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46th PLENARY MEETING REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-14-02)

PLENARY MEETING,
7-11 July 2014, Copenhagen

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PLENARY MEETING

7-11 JULY 2014, COPENHAGEN

1. INTRODUCTION

The STECF plenary took place at the University of Copenhagen, Department of Geosciences and Natural Resource Management, Rolighedsvej 23, 1958 Frederiksberg C, Copenhagen (Denmark), from 7 to 11 July 2014. The Chairman of the STECF, Dr Norman Graham, opened the plenary session at 09:15h. The terms of reference for the meeting were reviewed and the meeting agenda agreed. The session was managed through alternation of Plenary and working group meetings. Rapporteurs for each item on the agenda were appointed and are identified in the list of participants. The meeting closed at 16:00h on 11 July 2014.

2. LIST OF PARTICIPANTS

The meeting was attended by 21members of the STECF and fourJRC personnel.SixDirectorate General Maritime Affairs and Fisheries personnel (DG MARE) attended parts of the meeting. Section nine of this report provides a detailed participant list with contact details.

The following members of the STECF informed the STECF chair and Secretariat that they were unable to attend the meeting:
Michel Bertignac
Hazel Curtis
Georgi Daskalov
Alyne Delaney
Ralf Döring
Andrew Kenny
Sakari Kuikka
Loretta Malvarosa
Hilario Murua
Clara Ulrich

3. INFORMATION TO THE COMMITTEE

3.1. STECF plenary – information from the Commission – general

STECF expert compensation payments and new EMFF

The committee was notified that with date 7 July 2014 the Commission is again in a position to resume compensation payments for meetings under Article 9.1 of Commission Decision 2005/629/EC, following the entry into force of the EMFF and respective financial commitments.

The STECF website including individual meeting pages has been updated accordingly.

3.2. STECF plenary – information from the Commission - feedback on STECF proposals since last plenary

The DG Mare focal point for STECF Zsuzsanna Kőnig provided feedback from the Commission on STECF work.

DG MARE informed the Committee that the STECF report on 2013 Assessment of Mediterranean Sea stocks part II (STECF 14-08) was used in the preparation of several EU proposals, e.g. to establish the minimum standard for demersal stocks in the Strait of Sicily, to set precautionary and emergency measures for 2015 on small pelagic stocks in the north Adriatic, as well as it was a basis for the preparation of the GFCM-SAC Annual Meeting.

The most recent report on Landing Obligations in EU fisheries (STECF-14-06) has been proven useful, and as all work is in progress, take-up of outcomes by Member States is expected to continue.

The report on DCF contributes to the undergoing revision process.

Advice provided on the ad-hoc requests have been appreciated by DG MARE. Nevertheless, two requests had to be resubmitted as new data are available.

4. STECF INITIATIVES

No additional items were raised by the committee.

5. ASSESSMENT OF STECF EWG REPORTS

5.1. STECF-EWG-14-04 and 14-05: Economics - AER of EU fleets

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Groups, evaluate the findings and make any appropriate comments and recommendations.

STECF decided to postpone the AER report to written procedure.

Following review by STECF, it was concluded that the report contained several important statistical inconsistencies and errors resulting in incorrect inferences being made. Consequently, the STECF, were unable to endorse the draft report in its current form. While the EWG 14-04 & EWG 14-05 have produced sound national summaries for the majority (>20) of MS, a regional and pan-

European analysis was hampered by significant and ongoing data issues, which have been highlighted previously by STECF (PLEN 13-02). To date, regional and EU wide summaries have been limited due to *lack* of data from key MS and previously published STECF advice has been given with caveats regarding these omissions. While data transmission and overall coverage has improved and this is welcome, a significant number of data issues remain and new ones have emerged.

STECF notes that much of the effort used by the experts during EWG 14-04 and EWG 14-05 is spent identifying, understanding and resolving data issues. This is inhibiting the EG from undertaking any detailed analysis and the development of robust economic fisheries advice. This is a consequence of the failure of some key MS to meet data submission deadlines; in-year (between EG's) resubmission of national data; inconsistencies and obvious outliers in the data. These issues all contribute to limiting the ability of the EWG to present a credible regional and pan-European analysis of the EU fleet. In 2014, this has resulted in some spurious/questionable results that require further analysis before the report of can be reconsidered by the STECF.

In an attempt to resolve these outstanding issues, those MS where issues were identified in their annual submissions will be invited by the EC in July/August 2014 to rectify or resubmit their data and depending on the response, their national reports will be redrafted through an ad hoc contract and the report will again be handed over to the STECF and dealt with through written procedure in early October.

STECF reiterates its comments from 2013, noting that the usefulness of future Annual Economic Reports on the performance of EU fishing fleets will remain less than optimal unless Member States submit complete, accurate and timely data submissions in response to annual economic data calls. STECF urges the Commission to take whatever action is necessary to ensure that future data submission from Member States are complete, accurate and are submitted within timescale specified in the annual data calls. Until such time that these issues are resolved, the ability to generate accurate and in-depth analysis of the performance of the EU fishing fleet at a regional and EU wide level is compromised.

5.2. STECF-EWG-14-06: Evaluations of fishing effort regimes – part 1

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

STECF comments, observations, and conclusions

STECF notes that the Terms of Reference relating to fishing effort regimes in the following sea areas have been addressed in part by the Report of the EWG 14-06:

1. Eastern and Western Baltic,
2. the Kattegat,
3. the Skagerrak, North Sea, European waters in ICES Div.2 and the Eastern Channel,
4. to the West of Scotland,
5. Irish Sea,
6. Celtic Sea,

7. Atlantic waters off the Iberian Peninsula,
8. Western Channel,
9. Western Waters and Deep Sea
10. Bay of Biscay,

The EWG 14-06 Report provides updated estimates of trends in fishing effort.

