above the potential proxy for F_{MSY}.

RECENT MANAGEMENT ADVICE:

The strong 2009 year class is expected to bring the SSB above MSY $B_{trigger}$. Based on the MSY framework, ICES advises that F in 2012 be set at F_{MSY} = 0.40, resulting in landings of 10 000 t in 2012.

Other considerations

MSY approach

The strong 2009 year class is expected to bring the SSB above MSY $B_{trigger}$. Based on the MSY framework, ICES advises that F in 2012 be set at F_{MSY} = 0.40, resulting in landings of 10 000 t in 2012. This is expected to lead to an SSB of 21 900 t in 2013.

Following the transition scheme towards the ICES MSY framework implies that F in 2012 (F_{2010}*0.6+0.4*F_{MSY}) is 0.47, resulting in landings of 11 300 t in 2012. This is expected to lead to an SSB of 20 400 t in 2013.

Precautionary considerations

The fishing mortality in 2012 should be no more than F_{pa}, corresponding to landings of less than 14 700 t in 2012. This is expected to keep SSB above B_{pa} in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. Adopting the FMSY proxy proposed by STECF ($F=F_{0.1}=0.26$), the rules for category 2 prescribe that a TAC for 2012 of 10,200 t for cod in Divisions VII e-k should be proposed based on the ICES transition scheme.

STECF COMMENTS:

STECF agrees with the ICES assessment but considers that the proposed proxy for F_{MSY} (F_{MAX}=0.4) may not be appropriate. In the absence of an estimate of F_{MSY}, STECF recommends that $F_{0.1}$ (F=0.26) is a more appropriate proxy for F_{MSY} and should be used. F_{2010} is estimated to be 0.51. Hence applying the ICES transition scheme to reduce F towards $F_{0.1}$ (F=0.26) in 2012, gives rise to F_{2012}=0.41.

STECF advises that management should aim to achieve F=0.41 on cod in Divisions VIIb,c,e–k, Subareas VIII, IX, X, and CECAF 34.1.1. VIIb,c in 2012, which is predicted to result in landings of 10,200 t from Divisions VIIe-k.

STECF notes that the predicted landings for 2012 and the predicted SSB in 2013 are heavily dependent on the estimated strength of the 2009 year-class at age 3 which is not precisely estimated. Surveys that will take place in the autumn of 2011 will provide an additional estimate of the strength of the 2009 year-class as 2-year-olds. STECF therefore recommends that for cod in Divisions VIIb,c,e–k, Subareas VIII, IX, X, and CECAF 34.1.1, provision be made to allow for an adjustment of any agreed TAC for 2012 in line with any revised estimate of the strength of the 2009 year-class as 2-year-olds.

STECF notes that the predicted landings at $F_{MSY\ TRANSITION}$(F=0.41) implies a 22% reduction in fishing mortality in 2012 compared to F_{SQ}. Such a reduction in fishing mortality is unlikely to be achieved if management is solely through restrictions on landings. STECF recommends that in order to reduce fishing mortality to F_{MSY}, additional measures are required.

STECF notes that TAC for cod relates for Divisions VIIb,c,e–k, Subareas VIII, IX, X, and CECAF 34.1.1. However the assessment area covers Divisions VIIe–k and the ICES advice applies to these areas only. STECF

therefore suggests that in establishing a TAC for cod for Divisions VIIb,c,e–k, Subareas VIII, IX, X, and CECAF 34.1.1. the landings corresponding to the advice for Divisions VIIe-k should be increased by 4.6% to account for catches taken from Divisions VIIb,c, Subareas VIII, IX, X, and CECAF 34.1.1. 4.6% is the average proportion of the annual landings reported from Divisions VIIb,c, Subareas VIII, IX, X, and CECAF 34.1.1 over the period 2003-2010.

STECF notes that given the apparent quick recovery of the stock in response to a single strong year-class and the complexity of the mixed fishery for other gadoids and ground fish it is very difficult to manage this species in isolation. An adaptive mixed fishery management plan with effective measures to control fishing mortality on a number of species is required.

Special request to STECF on Celtic Sea cod (Divisions VIIbc, VIIe-k, VIII, IX and X)

Background

In light of the advice issued by ICES regarding Cod in Divisions VIIbc, VIIe-k, VIII, IX and X, the NWWRAC has requested the Commission to make a proposal for the amendment of the 2011 TAC for this stock. The RAC reads the ICES advice as containing new information which was not available to ICES in 2010, at the time of formulating advice regarding the 2011 season.

Terms of Reference

STECF is requested to indicate, in case the Commission were to consider revising the TAC currently applicable to the cod stock in the Celtic Sea, what would be the appropriate revised TAC level for 2011 taking into account recent and expected discarding in 2011. To this end, STECF should consider the level of unavoidable cod catches expected during the remainder of the season (from 1 September 2011), and the objective of reducing the fishing mortality rate to the target MSY rate of 0.4. In respect of the latter, any revised TAC value should not be such that implementing the ICES MSY framework in 2012 would require a TAC cut.

STECF conclusions and recommendations

STECF notes that with the background of latest ICES advice that discards are not included in the ICES assessment for cod in divisions VIIe-k. In the absence estimates of the proportions of the catch discarded and landed, STECF has no basis to take into account recent and expected discarding in 2011.

A revised catch forecast assuming a fishing mortality of 0.4 in 2011 is given in Table 2.33.1The predicted landings at F=0.4 for 2011 are 8,700 t compared to an agreed TAC of 4023 t. The average uptake of the cod TAC in divisions VIIe-k in the last 5 years at 1st September is 71%. Assuming a similar TAC uptake in 2011, the 2011 TAC could be raised by 29% of the difference between the new predicted landings (8,700 t) and the 2011 TAC (4,023 t). This equates to 1356 t, implying that a revised TAC of 5,379 t for 2011 could be proposed.

STECF considers that the proxy for F_{MSY} (F_{MAX}=0.4) proposed by ICES may not be appropriate. In the absence of an estimate of F_{MSY}, STECF recommends that $F_{0.1}$ (F=0.26) is a more appropriate proxy for F_{MSY} and should be used. F_{2010} is estimated to be 0.51. Hence applying the ICES transition scheme to reduce F towards $F_{0.1}$ (F=0.26) in 2012, gives rise to F_{2012}=0.41.

STECF advises that for 2012, management should aim to achieve F=0.41 (ICES transition scheme applied on a FMSY=0.26) on cod in Divisions VIIb,c,e–k, Subareas VIII, IX, X, and CECAF 34.1.1. VIIb,c. To predict the landings corresponding to fishing at F=0.41 in 2012 STECF has assumed F_{SQ} (F=0.51) in 2011 in accordance with ICES advice. This predicted to result in landings of 10,200 t in 2012 (Table 2.33.2).

Table 2.33.1 Revised catch forecast for cod in Divisions VIIe-k assuming F2011 = 0.4

F(2011) = 0.4; SSB(2012) = 23.8 kt; R (2011) = GM (1971-2008) = 3022 (Thousands); landings (2011) = 8.7 kt

Rationale	Landings (2012)	Basis	F (2012)	SSB (2013)	%SSB change [1)]	% TAC change [2)]
MSY framework	7.8	STECF proposal F_{MSY}	0.26	28.3	19%	94%
MSY transition to Fmsy=0.26	11.4	(F_{2010}*0.6+FMSY*0.4)	0.41	23.8	0%	183%
Precautionary Approach	16.4	F_{pa} (Fsq*1.33)	0.68	17.7	-25%	308%

Zero catch	0	F=0	0.00	46.0	94%	-100%
Status quo	12.4	F_{sq} * 0.9	0.46	22.5	-5%	208%
	13.4	F_{sq}	0.51	21.3	-10%	233%
	14.4	F_{sq} * 1.1	0.56	20.1	-15%	258%
	3.420	TAC-15% (Fsq*0.24)	0.10	33.9	43%	-15%
	4.023	TAC (Fsq*0.27)	0.12	33.1	40%	0%
	4.626	TAC+15% (Fsq*0.31)	0.14	32.3	36%	15%

Weights in '000 tonnes.
[1)] SSB 2013 relative to SSB 2012.
[2)] Landings 2012 relative to TAC 2011.

Table 2.33.2. Catch forecast for cod in Divisions VIIe-k assuming F2011 = F_{sq} = 0.51

Outlook for 2012

Basis: **F(2011)** = F_{sq} = mean($F_{2008-2010}$) rescaled to F_{2010} = **0.51**; SSB(2012) = 21.2 kt; R (2011) = GM (1971–2008) = 3022 (thousands); landings (2011) = 10.5 kt.

Rationale	**Landings (2012)**	**Basis**	**F (2012)**	**SSB (2013)**	**%SSB change [1)]**	**% TAC change [2)]**
MSY framework	7.0	STECF proposed F_{MSY}	0.26	25.7	+21%	+75%
MSY transition to Fmsy=0.26	10.2	(F_{2010}*0.6+F_{MSY}*0.4)	0.41	21.7	+2%	+154%
Precautionary Approach	14.7	F_{pa} (F_{sq}*1.33)	0.68	16.1	-24%	+266%
Zero catch	0	F=0	0.00	34.6	+63%	-100%
Status quo	11.2	F_{sq} * 0.9	0.46	20.5	-3%	+177%
	12.1	F_{sq}	0.51	19.4	-9%	+200%
	12.9	F_{sq} * 1.1	0.56	18.3	-14%	+221%
	3.420	TAC-15% (F_{sq}*0.24)	0.12	30.3	+43%	-15%
	4.023	TAC (F_{sq}*0.27)	0.14	29.5	+39%	0%
	4.626	TAC+15% (F_{sq}*0.31)	0.16	28.7	+36%	+15%

Weights in '000 tonnes.
[1)] SSB 2013 relative to SSB 2012.
[2)] Landings 2012 relative to TAC 2011.

2.34. Haddock (*Melanogrammus aeglefinus*) in Division VIIa (Irish Sea)

FISHERIES: Haddock in Division VIIa are taken in *Nephrops* and mixed demersal trawl fisheries, using mid-water trawls and otter trawls. Landings are made throughout the year, but are generally more abundant during the third quarter. Discarding is high and additional technical measures should be introduced, for example the use of sorting grids or large square mesh (>120 mm) panels in *Nephrops* fisheries. Discard estimates are very variables and estimates are large in some years.
Due to the by-catch of cod in the haddock fishery, the regulations affecting Division VIIa haddock remain linked to those implemented under the Irish Sea cod recovery plan. The extent to which fishing mortality may have been reduced in 2005 by management measures such as effort limitation and decommissioning of vessels in 2003 could not be reliably evaluated.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES who advises on the basis of a trends based analysis based on a single survey.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	0.5	ICES proposed that F_{pa} be set at 0.5 by association with other haddock stocks.

STOCK STATUS:

F (Fishing Mortality)		2008 -2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown

SSB (Spawning-Stock Biomass)		2009 – 2011
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	✗	Below poss. reference points

The assessment is indicative of trends only. Stock trends indicate an increase in SSB over the time-series, but a decrease since 2008. The strength of the 2010 year class is uncertain and the response to SSB is unknown due to the dependence on incoming year classes.

RECENT MANAGEMENT ADVICE:

ICES advises based on precautionary considerations, that catches in 2012 should be reduced, and uptake of further technical measures to reduce discards.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3 due to the lack of a full analytical assessment and F_{MSY} information

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011 interpreting the advice as a call for further uptake of technical measures.

STECF notes that catches are mainly from a by-catch fishery so that such management measures will impact the exploitation of other stocks or lead to discarding of haddock if effort cannot be appropriately related to F. A suitable solution is a reduction in the effort of the fleets and an exemption from the effort regulations to those operators able to demonstrate a more appropriate selection pattern to ensure gadoid by-catch is minimised in fisheries targeting other species.

2.35. Haddock (*Melanogrammus aeglefinus*) in Division VIIb-k (Celtic Sea and West of Ireland)

FISHERIES: In this area, haddock is taken in mixed fisheries along with cod, whiting, plaice, *Nephrops*, sole and rays. Most catches come from otter trawlers, mainly from France and Ireland. The TAC has not been restrictive for haddock. Landings peaked at about 11,000 t in 1997 and have fluctuated between about 5,000 t and 8,000 t since then. In 2010, total ICES estimated (preliminary) catches amounted to 22,200 t of which 44% are landings and 56% discards.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. The basis of its advice is and age-based analytical assessment (XSA) including discard data and two survey and two commercial tuning series deemed to be indicative of trends only.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	Not defined	
	B_{lim}	Not defined	

Precautionary Approach	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010
MSY (F_{MSY})	?	?	? Unknown
Precautionary approach (F_{pa},F_{lim})	?	?	? Unknown
Qualitative evaluation	→	→	→ Stable

SSB (Spawning-Stock Biomass)	2009	2010	2011
MSY ($B_{trigger}$)	?	?	? Unknown
Precautionary approach (B_{pa},B_{lim})	?	?	? Unknown
Qualitative evaluation	↗	↗	↗ Strong increase

The assessment is indicative of trends only. SSB shows an increasing trend over the time-series. Recruitment is highly variable and in the past the SSB and catches have increased after good recruitment. Recruitment of the 2009 year class appears to be exceptionally good, and catches have increased in 2010. However, most of the increase in catch was discarded because these fish were under the minimum landing size. As these fish become of marketable size from age 2 onwards, they are likely to be discarded due to a restrictive TAC. Fishing mortality has been stable over the recent years.

RECENT MANAGEMENT ADVICE:

Abundance of haddock is increasing due to a large recruiting year class, but exploitation status is unknown; therefore, ICES advises no increase in catch and technical measures to mitigate the increased discarding of the recruiting year class.

Standard short-term projections imply a TAC increase of around 300% for 2012 compared to 2011, under *status quo* F, although the precision is expected to be poor. Discarding rates will be high unless technical measures are implemented in 2011. During 2011 new data from surveys and the industry will be coming in that will improve the estimate of the year-class strength, and this may allow changes in management in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS:

STECF agrees with the ICES assessment of the trends in the stock but notes that the advice to reduce catches seems to be based on the absence of an analytical assessment and the consequent inability to derive an estimate for F_{MSY}. There is clear evidence of an exceptionally strong 2009 year-class which will feature prominently in the catches in 2012 as 3-year-old fish. Setting a restrictive TAC alone is unlikely to result in a reduction in fishing mortality since it will inevitably result in increased discarding. Hence STECF recommends that any agreed TAC be supplemented by appropriate technical measures in an attempt to reduce fishing mortality on haddock in VII b-k.

STECF notes that the introduction of increased codend mesh sizes and square mesh (escape) panels to demersal towed gears appears to have delivered significant reductions in fishing mortality on haddock in the North Sea and west of Scotland. It is logical to assume that similar measures would be appropriate for haddock in area VII. Such measures would most likely lead to an improved exploitation pattern and improved yields and SSB and a reduction in discards of haddock.

STECF recommends that square mesh (escape) panels and/or an increase in the minimum permissible codend mesh size be introduced for the demersal fleets that catch haddock in Divisions VIIb-k, Subareas VIII, IX and

IX. An analysis should be undertaken to estimate the appropriate mesh sizes for the panels and codends for each of the fleets concerned.

STECF notes that TAC for haddock relates for Divisions VIIb-k, Subareas VIII, IX, and X. However the assessment area covers Divisions VIIb-k and the ICES advice applies to these areas only. STECF therefore suggests that in establishing a TAC for haddock for Divisions VIIb–k, Subareas VIII, IX, and X, the landings corresponding to the advice for Divisions VIIe-k should be increased by 2% to account for catches taken from Divisions VIIb,c, Subareas VIII, IX, and X. 2% is the average annual proportion of landings reported from Divisions Subareas VIII, IX, X.

2.36. Saithe (*Pollachius virens*) in Div´s VII, VIII, IX, X

STECF did not have access to any recent stock assessment information on saithe in Subareas VII, VIII IX and X.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

2.37. Whiting (*Merlangius merlangus*) in VIIa (Irish Sea)

FISHERIES: Whiting is taken mainly as a by-catch in mixed-species otter trawl fisheries for *Nephrops*, cod, and other demersal species. Landings of whiting by all vessels, and discards of whiting estimated for *Nephrops* fisheries, have declined substantially. From 1989 to 2006, reported landings declined from 11,300 t to less than 100 t. Reported landings in 2010 were 120 t, but discarding is an order of magnitude greater. Only EU vessels exploit the stock, with the UK and Ireland accounting for the majority of the landings, with much smaller quantities landed by Belgium and France. Reports of significant under-reporting of landings indicate that the current implementation of the TAC system is not able to restrict fishing.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. Advice is based on survey information only and is considered to be indicative of trends only due to the difficulty in raising discard information and the lack of available landings for sampling at the currently very low retention levels.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Undefined	
	F_{msy}	Undefined	
Precautionary Approach	B_{lim}	5 000 t	**B**loss(1998), The lowest observed SSB as estimated in previous assessment. There is no clear evidence of reduced recruitment at the lowest observed SSBs.
	B_{pa}	7 000 t	**B**loss * 1.4: Considered to be the minimum SSB required to ensure a high probability of maintaining SSB above its lowest observed value, taking into account the uncertainty of assessments.
	F_{lim}	0.95	The fishing mortality above which stock decline has been observed.
	F_{pa}	0.65	This F is considered to have a high probability of avoiding **F**lim. It implies an equilibrium SSB of 10.6 kt, and a relatively low probability of SSB < **B**pa (= 7 kt), and is within the range of historic Fs.

STOCK STATUS

F (Fishing Mortality)		
	2008 - 2010	
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	✗	Above poss. reference points
SSB (Spawning Stock Biomass)		

	2009 - 2011	
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	✗	Below poss. reference points

The state of the stock is uncertain. Long-term information on the historical yield and catch composition indicate that the present stock size is extremely low and likely to be well below previously defined B_{lim}. Landings have seen a declining trend since the early 1980s, reaching lowest levels in the 2000s. The survey results indicate a decline in relative SSB. Total mortality has been variable over the time series. Current fishing mortality is likely to be above possible MSY targets.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches should be reduced to the lowest possible levels and uptake of further technical measures to reduce discards.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3 due to the absence of any assessment or reference points.

STECF COMMENTS:

STECF agrees with the ICES assessment that the state of the stock is uncertain and that catches in 2011 should be reduced.

STECF further notes that further reductions of the TAC will not lead to the desired decrease in fishing mortality as the vast majority of catches are discarded, and STECF therefore **recommends** that the TAC system is supplemented with enhanced technical measures to greatly reduce discards and a mixed fisheries based approach to management.

2.38. Whiting (*Merlangius merlangus*) in VIIb-k

There is a mismatch between management area and assessments units. Whiting in VIIe-k is assessed as one stock, VIId whiting are included in the North Sea whiting and whiting from b--c is not included in any assessment.

FISHERIES: Celtic Sea whiting are taken in mixed fisheries along with cod, whiting, hake, *Nephrops*. French trawlers account for about 60% of the total landings, Ireland takes about 30%, and the UK (England and Wales) 7%, while Belgian vessels take less than 1%. Catch levels peaked in the late nineties with over 23,000 t reported by ICES and subsequently declined to less than 10,000 t in 2006. Landings in 2009 were less than 4000t, but these figures do not include French data unavailable at the time of the assessment.

There is substantial discarding above the minimum landing size due to economic or other factors.

Management regulations, particularly effort control regimes in other areas (VIIa, VI, & IV), became increasingly restrictive in 2004 and 2005 and resulted in a displacement of effort into the Celtic Sea.

Since 2005, ICES rectangles 30E4, 31E4, and 32E3 have been closed during the first quarter (Council Regulations 27/2005, 51/2006, 41/2007 and 40/2008) with the intention of reducing fishing mortality on cod. The effects of the closure on whiting are not known although there have been spatial and temporal changes in the distribution of effort.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. Age based analytical assessment (XSA) using 2 survey and 3 commercial tuning series. However the assessment is considered for trends only, mainly due to the lack of discard information.

REFERENCE POINTS:

Type	*Value*	*Technical basis*

MSY Approach	MSY $B_{trigger}$	Undefined	
	F_{msy}	Undefined	
Precautionary Approach	B_{lim}	15 000 t	**B**loss, the lowest observed spawning-stock biomass.
	B_{pa}	21 000 t	**B**pa = **B**lim * 1.4. Biomass above this affords a high probability of maintaining SSB above **B**lim, taking into account the uncertainty of the assessment.
	F_{lim}	Undefined	
	F_{pa}	Undefined	

STOCK STATUS:

F (Fishing Mortality)		
		2008 - 2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
SSB (Spawning Stock Biomass)		
		2008 - 2010
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	↗	Increasing

The state of the stock is uncertain and the assessment is indicative of trends only. The stock is estimated to have declined since the mid 1990s and has recently increased to the long term average. SSB is highly dependent on incoming recruitment. Fishing mortality estimates are variable and recent trends suffer in precision due to lack of discard data in the assessment. Surveys indicate that the 2008 and 2009 year classes may be above average.

RECENT MANAGEMENT ADVICE:

ICES advises based on precautionary considerations, that catches should not be allowed to increase and technical measures should be introduced to reduce discard rates.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3 due to the absence of F_{MSY} reference points and the an assessment deemed to be representative of trends only.

STECF COMMENTS:

STECF agrees with the ICES assessment that the state of the stock is uncertain and that catches in 2011 should not be allowed to increase.

STECF also notes that management by TAC is inappropriate for this stock because landings – but not catches – are controlled. Recruitment in 2008 and 2009 appears to be above average. Catches and SSB may increase in 2011 if effort remains constant. Technical measures to minimise discards should be considered with urgency.

2.39. Anglerfish (*Lophius piscatorius & Lophius budegassa*) in Div. VII and VIII a,b,d,e

Anglerfish within the two management areas VII and VIII a,b,d,e are assessed together and comprise of two species (*Lophius piscatorius & Lophius budegassa*) which are not always separated for market purposes. The management area for this stock also includes the Irish Sea (VIIa) where catches since 1995 have been between about 300t and 1,300 t, (330 t officially reported in 2007). These catches are not included in the assessment.

FISHERIES: The trawl fishery for anglerfish in the Celtic Sea and Bay of Biscay developed in the 1970s. Anglerfish are also taken as a by-catch in other demersal fisheries in the area. Landings of both species have

fluctuated over the last 20 years. Landings of *L. piscatorius* have declined steadily from 23 700 t in 1986 to 12 800 t in 1992, then increased to 22 100 t in 1996 and declined to 14 900 t in 2000. The landings have increased since then reaching the maximum of the time series in 2007 (29 700 t). In 2010, preliminary landings estimates were 25,145 t. Landings of *L. budegassa* have fluctuated all over the studied period between 5 700 t to 9 600 t with a succession of high (1989-1992, 1998 and 2003) and low values (1987, 1994 and 2001). The preliminary total estimated landings for 2010 are 7,809 t.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. Lacking an analytical assessment the advice is based on survey data and catch information.

REFERENCE POINTS: There are no reference points defined for these stocks. As a consequence of recently identified problems with growth estimates, previous reference points are not considered to be valid.

STOCK STATUS:

Lophius piscatorius

F (Fishing Mortality)	2008	2009	2010
MSY (F_{MSY})	?	?	? Unknown
Precautionary approach (F_{pa},F_{lim})	?	?	? Unknown

SSB (Spawning-Stock Biomass)	2008	2009	2010
MSY ($B_{trigger}$)	?	?	? Unknown
Precautionary approach (B_{pa},B_{lim})	?	?	? Unknown
Qualitative evaluation	→	↘	↘ Decreasing

Lophius budegassa

F (Fishing Mortality)	2008	2009	2010
MSY (F_{MSY})	?	?	? Unknown
Precautionary approach (F_{pa},F_{lim})	?	?	? Unknown

SSB (Spawning-Stock Biomass)	2008	2009	2010
MSY ($B_{trigger}$)	?	?	? Unknown
Precautionary approach (B_{pa},B_{lim})	?	?	? Unknown
Qualitative evaluation	↗	↘	↘ Decreasing

Survey data (biomass and abundance indices, length distribution) give indication that the biomass of both species has been increasing until 2008 as a consequence of the good recruitment. After 2008, biomass of the two species has decreased. For *L. piscatorius* there is evidence of good recruitments in 2008-2010, whereas the last strong recruitment for *L.budegassa* occurred in 2008.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the precautionary considerations that catches should be reduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3 due to the absence of F_{MSY} reference points and trends only advice based on survey information.

STECF COMMENTS:

STECF agrees with the ICES assessment that the state of the stock is unknown and the advice for 2012.

STECF notes that the management area (division VII) is inconsistent with the stock area (Divisions VIIb–k and VIIIa,b,d). The TAC area includes VIIa, however the advice covers the majority of the area as recent landings in Division VIIa have been relatively small compared to the total TAC. The division VIII stocks are dealt with in sections 3.5 and 3.6, but are based on the same advice.

2.40. Megrim (*Lepidorhombus whiffiagonis and Lepidorhombus boscii*) in VII and VIIIabde.

Megrim in management areas VII and VIIIabde are assessed as a single stock.

FISHERIES: Megrim to the west of Ireland and Britain and in the Bay of Biscay are caught predominantly by Spanish and French vessels, which together have reported more than 60% of the total international landings, and

by Irish and UK demersal trawlers. Megrim is mostly taken in mixed fisheries for hake, anglerfish, *Nephrops*, cod, and whiting. Over the period 1984 to 2003, annual catches as estimated by ICES have been between 15,500 t t to 21,800 t. In 2005 and 2006, catches dropped to 14,500 t. In 2007, catches were at 15,600 t. In 2010 landings were 14,942 t. Discards in recent years have been estimated to vary between 1,100 t and 5,400 t.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. Advice is based on trend analysis of cpue and survey indices.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	55 000 t	= B_{loss}. There is no evidence of reduced recruitment at the lowest biomass observed and B_{pa} was therefore set equal to the lowest observed SSB.
	F_{lim}	0.44	= F_{loss}.
	F_{pa}	0.30	= F_{med}; this implies a less than 45% probability that (SSB_{MT}< B_{pa}).

STOCK STATUS:

	F (Fishing Mortality)		
	2008	2009	2010
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2009	2010	2011
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

There is no analytical assessment. However, surveys and commercial data indicate that the stock has been rather stable over the time-series. The perception of the stock has not changed.

RECENT MANAGEMENT ADVICE:

New data from 2010 do not change the perception of the stock status. The advice for the fishery in 2012 is therefore the transition to the MSY approach given in 2010 for the 2011 fishery: "*Catch and effort reduction*".

This stock is scheduled to be benchmarked in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3 due to trends only information and a lack of F_{MSY} reference points.

STECF COMMENTS: STECF agrees with the ICES assessment that the state of the stock is unknown and that catches and effort should be reduced.

2.41. Plaice (*Pleuronectes platessa*) in Division VIIa (Irish Sea)

FISHERIES: Plaice are taken mainly in long-established UK and Irish otter trawl fisheries for demersal fish. They are also taken as a by-catch in the beam trawl fishery for sole. The main fishery is concentrated in the northeast Irish Sea. Catches are predominantly taken by the UK, Belgium and Ireland, with smaller catches by France and at the end of the 1990s by The Netherlands. Landings were sustained between 2,900 t and 5,100 t

from 1964-1986. Landings declined from the 1987 peak of 6,200 t to between 1,100-1,500 t from 1999-2005, well below the agreed TAC. Recently landings have continued to decline reaching the lowest ever level in 2010 376 t, however catches in 2010 have increased dramatically with only 13% landed.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on a recently reviewed Aarts and Poos (2009) assessment model using three survey indices, an annual egg production index and includes discard information from 2004-2010. However, because of the uncertainty in the model regarding historic discard rates the model output is deemed to be representative of trends only.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	Not defined	
Precautionary Approach	B_{lim}	Not defined	There is no biological basis for defining B_{lim} as the stock–recruitment data are uninformative.
	B_{pa}	3100 t	$B_{pa} = B_{loss}$.
	F_{lim}	Not defined	There is no biological basis for defining F_{lim} as F_{loss} is poorly defined.
	F_{pa}	0.45	$F_{pa} = F_{med}$ in a previous assessment, and in long-term considerations. This is considered to provide a high probability of maintaining SSB above B_{loss} in the long term.

STOCK STATUS:

Stock status

F (Fishing Mortality)		
		2008-2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	✓	Below poss. reference points
SSB (Spawning Stock Biomass)		
		2008-2010
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	✓	Above poss. reference points

The assessment is indicative of trends only. The SSB trends show an increase in stock size since the mid-1990s to a stable level. Fishery-independent estimates of plaice SSB from Annual Egg Production Method (AEPM) surveys increased from 9kt in 1995 to 14-15kt since 2006. Absolute estimates of SSB from the assessment are very uncertain but are >20kt since 2003. Fishing mortality from the assessment shows a declining trend since the early 1990s to a stable level. The recent F is likely to be very low as the estimates of total catch (landings and discards) since 2006 are only around 15% of the AEPM estimates of SSB over this period, and the catches also include immature plaice. Recruitment has been slightly lower than average in recent years.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches of plaice should not increase and technical measures should be introduced to reduce discard rates.

Precautionary considerations

The exploratory assessment shows that SSB is stable at a high level above possible reference points. At the same time F is stable at a low level and considered to be below possible reference points. Therefore, catches of plaice should not increase and technical measures should be introduced to reduce discard rates.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3, on the basis of a trends only assessment.

STECF COMMENTS: STECF agrees with the ICES advice for 2012.

2.42. Plaice (*Pleuronectes platessa*) in the Celtic Sea (Divisions VIIf and g)

FISHERIES: The fishery for Celtic Sea plaice involves vessels from France, Belgium, England and Wales and Ireland. In the 1970s, the VIIfg plaice fishery was mainly carried out by Belgian beam trawlers and Belgian and UK otter trawlers. Effort in the UK and Belgian beam-trawl fleets increased in the late 1980s but has since declined. Recently, many otter trawlers have been replaced by beam trawlers, which target sole. Landings increased in the late eighties to its record high (2100t) and have declined since.

Currently the main fishery occurs in the spawning area off the north Cornish coast, at depths greater than 40 m, about 20 to 25 miles offshore. Although plaice are taken throughout the year, the larger landings occur during February–March after the peak of spawning, and again in September. Recent increases in fuel costs are thought to have restricted the range of some fleets and may have resulted in a reduction in effort in Divisions VIIf,g.

Since 2000 the estimated landings have been below the TACs, and lowest catch levels of 389 t were recorded in 2005. Since then landings have increased slightly (433 t in 2010), but discards have increased more steeply reaching 700 t in 2010.

Plaice in the Bristol Channel and Celtic Sea (ICES Divisions VIIf and VIIg) is managed by TAC and technical measures. Technical measures in force for this stock are minimum mesh sizes, minimum landing size, and restricted areas for certain classes of vessels. Technical regulations regarding allowable mesh sizes for specific target species, and associated minimum landing sizes, came into force on 1 January 2000. The minimum landing size for plaice in Divisions VIIf,g is 27 cm.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is based on an Aarts and Poos (2009) statistical catch-at-age model including one survey and two commercial indices as well as discard information 2004-2010. Due to the uncertainty in historic discard practices the model is deemed representative of trends only.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	?	?	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	?	?	Unknown
Qualitative evaluation	↘	↘	✗	Above poss. reference points

SSB (Spawning Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	?	?	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	?	?	Unknown
Qualitative evaluation	→	→	✗	Below poss. reference points

The assessment is indicative of trends only. SSB has increased since 2004 to a stable level, but is considered to be well below historic levels. Fishing mortality shows a declining trend since 2002, but is considered to be

above levels that would increase SSB and achieve high long term yields. Catch rates by commercial fleets and research surveys are well below historic levels and the stock is considered at a low level. Recruitment has been fluctuating without clear trend in recent years.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the precautionary considerations that catches should be reduced. Discards exceed landings and technical measures should be introduced to reduce discard rates.

Precautionary considerations

The stock is considered to be below any possible reference points, while the exploitation rate is deemed too high to improve this and thus above possible reference points. Therefore, catches of plaice should be reduced and measures to reduce discards should be introduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3 on the basis of a trends only assessment and an absence of reference points.

STECF COMMENTS: STECF agrees with the ICES comments on trends in SSB and fishing mortality and ICES advice for 2012.

STECF notes that the high level of discarding indicated in this mixed fishery would suggest a mis-match between the mesh size employed and the size of the fish landed. Increases in the mesh size of the gear should result in fewer discards and, ultimately, in increased yield from the fishery. The use of larger mesh gear should be encouraged in this fishery in instances where mixed fishery issues allow for it.

2.43. Plaice (*Pleuronectes platessa*) in Divisions VIIe (Western English Channel)

FISHERIES: The fisheries taking plaice in the Western Channel mainly involve vessels from the bordering countries: the total landings (2008) are split among UK vessels (80%), France (12%), and Belgium (8%). Landings of plaice in the Western Channel were low and stable between 1950 and the mid-1970s, and increased rapidly during 1976 to 1988 as beam trawls began to replace otter trawls, although plaice are taken mainly as a by-catch in beam-trawling directed at sole and anglerfish. Estimated landings have been fairly stable since 1994. Landings have continued to decrease in recent years to a similar low level as in the late-1970s. The main fishery is south and west of Start Point. Although plaice are taken throughout the year, the larger landings are made during February, March, October, and November. WKFLAT 2010 indicated that in addition to the landings in VIIe the stock suffers considerable fishing mortality in the first quarter in division VIId during their annual spawning migration.

The TAC for plaice in the English Channel is set for Divisions VIId,e combined.

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 $B_{trigger}$	2500 t	Bpa
	F_{msy}	0.19	Provisional proxy by analogy with plaice in the Celtic Sea. Fishing mortalities in the range 0.14 – 0.31are consistent with F_{msy}
Precautionary Approach	B_{lim}	1300 t	$B_{lim}=B_{loss}$. The lowest observed spawning stock biomass.
	B_{pa}	2500 t	MBAL, biomass above this affords a high probability of maintaining SSB above B_{lim}, taking into account the uncertainty in assessments.
	F_{lim}	Not defined.	
	F_{pa}	0.45	This F affords low probability that ($SSB_{MT}< B_{pa}$).

STOCK STATUS:

	F (Fishing Mortality)		
	2008	2009	**2010**

MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined

SSB (Spawning Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	✗	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

The large reduction of F in 2009-2010 reflects the reduction in fishing effort. SSB is around the lowest observed values in the time series. Current recruitment levels are lower than those observed in the 1980s.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the transition to the MSY approach that landings in 2012 should be no more than 1440 t.

MSY approach

Following the ICES MSY framework implies fishing mortality to be reduced to 0.19 (at F_{MSY} as SSB in 2012 is above MSY $B_{trigger}$), resulting in landings of 840 t in 2012. This is expected to lead to an SSB of 4620 t in 2013.

Following the transition scheme towards the ICES MSY framework implies fishing mortality of 0.35 for 2012. This results in landings of 1440 t in 2012. This is expected to lead to an SSB of 4030 t in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe that for 2012 a TAC for plaice in division VIIe of 1440t should be proposed.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock, but questions the basis of the chosen F_{MSY}, taken from a stock with a different selection pattern and from an assessment that has been rejected. However, examining the yield per recruit curve for this stock the value of 0.19 does not seem unrealistic, and is sufficiently far to the left of F_{max} to be considered precautionary. Before such a value is chosen as a permanent F_{MSY} reference point a full evaluation should be carried out.

2.44. Plaice (*Pleuronectes platessa*) in VIIhjk

FISHERIES: Ireland, UK, France and Belgium are the major participants in this fishery. Plaice are predominantly caught within coastal mixed species otter trawl fisheries in Division VIIj.

Official landings peaked at 790 t in 1998 and have declined dramatically stabilizing at around 150 t recently.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment is based on a catch curve through landings-at-age data for plaice in Division VIIjk

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{msy}	0.24	Provisional proxy based on F_{max}
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

F (Fishing Mortality)
2008-2010

MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	✗	Above poss. reference points

SSB (Spawning Stock Biomass)		
		2009-2011
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown

There is no accepted analytical assessment for this stock and the state of the stock is unknown. However, exploratory estimates of mortality suggest that recent fishing mortality for the major component of the catch is greater than F_{msy}.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches in 2012 should be reduced.

Precautionary considerations

The state of the stock is unknown, but exploratory estimates of mortality suggest that recent fishing mortality for the landings component of the catch is greater than F_{max} which is used as a proxy for F_{MSY}. Therefore, catches should be reduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3 on the basis of a lacking analytical assessment and missing reference points.

STECF COMMENTS: STECF agrees with the ICES assessment that the state of the stock is unknown and that catches should be reduced.

2.45. Plaice (*Pleuronectes platessa*) in Division VIIbc

FISHERIES: Ireland is the major participant in this fishery with around 90% of the international landings over the period 1993-2006. Plaice are normally caught in mixed species otter trawl fisheries in Division VIIb. These vessels mainly target other demersal fish species and *Nephrops*. Official landings have declined from 251 t in 1996 to 33 t in 2010 having stabilized around that level since 2005 .

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. No assessment was carried out for this stock in 2011.

REFERENCE POINTS: No reference points are defined for this stock.

STOCK STATUS:

F (Fishing Mortality)		
		2008-2010
Qualitative evaluation	?	Insufficient information

SSB (Spawning Stock Biomass)		
		2008-2010
Qualitative evaluation	?	Insufficient information

The stock status is unknown and the available catch statistics are not considered reliable indicators of abundance.

RECENT MANAGEMENT ADVICE:

There is insufficient information to evaluate the status of the stock. Therefore, based on precautionary considerations, ICES advises that no increase of the catch should take place unless there is evidence that this will be sustainable.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agreed with the ICES advice and notes that landings currently represent less than 50% of the TAC.

2.46. Sole (*Solea solea*) in Division VIIa (Irish Sea)

FISHERY: Sole are taken mainly in a beam trawl fishery that commenced in the 1960s and are also taken as a by-catch in the long established otter trawl fisheries. Effort in the Belgian beam trawl fleet increased in the late 1980s as vessels normally operating in the North Sea were attracted into the Irish Sea by better fishing opportunities. In recent years, however, catch rates of sole have been low in the Irish Sea, and part of the beam trawl fleet has moved to other sole fishing grounds. Over the last 30 years, the total landings have been in the order of 1,000 t to 2,000 t. Landings in have declined sharply since 2007 to around 300 t (275 t in 2010).

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on an age-based assessment which uses commercial landings data and two scientific surveys.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	3100 t	Default to value of B_{pa}
	F_{msy}	0.16	Provisional proxy based on stochastic simulations assuming a Ricker S/R relationship (range 0.1–0.25)
Precautionary Approach	B_{lim}	2200 t	$B_{lim} = B_{loss}$ The lowest observed spawning stock, followed by an increase in SSB.
	B_{pa}	3100 t	$B_{pa} \sim B_{lim} * 1.4$. The minimum SSB required ensuring a high probability of maintaining SSB above its lowest observed value, taking into account the uncertainty of assessments.
	F_{lim}	0.40	$F_{lim} = F_{loss.}$ Although poorly defined, there is evidence that fishing mortality in excess of 0.4 has led to a general stock decline and is only sustainable during periods of above-average recruitment.
	F_{pa}	0.30	This F is considered to have a high probability of avoiding F_{lim}.

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	✓	✗	✓	Harvested sustainably
SSB (Spawning Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	✗	✗	✗	Below trigger
Precautionary approach (B_{pa},B_{lim})	✗	✗	✗	Reduced reproductive capacity

SSB has continuously declined since 2001 and dropped below B_{lim} since 2006. In 2009 SSB reached the lowest level. The fishing mortality shows a declining trend since the mid 1980s to a stable level in recent years. Recent recruitment levels have been lower than earlier in the time-series, with the incoming recruitment being the lowest in the time series.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the transition to the MSY approach that landings in 2012 should be no more than 200 t.

MSY approach

Following the ICES MSY framework implies fishing mortality to be reduced to 0.07 (56% lower than F_{MSY} because SSB is 56% below MSY $B_{trigger}$), resulting in landings of less than 80 t in 2012. This is expected to lead to a SSB of 1520 t in 2013.

Following the transition scheme towards the ICES MSY framework implies fishing mortality of 0.19 for 2012. This results in landings of 200 t in 2012. This is expected to lead to an SSB of 1390 in 2013.

PA approach

Given the low SSB and low recruitment since 2000, it is not possible to identify any non-zero catch which would be compatible with the precautionary approach.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe that for 2012 a TAC for plaice in division VIIa of 200 t should be proposed.

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

Furthermore STECF considers that the state of the stock is such that further measures as part of a recovery / management plan should be urgently considered to improve the productivity of this stock.

2.47. Sole (*Solea solea*) in Divisions VIIf,g (Celtic Sea)

FISHERIES: The sole fishery is concentrated on the north Cornish coast off Trevose Head and around Lands End. Reported landings have generally declined since the mid 1980s, up to 1998. Since then they increased to around 1,300 t in the early 2000's. Landings in 2010 were 862 t.

Sole are taken mainly in a beam trawl fishery that started in the early 1960s and, to a lesser extent, in the longer established otter trawl fisheries. In the beam trawl fishery sole is mainly taken as part of a mixed demersal fishery with plaice and, to a lesser extent, cod. Both of the latter stocks require a reduction in fishing mortality.

In the 1970s, the fishery was mainly carried out by Belgian beam trawlers and Belgian and UK otter trawlers. The use of beam trawls (to target sole and plaice) increased during the mid-1970s, and the Belgian otter trawlers have now been almost entirely replaced by beam trawlers. Effort in the Belgium beam trawl fleet increased in the late 1980s as vessels normally operating in the North Sea were attracted to the west by improved fishing opportunities. Beam trawling by UK vessels increased substantially from 1986, reaching a peak in 1990 and decreasing thereafter. In the Celtic Sea, the beam and otter trawl fleets also take other demersal species such as plaice, cod, rays, brill, turbot, and anglerfish.

Currently the fisheries for sole in the Celtic Sea and Bristol Channel involve vessels from Belgium, taking around 65%, the UK around 25%, France around 5% and Ireland also around 5% of the total landings.