STECF notes that the means of data aggregation has been transferred to a new software architecture. There are three motivations for this:

1. Greater data security as all data is processed on a secure server.
2. Increased quality assurance through the exclusive use of the dedicated JRC upload facility.
3. Greater transparency of the data input and processing through a documented upload facility and processing algorithm and because of point two.

STECF further notes that data processing time has also been reduced considerably. This is a welcome development as re-submissions are sometimes required during EWG meetings resulting in re-compilation of aggregated data. These benefits are likely to become increasingly apparent as the quantity of data for processing continues to increase.

All data used by the EWG 14-06 was submitted through a revised upload facility that functioned well and all processing was performed on the JRC secure server. Documentation of the processing is in progress and will be available in a flow chart format. Time constraints prevented full testing of the new system. Outstanding software problems when aggregating catch data meant it was not possible for the EWG to review catch data or undertake ToR based on catch data. These ToRs will be dealt with during the forthcoming STECF EWG 14-13 fishing effort regime evaluations part 2 (29 September-03 October 2014, Barza d'Ispra, Italy).

2014 DCF Fishing Effort Data Call

The EWG 14-06 Report is based on data submitted by Member States in response to the 2014 DCF fishing effort data call. STECF notes a general improvement in Member States' submissions with regard to data completeness and quality as well as improved compliance with deadlines. This was probably aided by the fact that the call in 2014 requested the same fields of data as in the 2013 data call, and only 2013 data were requested. Therefore no re-submissions of data were required and only took place if a member state needed to correct data submitted in previous years.

However, the work of the EWG 14-06 was still compromised by delays in some Member States' submissions, incomplete and erroneous data submissions and re-submissions. STECF notes that tables related to effort for the various fishing effort regimes can be downloaded at the corresponding aggregation level as digital Appendixes to the present report from the EWG 14-06 web page: https://stecf.jrc.ec.europa.eu/web/stecf/ewg1406 .

Effort regime evaluation for the Baltic

For regulated gears in accordance with Council Regulation (EC) 1097/2007 and unregulated gears combined, the total effort deployed in the Baltic in 2013 was 59% of the 2004 levels but increased by 25% compared to 2012 levels.

Deployed effort of regulated gears in cod plan areas A (subdivisions 22-24), B (subdivisions 25-28) and C (subdivisions 29-32) declined between 2004 and 2009 but fluctuated without clear trend since.
For small boats <8m LOA, data from Estonia was unavailable and data from Finland could not be used.

STECF undertook a provisional quantitative analysis regarding the estimation of effort deployed in units of days at sea by Member State. For this analysis the maximum number of days at sea available to the Member State was calculated as the product of its ceiling in number of days at sea per vessel and the number of active regulated vessels. For each Member State the total national uptake of days at sea is then expressed as a percentage of the calculated maximum effort available to the Member State. With this approach the individual vessels' uptake cannot be determined, nor whether any individual vessel exceeded the ceiling, but only the average uptake per vessel. From this analysis the average uptake of available days at sea across the Member States over the time period 2008-2013 was in the range of 39-47% for the ceiling in area A, 34-41% for the ceiling in the area B and has risen from 42% to 69% for the ceiling in areas A and B combined. Only one Member State slightly exceeded the allowed limit for regulated gears in areas A and B combined in 2011. No clear trend in average uptake in area A or in area B could be revealed over the observed period. For area A and B combined average uptake is higher in 2011-2013 compared to 2008 but very similar over the years 2011-2013.

According to the information submitted by member States, only Denmark has operated under the fully documented fisheries (FDF) scheme in the Baltic in 2012 but no vessels participated in 2013.

Effort regime evaluation for the Kattegat
In 2013 70% of the total effort was deployed by regulated gears, dominated by the TR2 fishery (demersal trawls and seines with mesh 70-99mm). The effort deployed by regulated gears has decreased steadily from 2003 (by 57% between 2003 and 2013). Total effort in Kattegat has decreased by 46% between 2003 and 2013.

Fisheries in the Kattegat are almost exclusively conducted by Denmark and Sweden. There are three effort derogations in place in Kattegat for TR2, CPart13B, CPart13C and CPart11. All the Danish TR2 effort is under the derogation CPart13C from 2010 onwards.

The Swedish regulated TR2 effort has decreased by 82% since 2003, partly due to a move towards the unregulated CPart11 category (achieves <1.5% cod catch by using a 35mm *Nephrops* sorting grid; introduced in 2003) which constituted 71% of the Swedish TR2 effort in 2013, and partly to an overall decrease in TR2 effort (38% since 2003).

The effort carried out by unregulated gears, including the Swedish *Nephrops* sorting grid under the derogation CPart11, has increased 43% between 2003 and 2013. It represents 30% of the total effort in 2013.

In 2013 the nominal effort (kW days at sea) deployed by small vessels (LOA<10m) constituted 13% of the total effort in the area.

STECF notes that information on fully documented fisheries FDF was only provided by Sweden and only for 2010. FDF fishing effort and catches appear negligible and are not evaluated further.

STECF notes that that ICES did not provide an analytical assessment of cod in the Kattegat in 2014. STECF EWG 14-06 is therefore unable to provide analyses dealing with the partial fishing mortalities by fisheries (metiers), the respective correlations between partial fishing mortality and fishing effort and the review of reductions in fishing mortality of the effort regulated gear groups in relation to the cod plan provisions.

Effort regime evaluation for the Skagerrak, North Sea including 2EU and Eastern Channel

STECF notes that in this area, a substantial part of the effort is deployed by Non-European fleets (primarily Norway); this component is not accounted for in this report. Norwegian fishing effort is reported to ICES (ICES, 2013). Catch and effort data including the special conditions of the cod management plan in force since 2009 (CPart11 and CPart13) have been provided by all Member States with significant fishing activity in this area. Additionally, distinction is now provided across the various CPart13 specifications (A, B, or C).

The North Sea (area 3b2) is the main fishing area (79% of the total 2013 regulated effort in area 3b), followed by The English Channel (15%, 3b3), while the Skagerrak represents a smaller component (6%, 3b1).

In all three sub areas, regulated effort has decreased since 2003. The estimated overall reduction in effort (kW days at sea) in 2013 of regulated gears in the entire area 3b amounts to 43% compared to the average of 2004-2006 but was marginally higher (1%) compared to 2012.

Overall, the share of regulated gears to total effort in area 3b has also decreased regularly, down to 61% in 2013 on average (but no more than 45% in Skagerrak). In area 3b2 (North Sea), regulated effort is equally shared between beam trawls and demersal trawls/seines (52% and 43% of total 2013 regulated effort respectively). Small mesh beam trawling (80-119 mm, BT2) and demersal trawls/seines with larger mesh sizes (>=100mm, TR1) are the predominant fisheries. There is an increasing trend for large meshed beam trawls (BT1) in recent years. In the Eastern Channel, demersal trawls/seines are also the main gears (63% of the 2013 regulated effort in the area, mainly smaller mesh size 70-99mm TR2), but with beam trawls and passive gears representing important fisheries as well (20% and 16% of the 2013 regulated effort respectively). The main gears in management area 3b1 (Skagerrak) are demersal trawls/seines (86% of the 2013 regulated effort), with a predominance of TR2. However, there was a strong increase in Danish TR3 effort in 2013 compared to 2012.

The unregulated effort has increased in sub-areas 3b2 and 3b3 in 2013 compared to 2012. This, together with the general decreasing trend of regulated effort, means that unregulated effort now represents almost 40% of the total effort in area 3b. This is despite nearly all French TR1 effort being re-classified from the CPart11 exemption in 2012 back to under article 13B.

From 2003 to 2012 the effort of small boats (LOA<10m) gradually increased from 3% to 9% of the overall effort deployed in the entire area 3b (Skagerrak, North Sea and 2EU, Eastern Channel). Absolute effort has been slowly declining since 2010 however and in 2013, the effort from vessels <10m was 8% of the total effort in this area. Unregulated gears account for 60% of total effort from vessels <10m.

In 2012 and 2013 fully documented fisheries represented a similar proportion of the total effort (5.5% and 5.1% respectively). The importance of FDF in the main cod gear (TR1) also remained static (28.8% in 2012, 28.4% in 2013).

Effort regime evaluation for the West of Scotland

The fishery West of Scotland is primarily an otter trawl fishery; beam trawls and static gears are hardly used. Effort within regulated gears is 58.8% less in 2013 compared to 2003. Regulated effort by trawl and seine gears (TR gears under Council Reg. (EC) 1342/2008) shows a long term decrease in effort and fell to its lowest level in the time series in 2011, but was stable between 2011 and 2013 for those nations reporting in both years.

Unregulated effort has been increasing since 2010, and has exceeded regulated effort since 2011 and the difference has increased again in 2013.
Overall effort is 11% higher in 2013 compared to 2003 although it has been relatively stable since 2006. Greatest effort comes from Scottish vessels deploying pots.

Effort regime evaluation for the Irish Sea
For boats LOA>=10m there has been a 37% decline in Irish Sea nominal effort (kW*days at sea) since 2000, the majority of which occurred between 2003 and 2009. Since 2009 effort has remained relatively constant.

Irish Sea fisheries are predominantly demersal trawling and seining (TR group). Combined, TR effort mirrors the overall effort trend representing 55-60% of total Irish Sea effort. As part of regulated gears, the TR group accounted for over 70% of all effort from 2003, (over 80% since 2008). Within the TR group, the TR2 category (70-99mm mesh sizes) dominates. The majority of TR2 effort is now carried out under Article 13 of Council Reg. 1342/2008. A small amount of effort is reported under Article 11 of the regulation (CPart11) since 2010, 4-9%.

During 2006-2013, small boats' effort (LOA<10m) varied without a clear trend and constituted among 12-15% of the overall effort deployed. The majority of effort by the under 10m vessels is directed at pots and traps.

Effort regime evaluation for the Celtic Sea
The review of trends in fisheries-specific effort and catches in the Celtic Sea is presented at the level of aggregation for the fisheries defined in the multi-annual cod plan, to allow managers to evaluate the data with the view to the potential extension of the cod plan to include the Celtic Sea. The Celtic Sea is defined into two management areas, i.e. ICES Sub-divisions 7bcefghjk and ICES Sub-divisions 7fg.

Analysis of the larger area 7bcefghjk is affected by the fact Spanish data are only included for 2012 and 2013 as no data for earlier periods have been submitted by the Spanish Authorities. Area 7fg is only affected to a minor extent.