The Celtic Sea is an area without days-at-sea limitations for demersal fisheries. In the past this has resulted in increased effort in the Celtic Sea as a direct result of restrictive effort in other areas. This was particularly the case in 2004–2005 when effort in the sole fishery increased because of restrictive days at sea in the eastern channel (Division VIId).

SOURCE OF MANAGEMENT ADVICE: The advice is based on an analytical age-based assessment using landings, two commercial cpue series, and one survey index.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	2200 t	Bpa
	F_{msy}	0.31	Provisional proxy based on stochastic simulations
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	2200 t	There is no evidence of reduced recruitment at the lowest biomass observed and B_{pa} can therefore be set equal to the lowest observed SSB.
	F_{lim}	0.52	F_{lim}: F_{loss}.
	F_{pa}	0.37	This F is considered to have a high probability of avoiding F_{lim} and

			maintaining SSB above B_{pa} in 10 years, taking into account the uncertainty of assessments. F_{pa}: $F_{lim} \times 0.72$ implies a less than 5% probability that ($SSB_{MT} < B_{pa}$).

STOCK STATUS:

F (Fishing Mortality)			
	2008 2009	2010	
MSY (F_{MSY})	✓ ✓	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	✓ ✓	✓	Harvest sustainably
SSB (Spawning Stock Biomass)			
	2009 2010	2011	
MSY ($B_{trigger}$)	✓ ✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	✓ ✓	✓	Full reproductive capacity

The spawning-stock biomass has been above B_{pa} since 2001. Fishing mortality has decreased from F_{lim} in 2003 to the lowest levels in the time series. The 2007 and 2008 year classes are estimated to be above average although the 2009 cohort appears to be the lowest observed recruitment in the time series.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 1060 t.

MSY approach

Following the ICES MSY framework implies fishing mortality to be 0.31, resulting in landings of 1060 t in 2012. This is expected to lead to an SSB of 3600 t in 2013.

PA approach

The fishing mortality in 2012 should be no more than F_{pa} corresponding to landings of less than 1230 t in 2012. This is expected to keep SSB above B_{pa} in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe that for 2012 a TAC for sole in division VII fg of 1060 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

2.48. Sole (*Solea solea*) in Division VIIe (Western English Channel).

FISHERIES: Total landings reached a peak in the early 1980s, initially because of high recruitment in the late 1970s and later because of an increase in exploitation. In recent years, English vessels have accounted for around 60% of the total landings, with France taking approximately a third, and Belgian vessels the remainder. UK landings were low and stable between 1950 and the mid-1970s, but increased rapidly after 1978 due to the replacement of otter trawlers by beam trawlers.

Sole are widespread and usually taken in conjunction with other species to varying degrees, dependent on location and season. The most productive sole fishery grounds are located close to ports, while the highest catches of anglerfish for example are taken further south and west in Division VIIe.

The principal gears used are otter-trawls and beam-trawls, and sole tends to be the target species of an offshore beam-trawl fleet, which is concentrated off the south Cornish coast and also catches plaice and anglerfish. The total landings have been stable over 1991-1999 and amounts to around 900 t. Since 2000, landings have been around 1,000 until 2009 since when due to the introduction (in late 2008) of a single area licensing scheme compliance improved dramatically and landings dropped to around 700 t. Discarding is estimated to be low in this fishery although the use of experimental gears in the fishery may alter this perception in the future.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Analytical assessment based on landings, survey and commercial CPUE data.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	2800 t	Provisional, based on former B_{pa}
	F_{msy}	0.27	Provisional, based on management plan simulations (2006)
Precautionary approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	✗	✓	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined

SSB (Spawning Stock Biomass)	2009	2010	2011	
MSY ($B_{trigger}$)	✗	✗	✗	Below trigger
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

The large reduction of F in 2009 reflects the reduction in fishing effort. SSB has been fluctuating around $B_{trigger}$ since the early 1990's. Recruitment has been fluctuating without trend.

MANAGEMENT AGREEMENT: Council Regulation (EC) No. 509/2007 establishes a multi-annual plan for the sustainable exploitation of Division VIIe sole.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY framework that landings in 2012 should be less than 740 t.

Management plan

Council Regulation (EC) No. 509/2007 establishes a multi-annual plan for the sustainable exploitation of Division VIIe sole. Years 2007–2009 were deemed a recovery plan, with subsequent years being deemed a management plan. For 2010, 2011, and 2012 the TAC shall be set at the highest value resulting from either a 15% reduction in F compared to average F (2007–2009) or an F of 0.27, with a maximum TAC variation of no more than 15%.

Following the agreed management plan implies an F for 2011 of 0.27 (F_{MP}, the management plan long-term target), suggesting a TAC of 777 t in 2012 which is less than the 15% TAC increase cap in the plan. This is expected to lead to a SSB increase of 5% in 2013. This plan has not been evaluated by ICES.

MSY approach

Following the ICES MSY framework implies fishing mortality to be at 0.26 (6% lower than F_{MSY} because SSB is 6% below MSY $B_{trigger}$). This implies landings of less than 740 t in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1. The rules for category 1 prescribe that for 2012 a TAC for sole in division VIIe of 777 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and advises that following the agreed management plan which was evaluated by the STECF (STECF 2010), fishing at F_{MSY} in 2012 implies landings in 2012 of 777 t.

2.49. Demersal elasmobranches in the Celtic and Irish Seas

The most recent advice for Demersal elasmobranchs in the Celtic and Irish Seas was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: Historically the increase of commercial fisheries directed at elasmobranch species, and their economic value, rank them low among marine commercial fisheries (Bonfil 1994). In the Northeast Atlantic, including the Celtic and Irish Seas, although some elasmobranchs are taken in directed fisheries, the majority are landed as bycatch from fisheries targeting commercial teleost species. Recreational fisheries, including charter angling, may be an important component of the tourist industry in some areas.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. The assessment is based on survey and landing trends.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

F_{MSY} is not currently definable for these stocks, unless further information is available, including a better assessment of the species composition of the landings. Reference points cannot be defined.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})		?	
Precautionary approach (F_{pa},F_{lim})		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)		?	
Precautionary approach (B_{pa},B_{lim})		?	

In the absence of formal stock assessments and defined reference points for *Mustelus* and *Squatina* in this eco-region, the following provides a qualitative evaluation of the general status of the major species, based on surveys and landings.

Species	Area	State of stock
Mustelus spp. (smooth-hounds)	VII	The stock area is not known, but may merge with sub-areas IV, VI and VIII. Increasing in most surveys.
Squatina squatina (Angel shark)	VI,VII	Rare in this ecoregion, and near extirpated from parts of its former range

RECENT MANAGEMENT ADVICE:

Advice for 2011 and 2012 by individual stocks

Species	Area	Advice
Mustelus spp. (smooth-hounds)	VII	Status quo catch
Squatina squatina (Angel shark)	VI,VII	Retain on prohibited species list

There is not enough information to assess the status of any species in the Rockall area.

Outlook for 2011-2012
No analytical assessment or forecast can be presented for these stocks. The main cause of this is the lack of a time-series of species specific landings data.

MSY approach
Advice by species/stock is provided in the table above. This advice is based on an application of the MSY approach for stocks without population size estimates. This advice applies to 2011 and 2012.

Policy paper
In terms of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) the stocks of these species are classified under a range of categories.

Species	Area	Policy Category
Mustelus spp. (smooth-hounds)	VII	No TAC is in place, but Annex III, Rule 8, Annex IV Rule 4 would apply.
Squatina squatina (Angel shark)	VI,VII	Annex III, Category 10

STECF COMMENTS: STECF agrees with the ICES advice

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF notes the stocks of *Mustelus* and *Squatina* in VI and VII are classified under a range of categories.

2.50. Herring (*Clupea harengus*) in the Irish Sea (Division VIIa North)

FISHERIES: This herring stock is mainly exploited by the UK with Ireland taking a small proportion of the catches in some years. Since 1987 the landings have fluctuated between about 2,000 t and 10,000 t. Catches in 2009 were 4,600 t. Since 2002 the TAC has been 4,800 t.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The exploratory assessment of the stock is based on survey data and catch-at-age data. The assessment is not considered accurate with respect to recent F and SSB, but it is indicative of trends and levels in the past.

REFERENCE POINTS:

	Type	Value	Technical basis
MSY	MSY $B_{trigger}$	Not defined	
Approach	F_{msy}	Not defined	
Precautionary approach	B_{lim}	6000 t	Lowest observed SSB
	B_{pa}	9500 t	$B_{pa} = B_{lim} * 1.58$
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

F (Fishing Mortality)	2008-2010
MSY (F_{MSY})	? Unknown
Precautionary approach (F_{pa},F_{lim})	? Unknown
Qualitative evaluation	Decreasing

SSB (Spawning-Stock Biomass)	2009-2011
MSY ($B_{trigger}$)	? Unknown
Precautionary approach (B_{pa},B_{lim})	? Unknown

Qualitative evaluation	 Increasing

The assessment is indicative of trends only. The catches have been close to TAC levels and the main fishing activity has not varied considerably. The 2010 acoustic survey estimates suggest that SSB is at its highest abundance in the 18 year time-series. Recruitment in recent years has been stable close to average recruitment in the time series. Increasing SSB and stable catches suggests decreasing exploitation.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that landings in 2012 should not be allowed to increase.

Precautionary considerations

Recent SSB trends show an increase in herring biomass. Current exploitation appears to be declining but the exploitation status is unknown. Therefore the catches should not be allowed to increase.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3 due to a lack of an analytical assessment F_{MSY} reference points.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012 that catches should not be allowed to increase.

2.51. Herring (*Clupea harengus*) in the Celtic Sea (VIIg and VIIa South), and in VIIj Division VIIg,h,j„k

FISHERIES: France, Germany, Ireland, Netherlands and UK have participated in the herring fisheries in this area. However in recent years the fishery has mainly been exploited by Irish vessels and Ireland has been allocated nearly 90% of the overall quota. Until the late nineties, landings fluctuated between about 19,000 and 23,600 t. From 1998 to 2009, landings decreased from 20,300 to just above5,800 t. The fishery exploits a stock, which is considered to consist of two spawning components (autumn and winter). The stock is exploited by two types of vessels, larger boats with Refrigerated Sea Water (RSW) storage, and smaller dry hold vessels. The smaller vessels are confined to the spawning grounds (VIIaS and VIIg) during the winter period. The RSW vessels target the stock inshore in winter and offshore during the summer feeding phase (VIIg). The number of vessels participating in the fishery has decreased in recent years. However, efficiency has increased, especially in the RSW vessels. An increasing proportion of the catch is now being taken by RSW vessels and lower amounts by dry-hold vessels. There has been little fishing in VIIj in recent seasons, and there is evidence that stock abundance in this area is currently low as corroborated by survey information. Other surveys indicate that abundance has increased considerably in the other areas particularly the inshore areas in VIIj.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The current management regime has resulted in catch data, which are thought to be reasonably reliable in recent years. The assessment is based on catch-at-age data and acoustic survey data. There is no recruitment index available for this stock.

REFERENCE POINTS:

	Type	Value	Technical basis
MSY Approach	**MSY $B_{trigger}$**	Not defined	
	F_{msy}	0.25	Stochastic simulations on segmented regression stock recruit relationship.
Precautionary approach	B_{lim}	26 000 t	The lowest stock observed
	B_{pa}	44 000 t	Low probability of low recruitment
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

F (Fishing Mortality)			
	2008	2009	2010
MSY (F_{MSY})	✓	✓	✓ Below target
Precautionary approach (F_{pa},F_{lim})	?	?	? Undefined

SSB (Spawning-Stock Biomass)			
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	? Undefined
Precautionary approach (B_{pa},B_{lim})	✓	✓	✓ Full reproductive capacity

The current assessment shows the stock continues to improve. SSB is at the highest level since the 1960s and continues to increase. F is well below F_{msy}. There are three recent strong year classes (2003/4, 2005/6, and 2007/8).

MANAGEMENT AGREEMENT:

The Irish Celtic Sea Herring Management Advisory Committee was established to manage the Irish fishery for this herring stock. This Committee manages the Irish quota and implements measures in addition to the EU regulations. The committee proposed a rebuilding plan in 2008. The TAC for 2009 was set by the Council accordingly. This plan has not been formally agreed yet and implies fishing at $F_{0.1}$ (In 2007: 0.19, in 2008/2009=0.17).

Rebuilding Plan Proposed by the Celtic Sea Management Advisory Committee, Ireland, for this stock.

1. For 2009, the TAC shall be reduced by 25% relative to the current year (2008).
2. In 2010 and subsequent years, the TAC shall be set equal to a fishing mortality of $F_{0.1}$.
3. If, in the opinion of ICES and STECF, the catch should be reduced to the lowest possible level, the TAC for the following year will be reduced by 25%.
4. Division VIIaS will be closed to herring fishing for 2009, 2010 and 2011.
5. A small-scale sentinel fishery will be permitted in the closed area, Division VIIaS. This fishery shall be confined to vessels, of no more than 65 feet length. A maximum catch limitation of 8% of the Irish quota shall be exclusively allocated to this sentinel fishery.
6. Every three years from the date of entry into force of this Regulation, the Commission shall request ICES and STECF to evaluate the progress of this rebuilding plan.
7. When the SSB is deemed to have recovered to a size equal to or greater than B_{pa} in three consecutive years, the rebuilding plan will be superseded by a long-term management plan.

ICES has evaluated the plan and considers it is precautionary within the estimated stock dynamics. If a sequence of low recruitments takes place then the harvest control rule may have to be re-evaluated.

The Council and the Commission in 2009 agreed that until a plan is adopted, it would be appropriate to set the TAC for herring in Celtic Sea and Division VIIj according to the following rule:

- For 2010 and subsequent years, the TAC is and should be set corresponding to a fishing mortality of F0.1 = 0.19.
- If, in the opinion of ICES and STECF, the catch should be reduced to the lowest possible level, the TAC for the following year will be reduced by 25%.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 26 900 t.

Management plan

A rebuilding plan has been proposed by the Irish industry in 2008 (Annex 5.4.16). The stock has been above B_{pa} (44 000 t) for three consecutive years and the target of the rebuilding plan has thus been met. This plan has not been formally adopted in EU legislation. Under the terms of this rebuilding plan it should be replaced by a long term management plan in 2012. The rebuilding plan implies a TAC of 21 100 t in 2012.

In 2011 the Irish Industry has agreed a new proposed long term management plan (Annex 5.4.16). This plan has a target F =0.23 and a 30% constraint in TAC change. This TAC constraint prevents sudden changes of the TAC and accounts for uncertainties in the assessment and forecast in case of strong incoming recruitment. This would lead to a 30% increase in TAC to 17 160 t. This plan has not yet been evaluated by ICES, but evaluation by the Irish Marine Institute concluded it to be precautionary.

MSY approach

Following the ICES MSY framework implies fishing mortality be increased to 0.25 which is higher than current F (0.14), resulting in landings of less than 26 880 t in 2012. This is expected to lead to an SSB of 92 251 t in 2013.

PA approach

The SSB is well above B_{pa} and F_{pa} is undefined but current F is well below F_{MSY}. ICES does not advise to use B_{pa} as a target in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2 as the management plan proposal has not yet been evaluated by ICES or STECF. The rules for category 2 prescribe that for 2012 adopting the ICES MSY framework, a TAC for herring in the Celtic Sea (VIIg and VIIa South), and in VIIj Division VIIg,h,j,,k 26,900 t should be proposed.

The rules in the proposed management plan prescribe that for 2012, a TAC for herring in the Celtic Sea (VIIg and VIIa South), and in VIIj Division VIIg,h,j,,k 21,100 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2011 of 26,900 t.

2.52. Herring (*Clupea harengus*) in Division VIIe,f

STECF did not have access to any new information on Herring in Divisions VIIe,f and ICES has not undertaken any assessments or issued any recent advice. The text below remains unchanged from the STECF Consolidated review advice for 2011.

FISHERIES: This stock is exploited by the UK and France. The TAC for this stock has been set at 1,000 t and has remained unchanged in recent years. This TAC is divided equally between the UK and France. Landings have fluctuated over the last ten years, from a low of 176 t to a high of 1,040 t. In 2004, 2005, 2006 and 2007 landings have been between 700 and 800 t. Landings in 2007 and 2008 were 602 t respectively 614 t.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. No analytical assessment has been made in recent years.

REFERENCE POINTS: No reference points have been defined for this stock.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

The available information is inadequate to evaluate stock trends, and the state of the stock is uncertain.

RECENT MANAGEMENT ADVICE: No management advice is provided for this stock.

STECF COMMENTS: STECF agrees with the ICES advice

2.53. Sprat (*Sprattus sprattus*) in Divisions VIId,e.

FISHERIES: Only the UK carries out a sprat fishery in this area. For the last 20 years the annual landings have been in the order of 1,200 to 5,400 t. Landings have decreased since 1999. Landings in 2004 were the lowest in the time series, at about 800 t. Slight increases in landings were seen in 2005 and 2006 with about 1,600 t and 2,000 t reported respectively. Landings in 2008 and 2009 were around 3,400 t respectively 2,800 t rising to 4,400 t in 2010.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. There have been no attempts to undertake an assessment and in 2010 ICES once again consider that insufficient data are available to carry out an assessment.

REFERENCE POINTS: There are no reference points for this stock.

STOCK STATUS:

F (Fishing Mortality)	
	2009
Qualitative evaluation	? Insufficient information
SSB (Spawning Stock Biomass)	
	2010
Qualitative evaluation	? Insufficient information

As last year, the information available is insufficient to evaluate stock trends and exploitation.

RECENT MANAGEMENT ADVICE:

ICES advises based on precautionary considerations that catches should be reduced.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3 due to the absence of any assessment and a lack of reference points.

STECF COMMENTS: STECF agrees with ICES that the available information is insufficient to evaluate the stock status and that catches should be reduced.

STECF notes that the ICES advice is derived using the framework for advice for stocks without population size estimates.

STECF furthermore notes that ICES considers the sprat fishery to be opportunistic (and thus influenced by external factors such as abundance and price of other species). Therefore landings probably do not reflect the stock trends. Moreover, no other information on stock trends is available and future fishing opportunities cannot be forecast.

3. Eco-Region 3: Resources in the Bay of Biscay and Iberian waters

3.1. Norway lobster (*Nephrops norvegicus*) in Southwestern waters

For all *Nephrops* Functional Units in Southwestern waters, ICES provided biennial advice in 2010 which is valid for both 2011 and 2012. Advice sheets have been provided by ICES this year, but the only updates (except for landings figures) are for those Functional Units where a number of different advice scenarios were provided in 2010 (based on precautionary considerations and the MSY framework). In these cases, ICES has adopted the MSY framework (from last year's two options) as the basis for their advice in 2011. Hence, the following text is largely unchanged from the consolidated STECF Review of Advice for 2010 (STECF 2011a) except for i) changes to the advice in these cases (applies to: FU 23 & 24 (Bay of Biscay), FU28-29, FU30) and ii) the TAC proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final.

Norway lobster in Divisions VIII, contains 4 Functional Units:

- Divisions VIIIa, b: Bay of Biscay North and south (FU 23 & FU 24)
- Divisions VIIIc: North Galicia (FU 25) and Cantabrian Sea (FU 31)

Of the 4 *Nephrops* FUs in ICES div. VIII the *Nephrops* in Bay of Biscay (FUs 23 and 24) is the major contributor to *Nephrops* landings from this area. All the fisheries in VIII taking *Nephrops* are mixed fisheries, in which a single target species often may be difficult to identify. A major fin-fish component is hake. None of these 4 FUs are assessed by UWTV surveys. At present only FUs 23 and 24 are subject to analytical assessments. These *Nephrops* FUs are assessed by the ICES Working Group on the Assessment of Southern Shelf Stocks of Hake, Monk and Megrim (WGHMM).

3.1.1. Norway lobster (*Nephrops norvegicus*) in FU 23 & FU 24, Bay of Biscay (Divisions VIIIa, b)

FISHERIES: There are two Functional Units in these divisions VIIIa & VIIIb: a) Bay of Biscay North (FU 23) and b) Bay of Biscay South (FU 24), together called Bay of Biscay. Nearly all landings are taken by French trawlers. Landings have fluctuated between 3,500 and 6,000 t during the time-series. These fluctuations may be explained by variability in recruitment. In 2009 total landings amounted to 3029 t. The corresponding estimated discards were 1833 t. Despite a decommissioning programme for French vessels, it is likely that effective effort has stabilised since 1994 or even increased due to increased gear efficiency.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Biennial advice (for 2011 and 2012) for this FU was provided in 2010. The advice is based on an (pseudo-) age-based assessment. Catch-at-age data are generated by slicing of sampled length distributions combined for males and females.

REFERENCE POINTS: No reference points have been defined for this stock.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

RECENT MANAGEMENT ADVICE:

The advice given in 2010 for this *Nephrops* stock is biennial and valid for 2011 and 2012 (see ICES, 2010). This year ICES adopts the transition to the MSY approach as basis for advice, which corresponds to reducing catch.

No reliable assessment can be presented for this stock. The main cause of this is the high uncertainty in point estimates for recent years. Therefore, fishing possibilities cannot be projected.

MSY approach

The exploitation status is unknown but the stock indicators (SSB and recruitment) are stable. According to ICES MSY approach, catches should be reduced from recent levels. ICES cannot quantify the rate of reduction required.

PA approach

According to PA approach, catches should not exceed the recent catches, corresponding to landings of 3100 t.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final *Nephrops* in FU23 & 24 are classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that although an age-structured stock assessment is performed for these FUs, the results are insufficiently reliable to be used in catch forecasts or to estimate reference points. For these reasons, this stock being classified as category 3 under COM(2011) 298-FINAL.

3.1.2. Norway lobster (*Nephrops norvegicus*) in Division VIIIc (FU 25 & FU 31)

FISHERIES: There are two Functional Units in this Management Area: a) North Galicia (FU 25) and b) Cantabrian Sea (FU 31). All catches from these FUs are taken by Spain. *Nephrops* constitutes a small component of mixed fishery landings taken by bottom trawlers. Hake constitutes a main component of these landings. Landings and effort in both functional units have declined and landings are now at extremely low levels compared to earlier years (27 t in 2009) compared to landings of about 500 t in the early 1990s).

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Biennial advice (for 2011 and 2012) for this FU was provided in 2010. Advice is based on landings data, LPUE data and trends in mean size for both FUs

REFERENCE POINTS: No precautionary reference points are defined for this stock.

MANAGEMENT OBJECTIVES: A recovery plan for Southern hake and Iberian *Nephrops* has been agreed by the EC in 2006 (Council Regulation (EC) 2166/2005). The aim of the recovery plan is to rebuild the stocks within 10 years, with a reduction of 10% in F relative to the previous year and the TAC set accordingly. ICES has not evaluated this recovery plan.

STOCK STATUS (for both FU 25 and FU 31):

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

Although the exact stock status is unknown, all information indicates that both stocks are at a very low abundance level. Landings and lpue have fluctuated along a marked downward trend and are currently very low. Mean sizes have shown an increasing trend over the time-series, which may reflect poor recruitment.

RECENT MANAGEMENT ADVICE (for both FU 25 and FU 31):The advice given in 2010 for this *Nephrops* stock is biennial and valid for 2011 and 2012

Management Objective(s)	Catch in 2011 and 2012
Transition to an **MSY approach** with caution at low stock size	n/a
Cautiously avoid impaired recruitment (**Precautionary Approach**)	Zero catch
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g. catch stability)	n/a

No analytical assessment is available for both these FUs. Therefore, fishing possibilities cannot be projected.

MSY approach

Given the depleted state of these FUs it is not relevant to provide MSY based advice.

PA approach

The new data (landings and lpue) available do not change the perception of FU 25 and FU 31 status, and give no reason to change the advice given in 2008 "*Given the very low state of the stock, ICES repeats its advice of a zero catch for the stock in FU 25 and FU3* ".

Management plan

The calculation of a TAC corresponding to a reduction in F of 10% as called for in the recovery plan (Council Regulation (EC) 2166/2005) was not feasible because short-term forecasts are unreliable.

General considerations: Since the landings are well below the TAC, TAC reductions of 10% have been ineffective in reducing the fishing mortality as called for in the recovery plan. In addition, because the TAC covers both fishery units FU 25 and FU 31, a disproportionate amount could be taken from one or the other of the units. This could result in a fishing mortality on one of the stocks which was higher than anticipated.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final *Nephrops* in FU25 & 31 are classified under category 1. However, the lack of an analytical assessment and forecast precludes the provision of catch options for Nephrops according to the prescribed rules.

STECF COMMENTS STECF agrees with the ICES assessment of the state of the stock and the advice for 2011 and 2012.

STECF recommends that management should be at the functional unit rather than ICES division level in order to ensure that catch opportunities and effort are in line with the scale of the resources in each of the stocks defined by functional units.

STECF notes that there is an agreed management plan for *Nephrops* in Division VIIIc (Council Regulation (EC) 2166/2005) and they are therefore classified under category 1 according to COM(2011) 298-final. However, the lack of an analytical assessment and forecast precludes the provision of catch options according to the prescribed rules.

STECF has previously advised on annual 10 % reductions for the TAC for *Nephrops* in Division VIIIc in an attempt to limit fishing mortality in line with the intended reduction for hake (as required by the recovery plan). However, STECF notes that COM(2011) 260 final on the application of the southern hake and Norway lobster recovery plan (Council Regulation (EC) No 2166/2005) reports that this plan has not been effective in reducing fishing mortality and rebuilding the spawning stock biomass to the desired levels. STECF has recently been asked to provide guidance on the utility and effectiveness of alternative management approaches for southern hake and *Nephrops* (including improved effort regimes and management of *Nephrops* by FU) (see STECF-11-07c) and potential revisions to the plan are under consideration.

3.1.3. Norway lobster (*Nephrops norvegicus*) in Divisions VIIId, e

FISHERIES: There are no reported landings of *Nephrops* from this area

RECENT MANAGEMENT ADVICE: ICES has suggested that a zero TAC be set for this area to prevent misreporting.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF considers it is not appropriate to give a category to *Nephrops* in VIIId,e, since there are no reported catches from this area.

STECF COMMENTS: STECF notes that the most recent information for this stock relates to the year 2002. The above text is unchanged from the STECF Review of Scientific advice on stocks of Community interest for 2004. STECF agrees with the advice from ICES.

3.1.4. Norway lobster (*Nephrops norvegicus*) in Division IX and X.

Norway lobster in Divisions IX contains 5 Functional Units:

FU no.	Name	ICES area	Statistical rectangles
26	West Galicia	IXa	13-14 E0-E1
27	North Portugal (N of Cape Espichel)	IXa	6-12E0; 9-12E1
28	South-West Portugal (Alentejo)	IXa	3-5 E0-E1
29	South Portugal (Algarve)	IXa	2E0-E2
30	Gulf of Cadiz	IXa	2-3 E2-E3

FISHERIES: There are five Functional Units (FU) in Division IXa: a) West Galicia (FU 26), b) North Portugal (FU 27), c) Southwest Portugal (FU 28), d) South Portugal (FU 29), and e) Gulf of Cadiz (FU 30). These *Nephrops* FUs are assessed by the ICES Working Group on the Assessment of Southern Shelf Stocks of Hake, Monk and Megrim (WGHMM).

Nephrops represents a small, but valuable by-catch in these fisheries targeting mainly demersal fish species. In the Southwest and South SW and S Portugal there is a crustacean trawl fishery, targeting mainly deepwater crustaceans. The fishery in West Galicia, North Portugal and Gulf of Cádiz is mainly conducted by Spanish vessels, and that in Southwest and South Portugal by Portuguese vessels, on deep water grounds (200-750 m). The Portuguese fleet comprises two components: demersal fish trawlers and crustacean trawlers. Total landings from Div. IXa (FUs 26-30) have drecreased dramatically during the last 30 years. In 1980 total landings exceeded 2000 t, while they were 267 t in 2009, of which 242 t were taken from FUs 28 - 30.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. Biennial advice (for 2011 and 2012) for these FUs was provided in 2010.The advice for the stocks in FUs 26 and 27(West Galicia and North Portugal), and FU 30 (Gulf of Cadiz) was based on trends in LPUE data and data on mean size, while the advice for the stocks in FU 28 and FU 29 (Southwest and South Portugal) was based on an (pseudo-) age-based assessment using catch-at- age data generated by slicing of sampled length distributions (combined for males and females).

REFERENCE POINTS: No reference points have been defined for FUs 26-30.

MANAGEMENT AGREEMENT: A recovery plan for Southern hake and Iberian *Nephrops* has been agreed by the EC in 2006 (Council Regulation (EC) 2166/2005). The aim of the recovery plan is to rebuild the stocks within 10 years, with a reduction of 10% in F relative to the previous year and the TAC set accordingly. ICES has not evaluated this recovery plan.

STOCK STATUS: (for FU 26, 27, 28, 29 and 30):

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

Although the exact stock status is unknown, all information indicates that all stocks are at a very low abundance level. Landings and lpue have fluctuated along a marked downward trend and are currently very low.

West Galicia (FU 26)and North Portugal (FU 27): The available information indicates that the stocks are at a very low level of abundance.

SW and S Portugal (FU 28 & FU 29): Stock status is uncertain, but appears to have recovered from its low level in 1996 to almost the level of the mid-1980s in 2002 and has been relatively stable since then.

Gulf of Cadiz (FU 30): State of the stock is unknown, but abundance has been stable in recent years.

RECENT MANAGEMENT ADVICE: The advice for these *Nephrops* stocks is biennial and valid for 2011 and 2012. Management should be implemented at the Functional Unit level.

FUs 26–27:

Management Objective(s)	**Catches in 2011 and 2012**
Transition to an **MSY approach** with caution at low stock size	n/a
Cautiously avoid impaired recruitment **(Precautionary Approach)**	Zero catch
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g. catch stability)	n/a

The stocks in FUs 26–27 are at a very low level. Increasing mean sizes in landings in combination with record low lpues in recent years indicate that the stocks suffer a progressive recruitment failure. Landings are still decreasing and are at an insignificant level compared with historic values.

MSY approach

Given the depleted state of the FU it is not relevant to provide MSY based advice.

PA approach

The new data (landings and lpue) available do not change the perception of FU 26-27 status, and give no reason to change the previous advice of zero catch. The stocks in FUs 26–27 are at a very low level. Increasing mean sizes in landings, in combination with record low lpues in recent years, indicate that the stocks suffer a progressive recruitment failure.

Management plan

The calculation of a TAC corresponding to a reduction in F of 10% as called for in the recovery plan (Council Regulation (EC) 2166/2005) was not feasible because short-term forecasts are unreliable.

FUs 28–29: The advice given in 2010 for this *Nephrops* stock is biennial and valid for 2011 and 2012 (see ICES, 2010). This year ICES adopts the transition to the MSY approach as basis for advice, which corresponds to reducing catch.

Fishing mortality has decreased in the last five years, and is presently considered to be record low. The trend in SSB and recruitment in recent years is not considered reliable.

MSY approach

The stock trend is stable and the exploitation status is unknown. According to ICES MSY approach, catches should be reduced from recent levels. ICES cannot quantify the rate of reduction required.

PA approach

According to PA approach, catches should not exceed the recent average catch (2007-2009), corresponding to landings of 190 t.

Management plan

The calculation of a TAC corresponding to a reduction in F of 10% as called for in the recovery plan (Council Regulation (EC) 2166/2005) was not feasible because short-term forecasts are unreliable.

FU 30: The advice given in 2010 for this *Nephrops* stock is biennial and valid for 2011 and 2012 (see ICES, 2010). This year ICES adopts the transition to the MSY approach as basis for advice, which corresponds to reducing catch.

The stock appears to be low compared to historic levels. Landings and effort have decreased substantially in recent years.

MSY approach

The long-term trend of lpue is declining and the exploitation status is unknown. Following the ICES MSY framework, it is recommended to reduce catch from recent levels at rate greater than the rate of the stock decrease. ICES cannot quantify the rate of reduction required.

PA approach

Recent lpue suggest that the stock is stable at a low level. According to the PA approach, it is recommended not to increase catch above the recent average (150 t).

Management plan

The calculation of a TAC corresponding to a reduction in F of 10% as called for in the recovery plan (Council Regulation (EC) 2166/2005) was not feasible because short-term forecasts are unreliable.

General considerations: The overriding management consideration for these stocks is that management should be at the functional unit (FU) rather than the ICES division level. Management at the functional unit level should provide the controls to ensure that catch opportunities and effort are compatible and in line with the scale of the resources in each of the stocks defined by the functional units. Current management of *Nephrops* in Division IXa does not provide adequate safeguards to ensure that local effort is sufficiently limited to avoid depletion of resources in functional units. In the current situation vessels are free to move between grounds, allowing effort to develop on some grounds in a largely uncontrolled way and this has historically resulted in inappropriate harvest rates from some areas.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final *Nephrops* in FUs 26-30 are classified under category 1 but the lack of an analytical assessment and forecast precludes the provision of catch options according to the prescribed rules.

STECF COMMENTS: STECF agrees with the ICES assessment and advice for 2011 and 2012.

STECF recommends that management should be at the functional unit rather than ICES division level in order to ensure that catch opportunities and effort are in line with the scale of the resources in each of the stocks defined by functional units.

STECF notes that there is an agreed recovery plan for *Nephrops* in Division IXa (Council Regulation (EC) 2166/2005) and they are therefore classified under category 1 according to COM(2011) 298-final, but the lack of an analytical assessment and forecast precludes the provision of catch options according to the prescribed rules.

STECF has previously advised on annual 10 % reductions for the TAC for *Nephrops* in Division IXa in an attempt to limit fishing mortality in line with the intended reduction for hake (as required by the recovery plan). However, STECF notes that COM(2011) 260 final on the application of the southern hake and Norway lobster recovery plan (Council Regulation (EC) No 2166/2005) reports that this plan has not been effective in reducing fishing mortality and rebuilding the spawning stock biomass to the desired levels. STECF has recently been asked to provide guidance on the utility and effectiveness of alternative management approaches for southern hake and *Nephrops* (including improved effort regimes and management of *Nephrops* by FU) (see STECF-11-07c) and potential revisions to the plan are under consideration.

3.2. Hake (*Merluccius merluccius*) in Divisions VIIIc, IX and X (Southern hake)

FISHERIES: This stock is exploited in a mixed fishery by Spanish and Portuguese trawlers and artisanal fleets. Landings fluctuated between 6,700 and 35,000 t (1972-2009). In recent years, they increased from 6,700t in 2003 to 19,200t in 2009. Landings in 2010 were equal to 10,700t.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. A new assessment model has been adopted. The advice is now based on a length-age analytical assessment (GADGET) using catch data, commercial CPUE series and survey data. This new assessment includes the Gulf of Cadiz landings which were excluded from the assessment in recent years.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	not defined	
	F_{msy}	0.24	F_{max} (ICES, 2010)
Precautionary Approach	B_{lim}	not defined	
	B_{pa}	not defined	
	F_{lim}	not defined	
	F_{pa}	not defined	

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined

SSB (Spawning-Stock Biomass)	2009	2010	2011	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

Fishing mortality has been stable over the last decade and about three times above FMSY. In 2010 fishing mortality was estimated to have decreased by 37% from 2009. SSB has increased since 1998 and is estimated to have increased considerably in 2011. Recruitment has been high since 2005. Catch and landings increased from 2004 to 2009, and though they decreased in 2010, they still remain high.

MANAGEMENT OBJECTIVES: A recovery plan has been agreed by EU in 2005 (EC Reg. No. 2166/2005). The aim of the plan is to recover the stock to a spawning-stock biomass above 35 000 tonnes by 2016 and to reduce fishing mortality to 0.27. The main elements in the plan are a 10% annual reduction in F and a 15% constraint on TAC change between years. ICES has not evaluated the plan.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of the transition to the MSY approach that landings in 2012 should be no more than 14 300 t.

Management plan

Following the agreed recovery plan (EC Reg. No. 2166/2005) implies a 15% TAC increase to 12 299 t in 2012, which is expected to lead to an SSB of 34 800 t in 2013. ICES did not evaluate the plan; however, some elements of the recovery plan have been evaluated by ICES in 2010. The aim of the plan is to recover the stock to a spawning-stock biomass above 35 000 tonnes, based on the previous Bpa. This target is no longer valid due to a new perception of the historical stock dynamics.

MSY approach

No MSY Btrigger has been identified for this stock. The stock status in relation to any potential biomass reference points is unknown. In view of the optimistic signs of the stock, i.e. i) increasing trend in SSB in the last three years; ii) high recent recruitments; and iii) a decrease in fishing mortality in 2010, ICES will follow the MSY transition, assuming that SSB in 2012 will be above any potential candidate of MSY Btrigger.

Following the ICES MSY framework implies fishing mortality to be reduced to 0.24, resulting in landings of no more than 9300 t in 2012. This is expected to lead to an SSB of 39 700 t in 2013.

Following the transition scheme towards the ICES MSY framework implies fishing mortality to be reduced to 0.41, resulting in landings of no more than 14 300 t in 2012. This is expected to lead to an SSB of 31 500 t in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1. The rules in the management plan prescribe that a TAC for 2012 for hake in Divisions VIIIc, IX and X of 12 299 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2012.

STECF notes that the aim of the recovery plan is to recover the stock to a spawning-stock biomass above 35,000 tonnes. Since the new assessment method changes the historic dynamic of the stock, previous precautionary reference points for F and SSB may no longer be valid.

An evaluation of the southern hake management conducted by STECF in October 2010 (SGMOS 10-06) has concluded that the implementation of the recovery plan has not been effective: Fishing mortality has not decreased and the TAC has been overshot every year of the plan. The main reasons for the failure of the plan were a lack of landing control and insufficient reduction of fishing effort in the fleets fishing hake and Nephrops. An impact assessment for a revised plan has been undertaken in June 2011(EWG-11-07). STECF recommends that, until a revised version of the management plan has been implemented, measures to ensure compliance with the agreed TAC and effort restrictions be reinforced. STECF notes that even with the current plan fully implemented there is only a 12% probability of reaching Fmsy in 2015. STECF has evaluated alternative plans that are intended to reach Fmsy in 2015.

The ICES MSY transition option is compatible with the STECF evaluated management plan with no constraints on interanual change in TAC. This would imply a 34% increase in the 2012 TAC compared to 2011. If the management plan is to operate with an inter-annual TAC constraint of e.g. 15% or 25%, then the TAC should be calculated with an increase based on that constraint.

3.3. Whiting (*Merlangius merlangus*) in SubareasVIII, IX and X

FISHERIES: Whiting is taken in a mixed demersal fishery, mainly in Divisions VIIIa,b by France and Spain. The fishery is mostly dominated by bottom trawl. Landings data are considered preliminary.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The assessment area is Subarea VIII and Division IXa.

REFERENCE POINTS: No reference points have been defined for this species in the Bay of Biscay and Atlantic Iberian waters ecoregion.

STOCK STATUS:

F (Fishing Mortality)		
	2008–2010	
Qualitative evaluation	?	No information

SSB (Spawning-Stock Biomass)		
	2008–2010	
Qualitative evaluation	?	No information

The available information is insufficient to evaluate stock trends and exploitation status. Therefore, the state of the whiting in the Bay of Biscay and Atlantic Iberian waters ecoregion is unknown. Survey abundance index (mostly 0-group) shows an overall stable trend in the last 10 years.

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

RECENT MANAGEMENT ADVICE: This is the first time that ICES analyses data for whiting in the Bay of Biscay and Iberian waters eco-region. Currently it is not clear whether there should be one or several management units. There is insufficient information to evaluate the status of whiting in Subarea VIII and

Division IXa. Therefore, based on precautionary considerations, ICES advises that catches should not be allowed to increase in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice that catches should not increase in 2012. STECF notes that the stock unit definition of whiting in this area is not clear and that further work is required.

3.4. Whiting (*Merlangius merlangus*) - IX, X

This section is dealt with in section 3.3

3.5. Anglerfish (*Lophius piscatorius and Lophius budegassa*) in Div´s VIIIa, b, d, e

Anglerfish within the two management areas VII and VIIIabde are assessed together and comprise of two species (*L. piscatorius and L. budegassa*), which are not always separated for market purposes. Details of stock status and advice are given in Section 2.39.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

3.6. Anglerfish (*Lophius piscatorius and Lophius budegassa*) in VIIIc, IX, X

FISHERIES: Anglerfish species, *L. piscatorius* and *L. budegassa*, are caught together by bottom trawlers and gillnet fisheries. Anglerfishes, hake, *Nephrops*, and megrim are partly caught in the same mixed fisheries. Discarding is considered low. There is no minimum landing size for anglerfish, but in order to ensure marketing standards a minimum landing weight of 500 g was fixed in 1996.

For *Lophius piscatorius* total landings in 2010 were 1600 t; 33% were taken by bottom trawl, 60% by Spanish gillnet, and 7% by Portuguese artisanal gear types. Discarding rate in the Spanish bottom trawl fishery was 2.1%. For *Lophius budegassa*, total landings in 2010 were 750 t; 78% were taken by bottom otter trawl, 11% Spanish gillnet, and 11% Portuguese artisanal gear types. The discarding rate in Spanish bottom trawl was 11%.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. A surplus production model (ASPIC) is used to provide estimates of stock biomass and fishing mortality relative to their respective maximum sustainable yield (MSY) values.

REFERENCE POINTS

Lophius piscatorius

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	Not defined.	
	F_{MSY}	0.28	Estimated from surplus production model (ICES, 2011).
Precautionary Approach	B_{lim}	Not defined.	
	B_{pa}	Not defined.	
	F_{lim}	Not defined.	
	F_{pa}	Not defined.	

Lophius budegassa

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	Not defined.	
	F_{MSY}	0.43	Estimated from surplus production model (ICES, 2011).
Precautionary Approach	B_{lim}	Not defined.	
	B_{pa}	Not defined.	
	F_{lim}	Not defined.	
	F_{pa}	Not defined.	

STOCK STATUS:

Lophius piscatorius

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✓	Below target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined
Biomass				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined
Qualitative evaluation	✗	✗	✗	At a possible proxy for B_{lim} (30% B_{MSY})

The biomass of white anglerfish (in 2011) is estimated to be approximately 30% of BMSY and the fishing mortality (in 2010) is below FMSY

Lophius budegassa

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✓	✓	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined
Biomass				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined
Qualitative evaluation	↗	↗	✓	Above poss. reference points (potential MSY $B_{trigger}$)

Fishing mortality has decreased since 1999 and is in 2010 below FMSY. Biomass has increased since 2002, and is presently 91% of BMSY.