In 7bcefghjk in terms of kW*days in 2013 France contributed 37%, Ireland 20%, England and Wales 15%, Spain 8%, the Netherlands 8%, Belgium 5%, Scotland 3%, Germany 2% and Denmark 1%.
The demersal fisheries are dominated by the gears TR1, TR2 and BT2 (26%, 19% and 10% of total Celtic Sea effort respectively). In recent years (since 2008) fishing effort has been relatively stable, with the increase for most gears from 2012 due to the inclusion of Spanish data from 2012. The exception is TR1 effort which has been increasing since 2009.

For "unregulated" gears most of the effort is Dutch, French, Danish and Irish pelagic trawl fisheries (17% of total Celtic Sea effort), with a recent (since 2009) increase of Danish and Irish pelagic boats fishing for boarfish in the Celtic Sea.

The overall effort in 7fg decreased between 2003 and 2013, however, in the last two years the effort showed an increase to levels similar to 2004/2005. This increase is mainly due to an increase in effort by the demersal trawlers (TR). The effort in unregulated gears has been increasing steadily since 2006 until 2012, but in 2013 the unregulated gears effort showed a decrease, mainly due to the reduction of effort using pots.

Effort regime evaluation for southern hake and Norway lobster

STECF notes that the major data deficiency in its analyses is the lack of Spanish data in 2010 and 2011. Furthermore it is important to note that Spanish fishing vessels using regulated gears were not granted fishing effort derogations by the Spanish Authorities in 2012 and 2013 as provided for in Annex IIB to the annual TAC and Quota regulations.

The nominal effort of regulated gears (3a-c) declined by 17% during 2007-2013 and by 12% from 2009 to 2013. Regulated trawl (3a) deploys most effort in the area (62%) with most of it (90%) under effort control in 2012 and 2013. Bottom trawl effort subject to effort regulation decreased by 17% between 2007 and 2013 (but only 1.5% between 2009 and 2013).

Passive gears (3b, 3c and 3t) accounted for approximately 27% of all effort in 2012 and 2013. However, such results have a limited meaning regarding the relative fishing pressure exerted by these fleets, since the unit kW*day does not take into account the number of hooks deployed by longlines or the area covered and soak time of passive nets.

In 2012 and 2013, about 19% of the effort was assigned to non-regulated gears ("3t" and "none" gears), of which trammel nets ("3t") contribute 8% to the overall effort deployed. Most non-regulated effort is deployed by gears that do not target hake, *Nephrops* or anglerfish.

For small vessels (LOA<10m) Portuguese data do not provide gear or fishery specific information. Spain has provided data for 2012 and 2013 only.

Effort regime evaluation for Western Channel sole

STECF notes the majority of fishing effort deployed in the Western Channel is effort that is not being regulated by the Management plan for sole in Division VIIe. The two regulated gear groups, beam trawls (80mm and above; labelled '3a') and the static nets, (Gill and trammel nets up to 219mm mesh size; labelled '3b') account for only a relatively small proportion (about 15%) of the overall deployed effort.

Effort in the regulated beam trawl fleets (gear 3a) decreased gradually from 2% above the 2004-2006 baseline level in 2004 to 37% below that level in 2009 and thereafter has fluctuated between 30% and 37% below the 2004-2006 level. Effort in the regulated static gear (gear 3b) dropped substantially from 9% above the 2004-2006 level in 2004 to 77% below the 2004-2006 level in 2013. The effort from the vessels <10m fluctuates between 13% and 25% of the effort deployed by the vessels >10m.

STECF notes that only UK (England and Wales) have had vessels operating under an FDF scheme in the Western Channel (2012 and 2013). In 2013 9 vessels (7 in 2012) were operational in the FDF fisheries using the regulated beam trawl gear (3a) and one vessel (same as 2012) using the unregulated beam trawl gear (mesh size <80mm). The total numbers of English vessels operating such gears are 44 and 2 respectively. The effort of the FDF fisheries to the total deployed effort by the regulated beamers (3a) and unregulated beamers amount to 24% and 5% respectively (17% and 1% in 2012).

STECF estimated the uptake of the permitted fishing effort in units of days at sea per vessel. The results should be interpreted with caution as the estimated ceilings are based on number of active vessels times the number of days allowed. STECF notes that the number of active vessels and their associated days at sea may be overestimated (multiple counted) if they changed regulated gears. For the regulated beam trawl fleet (3a), the English series indicate an increasing uptake (47% - 95%) over time whereas the Belgian and the French regulated beam trawl fleets show a stable uptake at a low (around 10%) and high level (around 65%) respectively. The English regulated static gear (3b) show a slight increase in uptake (20%-45%) over time whereas the French regulated static gear shows a stable uptake of around 50%. However, uptake by both French fleets fell sharply in 2013 to approximately 30% and less than 40% respectively.

National amendments to the effort regulations were granted to the UK in 2012 and to the UK and France in 2013. This has the effect of increasing the maximum permitted fishing effort and lowering the percentage uptake of effort. In 2012 UK beam trawl fleet effort uptake fell from 95% to 75% as a result of the extra days allocated. In 2013 the effect was a change in uptake from 85% to 67%. The changes in French uptake were a reduction from 31% to 29% for the beam trawl fleet and a reduction from 38% to 35% for the passive gears fleet.

STECF concludes that if a fishing effort regime in the Western Channel is to be maintained, it would be appropriate to use an alternative measure of effective unit of fishing effort that takes account of vessel size/power and gear effectiveness.

Effort regime evaluation for the Western Waters and Deep Sea
In accordance with the Terms of reference, the Report presents trends in effort for defined fisheries (major gear groups) for 18 management areas within the convention areas of ICES and CECAF. STECF notes that discard information is often scarce.

Effort within the Deep sea and Western waters has been compiled for kW*days-at-sea, GT*days-at-sea, and numbers of vessels. Within the report the focus is on kW*Days at sea. Information on GT*days at sea and numbers of vessels, landings, discards, CPUE and LPUE is available via the website (electronic appendixes to the report): https://stecf.jrc.ec.europa.eu/web/stecf/ewg1406 Because of problems with data upload from Portugal effort analysis for areas with significant Portuguese effort was not possible (ICES areas IX and X and CECAF Areas 34.1.1, 34.1.2 and 34.2.0).

Bottom trawl effort is concentrated in ICES Area IVa as well as the Continental shelf and slope to the west and southwest of Ireland and the UK.

Pelagic trawling was concentrated to the west of Ireland, and to the west and north of Scotland in the mid-2000s. This effort decreased greatly between 2007 and 2009, increased in 2010 before reducing again in 2011 and 2012. In 2013 effort increased in Areas IVa and IXa, but decreased in areas VIIIa and VIIIb.

Longline effort was concentrated on the shelf and slope between Shetland and Portugal but has been in decline in recent years.

In the mid-2000s gill net effort was concentrated in the Celtic sea and Porcupine Bank. Due to current restrictions in the use of deepwater gill nets much of this effort is now concentrated in the

Celtic sea, with some effort in the North sea, west of Scotland and the Bay of Biscay. In 2013 effort increased in areas VIIg and VIb but decreased in area IVb.

Beam trawling is concentrated in the Celtic sea and the western English Channel. While beam trawls are not a deepwater gear some of the species caught are classified under Annex 2.

Effort regime evaluation for the Bay of Biscay
STECF notes that all the analyses and trends presented in the Report include data from Spain for 2012 and 2013. However, Spain did not provide corresponding data for previous years to the DCF data call for fishing effort regime evaluations. In interpreting the trends in fishing effort and landings, it is important to take into account that data from Spain for years prior to 2102 are not included in the tables and graphs presented in the Report.

STECF notes that the multiannual plan for the sustainable exploitation of the stock of sole in the Bay of Biscay (R (EC) 388/2006) prescribes maximum annual fishing capacity for Member States' vessels that hold a special permit to fish. The Report provides fisheries-specific effort data for the Northern Bay of Biscay (ICES Div. VIIIa) and the southern Bay of Biscay (ICES Div. VIIIb).
In 8a-BoB, 90% of 2013 effort is French, 7% Spain, 1% Belgium and 1% Netherlands. The main French fisheries are otter trawl, trammel and gill net and pelagic trawl. The main Spain fisheries are longline, otter trawl and gill net. In 8b-BoB, 67% of effort in 2013 is French, 25% Spain, 6% Belgium and 1% Netherlands and England. The main French fisheries are otter trawl, trammel and gill net, longline and pelagic trawl. The main Spanish fisheries are otter trawl, pelagic seine and longline.

Information on the nominal effort of the specific condition (special fishing permit) SBCIIIART5 has only been provided for the full time series by Belgian. It has only been provided for the 2010-2013 period for French vessels. This results in an apparent shift in effort for the main gear type from the "none" category to the specon "SBCIIIART5". Following these considerations, no firm conclusion could be drawn on trends in effort under specon SBCIIIART5 before 2010.

Due to data deficiencies, STECF was unable to fully evaluate the effort regime for sole in the Bay of Biscay. Spain provided data on fishing capacity in the unit of gross tonnage (GT) as requested in the data call, for the year 2012 only; France provided data in units of kW not GT.

Between 2012 and 2013 (the two years for which Spanish data is available) overall effort in units of kW days at sea fell by 10% in area VIIIa and increased by 1% in VIIIb.

Almost all supplied effort data on small boats is French. Also the effort data available for small boats before 2010 seem to be incomplete. Over the last four years, small boats represent almost 20% of the effort deployed by the large vessels in 8a and 10% in 8b.

5.3. STECF-EWG-14-07: Evaluation of 2013 MS DCF Annual Reports & Data Transmission

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

STECF observations

STECF acknowledges the intensive and thorough work performed by EWG 14-07. All three Terms of Reference have been fully addressed. The Annual Reports 2013 of 22 MS, excluding the Bulgarian Annual Report (withdrawn from evaluation), were reviewed in relation to MS National Programme proposals for 2011-2013 or updates for 2013. As in previous years, the Annual Reports were pre-screened by a group of experts before the meeting, which again facilitated an effective evaluation of the extensive material (report text and standard tables) provided by MS. STECF acknowledges that the EWG explored a first approach for a more quantitative evaluation of MS compliance with the DCF and the Annual Report guidelines, based on suggestions from EWG 13-07.

Additionally, the EWG 14-07 reviewed tables with information from end-users on data transmission by MS in 2013. STECF notes that the coverage of RFMOs in the end-user feedback has improved compared to previous years. In contrast to last year's evaluation of data transmission, the MS reply on end-user comments was already included in the tables. STECF acknowledges this progress, as the EWG was one step ahead in the process of communicating data transmission failures between end-users, the Commission and MS. Moreover, a complete list of MS derogations was available to the EWG, which facilitated judgements on the relevance of some end-user comments that indicated missing data from MS in cases where MS were not obliged to collect these data due to an approved derogation.

Altogether, the EWG 14-07 has reviewed more than 400 data transmission issues. STECF notes, however, that an indication of severity of data transmission failures or delays was not included in the data transmission tables. This information would have allowed the EWG to appropriately comment on the likely negative effects of data transmission failures on the end-user work, which would help the Commission in applying financial sanctions to MS that are "proportionate to the degree of non-compliance" (Reg. 199/2008, Article 8.6).