MANAGEMENT OBJECTIVES: No management objectives have been defined for these stocks.

RECENT MANAGEMENT ADVICE:

For *Lophius piscatorius*, ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 2200 t. For *Lophius budegassa* ICES advises on the basis of the MSY approach that landings in 2012 should be no more than 1100 t. Combined landings of Lophius piscatorius and Lophius budegassa should be no more than 3300 t.

MSY approach

Lophius piscatorius

The stock is considered to be below any potential MSY Btrigger. Following the ICES MSY framework implies that the advised fishing mortality should be FMSY*B2012/MSY Btrigger. However, no MSY Btrigger is defined.

In the absence of a defined MSY Btrigger, ICES considered last year the ratio B2011/MSY Btrigger to be 0.5, which corresponded to an MSY Btrigger of approximately 50% of BMSY. This year, adopting the same MSY Btrigger proxy means B2012/MSY Btrigger equals 0.74. This corresponds to maximum landings in 2012 of less than 2200 t and is expected to lead to a 27% biomass increase

Lophius budegassa

The stock is below FMSY and above any candidate of MSY Btrigger. Following the ICES MSY framework implies a fishing mortality equal to FMSY. This will result in maximum landings in 2012 of 1100 t and is expected to lead to an 18% biomass increase.

.Both stocks

As both species of anglerfish (*L. piscatorius* and *L .budegassa*) are caught in the same fisheries and are subject to a combined TAC, the same reduction from current fishing mortality is assumed for both species. The reduction is driven by *L. piscatorius*, as it is the species in poor condition and whose current fishing levels are above F_{msy}.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final these stocks are classified under category 2. The rules for category 2 prescribe that for 2012, a TAC for anglerfish (*Lophius piscatorius* and *Lophius budegassa*) in VIIIc, IX, X of 3,300 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stocks and the advice for 2012.

STECF notes that both stocks are caught together in most fisheries and managed under a common TAC, and that the advice depends on the stock in the poorer condition

STECF notes that anglerfish in VIIIc and IXa are caught in the same fisheries as hake and *Nephrops*.

To ensure recovery of anglerfish in VIIIc and IXa, it is essential that the provisions of the management plan for hake and *Nephrops* are fully implemented and enforced. Failure to do so may severely compromise any recovery of the anglerfish stocks. STECF therefore recommends that enforcement of the provisions of the management plan for hake and *Nephrops* is given high priority and that measures to ensure compliance with the TAC for anglerfish and effort restrictions are put in place as a matter of urgency.

3.7. Megrim (*Lepidorhombus whiffiagonis*) in VIIIa,b,d,e.

Megrim in Divisions VIIIa,b,d,e are assessed together with megrim in Sub area VII (Section 2.40).

3.8. Megrim (*Lepidorhombus whiffiagonis* & *Lepidorhombus boscii*) in VIIIc, IX & X

FISHERIES: Both species of megrim in the Iberian region are caught as a by-catch in the mixed bottom trawl fisheries by Portugueses and Spanish vessels and also in small quantities by the Portugueses artisanal fleet. Two species (*Lepidorhombus whiffiagonis* & *L. boscii*) are caught and they are not usually separated for market purposes and a combined advice is provided for the two stocks. Changes in the demersal fisheries in recent years have reduced the fishing effort on megrim. In 2010, landings were 1297 t for *L. boscii* and 83 t for *L. whiffigonis*.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. The advice is based on an age-based analytical assessment based on landings and CPUE data series from surveys and commercial fleets. Bycatch and discards are not incorporated in the assessment. The two stocks are caught together and the fisheries advice therefore combines both stocks.

Lepidorhombus boscii

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	Not defined.	
	F_{MSY}	0.18	$F_{40\%SPR}$ (ICES, 2010)
Precautionary Approach	B_{lim}	Not defined.	
	B_{pa}	Not defined.	
	F_{lim}	Not defined.	
	F_{pa}	Not defined.	

Lepidorhombus whiffiagonis

	Type	***Value***	***Technical basis***
MSY Approach	MSY $B_{trigger}$	Not defined.	
	F_{MSY}	0.17	$F_{40\%SPR}$ (ICES, 2010).
Precautionary Approach	B_{lim}	Not defined.	
	B_{pa}	Not defined.	
	F_{lim}	Not defined.	
	F_{pa}	Not defined.	

STOCK STATUS:

Lepidorhombus boscii

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined

SSB (Spawning-Stock Biomass)	2009	2010	2011	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined

SSB has decreased since the late 1980s, and shows a slightly upwards trend after reaching a minimum in 2001. Fishing mortality has been stable and above FMSY. Recruitment has been around average since 2000.

Lepidorhombus whiffiagonis

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	✗	✓	✓	Below target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined

SSB (Spawning-Stock Biomass)	2009	2010	2011	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined
Qualitative evaluation	✗	✗	✗	Below poss. MSY $B_{trigger}$

SSB has decreased from the late 1980s, and has been record low since 2004. Fishing mortality has fluctuated over the times-series, but has decreased after 2006. Recruitment has been low for over a decade with the exception of the 2009 year class estimate.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY approach. For *Lepidorhombus boscii* landings in 2012 should be no more than 760 t and for *L .whiffiagonis* landings in 2012 should be no more than 100 t. Combined landings of Lepidorhombus boscii and Lepidorhombus whiffiagonis should be no more than 860 t.

MSY approach

Since the two megrim species (*L. whiffiagonis and L. boscii*) are not separated in the landings, the advice of the two stocks is linked. The reduction in fishing mortality applied to the stock with highest fishing mortality in relation to FMSY (*L. boscii*) should be applied to both stocks. Given the low population level *of L. whiffiagonis* (below any potential MSY Btrigger), the MSY transition framework is not appropriate for advice for both megrim stocks and advice is given using the MSY framework. This approach was already applied in 2010.

For *L. boscii* fishing mortality must be reduced to 0.18, resulting in maximum landings of 760 t in 2012. This is expected to lead to an SSB of 5300 t in 2013. For *L. whiffiagonis*, this implies fishing mortality to be reduced to 0.08, resulting in landings of 100 t in 2012. This is expected to lead to an SSB of 1190 t in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final these stocks are classified under category 2. The rules for category 2 prescribe that for 2012, a TAC for both species of megrim in VIIIc, IX & X of 1250 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

3.9. Plaice (*Pleuronectes platessa*) in VIII, IX and X.

FISHERIES: Plaice is fished by various fleets and gear types covering small-scale artisanal and trawl fisheries. Only preliminary landings are available. 2010 landings were equal to 291t.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. ICES advice is for Subarea VIII and Division IXa.

REFERENCE POINTS: No reference points have been defined for this species in the Bay of Biscay and Atlantic Iberian waters ecoregion.

STOCK STATUS:

F (Fishing Mortality)		
	2008 - 2010	
Qualitative evaluation	?	No information

SSB (Spawning-Stock Biomass)		
	2008 - 2010	
Qualitative evaluation	?	No information

The available information is insufficient to evaluate stock trends and exploitation status. Therefore, the state of the plaice in Bay of Biscay and Iberian waters ecoregion is unknown.

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

RECENT MANAGEMENT ADVICE: This is the first time that ICES analyses data for plaice in the Bay of Biscay and Iberian waters ecoregion. Currently it is not clear whether there should be one or several management units. There is insufficient information to evaluate the status of plaice in Subarea VIII and Division IXa. Therefore, based on precautionary considerations, ICES advises that catches should not be allowed to increase in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice that catches should not increase in 2012.

STECF notes that the stock unit definition of plaice in this area is not clear and that further work is required.

3.10. Sole (*Solea solea*) in Divisions VIIIa,b (Bay of Biscay)

FISHERIES: The French fleet that consists mainly of trawlers and fixed-nets is the major participant in the Bay of Biscay sole fishery with landings being about 90% of the total official international landings over the historical series. Most of the remaining part is usually landed by the Belgian beam trawler fleet. The landings of French fixed net fishery have increased from less than 5% of total landings prior to 1985 to around 60% in recent years. This shift between the fleets has resulted in a change of the selection towards older fish.

Total landings in 2010 were 4,000t (inshore trawlers 8%, offshore otter trawlers 19%, offshore beam-trawlers 11%, and fixed nets 61%).

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

The advice is based on an age-based analytical assessment based on landings and CPUE data series from surveys and commercial fleets. Partial discard information is available from 1984 to 2003, but is no longer included in the assessment since 2004 because of the low contribution of discards to the catch and therefore to the assessment. No recruitment indices are available for this stock.

There is a need for fisheries independent data to improve the stock assessment and the estimation of recruitment. This assessment relies on time series of commercial fleets. Following a benchmark in 2011, the two RESSGASC survey series (which ended in 2002) were replaced by two commercial lpue series from offshore and inshore French trawlers. These changes have resulted in a slightly revised perception of the stock status in relation to reference points.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	13 000 t	B_{pa} (provisional estimate.)
	F_{MSY}	0.26	F_{max} (ICES, 2010) because stock–recruitment relationship, limited variations of recruitment, and fishing mortality pattern are known with low uncertainty.
Precautionary Approach	B_{lim}	Not defined.	
	B_{pa}	13 000 t	The probability of reduced recruitment increases when SSB is below 13 000 t, based on the historical development of the stock.
	F_{lim}	0.58	Based on the historical response of the stock.
	F_{pa}	0.42	F_{lim} * 0.72

MANAGEMENT AGREEMENT: A multiannual plan has been agreed by EU in 2006 (EC Reg. No. 388/2006). The aim of the plan was first to bring the spawning-stock biomass above 13 000 tonnes in 2008 and thereafter to ensure the sustainable exploitation of the stock. ICES has not evaluated the plan

STECF has evaluated a new management plan proposal and concluded that exploiting the Bay of Biscay sole stock at F_{msy} (0.26) can be considered precautionary. An F target of 0.26 does not produce significantly higher long term yields relative to Fs in the range of 0.15-0.35. Two possible Fmsy transition options were considered: 1) A strategy of gradual annual reductions in F towards achieving F_{msy} in 2015 may be combined with the current 15% constraint in interannual variation in TAC. 2) With a constant TAC strategy of 4100t from 2012 onwards, F_{msy} could be reached with a 50% probability by 2015. Both strategies assume that F is maintained at Fmsy (0.26) once F has declined to that level.

STOCK STATUS:

F (Fishing Mortality)	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	○	✓	✓	Harvested sustainably

SSB (Spawning-Stock Biomass)	2009	2010	**2011**	
MSY ($B_{trigger}$)	✗	✗	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	○	○	✓	Full reproductive capacity

The most recent estimates of SSB are close to MSY $B_{trigger}$ and B_{pa}. Fishing mortality, since 2003, has been around F_{pa} and above F_{MSY}. Recruitment has increased since 2004.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the transition to the MSY approach that landings in 2012 should be no more than 4000 t.

Management plan

The multiannual plan for the Bay of Biscay sole (EC Reg. No. 388/2006) does not provide any basis for a TAC advice for 2012. The aim of the plan was first to bring the spawning-stock biomass above 13 000 tonnes. This target is estimated to have been achieved. According to the plan, the Council must decide on (a) a long-term target fishing mortality rate; and (b) the rate of reduction in the fishing mortality rate that should apply until the target fishing mortality rate decided under (a) has been reached. The EC has not yet defined the values for items (a) and (b). ICES has not evaluated this plan.

MSY approach

To follow the ICES MSY framework the fishing mortality must be reduced to 0.26, resulting in maximum landings of 3100 t in 2012. This is expected to lead to an SSB of 16 000 t in 2013, corresponding to a 14% increase compared with the 2012 SSB.

To follow the transition scheme towards the ICES MSY framework the fishing mortality must be reduced to 0.34, resulting in landings of 4000 t in 2012. This is expected to lead to an SSB of 15 000 t in 2013, corresponding to a 7% increase compared with the 2012 SSB.

PA approach

The fishing mortality in 2012 should be no more than F_{pa}, corresponding to landings of less than 4700 t in 2012. This is expected to allow SSB to stay above B_{pa} in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. The rules for category 2 prescribe that for the Bay of Biscay sole 2012, a TAC for of 4,000t should be proposed

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that the ICES MSY transition is the same as the STECF evaluated F strategy.

STECF notes that the constant TAC strategy to reach MSY in 2015 with a TAC of 4 100 t would imply an F of 0.35 and an SSB in 2013 of 14 500 t.

3.11. Sole (*Solea* spp.) - VIIIcde, IX, X

FISHERIES: Sole is caught mainly in a small-scale multi-gear coastal mixed fishery. Only preliminary landings are available. 2010 landings for division VIIIc, Division IXa and Subarea IX (excluding landings specifically identified as Division IXb) were equal to 385t.

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

REFERENCE POINTS: No reference points have been defined for sole in Divisions VIIIc and IXa.

STOCK STATUS:

F (Fishing Mortality)		
	2008–2010	
Qualitative evaluation	?	No information

SSB (Spawning-Stock Biomass)		
	2008–2010	
Qualitative evaluation	?	No information

The available information is insufficient to evaluate stock trends and exploitation status. Therefore, the state of the sole in Divisions VIIIc and IXa is unknown. Official landings have decreased substantially since the late 1980s

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

RECENT MANAGEMENT ADVICE: This is the first time that ICES analyses data for sole in the Atlantic Iberian waters ecoregion. Currently it is not clear whether there should be one or several management units. There is insufficient information to evaluate the status of sole in Divisions VIIIc and IXa. Therefore, based on precautionary consideration, ICES advises that catches should not be allowed to increase in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice that catches should not increase in 2012.

STECF notes that the stock unit definition of sole in this area is not clear and that further work is required.

3.12. Rays and skates in ICES Subareas VIII and IX

The stock summary and advice for rays and skates in ICES Subareas VIII and IX will not be updated in 2011. The text below relates to the most recent advice from ICES which was issued in 2010.

FISHERIES: No specific information for this area area available.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. The assessment is based on survey and landing trends.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
F_{msy}		?	
F_{pa} / F_{lim}		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY $B_{trigger}$		?	
B_{pa} / B_{lim}		?	

Status of individual stocks is given in the table below.

Species	Area	State of stock
Raja clavata (thornback ray)	VIIIabd	Stable /increasing
Leucoraja naevus (cuckoo ray)	VIIIabd	Stable /increasing
other species	VIIIabd	Uncertain
Raja clavata (thornback ray)	VIIIc	Uncertain
Leucoraja naevus (cuckoo ray)	VIIIc	Uncertain
other species	VIIIc	Uncertain
Raja clavata (thornback ray)	IXa	Stable
Leucoraja naevus (cuckoo ray)	IXa	Uncertain
other species	IXa	Uncertain
Dipturus batis (Common skate) complex	All areas	Depleted

RECENT MANAGEMENT ADVICE:

Advice Summary for 2011-2012

Management Objective (s)	Landings in 2011 and 2012
Transition to an **MSY approach** with caution at low stock size	Less than 4.2 thousand t for the main species
Cautiously avoid impaired recruitment (**Precautionary Approach**)	No target fishery on *Raja undulata* and *Dipturus batis* complex
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

Advice for 2011-2012 by individual stocks

Species	Area	Advice

Raja clavata (thornback ray)	VIIIabd	Maintain the catches at recent level
Leucoraja naevus (cuckoo ray)	VIIIabd	Maintain the catches at recent level
Other species	VIIIabd	No advice
Raja clavata (thornback ray)	VIIIc	No advice
Leucoraja naevus (cuckoo ray)	VIIIc	No advice
Other species	VIIIc	No advice
Raja clavata (thornback ray)	IXa	Maintain the catches at recent level
Leucoraja naevus (cuckoo ray)	IXa	No advice
Other species	IXa	No advice
Raja alba	All areas	Retain on prohibited species list
Dipturus batis (Common skate) complex	All areas	Retain on prohibited species list

Outlook for 2011 and 2012

No analytical assessment or forecast can be presented for these stocks. The main cause of this is the lack of a time-series of species specific landings data. No targeted fishing should be permitted for *Raja undulata* and the *Dipturus batis* complex.

MSY transition scheme

Advice by species/stock is provided in the table above. This advice is based on an application of the MSY approach for stocks without population size estimates. This advice applies to 2011 and 2012. The rate of exploitation of these stocks relative to F_{MSY} is not currently known. Advice is provided based on an examination of the stock status of each of the different stocks in the divisions within the ecoregion, with the most appropriate advice for the majority of the stocks provided.

PA approach

White skate (Rostroraja alba) – No reliable recent records. The status is uncertain, although it is considered near-extirpated from parts of its former range.

Policy paper

In the light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) the stocks in this multispecies complex are classified under a range of categories. Some of the main commercial stocks are classified under categories 6-9, Annex IV, Rule 4. This implies an unchanged TAC.

Species	Area	Policy Category
Raja clavata (thornback ray)	VIIIabd	Annex III, Rule 6. Annex IV Rule 4 applies.
Leucoraja naevus (cuckoo ray)	VIIIabd	Annex III, Rule 6. Annex IV Rule 4 applies.
Other species	VIIIabd	Annex III, Rule 6. Annex IV Rule 4 applies.
Raja clavata (thornback ray)	VIIIc	Annex III, Rule 6. Annex IV Rule 4 applies.
Leucoraja naevus (cuckoo ray)	VIIIc	Annex III, Rule 6. Annex IV Rule 4 applies.
Other species	VIIIc	Annex III, Rule 6.
Raja clavata (thornback ray)	IXa	Annex III, Rule 6. Annex IV Rule 4 applies.
Leucoraja naevus (cuckoo ray)	IXa	Annex III, Rule 6. Annex IV Rule 4 applies.
Other species	IXa	Annex III, Rule 6.
Raja alba	All areas	Annex III, Rule 10
Dipturus batis (Common skate) complex	Areas	Annex III, Rule 10

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

3.13. Catsharks and Nursehounds (*Scyliorhinus canicula and Scyliorhinus stellaris*) in Subareas VIII, IX and X

The stock summary and advice for catsharks and nursehounds in Subareas VIII, IX and X will not be updated in 2011. The text below relates to the most recent advice from ICES which was issued in 2010.

FISHERIES: Lesser spotted dogfish *Scyliorhinus canicula* is taken primarily as a by-catch in demersal fisheries targeting other species and a large proportion of the catch is discarded, although in some coastal areas there are seasonal small-scale directed fisheries. In the Bay of Biscay and Iberian waters landings of *Scyliorhinus* spp. have recorded since the mid 1990s and have fluctuated between 1500t and 2000t. Landings were 1688t in 2005 and 1572 in 2006.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. The assessment is based on survey and landing trends.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	**2009**
F_{msy}		?	
F_{pa} / F_{lim}		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY $B_{trigger}$		?	
B_{pa} / B_{lim}		?	

In the absence of defined reference points, the status of the stocks of S*cyliorhinus canicula* cannot be evaluated. The following provides a qualitative summary of the general status of the stocks based on surveys and landings:

Species	**Area**	**State of stock**
Scyliorhinus canicula (lesser spotted dogfish)	VIIIabd	Increasing
Scyliorhinus canicula (lesser spotted dogfish)	VIIIc	Stable /increasing
Scyliorhinus canicula (lesser spotted dogfish)	IXa	Stable

RECENT MANAGEMENT ADVICE:

Scyliorhinus canicula (Lesser-spotted dogfish)

Management Objective (s)	**Landings in 2011 and 2012**
Transition to an **MSY approach** with caution at low stock size	Less than 1.7 thousand t
Cautiously avoid impaired recruitment (**Precautionary Approach**)	Less than 1.7 thousand t
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

There is no TAC in place for *Scyliorhinus canicula.*

Advice for 2011-2012 by individual stocks

Species	**Area**	**Advice**
Scyliorhinus canicula (lesser spotted dogfish)	VIIIabd	Maintain the catches at recent level
Scyliorhinus canicula (lesser spotted dogfish)	VIIIc	Maintain the catches at recent level
Scyliorhinus canicula (lesser spotted dogfish)	IXa	Maintain the catches at recent level

Outlook for 2011 and 2012

No analytical assessment or forecast can be presented for these stocks. The main cause of this is the lack of a time-series of species specific landings data.

MSY transition scheme

Advice by species/stock is provided in the table above. This advice is based on an application of the MSY approach for stocks without population size estimates. This advice applies to 2011 and 2012. The rate of exploitation of these stocks relative to F_{MSY} is not currently known.

Policy paper

In the light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) the stocks of *Scyliorhinus canicula* are classified under a range of categories.

Species	Area	Policy Category
Scyliorhinus canicula (lesser spotted dogfish)	VIIIabd	No TAC is in place, but Annex III, Rule 8 would apply.
Scyliorhinus canicula (lesser spotted dogfish)	VIIIc	No TAC is in place, but Annex III, Rule 6, Annex IV Rule 4 would apply.
Scyliorhinus canicula (lesser spotted dogfish)	IXa	No TAC is in place, but Annex III, Rule 6, Annex IV Rule 4 would apply.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010 (STECF 2010a).

3.14. Tope (*Galleorhinus galeus*) in ICES Subareas VIII, IX and X

Previous stock summaries and advice for tope has been provided at the NE Atlantic regional level and at present, STECF is unable to provide additional information and advice for subareas VIII, IX and X separately.

3.15. Other demersal elasmobranches in the Bay of Biscay and Iberian Waters

The stock summary and advice for other demersal elasmobranches in the Bay of Biscay and Iberian Waters will not be updated in 2011. The text below relates to the most recent advice from ICES which was issued in 2010.

FISHERIES: No specific information is available for this area

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. The assessment is based on survey and landing trends.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})		?	

Precautionary approach (F_{pa},F_{lim})		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)		?	
Precautionary approach (B_{pa},B_{lim})		?	

In the absence of formal stock assessments and defined reference points for *Mustelus* and *Squatina* in this eco-region, the following provides a qualitative evaluation of the general status of the major species, based on surveys and landings.

Species	Area	State of stock
Mustelus spp	VIIIabd	Increasing
Mustelus spp	VIIIc	Uncertain
Mustelus spp	IXa	Uncertain
Squatina squatina	VIIIabd	Depleted
Squatina squatina	VIIIc	Depleted
Squatina squatina	IXa	Uncertain

RECENT MANAGEMENT ADVICE:

Advice for 2011-2012 by individual stocks

Species	Area	Advice
Mustelus spp	VIIIabd	No advice
Mustelus spp	VIIIc	No advice
Mustelus spp	IXa	No advice
Squatina squatina	VIIIabd	Retain on prohibited species list
Squatina squatina	VIIIc	Retain on prohibited species list
Squatina squatina	IXa	Retain on prohibited species list

Outlook for 2011 and 2012

No analytical assessment or forecast can be presented for these stocks. The main cause of this is the lack of a time-series of species specific landings data.

MSY transition scheme

Advice by species/stock is provided in the table above. This advice is based on an application of the MSY approach for stocks without population size estimates. This advice applies to 2011 and 2012.

PA approach

Angel shark (Squatina squatina) – Landings of this species have almost ceased, with only occasional individuals landed. It is an inshore species, distinctive, and may have a relatively good discard survivorship. Given the concern over *S. squatina* in this and adjacent ecoregions, and that it is not subject to any conservation legislation, a zero TAC for Subareas VII–VIII, or listing this species as a prohibited species would benefit this species.

Landings of Mustelus spp. come mainly from Divison VII that is outside Bay of Biscay and Western Iberian Seas.

Policy paper

In the light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) the stocks of these species are classified under a range of categories.

Species	Area	Policy Category
Mustelus spp	VIIIabd	No TAC, but Annex III, Rule 8 would apply
Mustelus spp	VIIIc	No TAC, but Annex III, Rule 11 would apply
Mustelus spp	IXa	No TAC, but Annex III, Rule 11 would apply

Squatina squatina	VIIIabd	Annex III, Rule 10
Squatina squatina	VIIIc	Annex III, Rule 10
Squatina squatina	IXa	Annex III, Rule 10

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

3.16. Anchovy (*Engraulis encrasicolus*) in Division VIII (Bay of Biscay)

The ICES Advice for Anchovy (*Engraulis encrasicolus*) in Division VIII (Bay of Biscay) will only be available by mid July 2011. It will be updated then and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

3.17. Anchovy (*Engraulis encrasicolus*) in Sub-area IX

The ICES Advice for Anchovy (*Engraulis encrasicolus*) in Sub-area IX will only be available by mid July 2011. It will be updated then and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

3.18. Anchovy (*Engraulis encrasicolus*) in Sub-area X

The ICES Advice for Anchovy (*Engraulis encrasicolus*) in Sub-area X will only be available by mid July 2011. It will be updated then and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

3.19. Horse mackerel (*Trachurus trachurus*) in ICES division IXa

The stock summary and advice for horse mackerel (*Trachurus trachurus*) in ICES division IXa will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

3.20. Horse mackerel (*Trachurus spp*) in CECAF areas (Madeira Island)

The stock summary and advice for horse mackerel (*Trachurus trachurus*) in CECAF areas (Madeira Island) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

3.21. Horse mackerel (*Trachurus spp*) in CECAF areas (Canary Islands)

The stock summary and advice for horse mackerel (*Trachurus trachurus*) in CECAF areas (Canary Islands) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

3.22. Horse mackerel (*Trachurus spp*) in ICES Subarea X (Azores Islands)

The stock summary and advice for horse mackerel (*Trachurus trachurus*) in ICES Subarea X (Azores Islands) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

3.23. Sardine (*Sardina pilchardus*) in VIIIc and IXa

The ICES Advice for sardine (*Sardina pilchardus*) in VIIIc and IXa will only be available by mid July 2011. It will be updated then and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

3.24. Southern mackerel (*Scomber scombrus*) component of NEA mackerel

The stock summary and ICES advice for NEA mackerel is given in Section 7.5. The advice for the stock as a whole is appropriate for the southern component.

3.25. Grey Gurnard (*Trigla gurnardus*) in the Bay of Biscay and Iberian waters

STECF did not have access to any recent stock assessment information on grey gurnard in the Bay of Biscay and Iberian waters.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

3.26. Pollack (*Pollachius pollachius*) in the Bay of Biscay and Iberian waters

STECF did not have access to any recent stock assessment information on pollack in the Bay of Biscay and Iberian waters.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

3.27. Red Gurnard (*Aspitrigla cuculus*) in the Bay of Biscay and Iberian waters

STECF did not have access to any recent stock assessment information on red gurnard in the Bay of Biscay and Iberian waters.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

3.28. Red mullet (*Mullus surmuletus and Mullus barbartus*) in the Bay of Biscay and Iberian waters

STECF did not have access to any recent stock assessment information on red mullet in the Bay of Biscay and Iberian waters.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

3.29. Sea bass (*Dicentrarchus labrax*) in the Bay of Biscay and Iberian waters

STECF did not have access to any recent stock assessment information on sea bass in the Bay of Biscay and Iberian waters.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

4. Eco-region 4: Resources in Icelandic and East Greenland waters

4.1. Cod (*Gadus morhua*) in ICES Subarea XIV and NAFO Subarea 1 (Greenland cod)

FISHERIES: Commercial fisheries for Greenland cod started along the Greenland West coast in the 1910's (inshore) and 1920's (offshore). The fishery gradually developed culminating with catch levels above 400,000 tons annually in the 1960s. The East Greenland offshore cod fishery started in the 1950's. Due to overfishing and deteriorating environmental conditions, the stock size declined and the fishery completely collapsed in the early 1990's. The 1990s stock collapse was followed by a decade of very limited fishing, with inshore catches falling below 1000 t annually and with no directed offshore fisheries taking place. From 2000, the inshore catches have gradually increased from less than 1000 t to 12,000 t in 2007. From 2002, limited offshore quotas have been allocated to Faeroese and Norwegian vessels, and in 2005-2006, Greenland trawlers were allowed limited quotas for experimental cod fishery. In 2007, small quotas were given to Greenland, the EU (Germany and UK), Norway and the Faroe Islands with catches reaching 5000 tons, mainly taken off East Greenland.

. In 2009 the catches from the coastal fleet amounted to 7,672. Relative to 2008 catches decreased in all areas except in Mid Greenland, NAFO division 1E. Offshore catches were taken off south Greenland and amounted to 5,000 tons in 2009. The EU took 50% and Norway took 80% of their quotas. Of the Greenland quotas of 5,400 tons only 2,100 tons was taken. In 2010 the East Greenland offshore area north of 62°N and the West Greenland off-shore area west of 44°W were closed for directed cod fisheries and the 2010 catches from the offshore fisheries were mainly taken in Southeast Greenland. A small ex-perimental fishery with a Norwegian longliner was however allowed in West Greenland, the quota for this fishery was 750 tons, but only 290 tons were fished. In East Greenland 1,700 tons were fished in the open area, and 400 tons were taken as bycatch in the redfish fishery in the closed area north of 62°N. Of the TAC of 5,000 tons only 2,400 tons were taken in 2010.
The coastal fleet's TAC is set at 10 000 t in 2011

SOURCE OF MANAGEMENT ADVICE: An Analytical assessment is available up to 1992. After the stock depletion in 1992, the stock trends have been based on research survey indices. Cod in Greenland derives from three stock components, labelled by their spawning areas: I) an offshore Greenland spawning stock, II) inshore West Greenland fiords spawning populations, and III) Icelandic spawned cod that drift to Greenland with the Irminger Current. It is not feasible to sample and assess stock status of the various stock components separately, and they are therefore assessed together.

REFERENCE POINTS: No reference points have been proposed by ICES for this stock.

STOCK STATUS:

F (Fishing Mortality)		
	2008-2010	
Qualitative evaluation	?	No information

SSB (Spawning Stock Biomass)		
	2008-2010	
Qualitative evaluation Offshore	→	Local high densities
Qualitative evaluation Inshore	?	Unknown

All information indicates that the cod biomass is low compared to prior to 1990s. The offshore component has been severely depleted since 1990, but has started to recover since 2005. An offshore cod directed fishery has started for the first time since 1992 with recent annual catches up to 22 000 t. Surveys indicate a large 2003

year-class, and the first significant year-class since 1985. Following the 2003 year class recruitment has been low. Dense concentrations of large spawning cod have been found off East Greenland in 2007 and 2009. The landings by the coastal fleet component have increased by a factor of ten over the last decade. Inshore recruitment since 2000 shows some signs of improvement. Stock size and exploitation rate of the inshore component are unknown.

MANAGEMENT AGREEMENTS: Greenland and EC established an agreement on offshore fisheries valid from 2007 to 2012. A variable TAC regulation has been agreed. The agreement also provides for a transfer of unutilized quota into future years, should a rapid increase in the stock occur. None of the management plans have been evaluated by ICES.

RECENT MANAGEMENT ADVICE: ICES advises on the basis of precautionary considerations that no fishery should take place in 2012 to improve the likelihood of establishing offshore spawning stocks in West and East Greenland.

MSY approach

Further work is required on implementation of the MSY approach.

PA approach

Stocks trends in the inshore component are unknown, while the offshore component is stable or increasing. Exploitation status is unknown. Therefore, no fishery should take place in 2012 to allow for rebuilding of the offshore spawning stocks in West and East Greenland.

Management agreement

There is no explicit management objectives for the cod stocks in Greenland. A multi-annual management plan should include monitoring the trajectory of the stock, clearly stating specified reopening criteria, and monitoring the fishery when it is reopened.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

4.2. Cod (*Gadus morhua*) in ICES Subarea XII

STECF does not have access to any information on cod in ICES Subarea XII

4.3. Cod (*Gadus morhua*) in Division Va (Icelandic cod)

FISHERIES: Icelandic cod is primarily caught by bottom otter trawlers. Historically, the landings of bottom trawlers constituted a larger portion of the total catches than today, in some years prior to 1990 reaching 60% of the total landings. In the 1990's, the landings from bottom trawlers declined significantly and have been just above 40% of the total landings in the last decade. The share of long-lining has tripled over the last 20 years and is now on par with bottom trawling. The share of gill netting has over the same time period declined and is now only half of what it was in the 1980's. Since the size of cod caught by the gillnet fleet is generally much larger than caught by other fleets, this change in fishing pattern is likely to have caused a significant reduction in the fishing mortality of older fish.

Total catch (2010) 169,000 t, where 100% are landings (45% bottom trawl, 35% longline, 10% gillnet, 5% Danish seine, and 5% hooks).

Landings of Icelandic cod in 2010 are estimated to have been 169,000 t. Of the total landings 167,600 t were taken by Icelandic fleet but 1,400 t by other nations.. The trend in landings in recent years is largely a reflection of the TAC that is set for the fishing year (starting 1 Sep and ending 31 Aug).

Estimates of annual cod discards since 2001 are in the range of 0.4-1.8% of weight landed. Mean annual discard of cod over the period 2001-2008 was around 2,000 t, or just over 1% of landings. In 2008, estimates of cod discards amounted 0.8% of the landings. The method used for deriving these estimates assumes that discarding

only occurs as high-grading. In recent years, misreporting has not been regarded as a major problem in the fishery of this stock. No study is though available to support that general perspective.

SOURCE OF MANAGEMENT ADVICE: The data used in the assessment are landings-at-age and two age-structured survey indices. The analytical assessment is based on landings and survey data using a forward based statistical catch-at-age model, implemented in AD model builder. The modelling setup is the same as last year. This year both the spring and the fall survey indices are used in the final assessment, last year only the spring survey was used. Landings-at-age data as well as survey indices are considered reliable.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
Management plan	SSB_{MP}	220 000 t	Set by managers, consistent with ICES MSY Framework
	Harvest $Rate_{MP}$	0.2	Set by managers, consistent with ICES MSY Framework
MSY Framework	MSY $B_{trigger}$	Not relevant	
	F_{MSY}	Not relevant	
Precautionary Approach	B_{lim}	125 000 t	B_{loss}
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS: The spawning stock reached a historical low in 1993 (120,000 t) but has since then increased and is estimated to be 300,000 t at present. The current value is very low compared to the early historic period. Fishing mortality has declined significantly and is presently the lowest observed in 40 years. Recent low recruitment combined with historically low weight-at-age result in a very low productivity of the stock at present. The first estimates of the 2008 and 2009 year-classes indicate that they may be around average. These year classes will not contribute to the fisheries until 2012.

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	-	-	-	Not relevant
Precautionary approach (F_{pa},F_{lim})			✓	Below possible candidate F_{pa} and F_{lim}
Management plan (HR_{MP})	✓	✓	✓	Within expected range
SSB (Spawning-stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	-	-	-	Not relevant
Precautionary approach (B_{lim})	✓	✓	✓	Well above limit
Management plan (SSB_{MP})	✓	✓	✓	Above trigger

MANAGEMENT AGREEMENTS: Since 1994, TACs for the Icelandic cod stock have been based on a 25% harvest control rule with four amendments on the catch stabilizer. The Icelandic Government has adopted a management plan for the Icelandic cod stock for the next five fishing years based on a 20% exploitation rate. The main objective of the management plan is to ensure an increase the size of the cod stock towards the size that generates maximum sustainable yield and that the spawning stock biomass (SSB) will with high probability (>95%) be above the 220,000 t by the year 2015. The rule is as follows:

TACy+1 == (α B4+,y + TACy)/2, where y refers to the assessment year and B4+ to biomass of 4 year and older cod and α to the harvest rate. α is set to 0.2 when SSB is higher than 220 thousand tonnes (SSBTRIGGER) but set to α = 0.2 SSB y / SSBTRIGGER

ICES evaluated this plan and concluded that the management plan has a high probability of resulting in an increase in the size of spawning stock from the current estimated level by 2015 and beyond.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the Icelandic 2009 management plan that landings in the fishing year 2011/2012 should be no more than 177 000 t.

Management plan

Following the agreed management plan implies a TAC of 177 000 t in the fishing year 2011/2012. The management plan has been evaluated to be in conformity with the ICES MSY framework.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.
The rules for category 1 prescribe that for 2012, a TAC for cod in Division Va (Icelandic cod) of 177,000t should be proposed following the management plan.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2012.

STECF notes that cod and haddock are often caught in the same fishing operation. The TAC constraint on cod is expected to result in a significant reduction in fishing mortalities. Recent reduction of fishing mortality for cod is not in line with development of fishing mortality for haddock. Anecdotal information from the fisheries indicates that the restrictions on the landings of cod are presently changing the behavior of the fishing fleet, with fishers trying to avoid catching cod but targeting haddock.

4.4. Haddock (*Melanogrammus aeglefinus*) in Division Va (Icelandic haddock)

FISHERIES: Icelandic haddock is caught around Iceland with bottom otter trawls, Danish seine and longline. The share of different gears in the haddock catches have been varying with time, with the share of longlines and Danish seine increasing in recent years while the proportion of haddock caught in gillnets is now very small. Landings of Icelandic haddock in 2009 are estimated to have been 82,043 tonnes and in 2010 64,000 t. For comparison the landings in 2008 were 103,000 t. and in 2007 were 108,000 tonnes which is the highest for over 40 years.

SOURCE OF MANAGEMENT ADVICE: The assessment is based on age-disaggregated landings from 1979 to 20010 and on survey data from the March survey 1985–2011 and the October survey 1995–20010. The model used is an Adapt type model. The assessment does not include discards.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	45 000 t	B_{loss} (ICES, 2011).
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	0.47*	$F_{pa} = F_{med}$ proposed in 2000, adjusted to 0.35.

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	?	?	?	Undefined
Precautionary approach (F_{pa})	✗	✗	✗	Harvested unsustainably

SSB (Spawning-Stock Biomass)	2009	2010	2011	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{lim})	✓	✓	✓	Well above limit

SSB increased from 2001 to 2005 due to several strong year classes. Since then the spawning stock has decreased. Fishing mortality is currently above Fpa (0.35 accounting for low growth). Recruitment was high for the year classes 1998–2003, with five strong year classes and the 2003 year class is estimated to be very strong. Recruitment has been below the long-term average since the 2004 year class. The 2008–2010 year classes are

estimated to be very small. Growth has started to improve after a number of years with poor growth, but mean weight-at-age is still low for many age groups.

MANAGEMENT AGREEMENTS: No specific management objectives are known to ICES.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the precautionary approach that catches in 2012 should be no more than 42 000 t.

Management Considerations

Work is in progress to evaluate harvest control rule candidates for Icelandic haddock that are in conformity with the ICES MSY framework. This work is based on the same approach as already for Icelandic saithe and cod. A preliminary analysis indicates that the exploitation rate will most likely be less than the F_{pa} value.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2. However, in the absence of MSY reference points or appropriate proxies the MSY-related TAC options cannot be proposed for this stock.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2012.

STECF notes that haddock and cod are often caught in the same fishing operation. The TAC constraint on cod is expected to result in a low fishing mortality for cod. Recent reduction of fishing mortality for cod is not in line with development of fishing mortality for haddock. Anecdotal information from the fisheries indicates that the restrictions on the landings of cod are presently changing the behavior of the fishing fleet, with fishers trying to avoid catching cod but targeting haddock.

4.5. Saithe (*Pollachius virens*) in Division Va (Icelandic saithe)

FISHERIES: Icelandic saithe are caught around Iceland in directed saithe fisheries as well as in mixed demersal fisheries which target cod, mainly with bottom otter trawls and at a smaller proportion with gill nets and by jigging. Landings of saithe in Icelandic waters have peaked at 102,000 t in 1991, decreased to 31,000 t in 1998 and increased again to around 70,000 t in recent years. In 2010, landings are estimated to have been 53,772 tonnes, predominantly taken by Iceland. Of the landings 42,324tonnes were caught by trawl, 4,453 t caught by gillnets, and 6,995 t caught by other means.

SOURCE OF MANAGEMENT ADVICE: A separable, forward projection, statistical catch-age model is used to fit the catch at age data from the commercial fleets (ages 3–14, years 1980–2010) and using the Spring bottom-trawl survey index (ages 3–10, year 1985–2011) as a tuning series. Commercial cpue from the most important fleets targeting saithe are available for 20 years or more. Although these indices have been explored for inclusion in the past, they were not considered for calibrating the assessment as they are not considered to be a reliable indicator of abundance. The Icelandic discards monitoring program has not detected large amount of discards in the saithe fishery. Not including discards in the assessment is thus not considered to cause a significant bias in the assessment and the advice. The assessment is relatively uncertain due to high variances in survey measurements and due to lack of reliable recruit estimates. Increased proportion of gillnets landing in most recent years might violate the assumption of selection patterns assumed.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	80 000 t	Stochastic projections based on hockeystick S–R function.
	F_{MSY}	0.28	Stochastic projections based on hockeystick S–R function.
Precautionary Approach	B_{lim}	65 000 t	B_{loss} estimate in 2010.
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

F (Fishing Mortality)

	2008	2009	2010	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined
SSB (Spawning Stock Biomass)				
	2009	2010	2011	
MSY ($B_{trigger}$)	✓	✓	✓	Above target
Precautionary approach (B_{lim})	✓	✓	✓	Above limit

The fishing mortality has increased significantly in the last 5 years The fishing mortality has been high in recent years, peaking around 0.40 in 2008 and 2009. SSB has been declining since 2002 and is at present below the long term average. Recruitment in recent years has been around the long-term average.

MANAGEMENT AGREEMENTS: No specific management objectives are known to ICES.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY approach that catches in 2012 should be no more than 45 000 t.

MSY approach

Following the ICES MSY framework implies reducing fishing mortality to 0.28, resulting in landings of no more than 45,000 t in 2012. This is expected to lead to an SSB of 94,000 t in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2.
The rules for category 2 prescribe that for 2012, a TAC for Icelandic Saithe in Division Va of 45,000 t should be proposed following the MSY approach.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

4.6. Greenland halibut (*Reinhartius hippoglossoides*) in Sub-areas V, VI, XII and XIV

FISHERIES: Most of the fishery for Greenland halibut in Divisions Va, Vb and XIVb is a directed fishery. During the period 1982–1986, landings were stable at about 31,000–34,000 t. In the years 1987–1989, landings increased to about 62,000 t. This was followed by a decline to around 20,000 t in 1999. In the recent period 2000 to 2010, landings were in the range 21,000 to 32,000 t. Total catch (2010) = 26 000 t, where 100% are landings (99% bottom trawl, 1% gillnets/longlines).
Landings in Icelandic waters have historically predominated the total landings in areas V+XIV, but since the mid 1990s also fisheries in XIV and Vb have developed. A smaller part of the landings and fishery relates to the Greenland EEZ part of XIVb as well as international waters on the Reykjanes Ridge.