STECF acknowledges that the EWG 14-07 has provided valuable input for improvements of the Annual Report evaluation process under its ToR 3, including a short-term and long-term scenario.

STECF conclusions

Annual reports

STECF concludes that the pre-screening of Member States' DCF Annual Reports and Data Transmission issues should be continued. To ensure effective quantitative evaluation of compliance as started by EWG 14-07, STECF considers that this approach is further explored and addressed by the EWG 14-17 and that objective criteria are defined to categorise MS compliance.

To continue the improvements of the Annual Report evaluation process and to assess MS compliance, STECF considers that the guidelines and table templates for submission of MS' Annual Reports and evaluation sheets be amended and guidelines for pre-screeners be established in accordance with the suggestions in the EWG 14-07 Report.

STECF concludes that the EWG 14-07 report provides sufficient information to identify cases of non-compliance and cases where additional information is needed from MS.

Data transmission

STECF concludes that EWG 14-07 did its best in supporting the Commission in identifying relevant data transmission failures. To further improve the evaluation process, STECF urges the European Commission to seek feedback from end-users of DCF data analyses to indicate the severity of any impacts of data transmission issues on their work.

The EWG 14-07 Report identifies several issues associated with compliance of data transmission and STECF requests the Commission to provide further guidance and clarification on how to deal with such issues before next year's evaluation.

Compilation of STECF recommendations for consideration by MS in their Annual Reports

MS are obliged to respond to STECF recommendations in their Annual Reports. The EWG is then required to evaluate whether MSs have adequately addressed these in their ARs. Given that a compiled list of STECF recommendations for action by MSs is not currently available, STECF considers that it would be beneficial if an *ad hoc* contract could be provided to compile such a list. The compiled list could then be forwarded to the European Commission for consideration and transmitted to MS and EWG. To ensure that MSs are kept fully informed of any future actions arising through the evaluation process, STECF proposes that the Commission (DG MARE) maintains and amends the compiled list and circulates to MSs annually.

5.4. STECF-EWG-14-08: Review of scientific advice for 2015 - part 2

Request to the STECF

Background

According to Article 2 of Commission Decision 629 of 26 August 2005 establishing a Scientific, Technical and Economic Committee for Fisheries, STECF shall provide annual advice on the situation of fishery resources relevant to the EU. The second part of the stock advice focuses on stocks and associated fisheries in the North Sea, North-Western Waters, South Western Waters, Deep Sea and Widely distributed and migratory stocks.

Terms of reference

The STECF is requested to review and comment on the scientific advice released so far in 2014. 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 results of the assessment 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 plan and rules and principles for the setting of TACs as specified in the Commission Communication to the Council concerning a consultation on Fishing Opportunities for 2015 (COM(2014) 388 final.

ICES has been asked to provide advice option taking into account new regulations concerning landing obligations (Article 15 of CFP); STECF is requested, when reviewing this advice, to also comment on it.

Similarly, for data-limited stocks, ICES has been requested to use the available data, together with basic principles, information from comparable cases and expert knowledge in order to provide the best possible advice on the level of landings, or catches when possible, corresponding to MSY, using quantitative, semi-quantitative or qualitative methods as appropriate. Most of this advice is not expected to change in comparison with last year. As last year, STECF is requested to review this advice on data-limited stocks, in particular those which were re-examined or re-opened by ICES.TECF is requested to review the three reports of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

STECF response

STECF reviewed the Review of Advice for 2015 part 2 which was prepared in draft by the EWG 13-08 at its meeting in Copenhagen from 1-5 July 2013. The report was amended following the STECF review and has been adopted as the STECF Review of Advice for 2015 part 2 (STECF-14-11). The report is available on https://stecf.jrc.ec.europa.eu/reports/review-advice.

This report represents the STECF review of advice for stocks of interest to the European Union in The North Sea, Skagerrak, Kattegat and eastern English Channel, the Celtic Seas and west of Scotland, the Bay of Biscay and Iberian waters, waters surrounding Iceland and Greenland, the Barents and Norwegian Seas and some widely distributed and migratory stocks and deepwater resources in the northeast Atlantic ocean.

In undertaking the review, STECF has consulted the most recent reports on stock assessments and advice from appropriate scientific advisory bodies or other readily available literature, and has attempted to summarise it in a common format. For some stocks the review remains unchanged from the Consolidated Review of advice for 2014 (STECF 13-27), since no new information on the status of or advice for such stocks was available at the time the present review took place.

Request to the STECF

STECF is requested to review the three reports of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

6. ADDITIONAL REQUESTS SUBMITTED TO THE STECF PLENARY BY THE COMMISSION

6.1. Request for advice on relevant elements of joint recommendations (Baltic Sea, North Sea, industrial fishing in the North Sea, North Western Waters, South Western Waters, Mediterranean Sea)

Background

Joint recommendations for discard plans have the purpose to provide the Commission with the agreement among Member States cooperating at sea-basin level on the elements for the preparation of Union law (Commission delegated Act) in accordance with Article 15.6 of the CFP Regulation. The five potential elements that can be contained in a discard plan are the following: definitions of fisheries and species, provisions for survivability exemptions, provisions on de minimis exemptions, the fixation of minimum conservation reference sizes and the documentation of catches.

STECF is requested to review and assess individually the supporting documentation (background documentation on: https://stecf.jrc.ec.europa.eu/plen1402) underpinning the first four elements mentioned above in the joint recommendations submitted by regional groups of Member States. STECF is not requested to consider the issue of documentation.