In 2010 quotas in Greenland EEZ were utilised by most of the principal fleets. Within the Iceland EEZ, quotas in the fishing year 2009/2010 were fully utilized as in the preceding fishing years. In the Faroe EEZ the fishery is regulated by a fixed numbers of licenses and technical measures like by-catch regulations for the trawlers and depth and gear restrictions for the gillnetters. Most of the fishery for Greenland halibut in Divisions Va, Vb and XIVb is a directed trawl fishery, and only minor catches in Va by Iceland, and in XIVb by Germany and the UK comes partly from a redfish fishery.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The data are insufficient for an analytical assessment. A probabilistic (Bayesian) version of a surplus-production model was used to assess the stock. Biomass is expressed on a scale relative to B_{msy} and F relative to F_{msy}. The assessment uses biomass indices from a standardized cpue series of the Icelandic trawl fleet (1985–2010) and two trawl surveys (Va: 1996–2010, XIV: 1998–2010). Discards are not included in the assessment.

REFERENCE POINTS:

Relative reference points are defined for this stock. Fishing mortality is estimated in relation to F_{MSY} and total stock biomass is estimated in relation to B_{MSY}. No MSY $B_{trigger}$ or precautionary reference points have been defined for the stock.

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	2010	
MSY (F_{MSY})	✗	✗	✗	Overfishing
Precautionary approach (F_{pa}, F_{lim})	?	?	?	Not defined

SSB (Spawning-Stock Biomass)				
	2009	2010	2011	
MSY ($B_{trigger}$)	?	?	?	Not defined
Precautionary approach (B_{pa}, B_{lim})	?	?	?	Not defined

The assessment is indicative of stock trends, and provides relative measures of stock status. The stock has been below B_{MSY} since the early 1990s and is presently at a historical low at 45% of B_{MSY}. Present fishing mortality is estimated to be two times the fishing mortality associated with maximum sustainable yield.

MANAGEMENT AGREEMENTS: There is no regional management agreement in place. ICES recommends that an adaptive management plan covering the entire stock area be developed and implemented.

RECENT MANAGEMENT ADVICE:

Because this is a long lived species, and in the absence of a multi-annual management plan, ICES advises that fishing mortality should be reduced substantially below F_{MSY} and there should be no directed fishery in 2012.

MSY approach

The stock is estimated to be well below B_{MSY} and will remain below B_{MSY} throughout 2012, even with a zero catch.
Because this is a long-lived species, and in the absence of a multi-annual management plan, ICES advises that fishing mortality should be reduced substantially below F_{MSY} and there should be no directed fishery in 2012.

Other considerations:

Previously, catches at or exceeding the present level (28 000t) have resulted in a rapid decline of the stock biomass. The high catches of the late 1980s and the increase in the early 2000s have particularly contributed to the decline of the stock. Greenland halibut is a slow-growing and long-lived species and rebuilding the stock to previous levels is therefore only likely achieved within a long time frame. The medium-term forecasts suggest that stock recovery is slow under all fishing scenarios, even in the case of no fishery. Therefore ICES recommends a reduction of the present high fishing mortality (3–4 times F_{msy}) to well below F_{msy}, in order to achieve a more rapid stock recovery. The management plan should include monitoring of the effort and stock development as well as a framework for adapting future fishing according to the response of the stock. Since Greenland halibut is a highly vulnerable species, it is expected that a change in stock dynamics may take several years and this should be taken into consideration in the adaptive management plan.

Distribution of total fishing effort for Greenland halibut indicates that the recent fishery is concentrated in a much smaller area compared to the overall fishery in the period 1991–2010 for the species.

Available biological information such as tagging and genetic studies and the distribution of the fisheries suggest that Greenland halibut in Divisions XIV and V belong to the same stock entity.

Because the nursery grounds are not known, there is no monitoring of recruits and juveniles. Because Greenland halibut is a slow-growing species that first appears in catches at age 4-6, recruitment failure will only be detected in the fishery some 5–10 years after it occurs.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

With regard to the management area EU waters of IIa and IV, EU and international waters of Vb and VI, STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF notes that the TACs are also set in accordance with results of negotiations in international management bodies.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

4.7. Golden Redfish (*Sebastes marinus*) in Sub-areas V, VI, XII and XIV

FISHERIES: *S. marinus* are mainly taken by bottom otter trawlers in depths down to 500 m. Icelandic trawlers account for the majority of the catches from Division Va, while Faroese trawlers take most of the catches from Division Vb. In Sub-area XIV, the catches are mainly a by-catch in shrimp fisheries. In order to reduce the catches of *S. marinus* in Division Va, an area closure was imposed in 1994 and the quotas have been reduced in recent years.

The total catch of *S. marinus* in Divisions Va and Vb and in the Sub-areas VI and XIV has decreased from about 130,000 t in 1982 to about 40,000 t during the mid-1990s. Since then, the annual catches varied without a clear trend between 40,000 - 50,000 t. In recent years, around 98% of total catches were taken in Division Va. Total catch of 2010 (39,000 t), was taken by trawls.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The 2010 assessment was based on survey trends only. In 2011 assessment the relative state of the stock is based on projection derived from the GADGET model and survey index series. The GADGET model used only catches and survey indices from Division Va. The survey index is the basis for the stock status and the Gadget model is the basis for advice.

Survey data are available from the Icelandic spring groundfish survey 1985–2010, the German groundfish survey 1985–2010 in Subarea XIV, and the Faroese spring (1994–2011) and summer (1996–2010) surveys in Division Vb. Data from the commercial catch in Division Va include length distribution, age–length key, and mean length-at-age. The relative state of the stock is assessed through a survey index series (U) in Icelandic waters.

REFERENCE POINTS:

	Type	Value	Technical basis
MSY Approach	MSY $B_{trigger}$	Undefined	
	F_{MSY}	Undefined	
Precautionary approach	U_{lim}	55	20% of highest observed survey index*.
	U_{pa}	155	60% of highest observed survey index*.
	F_{lim}	Undefined	
	F_{pa}	Undefined	

(unchanged since 1998)
**Technical basis for the survey index*

The basis for the calculation of the U_{pa} is the Icelandic spring groundfish survey index series starting in 1985. Since 1990 the average U has been around half of U_{max} – the highest observed index in the time-series (276 in 1987). This has not resulted in any strong year classes compared to higher U's. A precautionary U_{pa} is therefore proposed at U_{max}*0.6, corresponding to the U's associated with the most recent strong year class. U is regarded as a proxy for SSB but represents the fishable biomass.

STOCK STATUS:

F (Fishing Mortality)		
		2008-2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
SSB (Spawning Stock Biomass)		
		2009-2011
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	↗	Increasing in main area

In Division Va in recent years the survey index (U) has fluctuated around Upa, but in 2011 it was about 30% above Upa. Recruitment in this area is estimated to be low in recent years. In Division XIVb (East Greenland) survey indices of both pre-fishery recruits and fishable size have increased in recent years. In Division Vb the Faroese groundfish survey indicates that the abundance has been low and decreasing since 2001.

MANAGEMENT AGREEMENTS: The present management scheme in Division Va sets a joint TAC for *S. marinus* and demersal *S. mentella* on the shelf. This impedes direct management of fisheries on *S. marinus*. TAC or effort allocated to demersal redfish fishery should be given separately for each of the redfish species.

Subarea XIV is an important nursery area for *S. mentella* and *S. marinus*. The survey index of the fishable stock of *S. marinus* in Subarea XIV has increased in recent years, but with a large measurement error. Measures to protect juvenile redfish in Subarea XIV should be continued (sorting grids in the shrimp fishery).

No formal agreement on the management of *S. marinus* exists among the three coastal states, Greenland, Iceland, and the Faroe Islands. In Greenland and Iceland, the fishery is regulated by a TAC and in the Faroe Islands by effort limitation.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that catches should be no more than 40 000 t in 2012. No analytical assessment can be presented for this stock, therefore, fishing possibilities cannot be projected.

Precautionary considerations

The new data (landings and surveys) suggest the stock is increasing and F appears close to Fmax. The stock seems to have increased with catches around 40 000 t since 1995.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
With regard to the management area EU waters of IIa and IV, EU and international waters of Vb and VI, STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF notes that the TACs are also set in accordance with results of negotiations in international management bodies.

STECF COMMENTS: STECF agrees with the ICES assessment that the state of the stock is unknown but has no objective means to advise on a suitable catch level.

STECF also notes that the European TAC for redfish in Divisions Va, b and subarea XIV is a combined TAC for redfish including all *S. marinus* and *S. mentella* stocks.. The European TAC in Greenland waters of V and XIV is restricted to pelagic trawls which mainly selects *S. mentella* stocks

4.8. Beaked redfish (Sebastes mentella) in Division Va (Icelandic demersal stock)

The stock structure of redfish *S. mentella* in Subareas V, VI, XII and XIV, and in the NAFO Convention Area has been evaluated by ICES early 2009. The outcome is that demersal *S. mentella* in Icelandic waters ("Icelandic slope" stock in ICES Divisions Va and XIV) is to be treated as one biological stock, separated from the demersal *S. mentella* found on the continental slopes of Greenland (Division XIV) and the Faroe Islands (Vb). Regarding the latter component there is not sufficient information to allow an assessment for advice. However, Subarea XIV in Greenland waters is believed to be an important nursery area for *S. mentella* found in Icelandic waters, but data to estimate the magnitude of this contribution are not available.

FISHERIES: In Division Va, demersal S. *mentella* are taken mainly by Icelandic trawlers at depths greater than 500 m. The total annual catches almost doubled in the early 1990s, but have since then decreased to the level of the 1980s. The increase was mainly caused by an increased catch in Division Va. The increased catch of *S. marinus* in Va in 2002 and decreased catch of *S. mentella* in 2001 and 2002 is due to a joint quota for *S. marinus* and *S. mentella* on the shelf, and the fishing fleet has increased the proportion taken from *S. marinus* in most recent years. Since 2004, total annual catches varied between 18,000 and 25,000 t. Total landings of demersal *S. mentella* in Icelandic waters in 2010 were about 17,700 t, about 1, 700 t less than in 2009.The catch figures of demersal *S. mentalla* do include catches taken by pelagic gears close to the bottom and east of a management line in the Icelandic EEZ, which by definition separates Icelandic demersal from pelagic catches of *S. mentella.*

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Survey data are available from the Icelandic fall groundfish survey in Division Va (2000–2010. Cpue data are available from Icelandic trawlers in Division Va (1986–2010) but were not considered representative of stock trends. There are no explicit management objectives for this stock.

REFERENCE POINTS: No precautionary reference points are established.

STOCK STATUS:

F (Fishing Mortality)		
		2008-2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
SSB (Spawning Stock Biomass)		
		2009-2011
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	→	Low without trend

In the absence of reference points, the state of the stock cannot be fully evaluated. Available survey biomass estimates indicate that in Division Va the biomass has been low but stable in the last years.

MANAGEMENT AGREEMENTS: There are no explicit management agreements for Icelandic slope *S. mentella*. Icelandic authorities give a joint quota for golden redfish *(S. marinus)* and Icelandic slope *S. mentella* in Icelandic waters. Both species are therefore treated as redfish by the Icelandic authorities. Redfish is managed under ITQ system.

RECENT MANAGEMENT ADVICE:

The 2010 data (landings and survey) do not change the perception of the stock and give no reason to change the advice from that given last year: "*ICES advises that a management plan be developed and implemented which takes into account the uncertainties in science and the properties of the fisheries. ICES suggests that catches are set no higher than 10 000 t as a starting point for the adaptive part of the management plan.*"

MSY approach

Future work on developing a management plan is required, to encompass the MSY framework.

PA approach

ICES suggests that catches are set no higher than 10 000 t as a starting point for the adaptive part of the management plan.

Other considerations:

ICES suggests that catches of *S. mentella* are set at 10 000 t as a starting point for the adaptive part of the management plan. ICES has previously advised that most deep-water species like redfish can only sustain low rates of exploitation, since slow-growing, long-lived species that are depleted have a long recovery period. Fisheries should only be allowed to expand when indicators have been identified and a management strategy including appropriate monitoring requirements has been decided and is implemented.

A catch of 10 000 t would be a significant reduction in catches compared with the recent past. This is expected to result in a lower exploitation rate, but the absolute magnitude of this reduction cannot be estimated at this time.

Measures to protect juvenile redfish in Subarea XIV should be continued (sorting grids in the shrimp fishery).

ICES advises that separate TACs for *S. marinus* and *S. mentella* be set in Division Va.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that the TAC is set in accordance with results of negotiations in international management bodies.

STECF COMMENTS: STECF agrees with the ICES assessment that the state of the stock is unknown but has no objective means to advise on a suitable catch level.

4.9. Beaked redfish (*Sebastes mentella*) in Division XIV (East Greenland demersal stock)

The stock structure of redfish *S. mentella* in Subareas V, VI, XII and XIV, and in the NAFO Convention Area has been evaluated by ICES early 2009. The outcome is that demersal *S. mentella* in Icelandic waters ("Icelandic slope" stock in ICES Divisions Va and XIV) is to be treated as one biological stock, separated from the demersal *S. mentella* found on the continental slopes of Greenland (Division XIV) and the Faroe Islands (Vb). Regarding the latter component there is not sufficient information to allow an assessment for advice. However, Subarea XIV in Greenland waters is believed to be an important nursery area for *S. mentella* found in Icelandic waters, but data to estimate the magnitude of this contribution are not available.

FISHERIES: The fishery for S. mentella on the slopes in Division XIVb is an international fishery mainly conducted by factory trawlers operating with bottom trawl. From 2002 to 2008 S. *mentella* has mainly been caught as a valuable bycatch in the fishery for Greenland halibut. A directed fishery commenced in 2009.
Total catch (2010) = 6.6 kt, where 99.7% are landings (100% bottom trawl, 0% longlines), and 0.3% discards.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Three survey indices (German groundfish survey, Greenland shallow water survey, and Greenland deep-water survey). The German survey is designed to estimate the biomass of cod while the Greenland deep-water survey targets Greenland halibut. Both surveys therefore do not cover the entire depth distribution of S. *mentella*. A new Greenlandic shallow water survey with better coverage regarding depth was initiated in 2008. The assessment is qualitative and as such indicative of trends only.

REFERENCE POINTS: No precautionary reference points are established.

STOCK STATUS:

F (Fishing Mortality)		
		2008-2010
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
SSB (Spawning-Stock Biomass)		
		2009-2011
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	→	Stable

A directed fishery started in 2009 and catches have increased from less than 100 t to nearly 7000 t. Survey indices suggest that the biomass of the demersal S. mentella has been relatively stable since 2003. The biomass found in the recent years is most likely due to one or few year classes.

MANAGEMENT AGREEMENTS: There is presently no management plan for this fishery.

RECENT MANAGEMENT ADVICE:

There is no change in the perception of the stock; however, the fishery has increased considerably. The recently developed fishery should not be allowed to expand beyond the catches taken in 2009. This means that catches should be no more than 1000 t. Additional information should be provided by the exploratory fishery to allow for a proper assessment of the fishable demersal S. mentella in Division XIVb.

PA approach

There is no change in the perception of the stock; however, the fishery has increased considerably. Since beaked redfish is a slow-growing, late-maturing, and aggregating species it is considered vulnerable to over-exploitation, the effects of which are difficult to predict. The stock structure is presently unknown and could be composed of various stock components which demands extra precaution. The German survey is less positive for

2010 whilst the Greenland deep-water survey on first inspection seems positive, but not significantly so. Hence, the recently developed fishery should not be allowed to expand beyond the catches taken in 2009. This means that catches should be no more than 1000 t. Additional information should be provided by the exploratory fishery to allow for a proper assessment of the fishable demersal S. mentella in Division XIVb.

Other considerations:

This is the second year advice is given separately for S. mentella in East Greenland. Formerly, the advice of demersal S. mentella was provided for all demersal S. mentella in Subareas XIV and V. A TAC of 6000 t for demersal redfish in Division XIVb was set by Greenland in 2010. The TAC for 2011 was set at 8500 t demersal redfish on the basis of a 70:30 S.mentella:S.marinus ratio obtained from one single sample (N=196) from the commercial fishery, thus intending to end up with 6000 t S. mentella and 2500 t S. marinus. The fishery in 2009 and 2010 is a mixed fishery for S. mentella and S. marinus. Survey catches suggest that 80% are S. mentella. The state of the S. marinus stock should therefore be considered in the management of this fishery.

The population structure of demersal S. mentella in Division XIVb is uncertain and the separate advice for S. mentella in East Greenland is considered a pragmatic solution in order to provide advice for a new fishery. The stock structure of demersal S. mentella will be investigated over the next years.

Since none of the surveys in the area are targeting S. mentella it should be ensured that information from the exploratory fishery is available to ICES. Important information should include additional information to the official logbooks such as length samples of target species and bycatch, and samples to be used for species split between both species.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
STECF notes that the TAC is set in accordance with results of negotiations in international management bodies.

STECF COMMENTS: STECF agrees with the ICES assessment that the state of the stock is unknown but has no objective means to advise on a suitable catch level.

4.10. Beaked pelagic redfish (*Sebastes mentella*) in ICES areas Va, XII and XIV and NAFO Sub-areas 1-2

The "Workshop on Redfish Stock Structure" (WKREDS, 22–23 January 2009, Copenhagen, Denmark; ICES 2009) reviewed the stock structure of *Sebastes mentella* in the Irminger Sea and adjacent waters. ACOM concluded, based on the outcome of the WKREDS meeting, that there are three biological stocks of *S. mentella*:

- a 'Deep Pelagic' stock (NAFO 1–2, ICES V, XII, XIV >500 m) – primarily pelagic habitats, and includes demersal habitats west of the Faroe Islands;
- a 'Shallow Pelagic' stock (NAFO 1–2, ICES V, XII, XIV <500 m) – extends to ICES I and II, but primarily pelagic habitats, and includes demersal habitats east of the Faroe Islands;
- an 'Icelandic Slope' stock (ICES Va, XIV) – primarily demersal habitats.

Based on this new stock identification information, ICES recommends three management units that are geographic proxies for biological stocks that were partly defined by depth and whose boundaries are based on the spatial pattern of the fishery to minimize mixed-stock catches:

- Management unit in the northeast Irminger Sea: ICES Division Va and Subareas XII and XIV.
- Management unit in the southwest Irminger Sea: NAFO Areas 1 and 2, ICES Division Vb and Subareas XII and XIV.
- Management unit on the Icelandic slope: ICES Division Va and Subarea XIV, and to the north and east of the boundary proposed in the management unit in the northeast Irminger Sea.

STECF COMMENTS: STECF agrees with such stock structure of beaked pelagic and demersal redfish.
STECF notes that ICES, since 2009, provided stock assessments and relevant advice for two demersal slope stock components of beaked redfish, i.e. one in Icelandic waters (Div. Va) and a second one off East Greenland (Div. XIVb).

4.11. Beaked pelagic redfish (*Sebastes mentella*), management unit in the northeast Irminger Sea: ICES Division Va and Subareas XII and XIV

The stock summary and advice for beaked pelagic redfish (Sebastes mentella), management unit in the northeast Irminger Sea: ICES Division Va and Subareas XII and XIV (formally beaked redfish (*Sebastes mentella*) in Subareas V, XII, XIV and NAFO Subareas 1+2, deep pelagic stock > 500 m) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

STECF (2010a). Scientific, Technical and Economic Committee for Fisheries (STECF) - REVIEW OF SCIENTIFIC ADVICE FOR 2011 - Consolidated Advice on Stocks of Interest to the European Community (eds. Casey, J., Vanhee, W. & Doerner, H.). 2010. Publications Office of the European Union, Luxembourg, EUR 24660 EN, JRC62286, 486 pp

FISHERIES: The fishery started around 1991–1992 when the commercial fleet of the shallow pelagic redfish moved into deeper waters. Since 1997, the main fishing season occurred from late April to August in the so-called northwest fishing area near the Greenland and Icelandic EEZ and within the Icelandic EEZ, i.e. in the area east of 32°W and north of 61°N. The trawlers participating in this fishery use large pelagic trawls (*Gloria*-type) with vertical openings of 80–150 m. The vessels have operated at a depth range of 600 to 950 m in 1998–2008. Discarding is at present not considered to be significant in this fishery. The deep pelagic fishery in the Irminger Sea only exploits the mature part of the stock. Nursery areas for the stock are found at the continental slope off East Greenland. Technical conservation measures such as mandatory sorting grids in the shrimp fishery that have been in place for several years should be continued in order to protect the juvenile redfish.
Landings of the deep pelagic *S. mentella* stock have declined from 139,000t in 1996 to 30,000 t in 2008. In 2009, this fishery was subject to a NEAFC TAC of 46,000 t, which was given for both shallow and deep stocks.

SOURCE OF MANAGEMENT ADVICE: Scientific advice is provided by ICES. The main management organisation concerned with pelagic redfish in the Irminger Sea is NEAFC. Survey indices, catches, CPUE and biological data are available for the stock, but the assessment is mainly based on surveys. The quality of the trawl biomass estimate from the international trawl-acoustic surveys since 1999 cannot be verified as the data series is relatively short and the survey is only conducted every second year. Therefore, the abundance estimates by the trawl-method must only be considered as a rough attempt to measure the abundance of the deep pelagic stock. It is not known to what extent CPUE reflect changes in the stock status of deep pelagic *S. mentella* stock. The fishery targets pelagic aggregating fish. Therefore, stable or increasing CPUEs are not considered to reflect the stock status reliably, but decreasing CPUEs likely indicate a decreasing stock.

MANAGEMENT AGREEMENT: There are no explicit management objectives for this stock.

REFERENCE POINTS: Precautionary reference points are not defined for this stock.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	**2008**	**2009**
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

Based on the trawl survey estimates, there is indication of a decreasing trend in the time series and the 2009 estimate is the lowest in the series. Catch-per-unit-effort (CPUE) has been variable over the years, but on average the recent CPUEs are lower than in the early part of the time series. These indices in combination with a

marked decrease in landings since 2004 suggest that the stock has been reduced substantially in the past decade. The exploitation rate for this stock is unknown.

RECENT MANAGEMENT ADVICE:

The 2009 landing and logbook data do not change the perception of the stock. The advice for the fishery in 2011 is therefore the same as the advice given in 2009 for the 2010 fishery: *"ICES advises on the basis of precautionary considerations that the fishery be reduced below the 2008 level to 20 000 t and that a management plan be developed and implemented. ICES suggests that catches of Deep Pelagic S. mentella are set at 20 000 t as a starting point for the adaptive part of the management plan. Given the reduced abundance of this stock in recent years, a total catch limit of no greater than 20 000 tonnes should be implemented in 2010, irrespective of whether a management plan has been developed by that time or not.."*
This advice will be updated in the fall of 2011 on the basis of new survey information.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011.

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that the deep pelagic stock of *Sebastes mentella* in ICES areas Va, XII and XIV and NAFO Sub-areas 1-2 falls under Category 10. Accordingly STECF notes that the rules for the above category imply a TAC reduction of 25% in 2011. STECF notes that this TAC for shallow and deep water *S. mentella* is combined and therefore cannot be calculated separately.

4.12. Beaked pelagic redfish (*Sebastes mentella*) management unit in the southwest Irminger Sea: NAFO Areas 1 and 2, ICES Division Vb and Subareas XII and XIV

The stock summary and advice for beaked pelagic redfish (*Sebastes mentella*) management unit in the southwest Irminger Sea: NAFO Areas 1 and 2, ICES Division Vb and Subareas XII and XIV (formally beaked redfish (*Sebastes mentella*) in Subareas V, XII, XIV and NAFO Subareas 1+2, shallow pelagic stock < 500 m) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the consolidated review of advice for stocks of Community interest for 2011.

STECF (2010a). Scientific, Technical and Economic Committee for Fisheries (STECF) - REVIEW OF SCIENTIFIC ADVICE FOR 2011 - Consolidated Advice on Stocks of Interest to the European Community (eds. Casey, J., Vanhee, W. & Doerner, H.). 2010. Publications Office of the European Union, Luxembourg, EUR 24660 EN, JRC62286, 486 pp

FISHERIES: Russian trawlers started fishing on the shallow pelagic *S. mentella* stock in 1982 and covered wide areas of the Irminger Sea. Vessels from other nations soon joined this fishery. The main fishing area in the last decade has been south and southeast of Cape Farwell, Greenland, the so-called southwestern area (south of 60°N and west of about 32°W), and the area is almost entirely shallower than 500 m. Since 2000, the southwestern fishing ground extended also into the NAFO Convention Area, but in later years the fishing area has been limited to the border area between NAFO and ICES south of Greenland. Catches have in parallel with this shrinkage declined substantially. In the period 1982–1992, the fishery was carried out mainly from April to August but since then the fishery has been conducted from July-October. The trawlers participating in this fishery use large pelagic trawls (*Gloria*-type) with vertical openings of 80–150 m.
The shallow pelagic stock fishery in the Irminger Sea only exploits the mature part of the stock. Nursery areas for the stock are found at the continental slope off East Greenland. Technical conservation measures such as mandatory sorting grids in the shrimp fishery that have been in place for several years should be continued in order to protect the juvenile redfish.
Landings of the shallow pelagic *S. mentella* stock has declined from 100,000t in 1993 to 2,000 t in 2008. In 2009, this fishery was subject to a NEAFC TAC of 46,000 t, which was given for both shallow and deep stocks.

SOURCE OF MANAGEMENT ADVICE: Scientific advice is provided by ICES. The main management organisation concerned with pelagic redfish in the Irminger Sea is NEAFC.
Survey indices, catches, CPUE and biological data are available for the stock, but the assessment is mainly based on surveys. ICES again had difficulties in obtaining landings data from some ICES' member countries. In spite of best efforts, there is a need for a special action through NEAFC and NAFO to provide ICES in time

with all information that might lead to more reliable catch statistics. *Furthermore, ICES recommends that all nations should report depth information in accordance with the NEAFC logbook format.*

MANAGEMENT AGREEMENT: There are no explicit management objectives for this stock.

REFERENCE POINTS: Precautionary reference points are not defined for this stock.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

Stock size is probably low; the estimate from the acoustic survey in 2009 is less than 5% of the estimates at the beginning of the survey time series in the early 1990s. The exploitation rate for this stock is unknown.

The lack of accurate fisheries and survey data (especially for depths within the deep-scattering layer) and recruitment indices prevents precise determination of stock status. ICES is concerned about the lack of agreed management and TAC allocation schemes. This increases the risk of over-exploitation. The autonomous quotas that have been set are insufficient to constrain catches.

RECENT MANAGEMENT ADVICE: The new landing and logbook data do not change the perception of the stock. The advice for the fishery in 2011 is therefore the same as the advice given in 2009 for the 2010 fishery: "*ICES advises on the basis of precautionary considerations that no directed fishery should be conducted and by-catch of this stock in non-directed fisheries should be kept as low as possible.* A recovery plan should be developed. *Given the very low state of the stock, the directed fishery should be closed in 2010 irrespective of whether the recovery plan has been developed by that time or not."* This advice will be updated in the fall of 2011 on the basis of new survey information.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011.

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that the shallow pelagic stock of *Sebastes mentella* in Division V, XII, XIV and NAFO Subareas 1+2 falls under Category 10. Accordingly STECF notes that the rules for the above category imply a TAC reduction of 25% in 2011. STECF notes that this TAC for shallow and deep water *S. mentella* is combined and therefore cannot be calculated separately.

4.13. Icelandic summer-spawning herring (*Clupea harengus*) Division Va

FISHERIES: Icelandic summer-spawning herring are caught with purse seines and mid-water trawls. The catches increased rapidly in the early 1960s due to the development of the purse-seine fishery off the southern coast of Iceland. This resulted in a rapidly increasing exploitation rate until the stock collapsed in the late 1960s. A fishing ban was enforced during 1972-1975. The catches have since increased gradually to over 100,000 t. Formerly, the fleet consisted of multi-purpose vessels, mostly under 300 GRT, operating purse-seines and driftnets. In recent years, larger vessels (up to 1500 GRT) have entered the fishery. These are a combination of purse-seiners and pelagic trawlers operating in the herring, capelin, and blue whiting fisheries. Since the 1997/1998 fishing season, there has been a fishery for herring both to the west and east of Iceland, which is unusual compared to earlier years when the fishable stock was only found south and east of Iceland. Pelagic trawl fisheries were introduced in 1997/98 and have since then contributed with approximately 20-60% of the

catches, but with much less contribution in recent two years (<5%). By-catch in the herring fishery is normally insignificant as the fishing season is during the over-wintering period when the herring is in large dense schools. Until the autumn 1990, the herring fishery took place during the last three months of the calendar year. During 1990-2008, the autumn fishery continued until January or early February of the following year, and has started in September/October since 1994. In 2003, the season was further extended to the end of April, and in the summers of 2002 and 2003, an experimental fishery for spawning herring with a catch of about 5,000 t each year was conducted at the south coast. The number of vessels participating in the fishery has shown a decreasing trend in the 2000s from around 30 down to 20 in 2007.

The total reported landings in 2010/11 were 44,000 t and the TAC was 40,000 t.

SOURCE OF MANAGEMENT ADVICE: The data used in the assessment are catch-at-age (from 1990 onwards) and one age-structured acoustic survey index, based on a survey conducted since 1974 in October-December and/or January. In addition to the acoustic survey aimed at the fishable part of the stock, there have been occasionally acoustic surveys off the NW, N, and NE coast of Iceland aimed to estimate the year-class strength of the juveniles. This survey has not taken place since 2003, but was partly resurrected in January 2009. The results of these measurements were normally not used in the assessment directly even if the year-class indices derived from the survey have shown a significant relationship to recruitment of the stock.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	300 000 t	B_{pa}.
	F_{MSY}	0.22	HCS model for simulated harvest rules (2010, vs 3.01).
Precautionary Approach	B_{lim}	200 000 t	SSB with a high probability of impaired recruitment.
	B_{pa}	300 000 t	$B_{pa} = B_{lim}\, e^{1.645\sigma}$, where $\sigma = 0.25$.
	F_{lim}	Not defined	
	F_{pa}	Not defined	F_{pa} was = $F_{0.1}$ = 0.22 (based on a weighted average) and used as a target.

(unchanged since: 2011)

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010	
MSY (F_{MSY})	✓	✓	✓	Below trigger
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined

SSB (Spawning Stock Biomass)	2009	2010	2011	
MSY ($B_{trigger}$)	✓	✓	✗	Below trigger
Precautionary approach (B_{pa},B_{lim})	✓	✓	o	Increased risk

The spawning-stock biomass has been declining for the past 3–4 years and is now close to B_{lim}. A high Ichthyophonus infection was observed in the stock in the winters 2008/2009 to 2010/2011, causing additional natural mortality. Fishing mortality is currently well below F_{MSY}. Recruitment in the last decade has been at or above the long-term average, with occurrence of strong year classes in 1999, 2000, and 2002.

MANAGEMENT AGREEMENTS: The practice has been to manage fisheries on this stock at F = F0.1 (= 0.22 = F_{pa}) for more than 20 years. However, no formal management strategy has been adopted. The Icelandic TACs for herring apply from 1 September to 1 May the following year. The catch is normally taken from September to February.

RECENT MANAGEMENT ADVICE:

In early autumn 2011 new information on the *Ichthyophonus* infection will be available. ICES recommends that no TAC be set until this information is available.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2.

In keeping with its advice not to propose a TAC until information on the *Ichthyophonus* infection is forthcoming, no forecast was provided and at present it is not possible to provide the TAC corresponding to the rules for category 2.

STECF COMMENTS: STECF agrees with the ICES advice.

4.14. Capelin (*Mallotus villosus*) in Subareas V and XIV and Division IIa west of 5°W (Iceland-East Greenland-Jan Mayen area)

FISHERIES: In the mid-1960s, purse seine fishery began on capelin. It soon became a large-scale fishery. During its first 8 years, the fishery was conducted in February and March on schools of pre-spawning fish on or close to the spawning grounds south and west of Iceland. In January 1973, a successful capelin fishery began in deep waters near the shelf break east of Iceland. In July 1976, a summer capelin fishery began in the Iceland Sea. This fishery became multinational with vessels from Iceland, Norway, the Faroes and Denmark. The fishery is conducted in all years in July-March except in periods of low stock size. Over the years, the fishery has been closed during April-late June and the season has started in late June/August or later, depending on the state of the stock. In recent years, the fishery for capelin has changed from being mostly an industrial fishery to being mostly for human consumption. This is largely because of the low abundance and low TACs. The Total internationa landings were 156,000 t in 2010 and 385,000t in 2011 (winter season).

SOURCE OF MANAGEMENT ADVICE: The basis for stock assessment and short-term forecasts are acoustic surveys and catch-at-age information. In the period from November 2010 until to February 2011, 3 acoustic surveys were conducted to assess the capelin stock. Scouting vessels participated also in the search of capelin in January/February. During February a few more attempts were made to assess the spawning migration. The practice of a variable searching time depending on the initial acoustic estimates may result in a biased assessment of stock size.

REFERENCE POINTS: No reference points have been proposed by ICES for this stock. An escapement target of 400,000 t has been used in the management plan.

STOCK STATUS:

F (Fishing Mortality)		
		2010
MSY (F_{MSY})	?	Undefined
Precautionary approach (F_{pa},F_{lim})	?	Undefined
SSB (Spawning-Stock Biomass)		
		2011
MSY ($B_{trigger}$)	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	Undefined
Qualitative evaluation	→	Stable above average

It is estimated that 411 000 t was left for spawning in spring 2010, which is just above the management target. In autumn 2010, the index of abundance of one-year-old capelin was much higher. The index has not been this high since 2001 and is well above average.

MANAGEMENT AGREEMENTS:
The fishery is managed according to a two-step management plan which requires a minimum spawning-stock biomass of 400 000 t by the end of the fishing season. The first step in this plan is to set a preliminary TAC based on the results of an acoustic survey carried out to evaluate the immature (age 1 and most of age 2) part of the capelin stock about a year before it enters the fishable stock. The initial quota is set at 2/3 of the preliminary TAC, calculated on the condition that 400 000 t of the SSB should be left for spawning. The second step is based on the results of another survey conducted during the fishing season for the same year classes. This result is used to revise the TAC, still based on the condition that 400 000 t of the SSB should be left for spawning. ICES has not evaluated the management plan with respect to the precautionary approach.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of precautionary considerations that the initial quota be set at 50% of the predicted quota, implying an initial quota of 366 000 t.

Management plan

According to the management plan the initial quota is 488 000 t, corresponding to two thirds of the predicted quota of 732 000 t for the fishing season 2011/2012.

PA approach

Until additional survey measurements on the size of the 2009 year class become available the initial quota should be set significantly lower than two thirds of the predicted quota in the management agreement. The assessment and short-term predictions used are not accepted methods because the natural mortality applied is considered too low. Therefore it is recommended that the initial quota be set at 50% of the predicted quota, implying an initial quota of 366 000 t.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.

The rules for category 1 prescribe that for 2012, a TAC for Capelin in Subareas V and XIV and Division IIa west of 5°W (Iceland-East Greenland-Jan Mayen area) the initial quota 488 000 t, corresponding to two thirds of the predicted quota of 732 000 t for the fishing season 2011/2012 should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock but has no basis to judge whether the advice to set an initial quota at 50% of the predicted quota is a sensible or precautionary value.

5. Eco-region 5: Resources in the Barent's and Norwegian Seas

5.1. Northern Shrimp (*Pandalus borealis*) in Sub-areas I (Barents Sea) and & IIb (Svalbard Waters)

The stock summary and advice for Northern Shrimp (Pandalus borealis) in Sub-areas I (Barents Sea) and & IIb (Svalbard Waters) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

FISHERIES: The fisheries for Northern shrimp in Sub-areas I & II (Barents Sea & Svalbard area) are among the largest shrimp fisheries in the North east Atlantic. Norway and Russia take the majority of the landings. In the early 1980s total landings were above 100,000 t, but have since declined.

Reported landings for all countries increased between 1995 (25,000 t) and 2000 (83,000 t), but have since decreased: 60,000 t in 2002, around 40 000 t in 2003-2005, around 26 000 t in 2008 and 23,000 t in 2009.

SOURCE OF MANAGEMENT ADVICE: This stock is currently managed jointly by Norway and Russia. ICES is providing biological advice for management of this stock.

REFERENCE POINTS:

	Type	Value	Technical basis
MSY Approach	MSY $B_{trigger}$	0.5	50% of B_{MSY} (10^{th} percentile of the B_{MSY} estimate); relative value
	F_{MSY}	1	Relative value
Precautionary approach	B_{lim}	0.3	30% of B_{MSY} (production reduced to 50% MSY); relative value
	B_{pa}	Not defined	Not needed: Risk of transgressing limits are directly estimated
	F_{lim}	1.7	$1.7F_{MSY}$ (the F that drives the stock to B_{lim}); relative value
	F_{pa}	Not defined	Not needed: Risk of transgressing limits are directly estimated

STOCK STATUS:

F (Fishing Mortality)		
2007	2008	2009

MSY (F_{msy})	⊕	⊕	⊕
Precautionary approach (F_{pa},F_{lim})	⊕	⊕	⊕

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	⊕	⊕	⊕
Precautionary approach (B_{pa},B_{lim})	⊕	⊕	⊕

Since 2006 this stock has been assessed by a Bayesian version of a surplus production model, using a) total catch and b) 2 different sets of indices (Norwegian and Russian) of stock biomass as input. This model provides estimates of biomass levels relative to Bmsy, but no absolute estimates. The effect of predation by the Barents Sea cod stock has not been included in the model. According to this model the biomass levels have fluctuated above Bmsy since the late 1980s. Biomass level at the end of 2010 is estimated to be well above Bmsy and fishing mortality well below Fmsy.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	**Landings in 2011**
MSY approach with caution at low stock size	Less than 60 000 t
Cautiously avoid impaired recruitment (**Precautionary Approach**)	n/a
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

MSY approach

The stock is well above MSY Btrigger and F is well below FMSY. Catch options of up to 60 000 t for 2011 have a low risk (<5%) of exceeding FMSY and are likely to maintain the stock near its current high level. However, the stock may likely sustain catches higher than that.

PA approach

There is a low risk of the stock falling below Blim or the fishery exceeding the exploitation rate PA limit reference point.

STECF COMMENTS: STECF agrees with the ICES advice.

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that Northern shrimp (Pandalus borealis) in Sub-areas I (Barents Sea) and & IIb (Svalbard Waters) falls under Category 1. Accordingly STECF notes that the rules for the above category would imply a TAC in 2011 of 60 000 t, based on a low risk (<5%) of exceeding Fmsy and the likelihood to maintain the stock near its current high level.

STECF notes that there is no TAC set for Pandalus Borealis in this area.

5.2. Cod (*Gadus morhua*) in area I and II (North East Arctic cod)

FISHERIES: Northeast arctic cod is exploited predominantly by Norway and Russia with smaller landings by countries including the UK, the Faroe Islands, Spain and Germany. The fishery for North east Arctic cod is conducted both by an international trawler fleet operating in offshore waters and by vessels using gillnets, long-lines, hand-lines and Danish seine operating both offshore and in the coastal areas.

From a level of about 900,000 t in the mid-1970s, landings declined steadily to around 300,000 t in 1983-1985. Landings increased to above 500,000 t in 1987 before dropping to 212,000 t in 1990, the lowest level recorded in the post-war period. The catches increased rapidly from 1991 onwards, stabilised around 750,000 t in 1994-1997 but decreased to about 414,000 t in 2000. The catches in 2004 and 2005 are estimated to be to 606,000 t and 641,000 t. In 2006, the catch was estimated to 538,000 t, 487,000 t in 2007, 464,000 t in 2008, and 523,000 t in 2009.. The total provisional catch in 2010 was 610,000 t (71% trawls and 29% other gears)

Under-reporting of landings has been an important issue for this stock in recent years. Two sets of estimates of non-reported landings (IUU) for the period 2002–2007 were available, ranging from 41,000–166,000 t and 9,000–41,000 t in recent years. ICES does not have a basis on which to choose one estimate over the other. The series with 41,000–166,000 t unallocated landings was taken forward in the calculations because this is the same method as the one used last year. The choice of the time-series of unreported landings does not affect the advice according to the agreed HCR. The estimates of unreported landings have been reduced considerably from 2006 to 2008. For 2009-2010 , the estimate of unreported landings is <1%..

The TAC for 2009 was set above the catch corresponding to the agreed management plan. The earlier testing of the agreed management plan presumed that the plan should be strictly followed for setting TAC, and the deviation from the management plan in last year is not considered to be a precautionary practice. ICES considers that application of the agreed management plan in 2011 has long-term benefits above the application of F_{pa}.

Unreported landings will reduce the effect of management measures and will undermine the intended objectives of the harvest control rule. It is therefore important that management agencies ensure that all catches are counted against the TAC.

Discarding is illegal in Norway and Russia. Data on discarding are scarce, but attempts to obtain better quantification continue. The fisheries are controlled by inspections of the trawler fleet at sea, i.e. by a requirement to report to catch control points when entering and leaving the EEZs, VMS satellite tracking for some fleets, and by random inspections of fishing vessels when landing the fish. Keeping a detailed fishing logbook on-board is mandatory for most vessels, and large parts of the fleet report to the authorities on a daily basis.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on analysis of catch-at-age data, using one commercial CPUE series and three survey series. Estimates of cannibalism are included in the natural mortality. The total effect of the discarding and IUU fishing is still unclear and requires more work before it can be included in the assessments.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
Management Plan	SSB_{MP}	460 000 t	B_{pa}, TAC linearly reduced from F_{pa} at SSB = B_{pa} to 0 at SSB equal to zero.
	F_{MP}	0.4	F_{pa} average TAC for the coming 3 years based on F_{pa}.
MSY Approach	MSY $B_{trigger}$	Undefined	
	F_{MSY}	Undefined	
Precautionary Approach	B_{lim}	220 000 t	change point regression.
	B_{pa}	460 000 t	the lowest SSB estimate having >90% probability of remaining above B_{lim}.
	F_{lim}	0.74	F corresponding to an equilibrium stock = B_{lim}.
	F_{pa}	0.40	the highest F estimate having >90% probability of remaining below F_{lim}.

MANAGEMENT AGREEMENTS: This stock is currently managed by a joint Norwegian and Russian scientific advisory body. The fisheries are regulated according to bilateral agreements between Russia and Norway.

At the 33rd meeting of the Joint Russian-Norwegian Fisheries Commission (JRNC) in November 2004, the following decision was made:
"The Parties agreed that the management strategies for cod and haddock should take into account the following:
- conditions for high long-term yield from the stocks
- achievement of year-to-year stability in TACs
- *full utilization of all available information on stock development*
-

On this basis, the Parties determined the following decision rules for setting the annual fishing quota (TAC) for Northeast Arctic cod (NEA cod):

- estimate the average TAC level for the coming 3 years based on F_{pa}. TAC for the next year will be set to this level as a starting value for the 3-year period.
- the year after, the TAC calculation for the next 3 years is repeated based on the updated information about the stock development, however the TAC should not be changed by more than +/- 10% compared with the previous year's TAC.

- if the spawning stock falls below B_{pa}, the procedure for establishing TAC should be based on a fishing mortality that is linearly reduced from F_{pa} at B_{pa}, to F= 0 at SSB equal to zero. At SSB-levels below B_{pa} in any of the operational years (current year, a year before and 3 years of prediction) there should be no limitations on the year-to-year variations in TAC.
- The Parties agreed on similar decision rules for haddock, based on F_{pa} and B_{pa} for haddock, and with a fluctuation in TAC from year to year of no more than +/-25% (due to larger stock fluctuations).[1]"

The plan aims to maintain F at F_{pa} = 0.40 and restrict between-year TAC change to ±10% unless SSB falls below B_{pa}, in which case the target F should be reduced.

Based on evaluations made in 2006 and 2007, ICES considers the management plan to be in accordance with the precautionary approach. If conditions change to outside the assumed range (with respect to biological conditions, assessment quality, or implementation error), the management plan may have to be revised.

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	?	?	?	Undefined
Precautionary approach (F_{pa},F_{lim})	✓	✓	✓	Harvested sustainably
Management plan (F_{MP})	✓	✓	✓	Below target
SSB (Spawning Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	✓	✓	✓	Full reproductive capacity
Management plan (SSB_{MP})	✓	✓	✓	Above trigger

The SSB has been above Bpa since 2002 and is now at its record high. Fishing mortality was reduced from well above Flim in 1997 to below Fpa in 2007 and is now close to its lowest value. Surveys indicate that cod recruitment will be below average in 2011 and will be average in 2012–2013.

RECENT MANAGEMENT ADVICE:

Management plan

In accordance with the adopted management plan the catch in 2012 should be equal to the average predicted catch in 2012–2014 with target F = 0.40, corresponding to landings of 751 000 t in 2012 and implying an F = 0.35 in 2012. This is expected to keep SSB above Bpa in 2013 and close to the historical high.
Stochastic simulations show that the F=0.40 currently used in the management plan provides high long-term yield

PA approach

Fishing at Fpa (= 0.40) corresponds to landings of no more than 834,000 t in 2012. This is expected to keep SSB above Bpa in 2013 and close to the historical high.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.
The rules for category 1 prescribe that for 2012, a TAC for Cod in area I and II (North East Arctic cod) of 751,000 t should be proposed according to management plan.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2012.

[1] This quotation is taken from point 5.1, in the Protocol of the 33rd session of The Joint Norwegian-Russian Fishery Commission and translated from Norwegian to English. For an accurate interpretation, please consult the text in the official languages of the Commission (Norwegian and Russian).

5.3. Cod (*Gadus morhua*) in area I and II (Norwegian coastal cod)

FISHERIES: In addition to TACs, the fishery is regulated by the same minimum catch size, minimum mesh size on the fishing gears as for the Northeast Arctic cod, maximum by-catch of undersized fish, closure of areas having high densities of juveniles, and by seasonal and area restrictions.

Trawl fishing for cod is not allowed inside the 6-nautical mile line except for about 10 fresh fish trawlers which in a few areas have a dispensation to fish between the 4 and 6-mile line in the period 15. April – 15. September.

Since the mid-1990s the fjords in Finnmark and northern Troms (areas 03 and 04) have been closed for fishing with Danish seine. Since 2000 the large longliners have been restricted to fish outside the 4-nautical mile line. To achieve a reduction in landings of coastal cod additional technical regulations in coastal areas were introduced in May 2004 (after the main fishing season) and continued with small modifications in 2005 and 2006. In the new regulations "fjord-lines" are drawn along the coast to close the fjords for direct cod fishing with vessels larger than 15 meter. A box closed for all fishing gears except hand-line and fishing rod is defined in the Henningsvær–Svolvær area. This is an area where spawning concentrations of coastal cod is usually observed and where the catches of coastal cod has been high. Since the coastal cod is fished under a merged coastal cod/northeast Arctic cod quota, these regulations are aimed at moving parts of the traditional coastal fishery from the catching of coastal cod in the fjords to a cod fishery outside the fjords, where the proportion of northeast Arctic cod is higher. Further restrictions were introduced in 2007 by not allowing pelagic gillnet fishing for cod and by reducing the allowed by-catch of cod when fishing for other species inside fjord lines from 25% to 5%, and outside fjord lines from 25% to 20%. The regulations were maintained in 2008. In addition, in 2009 one more spawning area was closed for fishery (except for hand line and fishing rod) in the spawning season: this is Borgundfjorden near Ålesund, which is the most important spawning area in the soutehern part of the stock distribution area.

The 2008 landings were estimated to be 26 000 t, i.e. above the 2008 TAC of 21 000 t. The regulations have not been sufficient to cause large reductions in catches, and current catches are still too high. Landings in 2009 were about 25,000 t, 4,000 t higher than the agreed TAC. The 2010 landings were estimated to be 23 000 t, i.e. above the expected catch (21 000 t) set at the quota agreement. The regulations have not reduced the catches, and current catch level is considered to be too high.

Norwegian coastal cod is managed as part of the Norwegian Northeast Arctic cod fishery. From the mid-1970s to 2003 an expected yield of 40 000 t from the coastal cod was added annually to the quota for Northeast Arctic cod. In 2004 and later years the additional catch expected from this stock has been set near 20 000 t.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. SURBA and XSA analyses are used to give broad trends, and it is based on catch-at-age data and on an acoustic survey. The assessment is considered indicative of stock trends and does not reflect absolute stock sizes. This does not invalidate the overall conclusions.

REFERENCE POINTS: Precautionary references points have not been established for this stock.

MANAGEMENT AGREEMENTS: There are no stated management objectives for this stock and no known management agreements. The rebuilding plan was put into operation in 2011. The spawning biomass index in the 2010 survey was below the index in the 2009 survey. This means that the regulation in 2011 aims for a 15% reduction of F relative to 2009.

The rebuilding plan specifies that if the spawning stock index in the 2011 autumn survey is lower than the index in 2010, the fisheries regulations should aim at a reduction of F in 2012 of at least 30% relative to 2009. If the survey index is above the 2010 index, the regulations should ensure that F in 2012 is at least 15% below the 2009 value. The assessed trend for the stock is slowly declining. Therefore a 30% reduction in F will imply a reduction of catches in 2012 of at least 30% compared to the 2009 catch.

ICES has evaluated the plan and considers it to be provisionally consistent with the precautionary approach (ICES, 2010) but it has not been evaluated against the MSY framework. The basis of this evaluation is the precautionary approach, and not the new ICES MSY framework. However, it is anticipated that ongoing work will provide a basis for revisiting the consistency of the proposed plan with the ICES MSY framework in the next year or two. ICES notes that there is no basis at present for deriving absolute estimates of F_{MSY}. However, it is likely that the current F is above any candidate values of F_{MSY} and the plan therefore represents a step towards MSY.**STOCK STOCK STATUS:**

F (Fishing Mortality)

	2008-2010	
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
Qualitative evaluation	→	Variable without trend
SSB (Spawning Stock Biomass)		
	2009-2011	
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	→	At its lowest

RECENT MANAGEMENT ADVICE:

Management plan

ICES advises on the basis of the Norwegian rebuilding plan: If the spawning stock index in the 2011 autumn survey (results available in early December) is lower than the index in 2010, the fisheries regulations should aim at a reduction of F in 2012 of at least 30% relative to 2009. If the survey index is higher than in 2010, the measures taken in 2011 should continue in 2012.

MSY approach

The survey indicates that the SSB is at its lowest while F appears variable without clear trend since 2000. Therefore, catches should be reduced at a rate greater than the rate of stock decrease.

PA approach

Given the SSB and recruitment are at their historical minima for this stock, no catches should be taken in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.

The rules for category 1 prescribe that for 2012, a TAC proposal for Cod in areas I and II (Norwegian coastal cod)) should be follow the management plan.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

5.4. Haddock (*Melanogrammus aeglefinus*) in subareas I and II (Northeast Arctic haddock)

FISHERIES: Haddock is mainly fished by trawl as by-catch in the fishery for cod. Part of the catches are taken by other conventional gears, mostly longline. TAC regulations are in place but there was non-compliance, resulting in a significant amount of unreported landings in the past. However, IUU (Illegal, Unreported and Unregulated) catches have decreased in the last years and were close to zero in 2009 and in 2010. The fishery is also regulated by a minimum catching size, a minimum mesh size in trawls and Danish seine, a maximum by-catch of undersized fish, closure of areas with high density of juveniles, and other area and seasonal restrictions. Since January 1997, sorting grids have been mandatory for the trawl fisheries in most of the Barents Sea and Svalbard area. Discarding is illegal in Norway and Russia. Data on discarding are scarce, but attempts to obtain better quantification continue. The fisheries are controlled by inspections of the trawler fleet at sea, i.e. by a requirement to report to catch control points when entering and leaving the EEZs, VMS satellite tracking for some fleets, and by random inspections of fishing vessels when landing the fish. Keeping a detailed fishing logbook on-board is mandatory for most vessels, and large parts of the fleet report to the authorities on a daily basis.

In recent years Norway and Russia have accounted for more than 70% of the landings. The total landings in 2007 and 2008 were estimated to be 161,000 t and 156,000 t respectively. In 2009 the total catch was 200,000 t, and in 2010 249,000 t, where 100% are landings (74% trawl, 18% longline, and 8% other gear types).

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. Analytical assessment based on catch-at-age data, using three survey series. Estimates of cod predation on young haddock are included in the natural mortality. Two series of IUU catch were made available to ICES, but the advice is based on one series only. The surveys in 2006 had incomplete coverage, but the index calculation has been adjusted accordingly (ICES. 2008. Report of the Arctic Fisheries Working Group, 21–29 April 2008. ICES CM 2008/ACOM:01).

MANAGEMENT AGREEMENTS: A management plan has been in force since 2004 with the objectives of maintaining high long-term yield, year-to-year stability, and full utilization of all available information on stock dynamics. The plan aims to maintain F at F_{pa} = 0.35 and minimize between-year TAC change to +/– 25%, unless SSB falls below B_{pa} in which case the management targets should change.

At the 36th Session of the Joint Russian–Norwegian Fishery Commission (JRNFC) in autumn 2007 the parties agreed to modify the former three-year rule to a one-year rule in accordance with the results of ICES HCR evaluation.

- The agreed HCR for haddock (2007) is as follows (Protocol of the 36th Session of The Joint Norwegian–Russian Fishery Commission, 10 October 2007):

– *TAC for the next year will be set at level corresponding to F_{pa}.*

– *The TAC should not be changed by more than +/- 25% compared with the previous year TAC.*

If the spawning stock falls below B_{pa}, the procedure for establishing TAC should be based on a fishing mortality that is linearly reduced from F_{pa} at B_{pa} to F= 0 at SSB equal to zero. At SSB-levels below B_{pa} in any of the operational years (current year and a year ahead) there should be no limitations on the year-to-year variations in TAC.

ICES evaluated the modified management plan and conclude that it is in agreement with the precautionary approach.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
Management Plan	SSB_{MP}	80 000 t	B_{pa}. TAC is linearly reduced from F_{pa} at SSB = B_{pa} to 0 at SSB equal to zero.
	F_{MP}	0.35	Previous F_{pa} estimated prior to the revision of the historical time series for this stock.
MSY Approach	MSY $B_{trigger}$	80 000 t	B_{pa}.
	F_{MSY}	0.35	Stochastic long-term simulations.
Precautionary Approach	B_{lim}	50 000 t	B_{loss}.
	B_{pa}	80 000 t	B_{lim}*exp (1.645*0.3).
	F_{lim}	0.77	Corresponds to SPR value of slope of line from origin at SSB=0 to geometric mean recruitment at SSB=B_{lim}.
	F_{pa}	0.47	F_{lim}*exp (-1.645*0.3).

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✓	✓	✓	Appropriate
Precautionary approach (F_{pa},F_{lim})	✓	✓	✓	Harvested sustainably
Management plan (F_{MP})	✓	✓	✓	Below target

SSB (Spawning-Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa},B_{lim})	✓	✓	✓	Full reproductive capacity
Management plan (SSB_{MP})	✓	✓	✓	Above trigger

The SSB has been above B_{pa} since 1989, has been increasing in recent years and is at present at historic highest value. Fishing mortality has been around F_{pa} since the mid 1990s. Recruitment at age 3 has been at or above average since 2000. The year classes 2004-2006 are estimated to be very strong. Surveys indicate that the year classes 2007 - 2008 are below average and 2009 year class is around average.

RECENT MANAGEMENT ADVICE:

Management plan

ICES advises on the basis of the Joint Russian–Norwegian Fisheries Commission management plan that catches in 2012 should be no more than 318 000 t.

MSY approach

Long-term stochastic simulations for Northeast Arctic (NEA) haddock show that the F = 0.35 currently used in the management plan corresponds to F_{MSY} and provides high long-term yield. MSY $B_{trigger}$ is chosen as B_{pa}, which is a biomass that is encountered with low probability if F_{MSY} is implemented (ICES, 2011a).

Fishing at F_{MSY} = 0.35 in 2012 corresponds to landings of no more than 318 000 t. This is expected to keep SSB above Bpa in 2013 and near the series maximum.

PA approach

F_{lim} and F_{pa} were revised in 2011. The new values of F_{lim} = 0.77 and F_{pa} = 0.47 are higher than the previous values (0.49 and 0.35) (ICES, 2011b). The fishing mortality in 2012 should be no more than F_{pa}, corresponding to landings of less than 399 000 t in 2012. This is expected to keep SSB above B_{pa} in 2013.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.

The rules for category 1 prescribe that for 2012, a TAC for Haddock in subareas I and II (Northeast Arctic haddock) of no more than 318,000 t should be proposed according to the management plan..

STECF COMMENTS:

STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2012.

STECF notes that under-reporting of landings has been an important issue for this stock in recent years, fluctuating between 4% to 34% of the international reported landings. Non-reported landings (IUU) for the period 2002-2008 were estimated ranging from 6 kt to 40 kt, but the IUU estimate is close to 0 for 2009-2010. Unreported landings will reduce the effect of management measures and will undermine the intended objectives of the harvest control rule. It is therefore important that management agencies ensure that all catches are counted against the TAC.

5.5. Saithe (*Pollacius virens*) in the North East Arctic (Sub-areas I and II)

FISHERIES: Since the early 1960s, the fishery has been dominated by purse seine and trawl fisheries, with a traditional gill net fishery for spawning saithe as the third major component. The purse-seine fishery is conducted in coastal areas and fjords. Historically, purse-seiners and trawlers have taken, approximately, equal shares of the catches. Regulation changes led to a reduction in the amounts being taken by purse-seiners after 1990.

Norway accounts for more than 90% of the landings. Over the last ten years about 40% of the Norwegian catch originates from bottom trawl, 25% from purse seine, 20% from gill net and 15% from other conventional gears (long line, Danish sine and hand line). The gill net fishery is most intense during winter, purse seine in the summer months while the trawl fishery takes place more evenly all year around.

Landings of saithe were highest in 1970-1976 with an average of 238,000 t and a maximum of 265,000 t in 1970. This period was followed by a sharp decline to a level of about 160,000 t in the years 1978 - 1984. Another decline followed and from 1985 to 1991, the landings ranged from 70,000 - 122,000 t. An increasing trend was seen after 1990 to 171,498 t in 1996. Since then the annual landings have fluctuated between 136,000 and 212,480 t. with the highest figure in 2006. Landings in 2007, 2008, 2009, and 2010 were 197,000 t, 183,000

t , 161,000 t and 193,000 t,). respectively (46% trawl, 28% purse-seine, 19% gillnet, and 7% other gear types in 2010).

SOURCE OF MANAGEMENT ADVICE: This stock is currently managed by a joint Norwegian and Russian scientific advisory body. The fisheries are regulated according to bilateral agreements between Russia and Norway.

MANAGEMENT AGREEMENT: The Norwegian Ministry of Fisheries and Coastal Affairs implemented a harvest control rule (HCR) in autumn 2007 .The harvest control rule contains the following elements:

- *estimate the average TAC level for the coming 3 years based on F_{pa}, TAC for the next year will be set to this level as a starting value for the 3-year period.*
- *the year after, the TAC calculation for the next 3 years is repeated based on the updated information about the stock development, however the TAC should not be changed by more than +/- 15% compared with the previous year's TAC.*
- *if the spawning stock biomass (SSB) in the beginning of the year for which the quota is set (first year of prediction), is below B_{pa}, the procedure for establishing TAC should be based on a fishing mortality that is linearly reduced from F_{pa} at SSB=B_{pa} to 0 at SSB equal to zero. At SSB-levels below B_{pa} in any of the operational years (current year and 3 years of prediction) there should be no limitations on the year-to-year variations in TAC.*

The HCR has the objectives of maintaining high long-term yield, year-to-year stability, and full utilization of all available information on the stock dynamics. The plan aims to maintain target F at F_{pa} = 0.35 and minimize between-year TAC change to +/− 15%, unless SSB falls below B_{pa} in which case the management targets should change.

ICES has evaluated the Harvest Control Rule (HCR) and concluded that it is consistent with the precautionary approach under the conditions that the assessment uncertainty and error are not greater than those calculated from historic data. This also holds true when an implementation error (difference between TAC and catch) equal to the historic level of 3 % is included. The proposed management plan is in accordance with the precautionary approach and ICES therefore advises according to this plan.

REFERENCE POINTS:

	Type	***Value***	***Technical basis***
Management Plan	SSB_{MP}	220 000 t	B_{pa},TAC is linearly reduced from F_{pa} at SSB = B_{pa} to 0 at SSB equal to zero.
	F_{MP}	0.35	Average TAC for the coming 3 years based on F_{pa}.
MSY Approach	MSY $B_{trigger}$	not defined	
	F_{MSY}	not defined	
Precautionary	B_{lim}	136 000 t	Change point regression.
	B_{pa}	220 000 t	B_{lim} * exp(1.645*σ), where σ=0.3.
	F_{lim}	0.58	F corresponding to an equilibrium stock = B_{lim}.
	F_{pa}	0.35	F_{lim} * exp(-1.645*σ), where σ=0.3. This value is considered to have a 95% probability of avoiding the F_{lim}.

STOCK STATUS:

F (Fishing Mortality)			
	2008 2009	**2010**	
MSY (F_{MSY})	? ?	?	Undefined
Precautionary approach (F_{pa},F_{lim})	✓ ✓	✓	Harvested sustainably
Management plan (F_{MP})	✓ ✓	✓	Below target
SSB (Spawning-Stock Biomass)			
	2009 2010	**2011**	
MSY ($B_{trigger}$)	? ?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	✓ ✓	✓	Full reproductive capacity

Since 1995, SSB has been well above B_{pa} and has decreased in recent years. Fishing mortality, being well below F_{pa} since 1996 has increasing trend in most recent years. The 2002 year class was the highest in the time-series, the 2003 and 2004 were among the lowest, while the 2005 year class is estimated to be around average.

RECENT MANAGEMENT ADVICE:

Management plan

ICES advises on the basis of the management plan implemented by the Norwegian Ministry of Fisheries and Coastal Affairs that catches in 2012 should be no more than 164,000 t. Bycatches of coastal cod and S. marinus should be kept as low as possible.

The SSB is expected to decrease by 11% in 2012 and to remain above Bpa at the beginning of 2013

PA approach

The fishing mortality in 2012 should be no more than Fpa, corresponding to landings of less than 178 000 t in 2012. This is expected to keep SSB above B_{pa} in 2013.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advised forecast catch options for 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 1.

The rules for category 1 prescribe that for 2012, a TAC Saithe (Pollacius virens) in subareas I and II (Northeast Arctic saithe) of no more than 164,000 t should be proposed following the management plan.

5.6. Redfish (*Sebastes mentella*) in Sub-areas I and II

FISHERIES: Traditionally, the directed fishery has been conducted by Russia and other East-European countries in the areas from south of Bear Island to Spitsbergen. From the mid-1970s to the mid-1980s, large catches were taken. In the mid-1980s, Norwegian trawlers started fishing along the continental slope (around 500-m depth) further south, in areas never harvested before, and inhabited primarily by mature fish. After a sharp decrease in the landings from the traditional area until 1987, this fishery on new grounds resulted in a temporary increase in the landings until 1991, after which the landings declined. Since 1991, the fishery has been dominated by Norway and Russia.

Since 1 January 2003, all directed trawl fisheries for *S. mentella* have been forbidden in the Norwegian EEZ north of 62°N and in the Svalbard area. Additional protection for adult *S. mentella* comprises area closures. Outside permanently closed areas it is, however, legal to have up to 20% redfish (*S. mentella* and *S. marinus* combined) in round weight as by-catch per haul and on-board at any time when fishing for other species. Since 1 January 2005, the by-catch percentage has been reduced to 15% (both species combined).

A directed pelagic fishery for S. *mentella* in international waters of the Norwegian Sea outside EEZ has developed since 2004. Landings of *S. mentella* taken in the pelagic fishery for blue whiting and herring in the Norwegian Sea have been reported in 2004 and 2005. In 2006, this fishery developed further to become a directed fishery with 13 countries and more than 40 trawlers landed around 28,000 t. Catches in 2007 and 2008 have decreased significantly (16,000 and 9,000 t, respectively) due to TACs set by NEAFC and decreased economic value of redfish. Total ICES catch estimates for 2009 and in 2010 were 10, 000 and 12,000 t, respectively, including also the pelagic catches in the Norwegian Sea outside the EEZ.

This fishery is managed by the North-East Atlantic Fisheries Commission, and during its 29th annual meeting in 2010 the Commission adopted by consensus a TAC for 2011 of 7,900 t.

Other catches of *S. mentella*, are taken as by-catches in other fisheries. By-catches are taken in the demersal cod/haddock/Greenland halibut fisheries, as juveniles in the shrimp trawl fisheries, and occasionally in the pelagic blue whiting and herring fisheries in the Norwegian Sea.

MANAGEMENT AGREEMENTS: The *S. mentella* occurrences inside the Norwegian and Russian EEZs are currently managed by a joint Norwegian and Russian scientific advisory body. The fisheries are regulated according to bilateral agreements between Russia and Norway. NEAFC has set a TAC for the *S. mentella* in international waters in the Norwegian Sea in 2007 (15,500 t) and 2008 (14,500 t). The 2009-2011 TAC was agreed 10,500, 8,600 and 7,900 t, respectively. No specific management objectives are so far implemented.

SOURCE OF MANAGEMENT ADVICE: The advisory body is ICES. ICES notes that it was not possible to conduct an analytical assessment of this stock. Information, therefore, is based on Norwegian and Russian research vessel surveys carried out since 1980. These surveys provide information on both recruitment and spawning stock biomass. The management body of the pelagic redfish fishery is NEAFC. Data from national Norwegian and Russian experimental surveys on pelagic redfish in the Norwegian Sea in 2007 are available. In 2008, the first international survey was carried out.

REFERENCE POINTS: No reference points have been proposed for this stock.

STOCK STATUS:

F (Fishing Mortality)		
	2008-2010	
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa},F_{lim})	?	Unknown
SSB (Spawning-Stock Biomass)		
	2009-2011	
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa},B_{lim})	?	Unknown
Qualitative evaluation	✗	Low due to recruitment failure

Due to recruitment failure in the year classes 1996-2005, ICES considers it necessary to protect the spawning biomass since very few new mature individuals will enter the stock for at least the next 12-15 years.

An 0-group survey indicates improved recruitment of 0-group from 2007 to 2010, but also indicates lower values of the 2008 year class.

No reliable analytical assessment can be presented for this stock.

The state of the pelagic occurrences of *S. mentella* is unknown.

RECENT MANAGEMENT ADVICE:

PA approach

The 2010 data (landings and survey) do not change the perception of the stock. Therefore, the advice for this fishery in 2012 is the same as the advice given in 2010 for the 2011 fishery. ICES advises that "*there should be no directed trawl fishery on Sebastes mentella in Subareas I and II in 2011. Area closures should be maintained and by-catch limits should be as low as possible until a significant increase in the spawning-stock biomass (and a subsequent increase in the number of juveniles) has been verified.*"

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that the TAC is set in accordance with results of negotiations in international management bodies.

STECF COMMENTS:

STECF agrees with the ICES assessment that the state of the stock is unknown and the advice for 2012.

STECF notes however that there European TACs are not set separately by species (*S. mentella* and *S. marinus*) nor by demersal and pelagic *S. mentella* in Sub-areas I and II.

5.7. Redfish (*Sebastes marinus*) in Sub-areas I and II

FISHERIES: The fishery is mainly conducted by Norway, accounting for 80-90% of the historical total catch. The fish are caught mainly by bottom otter trawl (at present only as by-catch) and gillnet, and to a lesser extent by longline, Danish seine, and handline, in that order. Some of the catches are taken in mixed fisheries together with saithe and cod. Important fishing grounds are the Møre area (Svinøy), Halten Bank, outside Lofoten and Vesterålen, and at Sleppen outside Finnmark. Traditionally, *S. marinus* has been the most popular and highest priced redfish species. In the period 1984-90, landings of *S. marinus* were at a level of 23,000–30,000 t. In the period 1991-1999, the landings were around 17,000 t but since then have decreased, and from 2004 to 2007, annual landings were estimated to be about 7,000 t. The 2008 landings were 6,300 t. EU landings reached 388 t in 2007 and about 227 t in 2008. Landings in 2009 are estimated to have been about 6,000 and in 2010 about 8,000 t.

Since 1 January 2003, all directed trawl fisheries for *S. marinus* have been forbidden in the Norwegian EEZ north of 62°N and in the Svalbard area. A minimum legal landing size of 32 cm has been set for all Norwegian fisheries and international fisheries in the Norwegian EEZ, with an allowance to have up to 10% undersized (i.e., less than 32 cm) specimens of *S. marinus* (in numbers) per haul. From January 2006, it is forbidden to use gillnets with mesh size less than 120 mm when fishing for redfish. The closed seasons enforced since 2004 seem to have reduced the gillnet catches by about 2,500 t, while the catches taken by other gears have not decreased, and in some cases increased, causing the total international catches to remain at the same level during the last 7 years.

SOURCE OF MANAGEMENT ADVICE: No explicit management objectives have been established for this stock. Information is based on Norwegian and Russian research vessel surveys carried out since 1986 as well as from CPUE (kg per trawl hour) from Norwegian trawlers since 1992. An exploratory assessment was conducted using a simulation model covering the period 1986-2006. Input data included catches and the annual Barents Sea joint bottom trawl survey. Work on that model is continuing.

MANAGEMENT AGREEMENTS: The stock is currently managed by a joint Norwegian and Russian scientific advisory body and regulated according to bilateral agreements between Russia and Norway.

REFERENCE POINTS: No reference points have been established for this stock.

STOCK STATUS: The 2010 data (landings and survey) do not change the perception of the stock. In the absence of defined reference points, the state of the stock cannot be fully evaluated. Surveys and commercial CPUE show a substantial reduction in abundance and indicate that the stock at present is historically low. Information on year-class strength indicates record-low levels for the last decade. Therefore, this stock is presently in very poor condition. Given the low productivity of this species, this situation is expected to remain for a considerable period.

RECENT MANAGEMENT ADVICE:

The most recent data (landings, surveys, and an exploratory assessment) do not change the perception of the stock. Therefore, the advice for this fishery in 2012 is the same as the advice given in 2007 for the 2008 fishery and re-iterated since then: "*There should be no directed fishery on Sebastes marinus in Subareas I and II. Area closures should be maintained and bycatch limits should be as low as possible until a significant increase in the spawning-stock biomass (and a subsequent increase in the number of juveniles) has been verified*".

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that the TAC is set in accordance with results of negotiations in international management bodies.

STECF COMMENTS: STECF agrees with the ICES assessment that the state of the stock is unknown and the advice for 2012. STECF notes however that there European TACs are not set separately by species (*S. mentella* and *S. marinus*).

5.8. Greenland halibut (*Reinhartius hippoglossoides*) in area I and II

FISHERIES: The regulations enforced in 1992 reduced the total landings of Greenland halibut by trawlers from about 20,000 to 8,600 t. Since then annual trawler landings have varied between 9,000 and 20,000 t without any clear trend attributable to changes in allowable by-catch. In 2008 -2010, the landings were estimated to amount to 14,000 t, 12,000 t and 16,000 t respectively.

Since 1992, the fisheries have been regulated by allowing a directed fishery only by small coastal longline and gillnet vessels. By-catches of Greenland halibut in the trawl fisheries have been limited by permissible by-catch per haul and an allowable by-catch retention limit on board the vessel. The 38th Session of the Joint Norwegian-Russian Fisheries Commission in 2009 decided to cancel the ban against targeted Greenland halibut fishery and established a TAC at 15 000 t for next three years (2010-2012). The TAC was allocated between Norway, Russia and other countries with shares of 51, 45 and 4% respectively.

In recent years, EU Member State catches have been between 300 t and 500 t.

SOURCE OF MANAGEMENT ADVICE: This stock is currently managed by a joint Norwegian and Russian scientific advisory body. The fisheries are regulated according to bilateral agreements between Russia and Norway. ICES has been approached for advice on biological assessment and management of this stock. An exploratory assessment was based on commercial catch-at-age data, two survey series, and one commercial cpue series. The assessment is uncertain due to age-reading problems and lack of contrast in the data.

REFERENCE POINTS: No reference points are defined for this stock.

STOCK STATUS:

F (Fishing Mortality)	
	2008-2010
MSY (F_{MSY})	? Unknown
Precautionary approach (F_{pa},F_{lim})	? Unknown
SSB (Spawning-Stock Biomass)	
	2009-2011
MSY ($B_{trigger}$)	? Unknown
Precautionary approach (B_{pa},B_{lim})	? Unknown
Qualitative evaluation	Increasing trend

Only landings and survey trends of biomass are available for this stock. The total stock has shown a positive trend since catches were reduced in 1992, especially in most recent years. For this long-lived species this is a positive sign regarding recruitment into the fisheries. Increase in mature female biomass is not as marked. There is no information on the exploitation rate of the stock.

RECENT MANAGEMENT ADVICE:
ICES advises on the basis of precautionary considerations that catches should not be allowed to increase.

Additionally, ICES notes that the evaluation of this stock is uncertain due to age-reading problems and lack of contrast in the data. The age-reading issue is being addressed and should be resolved in the not too distant future. Corrections to the whole time-series are required.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that the TAC is set in accordance with results of negotiations in international management bodies.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock is unknow and STECF has no objective means to advise on a suitable catch level

STECF notes however that in 2009 the 38th Session of the Joint Norwegian-Russian Fisheries Commission established a TAC at 15 000 t for the years 2010-2012.

5.9. Capelin (*Mallotus villosus*) in ICES subareas I and II, excluding Division IIa-west of 5°W (Barents Sea capelin)

The stock summary and advice for Capelin (*Mallotus villosus*) in ICES subareas I and II, excluding Division IIa-west of 5°W (Barents Sea capelin) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

5.10. Herring (*Clupea harengus*) in ICES subareas I & II (Norwegian Spring spawners)

The stock summary and advice for Herring (Clupea harengus) in ICES subareas I & II (Norwegian Spring spawners) will be updated in October 2011 and included in the consolidated STECF review of advice for stocks of Community interest for 2012. The most recent STECF advice on this stock is given in the Consolidated review of advice for stocks of Community interest for 2011.

FISHERIES: The total catches in 2009 were 1.687 million t., mainly taken by Norway (1017000 t), Russia (210000 t), Iceland (265000 t), EU (106000 t), and Faroe Islands (85000 t). The fishery in general follows the migration of the stock closely as it moves from the wintering and spawning grounds along the Norwegian coast to the summer feeding grounds in the Faroese, Icelandic, Jan Mayen, Svalbard, and international areas. Due to limitations for some countries to enter the EEZs of other countries in 2008, the fisheries do not necessarily depict the distribution of herring in the Norwegian Sea. A special feature of the summer fishery in 2005 and 2006 was the prolonged fishery in the Faroese and Icelandic zone. In 2007 and 2008 a clean herring fishery was hampered by mixture of mackerel schools in the area. This was especially the case for the Faroese fleet, which usually targets mackerel later in the year (October–November).

Management regulations have restricted landings in recent years.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on an analytical assessment, which takes into consideration catch data, and eight surveys, three of which have not been continued in recent years, (acoustic surveys of adults and juveniles, larval survey, and 0-group survey). The present assessment is an updated assessment, using the models, configurations and procedures agreed at the benchmark assessment in 2008.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	5.0 million t	B_{pa}
	F_{MSY}	0.15	F_{MSY} using a Beverton & Holt S/R relationship with data from 1950 to 2009
Precautionary Approach	B_{lim}	2.5 million t	MBAL (accepted in 1998)
	B_{pa}	5.0 million t	B_{lim} * exp(0.4*1.645)
	F_{lim}	not defined	-
	F_{pa}	0.15	Based on medium-term simulations

(unchanged since: 2010)

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY F_{msy}	⊕	⊕	⊕
F_{pa} / F_{lim}	⊕	⊕	⊕

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY $B_{trigger}$	⊕	⊕	⊕
B_{pa} / B_{lim}	⊕	⊕	⊕

SSB in 2010 is well above B_{pa}. The stock development shows a number of good year classes: in the last 12 years, five large year classes have recruited into the stock (1998, 1999, 2002, 2003 and 2004). However, the available information indicates that year classes produced after 2004 have been small. Fishing mortality in 2008 and 2009 is estimated to be at F_{pa} (=F_{MSY}).

RECENT MANAGEMENT ADVICE:

Advice for 2011

Management Objective (s)	**Landings in 2011**
MSY approach with caution at low stock size	Less than 1.17 million tonnes
Cautiously avoid impaired recruitment (**Precautionary Approach**)	Less than 1.17 million tonnes
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	Less than 0.988 million tonnes

MSY approach
Following the ICES MSY framework implies that fishing mortality be reduced to 0.15, resulting in landings of 1.17 million tonnes in 2011. This is expected to lead to an SSB of 6.60 million tonnes in 2012.

Fishing mortality is at F_{MSY}, therefore the transition scheme towards the ICES MSY framework is not appropriate.

PA approach
The fishing mortality in 2011 should be no more than F_{pa} corresponding to landings of less than 1.17 million tonnes in 2011. This is expected to maintain SSB above B_{pa} in 2012.

Management plan
In 1999 EU, Iceland, Faroe Islands, Norway and Russia agreed on a long-term management plan from 2001. The aim is to maintain the stock size above 2.5 million t and to maintain a fishing mortality rate of 0.125. Should SSB fall to below 5 million t ($\mathbf{B}_{pa}$) the fishing mortality rate shall be adapted to ensure a rapid recovery of SSB to the $\mathbf{B}_{pa}$ level.

ICES have evaluated the plan and conclude that it is in accordance with the precautionary approach. The management plan implies maximum catches of 0.988 million t in 2011, which is expected to lead to an SSB of 6.77 million t in 2012.

Policy Paper
In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified as category 4.

STECF COMMENTS: STECF agrees with the advice from ICES.

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that Herring in Subareas I and II falls under category 4. STECF notes that according to the management plan the TAC in 2011 should be 988 000 tonnes.

6. Eco-region 6: Resources in the Faeroe Plateau ecosystem

6.1. Cod (*Gadus morhua*) in Vb1 (Faroe Plateau cod)

FISHERIES: Cod are mainly taken in a directed cod and haddock fishery with long lines, in a directed jigging fishery and as by-catch in the trawl fishery for saithe. Following the declaration of EEZs in the 1970s, the fishery became largely Faroese and fishing mortality declined briefly but it has increased since to former high levels. Landings have fluctuated between 6,000 and 40,000 t (1986-2007), almost entirely taken by non-EU fleets. In 2008 landings were 7,500 t, the lowest observed since 1993.t. Landings in 2009 and 2010 were 10,000 t and 12,700 t respectively. The EU fishery on this stock has been managed together with cod in VI, Vb (EC waters), International waters of XII and XIV.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on an analytical method using survey and catch-at-age data. The technique was XSA calibrated by two research surveys.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	40 000 t	B_{pa}.
	F_{MSY}	0.32	Provisional maximum sustainable yield, FLR stochastic simulations.
Precautionary Approach	B_{lim}	21 000 t	Lowest observed SSB (1998 assessment).
	B_{pa}	40 000 t	$B_{lim}e^{1.645\sigma}$, assuming a σ of about 0.40 to account for the relatively large uncertainties in the assessment.
	F_{lim}	0.68	$F_{pa}e^{1.645\sigma}$, assuming a σ of about 0.40 to account for the relatively large uncertainties in the assessment.
	F_{pa}	0.35	Close to F_{max} (0.34) and F_{med} (0.38) (1998 assessment).

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	o	o	o	Increased risk
SSB (Spawning Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	✗	✗	✗	Below trigger
Precautionary approach (B_{pa},B_{lim})	o	o	o	Increased risk

SSB has shown some increase after reaching a historical minimum in 2007, but remains below MSY Btrigger. Fishing mortality has decreased since 2002 and is now between Flim and Fpa, but still above FMSY. The 2008 year class is estimated to be above average.

.**MANAGEMENT OBJECTIVES**: No explicit management plan exists for this stock. A management system based on number of fishing days, closed areas and other technical measures was introduced in 1996 with the purpose of ensuring sustainable demersal fisheries in Division Vb. This was before ICES introduced PA and MSY reference values, and at the time it was believed that the purpose was achieved if the total allowable number of fishing days was set such that on average 33% of the cod exploitable stock in numbers would be harvested annually. This translates into an average F of 0.45, above the F_{pa} of 0.35. ICES considers this to be inconsistent with the PA and MSY approaches. Work is ongoing in the Faroes to move away from the F_{target} of 0.45 in order to be consistent with the ICES advice.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY approach to reduce fishing mortality by 30% in 2012.

Other considerations

MSY approach

ICES advises on the basis of the MSY approach to reduce fishing mortality by 30% in 2012 to 0.29. This is 10% below F_{MSY}, because SSB in 2012 is 10% below MSY $B_{trigger}$.

PA approach

The fishing mortality should be kept below an F_{pa} of 0.35. This translates into a reduction in fishing mortality by 15% as compared to the average of last 3 years (0.41).

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2.The rules for category 2 prescribe that for 2012, a TAC for Cod in Vb1 (Faroe Plateau cod) sole of 10 000 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF notes that this stock is managed by an effort management system and that no TAC is set. STECF also notes that the forecast catch for 2012 according to the Faroese management plan is 15,000 t. The forecast catch according to ICES advice is 10,000 t.

6.2. Cod (*Gadus morhua*) in Vb2 (Faroe Bank cod)

FISHERIES: during the recent 10 years total catches for this stock have fluctuated between 4000 and 200 t. In the latest years EU landings have constituted 10-20% of the total. The EU fishery on this stock has been managed together with cod in VI, Vb (EC waters), International waters of XII and XIV. Faroe Bank has been closed to fishing since 1 January 2009. In 2010, however, a total of 61 fishing days was allowed to small longliners (<15 BRT) in the shallow waters of the Bank. Landings in 2010 amount to 105 t.

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

MANAGEMENT OBJECTIVES: There are no explicit management objectives for this stock

REFERENCE POINTS: No reference points have not been defined for this stock.

STOCK STATUS: There is no analytical assessment for this stock. Survey indices indicate that the stock is severely depleted. Catches have declined strongly in the last four years despite a marked increase in the exploitation rate.

RECENT MANAGEMENT ADVICE: New data on landings and indices from the two annual Faroese surveys (2010 summer, 2011 spring) do not change the perception of the stock since 2008 and do not give reason to change the advice from 2010. The advice for the fishery in 2012 is therefore the same as the advice given since 2008: "*Because of the very low stock size ICES advises that the fishery should be closed. Reopening the fishery should not be considered until both survey indices indicate a biomass at or above the average of the period 1996–2002*".

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

STECF propose that recovery measures should be implemented including effort reductions and introduction of more selective fishing gears. STECF further notes that no TAC is set for this stock and that Faroe Bank has been closed to fishing since 1 January 2009.

6.3. Haddock (*Melanogrammus aeglefinus*) in area Vb (Faroe)

FISHERIES: Faroe haddock are taken as part of a mixed demersal fishery, with most taken by trawls or longlines. Landings are predominantly Faroese, with only low EU landings. Since 1993 total landings from Vb have increased from 4,000 t to 27,000 t in 2003 but have dropped to 5,197t in 2009. Total catch in 2010 was 5,198t (longliners accounted for 79% , trawlers for 21%). The management is by effort restrictions through individual transferable days introduced in 1996. The fishing law also prescribes fleet specific catch compositions of cod, haddock, saithe, and redfish.

Haddock are mainly caught in a directed long line fishery for cod and haddock and as by-catchs in trawl fisheries for saithe. Normally, long line accounts for 80-90% of the catches. This changed in 2009 primarily due to that only a fraction of the allocated number of fishing days to the longliners was actually used. The same feature seems to occur in the present fishing year (2009/2010).

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. The advice is based on an age-based assessment using commercial landings and age disaggregated data from two surveys.