The joint recommendations apply to the following fisheries:

a) Baltic Sea: fisheries for cod, herring, sprat and salmon
b) North Sea: pelagic fisheries
c) North Sea: industrial fisheries
d) North-western waters: pelagic fisheries
e) South-western waters: pelagic fisheries
f) Mediterranean pelagic fisheries

Terms of Reference

STECF are requested to:

a) Review the identification of the fisheries and species to be covered in the discard plans.

b) Review the supporting documentation for exemptions on the basis of high survivability. In data poor situations, assess what further supporting information may be available and how this be supplied in the future (e.g. survival studies, tagging experiments).

c) Review the supporting documentation (biological, technical and/or economic) for de minimis exemptions on the basis that either increases in selectivity are very difficult to achieve, or to avoid handling unwanted catches would create disproportionate cost. In data poor situations, assess what further supporting information may be available and how this could be supplied in the future (e.g. discard data collection, selectivity studies).

d) Review whether there is sufficient information to support proposed minimum conservation reference size(s) that deviate from existing minimum landing sizes, and whether they are consistent with the objective of ensuring the protection of juveniles.

In the absence of a joint recommendation, STECF is asked to consider the advice of the relevant Advisory Council. Where no advice from an Advisory Council is available, STECF is requested to review and assess the supporting documentation provided by the Commission. In both these cases only (c) above is relevant and STECF should only consider the supporting information relating to possible de minimis exemptions in line with Article 15.7 of the CFP Regulation.

STECF comments

Application of de minimis

STECF reiterates that when using the provisions of de minimis under Article 15, the requirements of Article 2 of the Common Fisheries Policy CFP) to fish at F MSY can only be met if the de minimis discard quantities are deducted from the agreed catch opportunity (TAC) arising from F MSY based advice. If de minimis were operated as an addition to the F MSY -advised catch, then mortality rates would be predicted to exceed the F MSY target. Furthermore, depending on the way in which the de minimis quantity is calculated and applied (for example 5% of an aggregate catch of several stocks applied as a de minimis on one stock), the departure from F MSY could be substantial.

STECF has previously commented on the two de minimis conditionalities: (a) difficulties in improving selectivity, and; (b) avoidance of disproportionate costs. The first condition – where "improvements in selectivity are considered to be “very difficult” is subjective and EWG 13-16 interpreted as a technical restriction where gears cannot be improved to become more selective. Based on purely technical grounds there are numerous ways in which gears or fishing tactics could be used to avoid unwanted fish but at a certain level, the changes in fishing practices are likely to lead to a significant reduction in their economic performance, either through lower catches and/or increased costs. EWG 13-16 concluded that it is more likely to be the economic implications of improving selectivity (lower revenues and or higher costs) rather than a technical issue that leads to ‘difficulty’. On this basis EWG 13-17proposed that the ‘current revenue to break even revenue ratio economic balance indicator’, as currently used under the Balance and Capacity reporting requirements, could be used as an appropriate method to quantifiably demonstrate the economic consequences of changing selectivity.

The second conditionality relates to “disproportionate costs of handing unwanted”. On first reading, it would appear that there is a requirement to identify what constitutes “disproportionate cost”. However, EWG 13-16 interpreted that disproportionate costs are simply assumed to be already occurring and that the key aspect of the regulation is how to define when the unwanted catch is “below a certain percentage of the total catch of that gear” how to set the “the percentage unwanted” and how this should be implemented in a discard plan. STECF previously suggested that the following information should be presented in the regional discard plans. This should include: the management unit in terms of number of vessels; the target Species and unwanted by-catch species; the cause of disproportionate costs; the measures taken to reduce disproportionate costs; total annual catches by species for the management units; the total levels of unwanted catches; discard rate and the contribution to the total unwanted catches for all management units. Of primary importance is specifying the actual level of de minimis to be applied and how that is implemented/distributed in the Joint Recommendations.

High survival
Research has shown that not all discards die. In some cases, the proportion of discarded fish that survive can be substantial, depending on the species, fishery and other technical, biological and environmental factors. Article 15 paragraph 2(b) of the regulation allows for the possibility of exemptions from the landing obligation for species for which "*scientific evidence demonstrates high survival rates*". STECF reiterates that it is not possible to provide any judgement on what constitutes 'high' as this is a subjective term and is dependent on the survival rate at age and the age composition of the overall catch and the relative contribution discards make to it and whether exempting fisheries will remove the incentive to reduce discards which is considered the primary objective of article 15.

General Comment of Provisions for documentation

STECF reiterates its previous conclusions that the successful implementation of the landing obligation will be dependent on the degree of compliance leading to the accurate documentation of catches. STECF interprets the provision on documentation in Article15.5d of the CFP (Regulation (EU) 1380/2013) to include fisheries control and enforcement measures required to ensure compliance with the provisions stipulated within discard plans.

STECF observes that the current system of documentation (logbooks, landing declarations and transport declarations etc.) works reasonably well as a data capture system. However, under the landing obligation with a request for full documentation and with provisions for exemptions and de minimis defined at percentages, the current scope needs to be expanded to improve resolution in terms of catch reporting (e.g. catches <50kg); inclusion of vessels not currently covered (e.g. under 10m) and; information at an individual operational level (e.g. haul).

From a control perspective, the fact that catches discarded under the de minimis provisions do not count against quota, creates a significant risk of non-compliance around de minimis, for example under-logging to protect access to the provision, or attempting to mask non-legitimate discards as de- minimis. Similar concerns relate to potential exemptions associated with high survival (EWG 13-16 etc.).