MANAGEMENT OBJECTIVES: There is no explicit management plan for this stock. A management system based on number of fishing days, closed areas and other technical measures was introduced in 1996 to ensure sustainable demersal fisheries in Division Vb. This was before ICES introduced PA and MSY reference values, and at that time it was believed that the purpose was achieved if the total allowable number of fishing days was set such that on average 33% of the haddock exploitable stock in numbers would be harvested annually. This

translates into an average F of 0.45, above the F_{pa} of 0.25. ICES considers this to be inconsistent with the PA and the MSY approaches. Work is ongoing in the Faroes to move away from the F_{target} of 0.45 to be consistent with the ICES advice

Under the effort management system, fishing days are allocated to all fleets fishing in shallow waters (< 380 m depth) for the period 1 September–31 August. In addition, the majority of the shallow areas (< ca. 200 m) are closed for trawling. and are mainly utilized by longliners. Some fleets (deep-sea trawlers and gillnetters) are presently not under the fishing days regime but it is expected that within a few years all fleets are included.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	22 000 t	Lowest observed SSB.
	B_{pa}	35 000 t	$B_{lim}e^{1.645\sigma}$, with σ of 0.3.
	F_{lim}	0.40	$F_{pa}\,e^{1.645\sigma}$, with σ of 0.3.
	F_{pa}	0.25	$F_{med}(1998) = 0.25$.

STOCK STATUS:

F (Fishing Mortality)	2008	2009	2010
MSY (F_{MSY})	?	?	? Undefined
Precautionary approach (F_{pa},F_{lim})	✓	✓	○ Increased risk

SSB (Spawning-Stock Biomass)	2009	2010	2011
MSY ($B_{trigger}$)	?	?	? Undefined
Precautionary approach (B_{pa},B_{lim})	○	○	✗ Reduced reproductive capacity

SSB has decreased since 2003 and is in 2011 estimated to be just below B_{lim}. The fishing mortality has decreased from above F_{lim} in 2003 to around F_{pa} in the last 3 years; the F_{2010} of 0.3 is, however, above F_{pa}. Year classes from 2003 onwards have all been well below the long-term average.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the precautionary approach that there should be no directed fishery on haddock in 2012. Measures should be put in place to minimize bycatches of haddock in other fisheries. A recovery plan should be developed and implemented as a prerequisite to reopening the directed fishery.

Other considerations

MSY approach

Work is ongoing to define MSY reference points using stochastic simulations. Preliminary analyses suggested an F_{MSY} = 0.25. However, historically fishing at F in this range since 1972 has led to SSB reductions to B_{lim} twice.

PA approach

Given the recent poor recruitment and slow growth and the low SSB, the forecast indicates that even a zero fishing mortality in 2012 will not result in getting the stock above B_{pa} in 2013 and there should be no directed fishery on haddock. Measures should be put in place to minimize bycatches of haddock in other fisheries. A recovery plan should be developed and implemented as a prerequisite to reopening the directed fishery.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.Furthermore, if the objective of management is to allow the stock to recover to B_{pa} in the shortest possible time, STECF agrees with the ICES advice that there should be no directed fishery on haddock. Measures should

be put in place to minimise bycatches of haddock in other fisheries. A recovery plan should be developed and implemented as a prerequisite to reopening the directed fishery.

6.4. Saithe (*Pollachius virens*) in Division Vb (Faroe saithe).

FISHERIES: Saithe are mainly caught in a directed trawl fishery (pair and single trawlers), with bycatches of cod and haddock. Landings are predominantly Faroese (>95%), with only low EU landings. Landings have fluctuated between 20,000t and 60,000 t between 1965 and 2004. Since the record highest landings of 68,000 t in 2005, landings have dropped to 44,000 t in 2010, of which 83% was taken by pair trawlers, 12% by single trawlers, and 3.9% by jiggers.

The management is by effort restrictions through individual transferable days introduced in 1996. The fishing law also prescribes fleet specific catch compositions of cod, haddock, saithe, and redfish.

SOURCE OF MANAGEMENT ADVICE: The management advisory body is ICES. The advice is based on an age-based assessment using commercial landings and age disaggregated data from pair trawlers series

MANAGEMENT OBJECTIVES: There is no explicit management plan for this stock. A management system based on number of fishing days, closed areas and other technical measures was introduced in 1996 to ensure sustainable demersal fisheries in Division Vb. Under the effort management system, fishing days are allocated to all fleets fishing in shallow waters (< 380 m depth) for the period 1 September–31 August. In addition, the majority of the shallow areas (< ca. 200 m) are closed for trawling. and are mainly utilized by longliners. Some fleets (deep-sea trawlers and gillnetters) are presently not under the fishing days regime but it is expected that within a few years all fleets are included.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	55 000 t	Breakpoint in segmented regression.
	F_{MSY}	0.28	Provisional, stochastic simulations.
Precautionary Approach	B_{lim}	Undefined	
	B_{pa}	55 000 t	B_{loss} in 2011.
	F_{lim}	Undefined	
	F_{pa}	0.28	Consistent with 1999 estimate of F_{med}.

STOCK STATUS:

F (Fishing Mortality)				
	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa})	✗	✗	✗	Harvested unsustainably

SSB (Spawning-Stock Biomass)				
	2009	2010	**2011**	
MSY ($B_{trigger}$)	✓	✓	✓	Above trigger
Precautionary approach (B_{pa})	✓	✓	✓	Full reproductive capacity

SSB has increased since the mid-1990s and is above MSY $B_{trigger}$. Recruitment in 2010 is above average while fishing mortality is above F_{MSY}.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the MSY approach that fishing mortality in 2012 should be reduced by 38% to F_{MSY}.

Other considerations

Management plan

There is no explicit management plan for this stock. A management system based on number of fishing days, closed areas and other technical measures was introduced in 1996 to ensure sustainable demersal fisheries in Division Vb. This was before ICES introduced PA and MSY reference values, and at that time it was believed that the purpose was achieved if the total allowable number of fishing days was set such that on average 33% of the saithe exploitable stock in numbers would be harvested annually. This translates into an average F of 0.45, above the F_{pa} and F_{MSY} of 0.28. ICES considers this to be inconsistent with both the PA and the MSY approaches. Work is ongoing in the Faroes to move away from the F_{target} of 0.45 to be more consistent with the ICES advice.

MSY approach

Following the ICES MSY framework implies that fishing mortality in 2012 should be no more than $F_{MSY} = 0.28$, which results in a reduction of 38% in F.

PA approach

Following the precautionary approach implies that fishing mortality in 2012 should be no more than $F_{pa} = 0.28$, which results in a reduction of 38% in F.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 2.The rules for category 2 prescribe that for 2012, a TAC for Saithe in Vb (Faroe Saithe) of 40 000 t should be proposed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2012.

7. Widely distributed and migratory stocks

7.1. European eel (*Anguilla anguilla*)

The text below relates to assessments and advice issued by ICES in 2010 for 2011. Updated information if available will be published in the STECF Consolidated review of advice for stocks of community interest for 2012 in November 2011.

FISHERIES: The European eel (*Anguilla anguilla* (L.)) is found and exploited in fresh, brackish and coastal waters in almost all of Europe, in northern Africa and in Mediterranean Asia. Eel fisheries are found throughout the distribution area. Fisheries are generally organised on a small scale (a few fishermen catching 1-5 tonnes per year) and involve a wide range of gears. The fisheries are managed on a national (or lower, regional or catchment) level. Landings peaked around 1965 at 40,000 tonnes, since when a gradual decline occurred to a level of 20,000 tonnes in the late 1990s, but throughout the decades, landing statistics cover only about half the true catches. Recent years show a rapid decline in reported catches, to below 10,000 tonnes. Recruitment remained high until 1980, but declined afterwards, to a level of only 2 % of former levels in 2001, and has remained low since. Aquaculture of wild-caught recruits (glass eel) has been expanding since 1980, in Europe as well as in eastern Asia (using European glass eel). Other anthropogenic factors (habitat loss, contamination and transfer of diseases) have had negative effects on the stock, most likely of a magnitude comparable to exploitation. In 2007, eel was included in CITES Appendix II that deals with species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival. The listing was due to be become effective in March 2009.

The fisheries target glass eel, yellow eel and silver eel. Both commercial and recreational fisheries are important. A large proportion of the catch is unreported. Many silver eel die in hydropower turbines when they migrate out of freshwater on their way to the Sargasso Sea. Cormorants consume a substantial amount of eel each year.

SOURCE OF MANAGEMENT ADVICE: Management advice has been provided by ICES and FAO/EIFAC. The joint ICES/EIFAC working group is the main assessment body.

STOCK STATUS: Abundance of the European eel stock continues to decline at an alarming rate. There are indications that recruitment is impaired by the current low level of spawning stock size. Abundance of all stages of eel (glass eel, yellow eel and silver eel) remains at the historical minimum. Recruitment in 2006, 2008, 2009 and 2010 has been especially low. In 2009, the decrease was sharp, especially in the northern part of the distribution area, with a drop of around 50–60% for glass eel between 2008 and 2009.

All glass eel recruitment series show clear and marked decadal reductions since the early 1980s.

Over the last 5 years glass eel recruitment has averaged between 1% (continental North Sea) and 7% (continental Atlantic) of the 1960–1979 levels.

A difference in spatial pattern of recruitment is observed at most stations in the North Sea, where the decline is sharper than elsewhere. There is no current clear explanation for that observation, although North Sea and Baltic Sea data are predominantly fisheries independent time series.

Recruitment of continental yellow eel has been declining continuously since the 1950s.

REFERENCE POINTS: Precautionary reference points have not been agreed for eel. However, exploitation that leaves 30% of the virgin spawning stock biomass is generally considered to be a reasonable target for escapement. Due to the uncertainties in eel management and biology ICES proposed a limit reference point of 50% for the escapement of silver eels from the continent in comparison to pristine conditions (ICES, 2003). This is higher than the escapement level of at least 40% 'pristine' set by the EU Regulation.

MANAGEMANT OBJECTIVES:

A management framework for the eel stock was established in 2007 through an EU Regulation (EU 1100/2007). The objective of this Regulation is the protection, recovery and sustainable use of the stock. To achieve the objective, Member States have developed eel management plans for their river basin districts designed to reduce anthropogenic mortalities and increase silver eel biomass. The objective of the eel management plans is to allow in the long term, with high probability, an escapement to the sea of the biomass of silver eel of at least 40%, relative to the best estimate of the theoretical escapement in pristine conditions (i.e. if the stock had been completely free of anthropogenic influences).

ICES has evaluated whether individual EMPs by country are in accordance with the Regulation, but ICES could not evaluate whether the overall performance of national management plans are in accordance with the EU Regulation. The reason why ICES could not evaluate the plan was that some important countries had not quantified their plans and that some plans were not accepted.

RECENT MANAGEMENT ADVICE:

ICES reiterates its previous advice that all anthropogenic mortality (e.g. recreational and commercial fishing, barriers to passage, habitat alteration, pollution, etc.) affecting production and escapement of eels should be reduced to as close to zero as possible until there is clear evidence that the stock is increasing. A concerted effort by all European countries to conserve eel habitats is urgently needed.

Given the current record-low abundance of glass eels, ICES reiterates its concern that glass eel stocking programs are unlikely to contribute to the recovery of the European eel stock. This is because (a) there is no surplus anywhere of glass eel to be redistributed to other areas and (b) there is evidence that stocked/translocated eels experience impairment of their navigational abilities.

STECF COMMENTS: STECF agrees with the ICES advice.

7.2. Hake (*Merluccius merluccius*) in Division Vb (1), VI and VII, VIII and XII, XIV (Northern hake)

The management area covers Skagerrak, Kattegat, IIa, IIIb,c,d, IV, VI, VII, VIII, XII and XIV with separate TAC's for these Divisions.

FISHERIES: Hake is caught in mixed fisheries together with megrim, anglerfish and *Nephrops*. Discards of juvenile hake can be substantial in some areas and fleets. An important increase in landings has occurred in the northern part of the distribution area (Division IIIa, and Subareas IV and VI) in recent years. Since the introduction of the high vertical opening trawls in the mid-1990s, no significant changes in fishing technology

have been introduced. Landings have increased since 2006 and reached 73100 t in 2010, the highest figure since 1973.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. The advice is based on a length-based assessment using commercial catch data and survey data. This stock was benchmarked in 2010. This year assessment presents major revisions in relation to last year: (i) new assessment model, (ii) incorporation of discards, (iii) faster growth rate. The assessment is indicative of trends only.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	0.24	$F_{30\%SPR}$
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

	Fish Mort (Length 15–80cm)	**Yield/R**	**SSB/R**
F_{max}	0.29	0.28	0.79
$F_{0.1}$	0.19	0.26	1.18
$F_{35\%SPR}$	0.20	0.26	1.12
$F_{30\%SPR}$	0.24	0.27	0.96

MANAGEMENT AGREEMENT: A recovery plan was agreed by EU in 2004 (EC Reg. No. 811/2004). The aim of the plan was to increase the SSB to above 140 000 t with a fishing mortality (Fmgt) of 0.25, constrained by a year-to-year change in TAC of 15% when SSB is above 100 000 t. ICES have not evaluated the plan. At present (2011) the SSB is estimated to be above 140000 t, but the reference points used as basis for that recovery plan are not considered valid anymore. The application of a new assessment method has, however, has resulted in a change in the perception of the historical stock and the previous defined precautionary reference points, on which the recovery plan is based, are no longer appropriate.

A proposal for a long-term plan has been put forward by the EU in 2009 (COM(2009) 122 final). The aim of the proposal is to reach maximum sustainable yield. ICES has evaluated the F_{MSY} candidate value proposed for this plan, and found the candidate to be inappropriate.

STOCK STATUS:

F (Fishing Mortality)	2008	2009	**2010**	
MSY (F_{MSY})	✗	✗	✗	Above target
Precautionary approach (F_{pa},F_{lim})	?	?	?	Undefined

SSB (Spawning-Stock Biomass)	2009	2010	**2011**	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	?	?	?	Undefined
Qualitative evaluation	↗	↗	✓	Above poss. reference points

The assessment is indicative of trends only. The spawning biomass has been increasing in recent years, and was estimated to around 153000 t in 2011. There are also indications that fishing mortality has been decreasing in recent years. After high recruitment in 2006, 2007 & 2008, recruitment in 2009 and 2010 is estimated to be low.

RECENT MANAGEMENT ADVICE:

ICES advises on the basis of the transition to the MSY approach that landings in 2012 should be no more than 51 900 t.

MSY approach

According to ICES MSY approach, catches should be maintained at recent levels, corresponding to landings of 51400 t (MSY transition). The stock trend is increasing and the exploitation status is unknown.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.
STECF notes that with reference to COM(2011) 298-final, this stock is classified under category 1. Since the recent management plans have been rejected, no TAC can be proposed based on these. b
Additional considerations

Discards of juvenile hake can be substantial in some areas and fleets. The spawning biomass and the long-term yield can be substantially improved by reducing mortality of small fish. This could be achieved by measures that reduce unwanted bycatch through shifting the selection pattern towards larger fish.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and agrees with the ICES advice for 2012. STECF also agrees with ICES that effective measures to reduce discarding are also needed, given the substantial discards of juvenile hake in some areas and fleets.

7.3. Blue whiting (*Micromesistius poutassou*) in ICES subareas I-IX, XII & XIV

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the TAC proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidated STECF Review of Advice for 2011.

FISHERIES: Blue whiting is exploited mainly by fleets from Norway, Russia, the Faroe Islands, and Iceland but the Netherlands, Scotland, Denmark, Ireland, Sweden, Germany and Spain also take substantial catches. The fishery for blue whiting was fully established in 1977. The Northern blue whiting stock is fished in Subareas II, V, VI, and VII and most of the catches are taken in the directed pelagic trawl fishery in the spawning and post-spawning areas (Divisions Vb, VIa,b and VIIb,c). Catches are also taken in the directed and mixed fishery in Subarea IV and Division IIIa, and in the pelagic trawl fishery in the Subareas I and II, in Divisions Va, and XIVa,b. The fisheries in the northern areas have taken 330,000 t to 640,000 t per year in the first half of the nineties, after which catches increased to close to 1,000,000 t in the latter part of the decade. Catches have been aboveone million tonnes for most years after 2000 (except 2009) with 2003 and 2004 having recorded the highest catches (>2,200,000 t). In the southern areas (Subarea VIII, IX, Divisions VIId,e and g-k) catches have been stable around 30,000 t between 1987 and 2009 with the exception of 2004 when 85,000 t were recorded. In Division IXa blue whiting is mainly taken as bycatch in mixed trawl fisheries.

Total landings over all areas decreased from 1.25 million t in 2008 to 0.64 million t in 2009.

SOURCE OF MANAGEMENT ADVICE: The main body for management advice is ICES. The assessment uses catch-at-age data from commercial catches from 1981–2009 and three acoustic surveys (Norwegian spawning ground survey 1993–2003, international ecosystem survey in the Nordic Seas 2000–2010, and the international blue whiting spawning ground survey 2003–2010). The international blue whiting spawning ground survey is the only survey that covers almost the entire distribution area of the spawning stock. This survey estimated a 50% reduction in stock size from 2009 to 2010, which resulted in a steep downward revision of the stock size.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	2.25 million t	B_{pa}
	F_{MSY}	0.18	$F_{0.1}$ tested in management strategy evaluation conducted in 2008 (Anon, 2008; ICES, 2008)
Precautionary Approach	B_{lim}	1.50 million t	B_{loss}
	B_{pa}	2.25 million t	B_{lim} exp(1.645*σ), with σ = 0.25.
	F_{lim}	0.51	F_{loss}
	F_{pa}	0.32	F_{med} (1998).

MANAGEMENT AGREEMENT: A management plan has been agreed by Norway, EU, the Faroe Islands and Iceland, and NEAFC in 2008 which uses a target F at 0.18 if SSB is above B_{pa}, and a linear reduction to

F=0.05 for SSB between B_{pa} and B_{lim} and F=0.05 for SSB below B_{lim}. ICES has evaluated the plan in 2008 and concludes that it is in accordance with the precautionary approach.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	⊖	⊖	⊖
Precautionary approach (F_{pa},F_{lim})	o	o	o

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	⊕	⊖	⊖
Precautionary approach (B_{pa},B_{lim})	⊕	o	⊖

Year classes since 2005 are estimated to be among the lowest. Due to recent poor recruitment, SSB declined from a peak of 6.8 million tonnes in 2003 to 1.3 million tonnes (below B_{lim}) at the beginning of 2010.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	**Landings in 2011**
Transition to an **MSY approach** with caution at low stock size	50 700 to 223 000 tonnes for transition to the MSY framework by 2011 and 2015, respectively
Cautiously avoid impaired recruitment (**Precautionary Approach**)	Zero landings
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	40 100 tonnes

MSY approach

Following the ICES MSY framework implies fishing mortality to be reduced to 0.06 (35% of F_{MSY} because SSB in 2011 is 35% of MSY $B_{trigger}$), resulting in landings of 50 700 tonnes in 2011. This is expected to lead to an SSB of 790 000 tonnes in 2012.

Following the transition scheme towards the ICES MSY framework implies fishing mortality be limited by F_{pa} (0.32), and corresponding to landing of 223 000 tonnes. This is expected to lead to an SSB of 621 000 tonnes.

PA approach

This would imply zero catch in 2011 as SSB in 2012 will remain below B_{pa} with any fishery in 2011.

Management plan(s)

Following the management plan agreed by Norway, EU, the Faroe Islands, Iceland, and NEAFC in November 2008 (see Appendix 9.4.4.1) implies a TAC of 40 100 tonnes in 2011, which is a reduction of 93% compared to the TAC in 2010.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, (COM(2010) 241) this stock is classified under category 4.

Additional considerations

The large reduction in catch options for 2011 is based on an uncertain estimate of the stock status. However, all available information shows that the recruitment (age 1 fish) has been at a historical low level since 2006 and that spawning stock biomass has declined sharply since 2003. The remaining stock consist mainly of older fish, so there is no immediate sources for rebuilding the stock in short-term and the decline is expected to continue if recruitment remains at the recent low level, even with small catches.

The management plan is particularly sensitive to fluctuation to absolute stocks abundance. This information could be taken into account in the management plan by adopting wide constraints on TAC changes; i.e. limiting inter-annual variability in TAC. At present, this has not been agreed (see Article 7 of the management plan).

Recent work on stock identification suggests that there is likely to be more than one single stock in the Northeast Atlantic but this has yet to be confirmed.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and agrees with the TAC advice for 2011.

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that blue whiting, combined stock falls under Category 4. STECF notes that in accordance with the long-term management plan, TAC in 2011 should be 40,100 t.

7.3.1. Blue whiting (*Micromesistius poutassou* L.) in Sub -areas IIa(1)-North Sea (1)

Blue Whiting in these sub-areas is assessed together with all other areas as a single stock. See section 7.3

7.3.2. Blue whiting (*Micromesistius poutassou* L.) in Sub -areas Vb(1),VI,VII

Blue Whiting in these sub-areas is assessed together with all other areas as a single stock. See section 7.3

7.3.3. Blue whiting (*Micromesistius poutassou* L.) in Sub -areas VIIIabd

Blue Whiting in these sub-areas is assessed together with all other areas as a single stock. See section 7.3

7.3.4. Blue whiting (*Micromesistius poutassou* L.) in Sub -areas VIIIe

Blue Whiting in these sub-areas is assessed together with all other areas as a single stock. See section 7.3.

7.3.5. Blue whiting (*Micromesistius poutassou* L.) in Sub -areas VIIIc,IX,X

Blue Whiting in these sub-areas is assessed together with all other areas as a single stock. See section 7.3

7.4. Horse mackerel (*Trachurus trachurus*) in ICES Divisions IIa, IVa, Vb, VIa, VIIa-c,e-k and VIIIa-e (western stock)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the TAC proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidated STECF Review of Advice for 2010.

FISHERIES: Catches of 'Western' horse mackerel increased in the 1980s with the appearance of the extremely strong 1982-year-class. Changes in the migration pattern became evident at the end of the 1980s when the largest fish in the stock (mainly the 1982-year-class) migrated into Divisions IIa and IVa during the 3rd and 4th quarters. Following the changes in migration, a target fishery on horse mackerel developed in Division IVa by the Norwegian purse seiners. Most catches by other countries were taken in Sub-areas VI, VII and Divisions VIIIa-e.

The catches in Division IVa have dropped considerably since 1996 and Western horse mackerel has in recent years been taken in a variety of fisheries exploiting juvenile fish for the human consumption market (with midaged fish mostly for the Japanese market), and older fish either for human consumption purposes (mostly for the African market) or for industrial purposes. The proportion of catches (in weight) in the areas where juveniles

are distributed increased gradually from about 40% in 1997 to about 65% in 2003, but declined to 40% in 2005. Since 2005, there have been no obvious changes in fishing patterns. Overall catch levels increased from 1123,000 t in 2007 to 177,000 t in 2009.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. There is uncertainty in the absolute estimates of SSB. The only fishery-independent information for this stock is a measure of egg production from surveys conducted every three years. The assessment assumes that fecundity is constant from year to year. If this assumption is incorrect then the assessment results may be biased. The 2010 egg survey results used in this year's assessment are provisional.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	0.13	$F_{0.1}$ from YPR
Precautionary Approach	B_{lim}	Not defined[1)]	
	B_{pa}	Not defined[1)]	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

[1)] Previous PA biomass reference points were considered not consistent with the perceived state of the stock, the exploitation rate and the evaluation of MSY reference points.

MANAGEMENT AGREEMENT: In 2007, a management plan based on the triennial egg survey was proposed by the Pelagic RAC and was used to set the TAC since 2008. The management plan was evaluated by ICES in 2007 and was found to be precautionary only in the short-term because some relevant scenarios were not evaluated. It is understood that the plan will be re-evaluated by 2014. This management plan has yet to be formally adopted. However, the realignment of the stock and management areas has been included in the TAC regulations for 2010.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	⊕	⊕	⊕
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

SSB in 2010 is estimated to be 2.01 million tonnes, and varied between 1.42 and 2.36 million tonnes during 1995-2009. Fishing mortality has been increasing since 2006 but remains low (F_{2009} mean for ages 1-10 = 0.087). There is no evidence of strong recruitment since the 2001 year class.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	**Landings in 2011**
MSY approach with caution at low stock size	Less than 229 000 tonnes
Cautiously avoid impaired recruitment (**Precautionary Approach**)	Na
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	181 000 tonnes

MSY approach

Following the ICES MSY framework implies an increase in fishing mortality to 0.13 in 2011, resulting in landings of 229 thousand tonnes in 2011. This is expected to lead to an SSB of 1.65 million tonnes in 2012. F_{2010} is below F_{MSY}, therefore the transition scheme towards the ICES MSY framework does not apply.

PA approach

There are no PA reference points defined for this stock.

Management plan(s)

Following the proposed plan from the Pelagic RAC implies a TAC of 181 thousand tonnes in 2011 which is expected to lead to an SSB of 1.69 million tonnes in 2012.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified Under category 4. The resulting TAC would be 181 thousand tonnes.

Additional considerations

The TAC should apply to all areas where Western horse mackerel is caught including the Norwegian EEZ.

The advice for horse mackerel assumes that all catches are counted against the TAC for each stock separately. ICES advises that the management areas correspond to the distribution areas which include all EU and Norwegian and Faroese waters where horse mackerel are caught. The management areas for North Sea and Western Horse mackerel were changed in 2010 to more appropriately reflect the stock distributions. The Western Horse mackerel TAC is now divided in 2 parts: one for Division VIIIc and another for EU waters of IIa, IVa, VI, VIIa-c, VIIe-k, VIIIabde, EU and international waters of Vb, XII and XIV. The North Sea horse mackerel management area is Divisions IVb, IVc and VIId.

Western horse mackerel are taken in a variety of fisheries for the human consumption with juvenile fish directed mostly for the Japanese market, and large fish for the African market. The fishing mortality on age groups 1-3 in 2009 (F=0.104) was a record-high, and much higher than most age 1-3 fishing mortality values in the assessment times series, which range from 0.002 (in 1986) to 0.084 (in 1994). Since 2003, the average F (1-3) has been higher than the average F (4-8) and indicates greater reliance in the fishery on incoming recruitment which is poor.

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

STECF notes that ICES has used a TAC in 2010 at 180,000 t as basis for the calculation of the TAC 2011-2013 from the management plan for Western horse mackerel proposed by the Pelagic RAC. The actual TAC in 2010 is 183,924 t. If this number is used for the TAC 2011-2013 the TAC will be 183,924 t (and not the 181,000 t estimated by ICES).

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that Western horse mackerel stock falls under Category 4. STECF notes that in accordance with the management plan proposed by the Pelagic RAC, TAC for the next three years, 2011-2013, should be 183,924 t.

STECF notes that the management areas for North Sea and Western Horse mackerel were changed in 2010 to more appropriately reflect the stock distributions. STECF agrees with the ICES advises that the management areas correspond to the distribution areas which include all EU and Norwegian and Faroese waters where horse mackerel are caught.

STECF notes that management plan for Western horse mackerel proposed by the Pelagic RAC has been evaluated by ICES. STECF agrees with ICES that this plan is precautionary for the period 2008 to 2010, but not in the long-term. It is understood that the plan will be re-evaluated by 2014.

7.5. Northeast Atlantic Mackerel (*Scomber scombrus*) - combined Southern, Western and North Sea spawning components)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the TAC proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidated STECF Review of Advice for 2011.

FISHERIES AND STOCK: ICES currently uses the term "Mackerel in Northeast Atlantic" to define the mackerel present in the area extending from ICES Division IXa in the south to Division IIa in the north, including mackerel in the North Sea and Division IIIa. Catches cannot be allocated specifically to spawning area components on biological grounds but by convention, catches from the Southern and Western components are separated according to the areas in which these are taken.

To keep track of the development of spawning biomass in the different spawning areas, mackerel in the Northeast Atlantic stock are divided into three area components: the Western Spawning Component, the North Sea Spawning Component, and the Southern Spawning Component. The Western Component is defined as mackerel spawning in the western area (ICES Divisions and Subareas VI, VII, and VIII a,b,d,e). This component currently accounts for 78% the entire Northeast Atlantic stock. Similarly, the Southern Component is defined as mackerel spawning in the southern area (ICES Divisions VIIIc and IXa). Although the North Sea component has been at an extremely low level since the early 1970s, ICES considers that the North Sea Component still exists as a discrete unit. This component spawns in the North Sea and Skagerrak (ICES Subarea IV and Division IIIa). Current knowledge of the state of the spawning components is summarised below.

Although the North Sea component has been at an extremely low level since the early 1970s, ACOM regards the North Sea Component as still existing. This component spawns in the North Sea and Skagerrak (ICES Subarea IV and Division IIIa). Current knowledge of the state of the spawning components is summarized below.

Western Component: The catches of this component were low in the 1960s, but increased to more than 800 000 t in 1993. The main catches are taken in directed fisheries by purse-seiners and mid-water trawlers. Large catches of the western component are taken in the northern North Sea and in the Norwegian Sea. The 1996 catch was reduced by about 200 000 t compared with 1995, because of a reduction in the TAC. The catches since 1998 have been stable. The SSB of the Western Component declined in the 1970s from above 3.0 million t to 2.2 million t in 1994, but was estimated to have increased to 2.7 million t in 1999. A separate assessment for this stock component is no longer required, as a recent extension of the time-series of NEA mackerel data now allows the estimation of the mean recruitment from 1972 onwards. Estimates of the spawning-stock biomass, derived from egg surveys, indicate a decrease of 14% between 1998 and 2001 and a 6% decrease from 2001 to the 2004 survey. The results from 2007 indicate a 5 % increase from 2004 to 2007.

North Sea Component: Very large catches were taken in the 1960s in the purse-seine fishery, reaching a maximum of about 1 million t in 1967. The component subsequently collapsed and catches declined to less than 100 000 t in the late 1970s. Catches during the last five years have been assumed to be about 10 000 t. The 2002 and 2005 triennial egg surveys in the North Sea both indicate similar egg production, but in 2008 it has decreased by about 40%.

Southern Component: Mackerel is a target species for the hand line fleet during the spawning season in Division VIIIc, during which about one-third of the total catches are taken. It is taken as a bycatch in other fleets. The highest catches (87%) from the Southern Component are taken in the first half of the year, mainly from Division VIIIc, and consist of adult fish. In the second half of the year catches consist of juveniles and are mainly taken in Division IXa. Catches from the Southern Component increased from about 20 000 t in the early 1990s to 44 000 t in 1998, and were close to 50 000 t in 2002. Estimates of the spawning-stock biomass, derived from egg surveys, are highly variable, and give average estimates of around 16% of the combined NEA mackerel stock (1995–2007).

SOURCE OF MANAGEMENT ADVICE: The advisory body is ICES. This assessment is based on catch numbers-at-age for the period 1972–2009 and triennial egg survey estimates of SSB from 1992 to 2010. Some sampling for discards has been carried out since 2000 and a formal requirement was initiated in the EU in 2002. Estimating proportions of catch discarded and slipped is problematic in pelagic fisheries due to high variability in discard and slipping practices. In some fleets no sampling for discards is carried out. Recruit surveys provide

information on the distribution of young mackerel, but are subject to high variability and have not proved useful in estimating year-class strength.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY	MSY $B_{trigger}$	2.2 million t	SSB associated with high long term yield and low probability of stock depletion based on management strategy evaluation (ICES, 2008)
Approach	F_{MSY}	0.22	F associated with above
	B_{lim}	1.67 million t	B_{loss} of the 2007 assessment for combined stock (Western, Southern and North Sea components
Precautionary	B_{pa}	2.3 million t	$\mathbf{B}_{loss}$ of the in Western component in 1998 assessment raised by 15% to account for the southern component
Approach	F_{lim}	0.42	F_{loss}
	F_{pa}	0.23	F_{lim} * 0.55 (CV 36%)

MANAGEMENT AGREEMENT: A management plan was agreed by Norway, Faroe Islands and the EU in October 2008. ICES has evaluated the plan and concluded that the plan is precautionary under the assumption that the TAC equals the total removals from the stock.

1. *For the purpose of this long-term management plan, "SSB" means the estimate according to ICES of the spawning stock biomass at spawning time in the year in which the TAC applies, taking account of the expected catch.*
2. *When the SSB is above 2,200,000 tonnes, the TAC shall be fixed according to the expected landings, as advised by ICES, on fishing the stock consistent with a fishing mortality rate in the range of 0.20 to 0.22 for appropriate age groups as defined by ICES.*
3. *When the SSB is lower than 2,200,000 tonnes, the TAC shall be fixed according to the expected landings as advised by ICES, on fishing the stock at a fishing mortality rate determined by the following:*
   Fishing mortality F = 0.22 SSB/ 2,200,000*
4. *Notwithstanding paragraph 2, the TAC shall not be changed by more than 20% from one year to the next, including from 2009 to 2010.*
5. *In the event that the ICES estimate of SSB is less than 1,670,000 tonnes, the Parties shall decide on a TAC which is less than that arising from the application of paragraphs 2 to 4.*
6. *The Parties may decide on a TAC that is lower than that determined by paragraphs 2 to 4.*
7. *The Parties shall, as appropriate, review and revise these management measures and strategies on the basis of any new advice provided by ICES*

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	⊖	⊖	⊖
Precautionary approach (F_{pa},F_{lim})	o	o	o

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	⊕	⊕	⊕
Precautionary approach (B_{pa},B_{lim})	⊕	⊕	⊕

Fishing mortality was high during the 1990s, but has recently declined is estimated to be at F_{pa} in 2009. SSB has increased considerably since 2002 and is estimated to be approximately 3 million tonnes in 2009, above B_{pa}. The 2002 year class is currently the highest on record although the 2005 and 2006 year classes are also strong. The 2007 year class is about average. There is insufficient information to confirm the sizes of the 2008 and 2009 year classes.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	Total catch in 2011
Transition to an **MSY approach** with caution at low stock size	Less than 672 000 tonnes
Cautiously avoid impaired recruitment (**Precautionary Approach**)	Less than 672 000 tonnes
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	Between 592 000 and 646 000 tonnes

ICES advises that the existing measures to protect the North Sea spawning component should remain in place. These are:

- There should be no fishing for mackerel in Divisions IIIa and IVb,c at any time of the year;
- There should be no fishing for mackerel in Division IVa during the period 15 February–31 July;
- The 30 cm minimum landing size at present in force in Subarea IV should be maintained.

MSY approach

Following the ICES MSY framework implies fishing mortality to be reduced to 0.22 (F_{MSY}), resulting in a total catch of 646 000 tonnes in 2011. This is expected to lead to an SSB of 2.75 million tonnes in 2012.

Following the transition scheme towards the ICES MSY framework implies fishing mortality to be reduced to 0.23 (F_{pa}), resulting in a total catch of 672 000 tonnes in 2011. This is expected to lead to an SSB of 2.72 million tonnes in 2012.

PA approach

The fishing mortality in 2011 should be no more than F_{pa} corresponding to total catches of 672 000 tonnes in 2011. This is expected to maintain SSB above B_{pa} in 2012.

Management plan(s)

Following the management plan (agreed by EU, Norway and Faroese in 2008) implies a TAC between 592 000 and 646 000 tonnes in 2011 which would lead to a catch reduction of between 31% and 36% compared to the estimated catch in 2010.

Policy paper

In light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified under category 4.

Additional considerations

Some data suggests that the distribution of the spawning and feeding areas may have expanded in recent years. Further analyses will be required to describe the extent of this possible expansion. Mackerel has recently been commercially fished in areas where it was previously not fished, particularly in the Icelandic EEZ.

Catches since 2007 have been considerably in excess of the ICES advice which was based on the management plan. This situation is expected to continue in 2010. The absence of effective international agreements on the exploitation of the stock (between all nations involved in the fishery) is a cause of continued concern and prevents control of the exploitation rate. Because the management plan (agreed October 2008 by EU, Norway and Faroes) has not been followed in recent years, an estimation of the expected 2010 catch was conducted. The estimation of the catch in the intermediate year (2010) is composed of the declared quotas, inter-annual transfer of quotas not fished in 2009 to 2010, discards, estimated overshoot of catches, and quota payback. The total estimated catch in 2010 (930,002 t) results in an estimated fishing mortality of 0.31, which is above that stipulated in the management plan.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and agrees with the TAC advice for 2011.

With reference to the Communication from the Commission (COM (2010) 241 FINAL), STECF advises that Norteast Atlantic mackerel stock falls under Category 4. STECF notes that in accordance with the management plan TAC in 2011 should be between 592,000 and 646,000 tonnes.

STECF notes that Iceland and the Faroe Islands set autonomous quotas for 2009 and 2010 resulting in catches far greater than those advised by ICES. However ICES also estimates overfishing in 2010 (50,683 t) by other countries.

7.6. Spurdog (*Squalus acanthias*) in the North East Atlantic

The most recent advice for Spurdog in the North East Atlantic was provided by ICES in 2010. New advice will be released in October 2011 and it will be incorporated in the Consolidated STECF Review of Advice for 2011.

FISHERIES: Spurdog is a relatively small (<130 cm TL), widely distributed species occurring throughout the ICES area, and also widespread in the NW Atlantic, Pacific and other major oceans. Spurdog is one of the most important commercial elasmobranchs, with catches in directed and by-catch fisheries. There have been directed longline and gillnet fisheries in IIa, IVa, VIa, VIIa and VIIb-k and there are by-catches from demersal otter trawl and seine fisheries throughout the range of the stock.

The main fishing grounds for spurdog are: Norwegian Sea (ICES Sub-area II); North Sea (ICES Sub-area IV); NW Scotland (ICES Sub-area VI) and the Celtic Sea (ICES Sub-area VII). Some landings are also from the Skagerrak and Kattegat (ICES Sub-area IIIa) and Iceland (ICES Sub-area V). In the Celtic Sea, spurdog is caught primarily by French trawlers and by English and Welsh longliners while in the Bristol Channel and Irish Sea catches are taken mainly by fixed gill nets.

Scottish and Irish trawlers and seiners fish for spurdog off the west coast of Scotland, and some English longliners from the east coast moved into this area after continuous poor fishing in the North Sea. Spurdog is also taken in small quantities in the Bay of Biscay (ICES Sub-area VIII) and off Greenland. These last areas are considered to be outside the main area of the North East Atlantic stock, which is also considered to be separate (at least for assessment and management purposes) from the North West Atlantic stock. Although most spurdogs are now taken as by-catch in otter trawls and seines targeting whitefish, directed fisheries for this species continue to operate locally and seasonally.

In the UK (E&W), just over 50% of spurdog landings were taken in line and net fisheries in 2006, with most landings coming from Sub-area VII and in particular from the Irish Sea. About 45% of the Scottish landings originate from demersal trawl fisheries and less than 30% of the Irish landings come from the gill nets and line fisheries.

Landings of this species remain difficult to quantify due to differences in the level to which they are identified in national landing statistics. Landings which are specifically identified as *S. acanthias* probably represent a minimum estimate, while a maximum estimate includes categories such as "Squalidae", "dogfish" or "dogfish and hounds" which may include a number of other species (eg. deep-water squalids, spotted dogs, smoothhound and tope). The landings of spurdog, although not complete, show a marked decline since the mid-1980s. Up to 60,000t were landed annually in the early 1960s, landings averaged about 35,000t throughout the 1980s, then steadily declined to an average of about 15,000t by the late 1990s. The landings for 2005 were reported to be as low as 5600t and for 2006 at about 3000t, the lowest observed on record.

A TAC has been introduced for the EU waters of Subarea IV and Division IIa in 1999. This TAC has been reduced from 8870t in 2001 to 1051t in 2006. A by-catch quota of 841t has been set in 2007 for IIa(EC) and IV. These species shall not comprise more than 5 % by live weight of the catch retained on board. A TAC has been set for first time in 2007 for IIIa , I, V, VI, VII, VIII, XII and XIV of 2828t, but this was subsequently altered to 2004 t covering only areas I, V, VI, VII, VIII, XII and XIV in 2008. In 2008 there was no TAC for Division IIIa. Norway has a 70-cm minimum landing size, but it is not known if this is effective in reducing the exploitation of mature females (ICES advice 2006 widely distributed stocks).

In 2007 Norway introduced a general ban on fishing and landing of spurdog in the Norwegian economic zone and in international waters in ICES areas I-XIV. However, boats less than 28m in length are allowed to fish for spurdog with traditional gear inshore and in territorial waters (within the 4 nm). Spurdog caught as by-catch in

other fisheries have to be landed and the Norwegian Fiskeridirektoratet is allowed to stop the fishery when catches reach the last years level. Norway has a 70 cm minimum landing size. In 2004, Germany proposed to EU that spurdog should be listed under Appendix II of CITES (i.e. so that nations involved in the import/export trade would have to show that the harvesting and utilization was sustainable). Sweden has recently added spurdog to their national Red List and since April 2011 landings of spurdog is not allowed for either the commercial or recreational fisheries.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. Assessment is an age-length and sex structured model.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
F_{msy}		⊕	
F_{pa} / F_{lim}		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY $B_{trigger}$		?	
B_{pa} / B_{lim}		?	

The assessment is considered uncertain. The assessment suggests that total stock biomass has declined substantially over time and has stabilised somewhat in the recent decade. The exploitation of the stock has reduced substantially in recent years. A failure of recruitment has taken place progressively since the 1960s.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	**Landings in 2011**
Transition to an **MSY approach** with caution at low stock size	n/a
Cautiously avoid impaired recruitment (**Precautionary Approach**)	Zero catch
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

Outlook for 2011

The assessment conducted in 2010 is not put forward as a basis for a forecast. This is partly because there is need to explore the model assumptions further and also because interim year catch estimates are required.

MSY considerations

There is insufficient information upon which to apply the MSY framework. The stock appears stable at a low level in the recent period, but this is a short period compared to the longevity of the species. Given the longevity of the species, the failure of recruitment and the likelihood that recovery will be slow, the MSY framework cannot be applied.

PA considerations

There is no additional information to change the perception of the stock, consequently ICES reiterates its advice for 2007-2010, that the stock is depleted and may be in danger of collapse. Targeted fisheries should not be permitted to continue, and bycatch in mixed fisheries should be reduced to the lowest possible level. The TAC should cover all areas where spurdog are caught in the northeast Atlantic and should be set at zero.

Policy paper

In the light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified under category 10. This implies a 25% cut in TAC. Recovery measures should be implemented including effort reductions and introduction of more selective fishing gear. However given that the TAC is currently set at zero, this implies TAC=0.

Additional considerations

An EC TAC covering the entire stock range, was introduced in 2007 and was progressively reduced, and in 2010 TAC=0. There is a small (10% of the 2009 quotas per country) provision for by-catch. In 2009, a maximum landings length (100 cm) has been introduced. There are no estimates of discard survival.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: it will be given in the October Consolidate STECF Review of Advice.

STECF COMMENTS: STECF agrees with the ICES advice

STECF agrees with ICES that recovery measures should be implemented including effort reductions and introduction of more selective fishing gear.

7.7. Basking shark (*Cetorhinus maximus*) in the North East Atlantic

The most recent advice for basking shark in the North East Atlantic was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: According to WGEF, a single stock of basking sharks *Cetorhinus maximus* exists in the ICES area. There is no information on transatlantic migrations. A genetics study underway in the UK aims to differentiate distinct stocks globally. They are known to congregate in areas with a high zooplankton biomass (e.g. fronts) and, therefore, may be locally important, but the locations of these areas are variable.

Biological data are limited, although all lamniform sharks have a very low fecundity and late age at maturity and they are likely to be sensitive to fishing mortality.

There have been directed fisheries for this species by Ireland, the UK, and Norway. The last directed fishery was that of Norway, and was prosecuted in II, IV, VI and VII. The Norwegian fleet has prosecuted local fisheries from the Barents Sea to the Kattegat, as well as more distant fisheries ranging across the North Sea and as far as the south and west of Ireland, Iceland and Faeroe. The geographical and temporal distribution of the Norwegian domestic basking shark fishery changes markedly from year to year. Recent studies have highlighted the important role that oceanographic conditions can play in affecting basking shark distribution.

Since the mid-1940s, catches have varied considerably. In the late 1970s catches were about 10000t, in early 1980s about 4000t and in recent years a serious decline has been registered with catches ranging between 77t and 293t in the last eight years. Catches in 2005 were 221t and in 2006 16t (Norwegian by-catch) which was considerably less than in 2005. It is not known whether this decrease is related to marked price reductions, or that the release of live specimens has increased, or because actual abundance has declined.

Limited quantitative information exists on basking shark discarding in non-directed fisheries. However, anecdotal information is available indicating that this species is caught in gillnet and trawl fisheries in most parts of the ICES area. Most of this by-catch takes place in the summer months as the species moves inshore. The total extent of these catches is unknown. The requirement for EU fleets to discard all basking sharks caught as by-catch means that information cannot be obtained on these catches. A better protocol for recording and obtaining scientific data from by-catches is necessary for assessing the status of the stock.

Since 2006, there is no targeted fishery for basking sharks in Norway, UK or Ireland. Based on ICES advice, Norway banned all directed fisheries for basking shark in 2006, but dead or dying by-catch specimens can be

landed and sold as before. The basking shark has been protected from killing, taking, disturbance, possession and sale in UK territorial waters since 1998. In Sweden it is forbidden to fish for or to land basking shark. Since 2002, there has a complete ban on the landings of basking shark from within the EU waters of ICES Sub-areas IV, VI and VII (Annex ID of Council Regulation (EC) 2555/2001). Since 2007, the EU has prohibited fishing for, retaining on board, transhipping or landing basking sharks by any vessel in EU waters or EU vessels fishing anywhere (Council regulation (EC) No 41/2006).

Basking shark was listed on Appendix II of the Convention on International Trade in Endangered Species (CITES) in 2002, on Appendices I and II of the Convention on the Conservation of Migratory Species (CMS) in 2005, on Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea (UNCLOS) and on the OSPAR (Convention on the protection of the marine environment of the north-east Atlantic) list of threatened and/or declining species in 2004.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. There is no assessment of this stock. The evaluation is based on landings data and anecdotal information.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

(unchanged since: 2010)

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	**2009**
F_{msy}		?	
F_{pa} / F_{lim}		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY $B_{trigger}$		?	
B_{pa} / B_{lim}		?	

No population estimate or fishery-independent survey information are available. Reference points cannot be defined.

Available landings and anecdotal information suggest that the stock is severely depleted.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	**Landings in 2011 and 2012**
Transition to an **MSY approach** with caution at low stock size	TAC = 0. Retain on prohibited species list.
Cautiously avoid impaired recruitment (**Precautionary Approach**)	TAC = 0
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

Outlook for 2011-2012

No reliable assessment can be presented for this stock. This is because of lack of data.

MSY approach

Given the international conservation status of this species, MSY is not considered to be a suitable target.

Policy paper

In the light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified under category 10. The resulting TAC would be 0 t.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final: STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

7.8. Tope (*Galeorhinus galeus*) in the North East Atlantic

The most recent advice for tope in the North East Atlantic was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: There are no currently no targeted commercial fisheries for tope in the North East Atlantic, though they are taken as a by-catch in trawl, gillnet and longline fisheries, including demersal and pelagic set gears. Though tope are discarded in some fisheries, due to their low market value, other fisheries land this species as by-catch. Tope is also an important target species in recreational sea angling and charter boat fishing in several areas, with most anglers and angling clubs following catch and release protocols. Landings data are limited, as landings data are often included as "dogfishes and hounds" (DGH). Nevertheless, England and France have some species-specific landings data, and there are also limited data from Denmark, Ireland, Portugal and Spain in recent years. Many of the reported landings are from the English Channel, Celtic Sea and northern Bay of Biscay. Tope is also caught in Spanish fisheries in the western Cantabrian Sea (Galicia), where about 80% of the landings are from longline vessels, with the remainder from trawl and small gillnets. Tope is also reported in the catches off mainland Portugal, and are an important component of Azorean bottom long line fisheries. Tope are also caught in offshore long-line fisheries in this area. There were no major changes in the fishery noted since 2006. It has been suggested that there may be a greater retention of tope in some UK inshore fisheries operating in ICES Division IVc, as a result of by-catch limits on skates and rays, although no data are currently available to verify it.

Landings were increased since 1992 until 2002 (from 427t to 798t), then dropped to 372t in 2005. In 2006 landings were 497t. The degree of possible mis-reporting or under-reporting is not known. Landings indicate that France is one of the main nations landing tope. The United Kingdom also land tope, though species-specific data are not available prior to 1989. Since 2001, Ireland, Portugal and Spain have also declared species-specific landings, though recent data were not available for Spanish fisheries. Though some discards information is available from various nations, data are limited for most nations and fisheries. The available data (England and Wales) indicated that juvenile tope tend to be discarded in demersal trawl fisheries, though larger individuals are usually retained, with tope caught in drift and fixed net fisheries usually retained.

SOURCE OF MANAGEMENT ADVICE: The main recent source of information is ICES. However no species specific management advice is given.

REFERENCE POINTS: No precautionary reference points have been agreed for tope in the Northeast Atlantic.

STOCK STATUS: Stock structure is unknown. No assessment was undertaken, due to insufficient data. WGEF considers that there is a single stock of tope in the ICES area, with the centre of the distribution ranging from Scotland and southern Norway southwards to the coast of north-western Africa and Mediterranean Sea. Hence, the North East Atlantic tope stock covers the ICES Area (II–X), Mediterranean Sea (Subareas I–III) and northern part of the CECAF area, and any future assessment of the Northeast Atlantic tope stock may need to be undertaken in conjunction with the General Fisheries Commission for the Mediterranean (GFCM) and Fishery Committee for the Eastern Central Atlantic (CECAF). The stock unit identified by WGEF was based on published tagging studies which clearly indicate that tagged fish move widely throughout the North East Atlantic. Tope is listed in the UK Biodiversity priority list and is classified as Vulnerable in the IUCN Red data List.

RECENT MANAGEMENT ADVICE: There is no species specific management advice for Tope in the North East Atlantic. However ICES considers that tope is highly vulnerable to over-exploitation, as they have low population productivity, relatively low fecundity and protracted reproductive cycle. Unmanaged, targeted fisheries elsewhere in the world have resulted in stock collapse (e.g. off California and in South America).

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF has no comment.

7.9. Porbeagle *(Lamna nasus)* in the North East Atlantic

The most recent advice for porbeagle in the North East Atlantic was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: Porbeagle is a highly migratory and schooling species. Sporadic targeted fisheries develop on these schools. Porbeagle fisheries have been highly profitable. The main countries catching or having caught porbeagles are Spain and France. However in the past, important fisheries were prosecuted by Norway, Denmark and the Faeroe Islands.

The only regular, target fishery that still exists is the French fishery. Several countries have sporadic fisheries taking porbeagles (which also takes occasional tope and blue sharks), in the North Sea, west of Ireland and Biscay, as they appear. These include Denmark, UK, and French vessels fishing to the south and west of England. There is a by-catch by demersal trawlers from many countries, including Ireland, UK, France and Spain.

SOURCE OF MANAGEMENT ADVICE: The main recent source of information and advice on porbeagle in the Northeast Atlantic is ICES. There is no fishery-independent information on this stock. Landings data for porbeagle may be reported as porbeagle, or as 'various sharks nei' in the official statistics. This means that the reported landings of porbeagle are likely to be an underestimation of the total landing of the species from the NE Atlantic. ICCAT is responsible for the management of this species in the tuna fisheries.

REFERENCE POINTS:

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

(unchanged since: 2010)

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	**2009**
F_{msy}	?	?	?
F_{pa} / F_{lim}		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY $B_{trigger}$		?	
B_{pa} / B_{lim}		?	

The fisheries in the Northern part of the stock area have ceased and have not resumed. Before quotas were put in place, if porbeagle were present in sufficient numbers to support a fishery, a fishery would have developed. The fact that no fishery developed can be considered as a sign that the stock had not recovered from its previous low numbers. However, in the absence of any quantitative data to demonstrate stock recovery, and in regard of this species' low reproductive capacity, the stock is probably still depleted.

Porbeagle is subject to the UN agreement on highly Migratory Stocks and the UK Biodiversity priority list. In IUCN, porbeagle is classified as Vulnerable for the depleted unmanaged population in the northeast Atlantic, and Lower Risk (conservation dependent) for the northwest Atlantic, in recognition of the introduction of the US and Canadian Fisheries Management Plans (IUCN 2000).

RECENT MANAGEMENT ADVICE:

Management Objective (s)	**Landings in 2011 and 2012**
Transition to an **MSY approach** with caution at low stock size	TAC = 0
Cautiously avoid impaired recruitment (**Precautionary Approach**)	TAC = 0
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

Given the state of the stock, no targeted fishing for porbeagle should be permitted and by-catch should be limited. Landings of porbeagle should not be allowed.

Porbeagles are particularly vulnerable to fishing mortality, because the population productivity is low (long-lived, slow growing, high age-at-maturity, low fecundity, and a protracted gestation period) and they have an aggregating behaviour. In the light of this, risk of depletion of reproductive potential is high. It is recommended that exploitation of this species should only be allowed when indicators and reference points for stock status and future harvest have been identified and a management strategy, including appropriate monitoring requirements has been decided upon and is implemented.

Outlook for 2011-2012

Exploratory assessments conducted in 2009 and 2010 were not considered a basis for advice.

MSY approach

There is no assessment available to alter the perception of the depleted nature of the stock. Therefore there is no non-zero catch option that is compatible with the ICES MSY framework.

PA approach

ICES reiterates the precautionary advice it gave in 2008, for 2009 and for 2010 that "given the state of the stock, no targeted fishing for porbeagle should be permitted and bycatch should be limited and landings of porbeagle should not be allowed."

Policy paper

In the light of the EU policy paper on fisheries management (17 May 2010, COM(2010) 241) this stock is classified under category 6. This implies a TAC=0 in 2011 and in 2012.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

STECF also agrees with ICES that it should be a requirement for all countries to document all incidental by-catches of this species.

STECF also notes that the data used by ICES and ICCAT are not identical and therefore may lead to slightly different perceptions of the stock status. STECF stresses that compiling the datasets for the various fisheries separately is essential to provide the best possible assessment of the state of the stock.

7.10. Thresher shark *(Alopius vulpinus and Alopius superciliosus)* in the North East Atlantic

The stock summary and advice for thresher shark in the North East Atlantic will not be updated in 2011. The text below relates to the most recent advice from ICES which was issued in 2010.

Two species of thresher shark occur in the ICES areas: common thresher (*Alopias vulpinus)* and bigeye thresher (*A. superciliosus).* Of these, *A. vulpinus* is the dominant species taken in the continental shelf fisheries of the ICES area. There is little information on the stock identity of these circumglobal sharks, and WGEF assumes that there is a single NE Atlantic and Mediterranean stock of *A. vulpinus*. This stock probably ex-tends into the CECAF area. The presence of a nursery ground in the Alboran Sea provides the rationale for including the Mediterranean Sea within the stock area.

There are no target fisheries for thresher sharks in the NE Atlantic; although they are taken as a bycatch in longline and driftnet fisheries. Both species are caught mainly in longline fisheries for tunas and swordfish, although they may also be taken in drift-net and gillnet fisheries. The fisheries data for the ICES area are scarce, and they are unreliable, because it is likely that the two species (*Alopias vulpinus* and *A. superciliosus*) are mixed in the records.

ICCAT is responsible for the management of this species in the tuna fisheries.

ICES have never provided advice for this stock.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF has no comments.

7.11. Blue shark (*Prionace glauca*) in the North East Atlantic

The stock summary and advice blue shark in the North East Atlantic will not be updated in 2011. The text below relates to the most recent advice from ICES which was issued in 2010.

The DELASS project and the ICCAT Shark Assessment Working Group consider there to be one stock of blue shark *Prionace glauca* in the North Atlantic. Thus the ICES area is only part of the stock. ICCAT, 2008 considered that the 5°N parallel was the most appropriate division between North and South Atlantic stocks of blue shark.

In recent years, more information has become available about fisheries taking blue shark in the North Atlantic. Although the available data are limited, it offers some information on the situation in fisheries and trends. Although there are no large-scale directed fisheries for this species, it is a major bycatch in many fisheries for tunas and billfish, where it can comprise up to 70% of the total catches and thereby exceed the actual catch of targeted species.

ACOM has never provided advice for blue shark in the ICES area. ICCAT is the responsible agency for assessment of this species. No specific management advice has been provided by ICCAT for this stock, to date.

Regarding the stock assessment of blue shark of the North and South Atlantic carried out in 2008, ICCAT estimated that the biomass is above MSY. As in the 2004 stock assessment, many runs of the model (using surplus production models, age-structured models and models without catches), the state of the stock seems to be close to the levels of unexploited biomass and the fishing mortality rates seem to be considerably below the level to attain MSY. Although the results of all the models used are conditional on the assumptions considered (for example, historical estimates of the catches and effort, the relationship between catch rates and abundance, the initial status of the stock in the 1950s and the various life cycle parameters), the majority of the models predicted, from a coherent mode, that the blue shark stocks are not over-exploited and that over-fishing is not occurring.

There are no measures regulating the catches of blue shark in the North Atlantic. EC Regulation No. 1185/2003 prohibits the removal of shark fins of this species, and subsequent discarding of the body. This regulation is binding on EC vessels in all waters and non-EC vessels in Community waters.

ICCAT is responsible for the management of this species in the tuna fisheries.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF has no comments.

7.12. Deep-water fish (several species) in IVA, IIIa, Vb, VI, VII, VIII, IX, X and XII.

GENERAL COMMENTS AND DESCRIPTION OF FISHERIES

The term 'deep-water' is defined by ICES to include waters of depths greater than 400 m. Deep water in the ICES area covers the deep parts of ICES Sub-areas I, II, III, V-X, XII, and XIV. However, some of the species included as deep-water species in the management advice by ICES are also distributed in more shallow waters, e.g. ling and tusk. Other species/stocks, which have similar depth distributions, e.g. anglerfish and Greenland halibut, are already assessed by ICES in area-specific assessment working groups.

Deep-water covers a huge area from the Arctic north to the sub-tropical south. It also covers ridges and underwater seamounts often with a quite unique biology. Productivity is very low in the deep-water. The diversity of deep-water life history strategies is considerable, but many species of fish targeted by fisheries are particularly vulnerable to disturbance because they grow slowly, mature late in life, and form aggregations easily accessible to fisheries. Recovery rates are much slower than in shallower waters. The knowledge of central biological characteristics such as stock identity, migration, recruitment, growth, feeding, maturation, and fecundity of most deep-water species still lags considerably behind that of commercially exploited shelf-based species. Such information is required to expand our understanding of the population dynamics of deep-water fishes, which in turn is required to underpin stock assessments.

Fisheries data including length and age compositions, discards, and cpue, are slowly increasing for deep-water stocks but time-series data are often short and are not available in sufficient spatial resolution for some stocks e.g. orange roughy and alfonsinos. VMS data are not readily available for most fleets.

In many cases, information on stock structure of deep-water species is lacking. This year, ICES provides advice on separate stocks of tusk (*Brosme brosme*) on the basis of new genetic evidence considered in 2007, but for the other species there is no conclusive information on stock structure. In those cases "management units" have been used that have previously been suggested on the basis of distribution, life history and biological parameters, and bathymetrical considerations.

Fisheries on deep-water species have developed rapidly and the resources they exploit are generally especially vulnerable to over-fishing. Within the ICES area species/stocks have been depleted before appropriate management measures have been implemented e.g. orange roughy. It is also of concern that the landings statistics available may not reflect the true scale of the recent fishing activity, especially in waters outside national EEZs.

In ICES Division IVa there is a by-catch of Greater silver smelt (*Argentina silus*) in the industrial trawl fishery and a longline fishery targets tusk (*Bosme brosme*) and ling with forkbeard (*Phycis blennoides*) and grenadier as by-catch. Some deepwater species are landed as by-catch in the trawl fisheries targeting anglerfish and Greenland halibut.

In ICES Division IIIa there is a targeted trawl fishery for roundnose grenadier (*Coryphaenoides rupestris*) and greater silver smelt. Several deep-water species are also taken as by-catch in, for instance, the trawl fisheries for northern shrimp.

In ICES Sub-area V there are trawl fisheries targeting blue ling, redfish species, argentine and orange roughy (*Hoplostethus atlanticus*), which have as by-catch a great number of other deep-water species. There are also traditional longline fisheries for ling and tusk, and trawl and gill net fisheries for Greenland halibut and anglerfish.

In ICES Sub-areas VI and VII there are directed fisheries for blue ling, roundnose grenadier, orange roughy, black scabbardfish and deep-water sharks.

In Sub-area VIII there is a longline fishery, which mainly targets greater forkbeard, and trawl fisheries for hake, megrim, anglerfish and *Nephrops* which have a by-catch of deep-water species.

In ICES Sub-area IX some deep-water species are a by-catch of the trawl fisheries for crustaceans. Typical species are bluemouth (*Helicolenus dactylopterus*), greater forkbeard, conger eel (*Conger conger*), blackmouth dogfish

(*Galeus melastomus*), kitefin shark (*Dalatias licha*), gulper shark (*Centrophorus granulosus*) and leafscale gulper shark (*Centrophorus squamosus*). There is a directed longline fishery for black scabbard fish (*Aphanopus carbo*) with a by-catch of the Portuguese dogfish (*Centroscymnus coelolepis)* and leafscale gulper shark (*Centrophorus squamosus)*. There is also a longline (Voracera) fishery for red (blackspot) seabream *Pagellus bogaraveo*.

In ICES Sub-area X the main fisheries are by handline and longline near the Azores, and the main species landed are red (blackspot) seabream (*Pagellus bogaraveo*), wreckfish (*Polyprion americanus*), conger eel, bluemouth, golden eye perch (*Beryx splendens*) and alfonsino (*Beryx decadactylus*). At present the catches of kitefin shark are made by the longline and handline deepwater vessels and can be considered as accidental. There are no vessels at present catching this species using gillnets. Outside the Azorean EEZ there are trawl fisheries for golden eye perch, orange roughy, cardinal fish (*Epigonus telescopus*), black scabbard fish, and wreckfish .

In ICES Sub-area XII there are trawl fisheries on the mid-Atlantic Ridge for orange roughy, roundnose grenadier, and black scabbard fish. There is a multispecies trawl and longline fishery on Hatton Bank, and some of this occurs in this sub-area, some in Sub-area VI. There is considerable fishing on the slopes of the Hatton Bank, and effort may be increasing. Smoothheads (*Alepocephalus* spp.) were previously usually discarded but now feature to a greater extent in the landings statistics.

In ICES Sub-area XIV there are trawl and longline fisheries for Greenland halibut (*Rheinhardtius hippoglossoides*) and redfish that have by-catches of roundnose grenadier, roughhead grenadier (*Macrourus berglax*) and tusk.

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

REFERENCE POINTS: Precautionary reference points have not been defined for these stocks.

STOCK STATUS: No update or benchmark stock assessments could be made in 2011, and information on exploitation rates remains uncertain. The information on stock status of deep-water species derives from different sources. In many cases the main source of information is catch rates from the commercial fisheries, although in some cases there is also information from research surveys. A number of research surveys have been initiated in recent years, and these are expected to aid the future knowledge on these species.

MANAGEMENT MEASURES Some fisheries are regulated by unilateral or internationally agreed TACs and these may have reduced exploitation/curbed expansion.

In the NEAFC regulatory area, NEAFC has in recent years introduced measures requiring that effort should be reduced by a total of 35% by 2008 and the EU introduced measures in 2006 that set effort for vessels holding deepwater licences to 80% of the 2003 level.

RECENT MANAGEMENT ADVICE: For a number of deep-water and elasmobranch stocks, the new information available since the last advice in 2006 is too sparse to warrant new advice. This generally refers to situations where only landings information is available from which stock status cannot be derived. In those cases, ICES presents the updated (landings) information but reiterates the advice provided in 2006 and does not provide the full descriptions of the background of the fisheries and the assessment. To improve the knowledge base on these stocks, it is vital to develop indicators of abundance (i.e. surveys, cpue) and/or indicators of exploitation (i.e. fishing mortality and/or fishing effort).

Deep-water stocks have previously been classified by ICES (ICES, 2005) on the basis of longevity and growth rate.

Only in very rare cases did ICES have information on indicators for exploitation pressure (e.g. fishing mortality). The approach to the ICES advice on deep-water species has been largely driven by the interpretation of the available abundance indicators (cpue or survey indicators) and the classification according to life history parameters:

- For species in cluster 1 (highly vulnerable)
    - When cpue information shows declines and life history information indicates that species are highly vulnerable, ICES generally recommends no catches of that species.
- For species in cluster 2 (less vulnerable)
    - When recent cpue is much lower than historical cpue, ICES generally recommends a reduction in catch or a low catch, maintaining that level until there is sufficient information that the species can sustain higher exploitation.

- When cpue information shows no clear trend, ICES generally recommends recent average catches.
- When surveys show a clear increase in abundance, ICES generally recommends no increase in current catches.

ICES reiterates that effort should be a driving management tool in these mixed deep-water fisheries. However, in the absence of pressure indicators, ICES has attempted to interpret the available landings and cpue data in a way that could be useful even when effort information is not available. The perceived tendency of the stock indicators (cpue, surveys) has been used to argue for the suggested changes to the landings. While acknowledging that a one-to-one relationship between catches and effort is unlikely ICES, in the absence of information, considers that the suggested reductions in landings would result in reductions of effort.

The ICES advice for deep-water species is provided every second year. The advice is applicable for 2011 and 2012.

These have been supplemented by new advice arising from recent requests to ICES made by NEAFC. New ICES advice on deep-water species will be provided in 2012.

STECF COMMENTS: STECF agrees with the ICES recommendation and considers the proposals as a constructive way forward in the light of uncertainties on the states of these stocks and the likely risks to them. STECF notes that appropriate sustainable exploitation rates for most deepwater species have not been determined and the risks associated with current fishing effort are not quantified. Given the biology of many of these species, very low exploitation rates or zero fishing are likely to be advised in most cases.

STECF once again reiterates its comment that management measures based on effort/fleet regulation are a more appropriate long-term approach for management of these fisheries and consequently fisheries based advice, in addition to that currently given, has value. STECF notes that in its advice for some species, ICES groups together stock components that are characterised by a shortage of data rather than on a biological basis. STECF suggests that in order to provide rational fisheries based advice, there is a need to define groupings, which have a spatial coherence that facilitates management. STECF further suggests that continued efforts should be made to define biological units based on, for example, genetic studies.

ICES has commented in 2006 on the precautionary reference points used for some stocks. Reference points that were previously suggested were: $\mathbf{U}_{lim}$= 0.2* $\mathbf{U}_{max}$ and $\mathbf{U}_{pa}$= 0.5* $\mathbf{U}_{max}$ (where U is the index of exploitable biomass). The ICES SGPA and NAFO proposed these reference points in 1997 for use in data poor situations. However, for most stocks ICES does not consider the available cpue series as suitable for defining $\mathbf{U}_{max}$ because the series are too short and U_{max} is not an index virgin biomass. STECF agrees that this is a valid point but in a data-poor situation and in the precautionary context, these reference points are likely to the best available for these stocks, even though they may underestimate depletion/overestimate recovery in relation to actual U_{max}.

STECF notes that in any scheme to reduce existing fisheries in the short-term, attention would need to be paid to potential effort displacement into other neighbouring fisheries on the continental shelf. STECF further notes that several of these deep-water fisheries take place in international waters outside national or EU jurisdiction. Hitherto this has rendered it difficult to enforce management measures for these fisheries.

7.13. Alfonsinos/Golden eye perch (*Beryx* spp.)

The most recent advice for this stock was provided by ICES in 2010 and applies to 2011 and 2012. Hence, the text remains unchanged from the Consolidated STECF Review of Advice for 2011.

FISHERIES: The section deals with two species, *Beryx splendens* and *B. decadactylus.*

Most of the landings of *Beryx* spp. are from hand-lines and long-lines within the Azorean EEZ of Sub-area X and by trawl outside the EEZ on the Mid-Atlantic Ridge. The trawl fishery landings refer to both species combined. The general absence of data on species composition of the catches and biological parameters are important limiting factors for the knowledge of these fish stocks. Underreporting of catches from international waters is suspected.

Alfonsinos aggregate in shoals, often associated with seamounts, and fisheries have, historically, had high catch rates once the shoals are located. As a consequence of this spatial distribution, their life-history and aggregation

behaviour, these species can only sustain low rates of exploitation; localized sub-units of the population can be quickly depleted, even within a single season. To prevent depleting localised aggregations that have not yet been mapped and assessed, ICES has advised that the exploitation of new seamounts should not be allowed.

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

STOCK STRUCTURE: For both species the stock structure is uncertain. They are distributed over a wide area, and may be composed of several populations.

REFERENCE POINTS: No precautionary reference points have been proposed for the stock(s) of Alfonsino/golden eye perch in the North East Atlantic, due to the lack of appropriate data.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

Assessment data are sparse and reliable assessments are not possible at present. The most recent data (2008 and 2009 landings) do not change the perception of the stock.

RECENT MANAGEMENT ADVICE:

The current ICES advice for the fishery, first given in 2008, is that these fisheries should not be allowed to expand. Further a reduction in catches should be considered until such time there is sufficient scientific information to prove the fishery is sustainable.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice. STECF notes that a TAC for 2012 has already been agreed.

7.14. Ling (*Molva molva*)

The most recent advice for this stock was provided by ICES in 2010 and applies to 2011 and 2012. Hence, the text remains unchanged from the Consolidated STECF Review of Advice for 2011.

FISHERIES: Ling is primarily fished in the depth range 200-500 m, though it is also found in shallower depths. This species does not have such extreme low productivity and high longevity as typical deep-water species, though specific data for many areas are lacking. The major fisheries are the longline and gillnet fisheries, but there are also by-catches in other gears, i.e. trawls and handline.

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

STOCK STRUCTURE: There is insufficient scientific information to establish the extent of putative stocks; however, ling may be sufficiently isolated at separate fishing grounds to be considered as individual management units. On this basis ICES advice is presented for the following management units:

- Divisions I and II (Arctic)
- Va (Iceland)

- Vb (Faroes)
- IIIa, IVa, VI, VII, VIII, IX, XII, and XIV (other areas).

7.14.1. Ling (*Molva molva*) in Divisions I and II (Arctic)

REFERENCE POINTS: No reference points have been set for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

While no reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected, the interpretation of the information of the stocks has changed since the 2008 advice. This has been due to the separation of the cpue series into a number of different gears whose effort series are no longer comparable through time. Catches since 2000 do not appear to have had a detrimental effect on the stock as the cpue has steadily increased over the period.

RECENT MANAGEMENT ADVICE: ICES has advised that catches are constrained to 8000 t until such time as there is sufficient scientific information to prove the fishery is sustainable. (Note: preliminary catches in 2009 were 8,406 tonnes)

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

7.14.2. Ling (*Molva molva*) in Va (Iceland)

REFERENCE POINTS:

No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

No reliable assessment is available for this assessment unit and fishing possibilities cannot be projected, however the available 2008-2009 data (landings, survey, and cpue) do not change the perception of the stock. A 'survey trends' based assessment is conducted; this is based on trends in the Icelandic March groundfish survey. Surveys indicate that the overall biomass is currently relatively high in the available time series although it has declined in recent years. The overshoot in the agreed TAC for ling (for the Icelandic fleet) is a result of the allowed, albeit limited, ITQ exchange of one species for another. While this has the objective of limiting discarding and misreporting, for relatively small stocks with small TAC, it may result in serious overfishing in the long-term.

RECENT MANAGEMENT ADVICE: The advice for the fishery, given in 2008, remains appropriate: ICES recommends constraining catches to 7500 t (recent average 2006-2007) , until such time there is sufficient scientific information to prove the fishery is sustainable. (Preliminary landings for 2009 are 10,942 tonnes).

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

7.14.3. Ling (*Molva molva*) in Vb (Faroes)

FISHERIES: The major fishery are the Faroese and Norwegian longline fisheries, but there are also bycatches by other gears, including trawls, gillnet, and handline. In recent years Faroese landings have accounted for about 60 to 70% of the total landings, of these around 60% are taken by longline, partly in directed ling fisheries, and 40% as bycatch by trawlers in fisheries for other groundfish. The Norwegian longliners catches have been declining for the last 3 years and take about 30-40% of the total ling landings. Other nations catch ling as a bycatch in trawl fisheries, contributing about 1 to 2% of total landings.
REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	**2008**	**2009**
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

Stability in landings and trends in abundance indices suggest that ling in Division Vb has been stable since the middle of the 1980's, however historical levels of the stock are uncertain.

RECENT MANAGEMENT ADVICE: ICES advises that effort should not increase and that a reduction in catches should be considered in order to be consistent with MSY.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

7.14.4. Ling (*Molva molva*) in IIIa, IVa, VI, VII, VIII, IX, XII, and XIV (Other areas)

FISHERIES: The major directed fishery for ling in Divisions IVa and Subarea VI is by Norwegian longline. The bulk of the landings from other countries are bycatches in trawl fisheries mainly directed at roundfish or deep-sea species. The landings from the central and southern North Sea (IVb,c) are bycatches in various other fisheries. In Subarea VII the main landings are generated by Norwegian and some Spanish longline fisheries. In Subareas VIII, IX, XII, and XIV all landings are bycatches in various fisheries.

REFERENCE POINTS: No reference points are defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

While no reliable assessment is available for this assessment unit and fishing possibilities cannot be projected, the historic cpue data suggest that the stock was stable between 2003 and 2008. The current interpretation is based on a revision of the cpue series does not suggest a decline in the stock, nor does current exploitation appear to be detrimental to the stock. However recent levels of exploitation, relative to historic levels, are unknown.

RECENT MANAGEMENT ADVICE: ICES advises that catches in these Subareas should be kept at the level of the average catch during the period 2003 - 2008 (15 000 t) and further advises that a reduction in catches should be considered in order to be consistent with the MSY

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

7.15. Blue Ling (*Molva dypterygia*).

FISHERIES: The majority of landings are from the Norwegian coast (II), Iceland (Va), Faroes (Vb), west of Scotland and Rockall Trough (VI) and the Mid-Atlantic Ridge and Hatton Bank (XII). Landings from the west of Ireland and Western Approaches (VII) and further south are very small. A major part of this fishery is on spawning aggregations. Landings from Division IIa are mainly catches in a gillnet fishery off mid-Norway, elsewhere this species is taken mainly as by-catch in trawl fisheries.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. No reliable analytical assessments are available.

STOCK STRUCTURE: There is insufficient scientific information to establish the extent of putative stocks; however, blue ling may be sufficiently isolated at separate fishing grounds to be considered as individual management units. On this basis advice is presented for the following management units:

- Subdivisions Va and XIV (Iceland and Reykjanes ridge);
- Subdivisions Vb,VI, and VII (Faroes Rockall and Celtic shelf); and

- Subdivisions I, II, IIIa, IVa, VIII, IX, and XII.

The latter grouping is a combination of isolated fishing grounds and thus these areas are grouped due to lack of data.

Blue ling is more vulnerable to over-exploitation than ling due to a slower growth rate and higher age at first maturity. It is particularly susceptible to rapid local depletion due to its highly aggregating behaviour during spawning. Ageing is a problem in this species, and thus age-structured analytical assessments are unlikely in the short-term.

7.15.1. Blue Ling (*Molva dypterygia*) in Va and XIV

FISHERIES: Blue ling, a gadoid species that grows faster than most deep-water species, is particularly vulnerable to exploitation (fisheries can target the spawning aggregations) and an opportunistic fishery on spawning aggregations account for pulses in landings in the early 1980s and in 1993. Two closed areas to protect spawning aggregations in Division Va were introduced in 2003. Currently it is mostly taken as a bycatch in fisheries for cod, haddock, and saithe in Division Va, however in 2008 and 2009 longliners have started targeting blue ling in Division Va.

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	**2008**	**2009**
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

No reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected. Current data (landings and survey) show an increase in abundance since 2000 and although the time-series is relatively short it contains useful measurements that indicate that the stock has not decreased in recent years. However catches have increased at a higher rate than the survey indices, resulting in estimates of increasing exploitation rate.

RECENT MANAGEMENT ADVICE: ICES advises, as it did in 2008, that there should be no directed fisheries for blue ling in Division Va and Subarea XIV and measures should be implemented to minimize catches in mixed fisheries. Blue ling is susceptible to sequential depletion of spawning aggregations and closed areas to protect spawning aggregations should therefore be maintained and expanded where appropriate.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

7.15.2. Blue Ling in Vb, VI and VII

REFERENCE POINTS: No reference points are defined available for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

While no reliable assessment can be presented for this assessment unit, the cpue indices indicate that the current abundance of the stock is much lower than the initial level prior to the fishery. In the last 10 years there is no obvious response from the stock to the fishery.

RECENT MANAGEMENT ADVICE:

ICES advises that there should be no directed fisheries for blue ling in Subdivision Vb, and Subareas VI, and VII and an effort should be made to limit bycatch in the mixed fishery and that a reduction in catches should be considered in order to be consistent with MSY.

ICES also point out that blue ling is susceptible to sequential depletion of spawning aggregations and advise that current closed areas to protect spawning aggregations should be maintained, with new closed areas identified and implemented where appropriate. In addition ICES has suggested that;

- the EU management unit for this stock should be expanded to include the western part of Hatton Bank (ICES Division XIIb) as this is contiguous with the eastern part of Hatton Bank (ICES Division VIb).
- the EU part of Division Vb be part of the TAC area corresponding to the stock assessment unit (e.g. Subdivision Vb, and Subareas VI and VII) instead of being included in the EU TAC for II and IV.

In 2009, EU protection areas were introduced for spawning aggregations of blue ling on the edge of the Scottish continental shelf and at the edge of Rosemary Bank (both in Division VIa). Entry/exit regulations apply and vessels cannot retain >6 t of blue ling from these areas per trip. On retaining 6 t vessels must exit and cannot re-enter these areas before landing. These vessels cannot discard any quantity of blue ling. Consequently, there remains some directed fishing for blue ling. The effectiveness these protection areas on reducing catches from directed fishing should be examined.

In 2008, NEAFC requested ICES to compile data on documented spawning/aggregation areas in the NEAFC Convention Area. Five main areas of spawning for southern blue ling (Vb, VI, VII and XIIb) were identified:

- along the continental slope to the NW of Scotland in VIa (EU waters).
- on, and around, and to the NW of Rosemary Bank mainly in VIa (EU waters).
- on the southern and SW margins of Lousy Bank in VIb and Vb (NEAFC Regulatory Area/EU waters/Faroese waters).
- on the NE margins of Hatton Bank (NEAFC Regulatory Area)
- eastern and southern margins of the Hatton Bank in VIb and XIIb (NEAFC Regulatory Area).

There is already a closed area on Hatton Bank to protect cold-water corals and this has recently been extended. This should be scrutinized to determine the extent of protection afforded to spawning aggregations of blue ling, and if necessary extended further.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

In addition STECF notes that the additional information available on spawning aggregations of blue ling is sufficient to identify specific spawning aggregations on Hatton Bank, Rosemary Bank, Lousy Bank and the continental slope to the NW of Scotland (see section11.1 of the STECF/PLEN-08-02 report).

7.15.3. Blue ling (*Molva dypterygia*) in other areas (I, II, IIIa, IVa, VIII, IX, and XII)

FISHERIES: Blue ling has been an important bycatch in trawl fisheries on the Hatton Bank (Division XIIb) while in other areas it is taken in small quantities.

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	**2008**	**2009**
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

No reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected, nor does the available new data (landings) change the perception of the stock.

Revisions in Spanish landings for Division XIIb (Hatton Bank) for the period 2004-2009 shows that the fishery in this area has not declined as much as had been previously reported, however trends in landings continue to suggest serious depletion in, at least, Subarea II.

RECENT MANAGEMENT ADVICE: While no reliable assessment can be presented for this assessment unit, and fishing possibilities cannot be projected, ICES advise that the new landings data do not change the perception of the stock or the appropriateness of the advice for the fishery given in 2008: There should be no directed fisheries for blue ling; management measures should be implemented to minimize bycatch in mixed fisheries; and closed areas to protect spawning aggregations should be maintained and expanded where appropriate". In addition a reduction in catches should be considered until such time there is sufficient scientific information to prove the fishery is sustainable.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

However, STECF notes that a TAC for 2012 for Division II and IV (56t) and for IIIa (8t) has already been agreed.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

7.16. Tusk (*Brosme brosme*)

FISHERIES: Tusk is primarily fished in the depth range 200-500 m, though it is also found at shallower depths. Tusk is more vulnerable to overexploitation than ling due to a slower growth rate and higher age at first maturity. The majority of landings are from ICES sub-areas IIa, IIIa, from along the Norwegian coast of IVa, Va (around Iceland), and Vb (around Faroe Islands). This species is taken mainly in long line fisheries, and most of the catches are by-catches in ling fisheries. Tusk is also taken as by-catch in bottom trawl fisheries.

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

STOCK STRUCTURE: This year, ICES provided advice on separate stocks of tusk on the basis of new genetic evidence considered in 2007. On this basis advice is presented for the following revised management units:

- I and II (Arctic)
- Division Va and Subarea XIV
- The Mid-Atlantic Ridge (Division XII excluding XIIb)
- Subarea VIb (Rockall)
- IIIa, IV, Vb,VIa, VII, VIII, IX, XIIb, . (This latter grouping is a combination of isolated fishing grounds and these areas are grouped due to their mutual lack of data.)

7.16.1. Tusk (*Brosme brosme*) in Divisions I and II (Arctic)

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

No reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected, however a reinterpretation of the historic cpue data suggest that recent catch levels (2005-2008) in Subareas I and II seem to have no detriment effect on the stock, however the level relative to historic level is unknown.

RECENT MANAGEMENT ADVICE: ICES advise that catches should be less than 9,900 t and a reduction below recent levels should be considered in order to be consistent with MSY.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

7.16.2. Tusk (*Brosme brosme*) in Division Va and Subarea XIV

REFERENCE POINTS: At present no reference points have been proposed for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

The ICES assessment of this stock indicates that recruitment has increased from a low level in 1995 and that there are indications that fishing mortality may have declined in recent years. Surveys indicate that the overall biomass is increasing but consists mostly of small individuals.

RECENT MANAGEMENT ADVICE: Surveys indicate that the overall biomass is increasing but consists mostly of small individuals. ICES advises that catches be constrained to 6,000 t or less as this will result in fishing mortality close to $F_{0.1}$ in 2011 and result in an increase in spawning stock biomass.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

7.16.3. Tusk (*Brosme brosme*) on the Mid-Atlantic Ridge (Division XII excluding XIIb)

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

Tusk is a bycatch species in the gillnet and longline fisheries in Sub-divisions $XIIa_1$ and $XIVb_1$. Russia reported catches of tusk in 2005, 2007 and 2009. During the period 1996-1997 Norway also had a fishery in this area.

NEAFC recommends that in 2009-2010 the effort in areas beyond national jurisdiction shall not exceed 65% of the highest level for deep-water fishing in previous years.

RECENT MANAGEMENT ADVICE: The 2008-2009 data (landings) for this stock give no reason to change the advice from that given in 2008: "*Fisheries should not be allowed to expand*" and measures should be considered to limit occasional high levels of bycatch, in order to be consistent with MSY

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

7.16.4. Tusk (*Brosme brosme*) in Subarea VIb (Rockall)

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

The state of the stock is unknown. ICES does however point out that its interpretation of available stock information has changed since 2008 *because the cpue was separate in different gears and effort is not comparable through time. Since 2000, automatic lines have been used and this information is the basis of the advice*.

RECENT MANAGEMENT ADVICE: The historic cpue data were reinterpreted and suggest that catches in Division VIb should be reduced by at least the rate of decline of the cpue.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

7.16.5. Tusk (*Brosme brosme*) in IIIa, IV, Vb, VIa, VII, VIII, IX, XIIb (Other areas)

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
4Precautionary approach (B_{pa}, B_{lim})	?	?	?

No reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected, however a reinterpretation of the historic cpue data suggest that recent catch levels during the period 2002 through 2008 (6 900 t) seem not to have had a detrimental effect on the stock.

RECENT MANAGEMENT ADVICE: ICES advises that catches in Divisions IIIa, Vb, VIa XIIb and Subareas IV, VII, VIII, IX in 2011 should be less than 6 900 t, and a reduction from recent levels catches should be considered in order to be consistent with MSY.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final.

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice.

The most recent advice for this stock was provided by ICES in 2010. Hence, the text remains unchanged from the Consolidate STECF Review of Advice for 2010.

7.17. Greater silver smelt or argentine (*Argentina silus*)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: Argentine is primarily fished in the depth range 100 to 700 m. The majority of landings are from ICES sub-areas IIa, IIIa, IVa along the Norwegian coast, Va (around Iceland), and Vb (around Faroe Islands). This species is taken mainly in long line fisheries, and most of the catches are by-catches in ling fisheries. This species is also taken as by-catch in bottom trawl fisheries. The Norwegian fishery accounts for the more than 50% of total catches.

SOURCE OF MANAGEMENT ADVICE: The main management advisory body is ICES. No reliable analytical assessment is available.

STOCK STRUCTURE: There is insufficient scientific information to establish the extent of putative stocks; however, argentine may be sufficiently isolated at separate fishing grounds to be considered as individual management units. On this basis advice is presented for the following management units:

- Sub-area Va (Iceland); and
- Sub-areas I, II, IIIa, IVa, Vb, VI, VII, VIII, IX, and XII (other areas).

The latter grouping is a combination of isolated fishing grounds and these areas are thus grouped due to their mutual lack of data.

7.17.1. Greater silver smelt (*Argentina silus*) in Va

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)

	2008	2009	**2010**
MSY ($B_{trigger}$)	?	?	?
4Precautionary approach (B_{pa}, B_{lim})	?	?	?

Stock definition for greater silver smelt remains unclear. The fishery in Division Va for greater silver smelt is largely driven by market factors and has expanded rapidly since 2007. Subsequently the fishery has changed from a small scale complementary fishery to the redfish fishery to a targeted fishery. More than 70% of greater silver smelt in Division Va is caught in hauls where it is 50% or more of the total catch of the haul. Apart from 1998 when landings reached 13 000 t, catches in Division Va ranged between 2 500-5 000 tonnes (1996-2007). Catches in 2008 amounted to 8 800 t and in 2009 to 11 000 t.

RECENT MANAGEMENT ADVICE: The 2008-2009 data (landings, survey and cpue) show a recent expansion with a targeted fishery. The increase in catch however is not based on a corresponding increase in fishable biomass and this led ICES to strengthen the advice given in 2008*: "Due to its low productivity, greater silver smelt can only sustain low rates of exploitation"*. The recently expanded (2008 and 2009) target fishery should be constrained. A suitable reference period prior to the expansion of the fisheries is 2001-2007.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS:

STECF agrees with the ICES assessment that the state of the stock is unknown, and the ICES advice that due to its low productivity, greater silver smelt can only sustain low rates of exploitation and that the recently expanded (2008 and 2009) target fishery should be constrained.

7.17.2. Greater silver smelt (*Argentina silus*) in other areas (I, II, IIIa, IV, Vb, VI, VII, VIII, IX, X, XII and XIV)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	**2008**	**2009**
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	**2010**
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

The state of the silver smelt resource in "other areas" is unknown. Catches increased considerably in recent years, but were reduced in 2003 in some areas, partly due to introduction of TAC management in EU waters. In Subarea VI the frequency of old fish (20+) in the catches declined significantly after a few years of target fisheries. Such changes suggest high exploitation rates.

RECENT MANAGEMENT ADVICE: The new data (landings and cpue) available give no reason to change the advice from that given in 2008: "Due to its low productivity greater silver smelt can only sustain low rates

of exploitation", and a reduction in catches should be considered, in light of survey data indicating a recent decline.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS:

STECF agrees with the ICES assessment that the state of the stock is unknown, and the ICES advice that due to its low productivity, greater silver smelt can only sustain low rates of exploitation and a reduction in catches should be considered, in light of survey data indicating a recent decline.

7.18. Black scabbardfish (*Aphanopus carbo*)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: Black scabbardfish is caught in two very different fisheries: (1) in waters off Mainland of Portugal (Division IXa) and (2) to the west of the British Isles. In the waters off Mainland of Portugal it is taken in a targeted artisanal longline fishery and CPUE data have been relatively stable over the years. To the west of the British Isles it is taken in a mixed species fishery, mainly in a French trawl fishery along with roundnose grenadier and sharks.

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

STOCK STRUCTURE: The stock structure is uncertain. This section deals with a species distributed over a wide area which may be composed of several populations. Three management units are considered:

northern (Sub-areas V, VI, VII, and XIIb);
southern (Sub-areas VIII and IX).
Other areas (Sub-areas I, II, IIIa, IV, X, and XIV)

REFERENCE POINTS: No precautionary reference points have been established for the stock(s) of this species.

STOCK STATUS: The status of the species is unknown. In the northern area, indicators show a decline in abundance since 1990. In the southern area indicators have been relatively stable during the past decade. In the other areas only very small catches have been taken. Due to its low productivity, black scabbardfish can only sustain low rates of exploitation.

RECENT MANAGEMENT ADVICE: Despite the lower landings in recent years, cpue in Areas Vb, VI, VII, and XIIb has declined to about 20% of its initial level. ICES recommends that catches should be constrained to 2000 t (50% of the level before the expansion of the fishery, 1993–1997). The fishery should not be allowed to expand unless it can be shown that it is sustainable.

Cpue in Subareas VIII and IX does not indicate any clear trends, but no information is available before 1996. Recent levels of catches do not appear to have had a negative impact. ICES recommends that catches in these areas should be constrained to 2800 t (average 2003–2007) and to collect information that can be used to evaluate a long-term sustainable level of exploitation.

The fishery in other areas should not be allowed to expand unless it can be shown that it is sustainable.

STECF COMMENTS:

STECF **recommends** that in order to reverse the observed decline in the stock of black scabbard in Vb, VI, VII and XIIb, a significant reduction in fishing mortality is required. STECF advises that if fully enforced, the measures advised by ICES may achieve such a reduction.

STECF **recommends** that an attempt be made to harmonise management measures for black scabbard in Vb, VI, VII and XIIb with those for other species taken in the mixed trawl fishery in these areas, particularly deep-water sharks and roundnose grenadier.

For black scabbard in other areas, STECF agrees with the ICES advice.

7.18.1. Black scabbardfish (Aphanopus carbo) in divisions Vb, XIIb and subareas VI and VII

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: In Subareas VI, VII, and XII, and Division Vb, black scabbardfish is mainly taken in mixed trawl fisheries along with roundnose grenadier and sharks, although some trawl fisheries can target specific species within the mixed fishery. Due to the mixed nature of the trawl fisheries in Subareas VI, VII, and XII, and Division Vb any measure taken to manage this species in these areas should take into account the advice given for other species taken in the same mixed fishery.

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

No reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected. Whereas in the last 10 years there is not an obvious response from the stock to the fishery it is not known if this catch level is sustainable in the long term. The cpue index indicates that the current abundance of the stock is around 20% of the initial levels (start of the fishery). Under these circumstances there should be no increase in the exploitation above the previously advised landings, and catches should be constrained to 2000 t (50% of the level before the expansion of the fishery, 1993-1997).

RECENT MANAGEMENT ADVICE: ICES advises that under current circumstances "there should be no increase in the exploitation above the previously advised landings, and catches should be constrained to 2000 t (50% of the level before the expansion of the fishery, 1993-1997)".

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011 and 2012.

STECF notes that for 2012 a TAC of 2179 t for black scabbardfish in divisions V, VI, VII and XII has already been agreed.

7.18.2. Black scabbardfish (Aphanopus carbo) in ICES subareas VIII and IX

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

No reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected, however lpue series of Division IXa suggest that the biomass has been relatively stable since 1995. (Madeira and Canary Islands are the only known spawning areas of this species in the Northeast Atlantic).

RECENT MANAGEMENT ADVICE:
Data for 2008 and 2009 (landings and cpue) do not change the perception of the stock. Therefore, the advice for the fishery given in 2008 is still appropriate: "*Cpue in Subareas VIII and IX does not indicate any clear trends, but no information is available before 1996. Recent levels of catches do not appear to have had a negative impact. ICES recommends that catches in these areas should be constrained to 2800 t.*

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011 and 2012.

STECF notes that for 2012, a TAC of 3 348 t for black scabbardfish in subareas VIII, IX and X has already been agreed.

7.18.3. Black scabbardfish (Aphanopus carbo) in other areas

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

REFERENCE POINTS: No reference points have been defined for this assessment unit.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa}, B_{lim})	?	?	?

No reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected.
Data for 2008 and 2009 (landings) do not change the perception of the stock.

RECENT MANAGEMENT ADVICE: The current ICES advice for the fishery, first given in 2008, is that these fisheries should not be allowed to expand. Further a reduction in catches should be considered until such time there is sufficient scientific information to prove the fishery is sustainable.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011 and 2012.

STECF notes that for 2012, a TAC of 9 t for black scabbardfish in subareas I, II, III and IV has already been agreed.

7.19. Greater forkbeard (*Phycis blennoides*)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: The landings of greater forkbeard are mainly bycatch from demersal trawl and longline fisheries targeting species such as hake, megrim, monkfish, ling, and blue ling. Since 1988, around 80% of landings came from Subareas VI and VII, and (12%), from Subareas VIII and IX (mainly from VIII). Fluctuations in landings are probably the result of changing effort on different target species and/or market prices and may not necessarily be linked with changes in forkbeard abundance.

TACs are set separately for a) ICES subareas I, II, III and IV, b) ICES subareas V, VI and VII, c) ICES subareas VIII and IX and d) ICES subareas X and XII.

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

REFERENCE POINTS: No reference points have been established for the stock(s) of this species.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

The biomass index for Division VIa has fluctuated without any consistent trend since 2000 however the Spanish survey on Porcupine Bank indicates a decline from 2005 onwards. It is unclear whether the current level of exploitation is having a detrimental effect on the stock. The time series are short and recent levels are not known relative to historic values.

RECENT MANAGEMENT ADVICE: No reliable assessment can be presented for this stock and fishing possibilities cannot be projected. The 2008-2009 data (landings, surveys and cpue) give no reason to change the advice from that given in 2008: *Fisheries on greater forkbeard should be accompanied by programmes to collect data. The fishery should not be allowed to expand unless it can be shown that it is sustainable,* and a reduction in catches should be considered, in light of survey data indicating a recent decline.

Fishery should not be allowed to expand, and a reduction in catches should be considered, in light of survey data indicating a recent decline.

Considering the mixed-fishery characteristic of greater forkbeard fisheries, this species should not be managed in a single-species context and any advice should take into account advice on other species/fisheries.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

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

STECF notes that for 2012 the following TACs have already been agreed for greater forkbeard in subareas I, II, III and IV of 31 t, for subareas V, VI and VII of 2028 t, subareas VIII and IX of 267 t and subareas X and XII of 54 t.

7.20. Orange roughy (*Hoplostethus atlanticus*)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: The directed fishery for orange roughy aggregations west of Ireland in Sub-area VII has now ceased. The fishery in Sub-area VI has decreased dramatically since the depletion of the main aggregation on the Hebrides Terrace Seamount in the early 1990s and there has not been a major directed fishery since 2002. Faroese fisheries in Sub-areas VI, XII, and X have ceased and so has an Icelandic fishery in Division Va.

In Sub-area XII, the Faroes dominated the fishery throughout the 1990s, with small landings by France. In recent years, New Zealand and Ireland have targeted orange roughy in this area. There are many areas of the Mid-Atlantic Ridge where aggregations of this species occur, but the terrain is very difficult for trawlers.

Landings have declined to low levels in each management area (VI, VII, and other sub areas).

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

STOCK STRUCTURE: It is not known if individual aggregations are reproductively distinct.

REFERENCE POINTS: No reference points have been established for the stock(s) of this species.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

Orange roughy catches in Subarea VI increased rapidly and subsequently dropped. Orange roughy cpue in Subarea VI has shown a strong declining trend since early 1990s. It is presumed that the aggregations were fished out.

Orange roughy fisheries in Subarea VII have exhibited a similar pattern to that in VI. High catches have not been sustained by individual fleets and have dropped to low levels, suggesting sequential depletion. Orange roughy cpue in Subarea VII has shown a strong declining trend since the early 1990s. It is unclear if there are unfished aggregations remaining in Subarea VII.

RECENT MANAGEMENT ADVICE:

No directed fisheries for this species and measures to minimize bycatch should be taken.

No reliable assessment can be presented for this stock and fishing possibilities cannot be projected. The new survey data available do not change the perception of the stock. Therefore, the advice for the fishery given in 2008 is still appropriate: *Due to its very low productivity, orange roughy can only sustain very low rates of exploitation. Currently, it is not possible to manage a sustainable fishery for this species. ICES recommends no directed fisheries for this species. Bycatches in mixed fisheries should be as low as possible.*"

A zero TAC without allowing a bycatch can potentially lead to discarding if existing fisheries overlap with the distribution of orange roughy. A preliminary examination of French observer data does not suggest that bycatch and discarding of orange roughy is currently significant. In order to protect the species, careful monitoring of the spatial overlap of existing fisheries with the distribution of orange roughy, coupled with the collection of fisheries dependant and independent data (observer programme and surveys) is required.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment of the state of the stock and the advice for 2011 and 2012.

STECF notes that for 2012 a TAC of 0 t for orange roughy has already been agreed.

7.21. Roundnose grenadier (*Coryphaenoides rupestris*)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: The majority of international landings are from the Skagerrak (III), Faroes (Vb), west of Scotland and Rockall Trough (VI), west of Ireland and Western Approaches (VII) and the Mid-Atlantic ridge and western Hatton Bank (XII). In most areas, roundnose grenadier is the target species of mixed trawl fisheries.

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

STOCK STRUCTURE: This section deals with a species distributed over a wide area, which may be composed of several populations. The scientific basis for stock identification is uncertain. The Wyville-Thomson Ridge and fjord sills, between Western Scotland and the edge of the North Sea slope, could be natural physical boundaries. It is therefore considered that the northern North Sea and the Norwegian Deep could represent a separate unit. The roundnose grenadier on the Mid-Atlantic Ridge and the Hatton Bank are separated by a major oceanic basin and may constitute separate units. This would indicate that the units could be split as:

- Divisions IIIa;
- Divisions Vb, VI, VII, and XIIb (Hatton bank);
- Mid-Atlantic ridge (Subdivisions Xb, XIIc, Va1, XIIa1, and XIVb1) ;
- All other areas (I, II, IV, Va2, VIII, IX, XIVa, XIVb2).

7.21.1. Roundnose grenadier (*Coryphaenoides rupestris*) in Division IIIa

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

REFERENCE POINTS: No reference points have been established for the stock(s) of this species.

STOCK STATUS:

F (Fishing Mortality)

	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

It has not been possible to assess the status of the stock. No directed fishery has taken place since 2007. A decrease in mean length in the catch from 1987 to 2004 and 2005 indicates heavy exploitation on this stock.

RECENT MANAGEMENT ADVICE:

No reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected. The advice given in 2008 is still appropriate: *constrain catches to 1000 t, which corresponds to the catch level before the expansion of the fishery (1988 1991)* and the fishery should not be allowed to expand beyond this level. The reestablishment of a fishery should be accompanied with monitoring programme to assure exploitation consistent with MSY.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

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

STECF notes that for 2012 a TAC of 850 t for roundnose grenadier in division III has already been agreed.

7.21.2. Roundnose grenadier (*Coryphaenoides rupestris*) in Subareas VI and VII and in Divisions Vb and XIIb

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

REFERENCE POINTS: No reference points have been established for the stock(s) of this species.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

Abundance indices suggest this stock has been stable at low levels in recent years (2003-2009) after a prior period (1988-2003) of strong decline in biomass. Landings are currently well below the agreed TACs for Vb, VI, VII and XIIb. This situation might change from 2010 with the enforcement of EU council regulation 1288/2009 which constrains fishing vessels to land their discards.

RECENT MANAGEMENT ADVICE:

No reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected.

The 2008-2009 data (landings and cpue) do not change the perception of the stock. Therefore, the advice for the fishery given in 2008 is still appropriate: *Due to its low productivity, roundnose grenadier can only sustain low rates of exploitation. Cpue in the areas has been at a reduced level. ICES recommends that catches should be constrained to 6000 t (50% of the level before the expansion of the fishery, 1990- 1996.* A further reduction in catches from recent levels should be considered in order to be consistent with MSY.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS:

STECF notes that for 2012 a TAC of 2546 t for roundnose grenadier in Subareas VI and VII and in division Vb has already been agreed.

STECF **recommends** that in order to reverse the observed decline in the stock of roundnose grenadier in Vb, VI, VII and XIIb, a significant reduction in fishing mortality is required. STECF notes the dramatic decline in the landings of roundnose grenadier from this area from a level of 50,000 t in 2001 to between 8,000 and 9,000 t in 2008 and 2009.

To ensure a significant reduction in fishing mortality STECF reiterates its previous advice that it may be necessary to ensure that catches are lower than the TAC advised by ICES.

Given that roundnose grenadier is taken in a deepwater mixed fishery, there is a need to harmonise management measures to account for the management requirements for other species taken.

7.21.3. Roundnose grenadier (*Coryphaenoides rupestris*) on the Mid-Atlantic ridge (Xb, XIIc, Va1, XIIa1, and XIVb1)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

REFERENCE POINTS: No reference points have been established for the stock(s) of this species.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

RECENT MANAGEMENT ADVICE: No reliable assessment can be presented for this assessment unit and fishing possibilities cannot be projected.
The 2008-2009 data (landings) for this stock give no reason to change the advice from that given in 2008: *The fishery should not be allowed to expand* and a reduction in catches should be considered in order to be consistent with the MSY.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

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

STECF notes that for 2012 a TAC of 3 979 t for roundnose grenadier in Subareas VIII, IX, X, XII and XIV has already been agreed.

7.21.4. Roundnose grenadier (*Coryphaenoides rupestris*) in all other areas. (I, II, IV, Va2, VIII, IX, XIVa, and XIVb2)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: There have been no directed fisheries, and roundnose grenadier were taken as bycatch in bottom trawls only in small amounts in a number of discrete areas. The total catch in 2009 in other areas amounted to 28 t.

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

The assessment is based on landings data and is indicative of trends. This assessment unit consists of a number of discrete areas in which only very small catches of roundnose grenadier occur.

REFERENCE POINTS: No precautionary reference points have been established for the stock(s) of this species.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
MSY (F_{msy})	?	?	?
Precautionary approach (F_{pa},F_{lim})	?	?	?

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY ($B_{trigger}$)	?	?	?
Precautionary approach (B_{pa},B_{lim})	?	?	?

The state of stock of roundnose grenadier in these areas is unknown.

RECENT MANAGEMENT ADVICE: The fishery should not be allowed to expand, and in the light of the vulnerability of deep sea species a reduction in catches should be considered until such time there is sufficient scientific information to prove the fishery is sustainable.

Management plans

No specific management objectives are known to ICES.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES assessment that the state of the stock in these areas is unknown.

STECF notes that for 2012 a TAC of 3 979 t for roundnose grenadier in subareas VIII, IX, X, XII and XIV and a TAC of 13 t in subareas I, II and IV has already been agreed.

7.22. Red (blackspot) seabream (*Pagellus bogaraveo*)

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: There is a directed hand-line and longline fishery in Sub-areas IX and X. Red seabream have been caught in hook and line fisheries off the Azores since the 16th Century. There are now directed artisanal hand-line as well as longline fisheries in area Xa2. Historically, improvements in fishing technology have taken place in the directed hand-line and longline fisheries. These include the introduction of bottom longlines and bigger fishing vessels. The resulting improvement on fishing efficiency has not been quantified. Red seabream is caught by Spanish and Portuguese fleets in Sub-area IX. The Spanish artisanal longline fishery targeting red sea began in early 1980s. After 1997 there was a serious decline in landings. In Sub-areas VI, VII and VIII Red seabream appears as by-catch in the longline and trawl fisheries for hake, megrim, anglerfish, and *Nephrops*.

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

STOCKS STRUCTURE: The stock structure is uncertain. This section deals with a species distributed over a wide area, which may be composed of several populations. Three units are considered:

- Subareas VI, VII, and VIII;
- Subarea IX;
- Subarea X.

This management unit division is supported by information on genetics and tagging.

REFERENCE POINTS: No precautionary reference points have been established for the stock(s) of this species.

STOCK STATUS (ALL STOCKS):

The state of the red seabream in Subareas VI, VII, and VIII is unknown. However catches are well below the historical levels of the 60's and 70's which could indicate that the assessment unit is depleted.

The state of the stock of Red seabream in Subarea IX is unknown.

The state of the stock of Red seabream in Subarea X is unknown.

RECENT MANAGEMENT ADVICE:

Subareas VI, VII and VIII
The new landings data available do not change the perception of the stock. Therefore, the advice for the fishery given in 2008 is still appropriate. The fishery should not be allowed to expand and a reduction in catches should be considered in order to be consistent with the MSY.

Subarea IX
The 2008-2009 landings data for this stock give no reason to change the advice from that given in 2008. ICES advises that catches in 2011 should be less than 500 t which is a reduction from 2008-2009 landings.

Subarea X
The 2008-2009 landings data for this stock give no reason to change the advice from that given in 2008**.** Catches should be constrained to recent average catches which implies catches of less than 1050 t and a reduction in catches should be considered in order to be consistent with the MSY.

.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final

Sub-areas VI, VII, and VIII
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

Sub-area IX
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

Sub-area X
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS:

STECF agrees with the ICES assessment that the state of these stocks is unknown. STECF notes that there is no information on the appropriate catch levels consistent with MSY.

STECF notes that for 2012 a TAC of 215 t for red seabream in subareas VI, VII and VIII has already been agreed.

STECF notes that for 2012 a TAC of 780 t for red seabream in subarea IX has already been agreed.

STECF notes that for 2012 a TAC of 1136 t for red seabream in subarea X has already been agreed.

7.23. Portuguese dogfish (*Centroscymnus coelolepis*) in the north-east Atlantic

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: Portuguese dogfish are caught in virtually all deep-water fisheries in the NE Atlantic although catch data is patchy and incomplete. French trawlers, UK and German longliners and gillnetters in VI and VII are the fleets targeting this species. These fisheries began in 1991 and before that the species was not exploited. There are also directed longline fisheries in VIII and IX and some by-catches from XII. Landings of this species have been routinely grouped together with Leafscale gulper shark and reported as siki. Combined siki landings began in 1988 (although an unknown quantity is likely to have been discarded prior to this) and increased rapidly to over 8000 tonnes in 1997. Since 1997 landings have fluctuated with an overall upward trend, reaching a maximum of over 10,000 tonnes in 2003. Since 2003, reported landings have declined due to stock depletion and the introduction and gradual reduction in EU TACs and quotas is response to ICES advice, which in recent years has been for a zero TAC. However, deep-water sharks continue to be taken as a by-catch in a mixed deep-water trawl fishery in Vb, VI and VII and in a long-line fishery in Sub-area IX.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. No analytical assessment was carried out in 2010. The assessment is based on commercial CPUE trends and survey trends. Landings data on these species remain very problematical and, in many cases, reliable data are only available for combined siki sharks. Many countries continue to report landings in amalgamated categories such as various sharks N.E.I. Retrospective splitting of the data into species categories and reconstruction of historic data from mixed categories is based on limited information and is problematic.

REFERENCE POINTS:

Reference points

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

In common with other deep-water species, U_{lim} has previously been proposed at 0.2* virgin biomass and U_{pa} at 0.5* virgin biomass (ICES, 1998) but in the absence of abundance indices that correspond to the start of the fishery, the reference points cannot be estimated.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
F_{msy}		?	

F_{pa} / F_{lim}		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY $B_{trigger}$		?	
B_{pa} / B_{lim}		?	

Abundance indices from Scottish surveys (2000-2010) indicate a decline since 2000.

Historical commercial CPUE (2000-2006) in Subareas V, VI, and VII suggested this species was severely depleted.

There is insufficient information to separate the landings of Portuguese dogfish *Centroscymnus coelolepis* and leafscale gulper shark *Centrophorus squamosus*. Total international landings of the combined species have steadily increased to around 11 000 t in 2003 and have rapidly declined after 2003 to the lowest levels since the fishery started. Substantial declines in cpue series for the two species in Subareas V, VI, and VII suggest that both species are severely depleted and that they have been exploited at unsustainable levels. In Division IXa, lpue series are stable for leafscale gulper shark and declining for Portuguese dogfish.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	**Landings in 2011 and 2012**
Transition to an **MSY approach** with caution at low stock size	TAC = 0
Cautiously avoid impaired recruitment (**Precautionary Approach**)	TAC = 0
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

Due to its very low productivity, Portuguese dogfish and Leafscale gulper shark can only sustain very low rates of exploitation. The rates of exploitation and stock sizes of deepwater sharks cannot be quantified. However, based on the cpue information, Portuguese dogfish and Leafscale gulper shark are considered to be depleted. Given their very poor state, ICES recommends a zero catch of Portuguese dogfish and Leafscale gulper shark.

Outlook for 2011-2012

No reliable assessment can be presented for these stocks and fishing possibilities cannot be projected.

MSY transition scheme

An estimate of fishing mortality is not available. Portuguese dogfish are long-lived stocks, and no population estimates are available. Therefore a transition to F_{MSY} by 2015 is not currently possible.

Only survey data are available for the two most recent years. These data do not change the perception of these stocks and of the advice for the fishery given in 2008 *"Due to its very low productivity, Portuguese dogfish and Leafscale gulper shark can only sustain very low rates of exploitation. The rates of exploitation and stock sizes of deep-water sharks cannot be quantified. However, based on the cpue information, Portuguese dogfish and Leafscale gulper shark are considered to be depleted. Given their very poor state, ICES recommends a zero catch of Portuguese dogfish and Leafscale gulper shark."*

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice for Portuguese dogfish.

STECF notes that for 2012 a TAC of 0 t has already been agreed for deepwater sharks.

STECF **recommends** that EU fisheries exploiting deepwater sharks should not proceed until sustainable exploitation rates for deepwater sharks have been determined.

STECF further advises that in order to maximise protection of deep-water sharks, the gill netting ban introduced in 2006 (EC council regulation 51/2006Annex III) in waters deeper than 600m should be maintained. STECF supports the proposal to extend the gill net ban to other areas (Council regulation (EC) 40/2008, Annex III)

7.24. Leaf-scale gulper shark (*Centrophorus squamosus*) in the north-east Atlantic

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES: Leaf-scale gulper shark are caught in virtually all deep-water fisheries in the NE Atlantic. Catch data is patchy and incomplete. French trawlers in VI and VII target this species. Gill-net vessels registered in the UK (England and Wales), UK (Scotland) and Germany, target this and other deepwater species since the mid-1990s and takes place mainly west of the British Isles (Sub-areas VI and VII). There are also directed longline fisheries in VIII and IX and some by-catches from XII. Landings of this species have been routinely grouped together with Portuguese dogfish and reported as siki. Combined siki landings began in 1988 (although an unknown quantity is likely to have been discarded prior to this) and increased rapidly to over 8000 tonnes in 1997. Since 1997 landings have fluctuated with an overall upward trend, reaching a maximum of over 10 000 tonnes in 2003. Since 2003, reported landings have declined due to stock depletion and the introduction and gradual reduction in EU TACs and quotas is response to ICES advice, which in recent years has been for a zero TAC. However, deep-water sharks continue to be taken as a by-catch in a mixed deep-water trawl fishery in Vb, VI and VII and in a long-line fishery in Sub-area IX.

SOURCE OF MANAGEMENT ADVICE: The main advisory body is ICES. No analytical assessment was carried out in 2010. The assessment is based on commercial CPUE trends and survey trends. Landings data on these species remain very problematical and, in many cases, reliable data are only available for combined siki sharks. Many countries continue to report landings in amalgamated categories such as various sharks N.E.I. Retrospective splitting of the data into species categories and reconstruction of historic data from mixed categories is based on limited information and is problematic.

REFERENCE POINTS:

Reference points

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

In common with other deep-water species, U_{lim} has previously been proposed at 0.2* virgin biomass and U_{pa} at 0.5* virgin biomass (ICES, 1998) but in the absence of abundance indices that correspond to the start of the fishery, the reference points cannot be estimated.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
F_{msy}		?	
F_{pa} / F_{lim}		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY $B_{trigger}$		?	
B_{pa} / B_{lim}		?	

There is insufficient information to separate the landings of Portuguese dogfish *Centroscymnus coelolepis* and Leafscale gulper shark *Centrophorus squamosus*. Total international landings of the combined species have steadily increased to around 11 000 t in 2003 and have rapidly declined after 2003 to the lowest levels since the fishery started. Substantial declines in cpue series for the two species in Subareas V, VI, and VII suggest that both species are severely depleted and that they have been exploited at unsustainable levels. In Division IXa, lpue series are stable for Leafscale gulper shark and declining for Portuguese dogfish.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	**Landings in 2011 and 2012**
Transition to an **MSY approach** with caution at low stock size	TAC = 0
Cautiously avoid impaired recruitment (**Precautionary Approach**)	TAC = 0
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

Due to its very low productivity, Portuguese dogfish and Leafscale gulper shark can only sustain very low rates of exploitation. The rates of exploitation and stock sizes of deepwater sharks cannot be quantified. However, based on the cpue information, Portuguese dogfish and Leafscale gulper shark are considered to be depleted. Given their very poor state, ICES recommends a zero catch of Portuguese dogfish and Leafscale gulper shark.

Outlook for 2011-2012

No reliable assessment can be presented for these stocks and fishing possibilities cannot be projected.

MSY transition scheme

An estimate of fishing mortality is not available. Leafscale gulper sharks are long-lived stocks, and no population estimates are available. Therefore a transition to F_{MSY} by 2015 is not currently possible.

Only survey data are available for the two most recent years. These data do not change the perception of these stocks and of the advice for the fishery given in 2008 *"Due to its very low productivity, Portuguese dogfish and Leafscale gulper shark can only sustain very low rates of exploitation. The rates of exploitation and stock sizes of deep-water sharks cannot be quantified. However, based on the cpue information, Portuguese dogfish and Leafscale gulper shark are considered to be depleted. Given their very poor state, ICES recommends a zero catch of Portuguese dogfish and Leafscale gulper shark."*

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final
STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice for Leafscale gulper shark.

STECF notes that for 2012 a TAC of 0 t has already been agreed for deepwater sharks.

STECF also **recommends** that EU fisheries exploiting deepwater sharks should not proceed until sustainable exploitation rates for deepwater sharks have been determined.

STECF further advises that in order to maximise protection of deep-water sharks, the gill netting ban introduced in 2006 (EC council regulation 51/2006Annex III) in waters deeper than 600m should be maintained. STECF supports the proposal to extend the gill net ban to other areas (Council regulation (EC) 40/2008, Annex III).

7.25. Kitefin shark (*Dalatias licha*) in the north-east Atlantic

The most recent advice for this stock was provided by ICES in 2010. Hence, with the exception of the proposal arising from the direct application of the rules prescribed in COM(2011) 298-Final, the following text remains unchanged from the Consolidate STECF Review of Advice for 2010.

FISHERIES Kitefin shark are caught in the deep-water fisheries in ICES Sub-areas VIII, IX and X and the Mediterranean but the main fishing is in Sub-area X (Azores). In this sub-area X (Azores) this species is a by-catch in demersal deepwater fisheries. At present, there are no directed fisheries for this species. There is the risk that sporadic small-scale target fisheries may develop in the Azores, as a function of the markets. Excluding

ICES Subarea X (Azores) where species-specific landings are available, landings of this species are incomplete and have mostly been reported with other species as Squalidae.

SOURCE OF MANAGEMENT ADVICE: The main recent source of information and advice on kitefin shark in the Northeast Atlantic is ICES. An update assessment was carried out in 2010.

REFERENCE POINTS

	Type	*Value*	*Technical basis*
MSY Approach	MSY $B_{trigger}$	Not defined	
	F_{MSY}	Not defined	
Precautionary Approach	B_{lim}	Not defined	
	B_{pa}	Not defined	
	F_{lim}	Not defined	
	F_{pa}	Not defined	

In common with other deep-water species, U_{lim} has previously been proposed at 0.2* virgin biomass and U_{pa} at 0.5* virgin biomass (ICES, 1998) but in the absence of abundance indices that correspond to the start of the fishery, the reference points cannot be estimated.

STOCK STATUS:

	F (Fishing Mortality)		
	2007	2008	2009
F_{msy}		?	
F_{pa} / F_{lim}		?	

	SSB (Spawning Stock Biomass)		
	2008	2009	2010
MSY $B_{trigger}$		?	
B_{pa} / B_{lim}		?	

Kitefin is a demersal elasmobranch considered as a long-lived stock.

Advice is provided based on an examination of the stock status of each of the stock in the divisions within the ecoregion.

Reference points cannot be defined.

RECENT MANAGEMENT ADVICE:

Management Objective (s)	**Landings in 2011 and 2012**
Transition to an **MSY approach** with caution at low stock size	TAC = 0
Cautiously avoid impaired recruitment (**Precautionary Approach**)	TAC = 0
Cautiously avoid impaired recruitment and achieve other objective(s) of a **management plan** (e.g., catch stability)	n/a

Outlook for 2011-2012

No reliable assessment can be presented, or expected on the next years, for this stock. The main reason is the lack of information from fisheries or surveys. There are no target fisheries and discards are expected to increase due to regulation effects.

MSY transition scheme

An estimate of fishing mortality is not available. Demersal elasmobranchs are long-lived stocks, and no population estimates are available. Therefore a transition to F_{MSY} by 2015 is not currently possible.

FISHING OPPORTUNITIES FOR 2012 according to COM(2011) 298-Final

STECF notes that with reference to COM(2011) 298-final this stock is classified under category 3.

STECF COMMENTS: STECF agrees with the ICES advice for kitefin shark.

STECF notes that for 2012 a TAC of 0 t has already been agreed for deepwater sharks.

STECF also **recommends** that EU fisheries exploiting deepwater sharks should not proceed until sustainable exploitation rates for deepwater sharks have been determined.

STECF further advises that in order to maximise protection of deep-water sharks, the gill netting ban introduced in 2006 (EC council regulation 51/2006Annex III) in waters deeper than 600m should be maintained. STECF supports the proposal to extend the gill net ban to other areas (Council regulation (EC) 40/2008, Annex III)

8. List of Acronyms

ACOM	The Advisiory Committee of ICES
ACFM	The Advisory Committee on Fishery Management of ICES
ASPM	Age structured population model
BRP	Biological Reference Points
CCAMLR	Committee for the Conservation of Antarctic Marine Living resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CECAF	Committee for Eastern Central Atlantic Fisheries
CPFD	Catch per fishing day
CPS	Commission du Pacifique Sud
CPUE	Catch per unit effort
CTMFM	Comisión Técnica Mixta del Frente Marítimo
DEPM	Daily egg production method
DFO	Department of Fisheries and Oceans
EIAA	Economic Interpretation of the ACFM Advice
EIFAC	Eureopean Inland Fishery Advisory Committee
EEZ	Exclusive economic zone
EPO	Eastern Pacific Ocean
F	Fishing mortality
FAO	Fisheries and Agriculture Organization
FAD	Fishing Attracting Device
FARWEST	Fisheries Assessment Research in Western Mediterranean
FIGIS	Fisheries Geographical Information System
FICZ	Falkland Island Inner Conservation Zone
FIFD	Falkland Islands Fisheries Department
FOCZ	Falkland Island Outer Conservation Zone
FRCC	Fisheries Resources Conservation Committee
FU	Functional Units
GFCM	General Fisheries Commission for the Mediterranean
GRUND	GRUppo Nazionale Demersali (Italy)
IATTC	Inter American Tropical Tuna Commission
IBSFC	International Baltic Sea Fisheries Commission
ICA	Integrated catch at age analysis
ICCAT	International Commission for Conservation of Atlantic Tuna
ICES	International Council for the Exploration of the Sea
ICS	International Scientific Committee for Tuna and Tuna-like species in the North Pacific Ocean
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer
IEO	Instituto Español de Oceanografía
INIDEP	Instituto Nacional de Investigación y Desarrollo Pesquero
IOTC	Indian Ocean Tuna Commission
IUU	Illegal, Unregulated and Unreported
LCA	Length-based cohort analysis
LLUCET	Project to study the recruitment and juveniles of hake
LPUE	Landings per unit effort
MBAL	Minimum biologically acceptable level
MEDITS	International Bottom Trawl Surveys in the Mediterranean

MEDLAND	Mediterranean Landings
MSY	Maximum sustainable yield
MSVPA	Multi Species VPA
NAFO	Northwest Atlantic Fisheries Organisation
NEA	North East Atlantic
NEI	Not Elsewhere Included
NEMED	*Nephrops* in Mediterranean Sea
NRIFSF	National Research Institute for Far Seas Fisheries - Japan
PA	Precautionary Approach
PICTs	Pacific Islands Countries and Territories
PO	Pacific Ocean
RRAG	Renewable Resources Assessment Group
SAC	Scientific Advisory Committee (GFCM)
SAFC	South Atlantic Fisheries Commission
SAGP&A	Secretaria de Agricultura, Ganadería, Pesca y Alimentos (Argentine)
SCRS	ICCAT Standing Committee on Research and Statistics
SCSA	Sub-Committee on Stock Assessment (GFCM)
SCTB	Standing Committee on Tuna and Billfish (western and central Pacific Ocean)
SGRST STECF	Subgroup on Resource Status
SPC	Southern Pacific Commission
SSB	Spawning stock biomass
SSB/R	Spawning stock biomass per recruit
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
WCPO	Western Central Pacific Organisation
WCPFC	Western Central Pacific Fishery Organisation
WECAF	Committee for Western Central Atlantic Fisheries
WGEF	Working Group on Elasmobranches Fishes
WIO	Western Indian Ocean
WP	IOTC Working Parties
WPB	IOTC Working Parties on Billfish
WPTT	IOTC Working Parties on Tropical Tunas
WPO	Western Pacific Ocean
XSA	Extended survivors analysis
Y/R	Yield per recruit

9. Annex I Contact details of Participants of the STECF EWG-11-09 Expert Working Group

First Name	Last Name	Address	Telephone	Email
STECF Members				
John	Casey (chair)	CEFAS, Pakefield Road, Lowestoft, NR33 0HT, UK.	441502524251	john.casey@cefas.co.uk
Michel	Bertignac	IFREMER, Brest, France.	(33) 2 98 22 45 25	michel.bertignac@ifremer.fr
Cardinale	Max	Föreningsgatan 45, 330 Lysekil, Sweden	+46 523 18750	massimiliano.cardinale@slu.se
Eskild	Kirkegaard	DTU Aqua, Charlottenlund Slot, 2920 Charlottenlund, Denmark	4533963300	ek@aqua.dtu.dk
Willy	Vanhee	ILVO, Hospitaalstraat, 8400, Oostende, Belgium.	+32(059)433083	wvanhee@pandora.be
External Experts				
Helen	Dobby	FRS, Victoria Road, Torry, Aberdeen, UK.	+44 (0) 1224 876544	h.dobby@marlab.ac.uk
Afra	Egan	Marine Institute, Rinville, Galway, Ireland	00353 91 387299	afra.egan@marine.ie
Michael	Keatinge	BIM, State Agency, Crofton Road, Ireland.	35312144230	keatinge@bim.ie
Sven	Kupschus	CEFAS, Pakefield Road, Lowestoft, NR33 0HT, UK	+44 1502 524454	sven.kupschus@cefas.co.uk
Sten	Munch-Petersen	DTU-Aqua, Charlottenlund Castle, DK-2920, Denmark.	+45 33963390	smp@aqua.dtu.dk
Tiit	Raid	Estonian Marine Institute, University of Tartu, Estonia		tiit.raid@gmail.com
Observers				
Michael	Park	Scottish White Fish Producers Organisation (SWFPA)		
Esben	Svendrup	Pelagic RAC		
JRC expert & STECF secretariat				
Hendrik	Doerner	EC, JRC, Maritime Affairs, I-21027 Ispra (VA), Italy.	0039 0332789343	Stecf-secretariat@jrc.ec.europa.eu

10. Annex II-Expert declarations

Declarations of invited experts are published on the STECF web site on https://stecf.jrc.ec.europa.eu/home together with the final report.

European Commission

EUR 24897 EN– Joint Research Centre – Institute for the Protection and Security of the Citizen
Title: Scientific, Technical and Economic Committee for Fisheries. Review of Scientific advice for 2012 - Part 2 (STECF-11-09).

Author(s):
STECF members: Casey, J., Abella, J. A., Andersen, J., Bailey, N., Bertignac, M., Cardinale, M., Curtis, H., Daskalov, G., Delaney, A., Döring, R., Garcia Rodriguez, M., Gascuel, D., Graham, N., Gustavsson, T., Jennings, S., Kenny, A., Kirkegaard, E., Kraak, S., Kuikka, S., Malvarosa, L., Martin, P., Motova, A., Murua, H., Nowakowski, P., Prelezzo, R., Sala, A., Somarakis, S., Stransky, C., Theret, F., Ulrich, C., Vanhee, W. & Van Oostenbrugge, H.

Participants of EWG-11-09:
Casey, J., Bertignac, Cardinale, M., Dobby, H., Doerner, H., Egan, A., Keatinge, M., Kirkegaard, E., Kupschus, S., Munch-Petersen, S., Raid, T. & Vanhee, W.,

Luxembourg: Office for Official Publications of the European Union
2011 – 257 pp. – 21 x 29.7 cm
EUR – Scientific and Technical Research series – ISSN 1831-9424 (online), ISSN 1018-5593 (print)
ISBN 978-92-79-20803-4
doi:10.2788/39614

Abstract

STECF EWG-11-09 was held on 4 -9 July 2011 in Lyngby (Denmark). The meeting produced the 2nd report in 2011 focussing on the review of stocks of EU interest. STECF reviewed the report during its plenary meeting on 11-15 July 2011.

The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national.

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.

LB-NA-24897-EN-N

ISBN 978-92-79-20803-4