STECF observes that some regional groups (BALTFISH and SCHEVENINGEN) have created fisheries control working groups to address the control and enforcement challenges associated with the landing obligations. The findings from these groups should help in defining control and enforcement measures needed to implement the landing obligation successfully.

a) Joint Recommendation for the Baltic Sea: fisheries for cod, herring, sprat and salmon

BALTFISH joint recommendations
STECF observes that the joint recommendation (hereafter referred to as "JR") submitted by the BALTFISH group is well-structured, comprehensive and the information needed for evaluation is easily extractable. The BALTFISH JR covers all pelagic species under the landing obligation. It proposes that besides these, fisheries for cod will be included in the plan from 2015 onwards, whereas plaice and possibly sea trout will be included as from the 1st of January 2017.

Exemptions are sought for salmon and cod caught in trap nets creels/pots, fyke nets and pound nets, based on high survivability and exclusion/de minimis are sought for fish damaged by seals and other predators.

STECF notes that most of the information requirements raised in EWG 14-01 to justify exemptions based on high survivability are included in the BALTFISH JR.

Exemptions based on high survival.
The rationale for the exemption for salmon is based on a number of studies on mortality in traps, fykes and push-up traps (trap-nets). For these gears, direct mortality seems to be low based on scientific evidence, typically less than 10%.For traps, post-release mortality has also been shown to be low. As the background scientific information does not relate to all the gears for which exemptions for salmon are sought, STECF cannot evaluate whether it is appropriate to assume equivalent mortality rates for creels/pots and pound nets. However, based on the fact that such gears operate by trapping fish inside a static netting structure operating in a similar way to those examined, it seems reasonable to assume that mortality for these gears will also be low. However, it would be advisable to undertake further work to confirm whether this assumption is valid.

The exemption for the cod fishery is based on information on the survivability of cod in pots and pound nets from Sweden and Germany. These studies suggest that survivability of cod is high during the catch phase. No information is available on survivability after release, or on the survivability of cod in fykes, traps and trap nets. Therefore STECF cannot evaluate whether the assumed low mortality rates for these gears is appropriate. However, as above, based on the fact that such gears operate by trapping fish inside a static netting structure, as opposed to entangling or hooking for example, it seems reasonable to assume that mortality for these gears will also be low. However, it would be advisable to undertake further work to confirm whether this assumption is valid.

STECF notes that the survival of both cod and salmon released from all of the gears mentioned above, will depend on handling practices, prevailing environmental conditions and work on the effects of such practices would be informative.

De minimis exemptions
The plan includes a proposal to exclude from the landing obligation all fish that are damaged by seals and other predators. The proposal is supported by reasoned arguments as to why such catches should not be landed or documented. In the event that such an approach is not legally possible, the JR proposes a de minimis exemption for damaged fish. However, the basis for calculating the de minimis is not clearly specified. It is not clear whether the percentages would apply to the total annual catches of all species or to the total annual catches of each species concerned. Furthermore no data are given in the JR that can be used to support or justify the de minimis percentages sought.

STECF stresses that in order to provide best possible scientific advice, documenting all catches is of paramount importance. In this regard, with an exemption from the landing obligation for damaged fish, there is a risk that there will be no documentation of the amount of fish that are discarded. Furthermore, from a control and enforcement perspective, it may be difficult to verify whether such discards occurred because of damage or for some other reason.

As indicated in the report of the EWG 14-01 (STECF 14-01), STECF recognises that the issue of damaged fish does not strictly fall under the de minimis provisions, but it might be appropriate to use this possibility in the short-term until a more appropriate provision can be developed.

Minimum conservation reference sizes
The BALTFISH JR proposes a reduction in the minimal conservation reference size (MCRS) for cod from 38 to 35 cm. STECF reiterates its previous advice (EWG 14-01 and PLEN 13-02) on the MCRS that there may be sound biological reasons for reducing the MCRS to reduce the current levels of discarding. Under the landing obligation, setting a MCRS for cod at 35 cm would reduce the level of catches that may not be sold for human consumption.

Nevertheless, although a MCRS of 35 cm for cod will reduce undersized discards, there remains a risk of discarding to preserve quota for high value catches. Current marketing restrictions also prevent the sale of cod above MCRS but below a certain weight which provides a further driver for discarding. In the JR additional national/regional technical measures are proposed to reduce the catches of undersized cod.

b) Joint Recommendation for the North Sea: Pelagic fisheries in the North Sea.

STECF was asked to review and comment on various elements contained in the above proposal. However, STECF notes that it is unclear whether text submitted North Sea, Kattegat and Skagerrak formally constitutes a draft joint recommendation or whether the intention was to gain views of STECF for further consideration by the MS involved.

Definition of the pelagic fisheries
The definition of pelagic fisheries in the joint recommendation (JR) for a North Sea Discard plan pertains to the North Sea (ICES subarea IV) and Kattegat and Skagerrak Division IIIa (Tables 6.1.1 and 6.1.2).

The list of species and fishing methods that exploit small pelagic species in the North Sea and Skagerrak subject to the landing obligation from 1 January 2015 are adequately specified in Tables 6.1.1 and 6.1.2. However, STECF is not aware of any vessels currently using bottom otter trawls and bottom pair trawls with a mesh size <70 mm to specifically exploit small pelagic species in the Skagerrak or Kattegat. Therefore consideration should be given as to whether the OTB and PTB fishery specified in Table 6.1.1 of the JR is actually a targeted fishery for mackerel, herring and sprat for human consumption. STECF also notes that this fishery/gear type is not included in table 6.1.2 for the North Sea.

Table 6.1.1: Fisheries in ICES IIIa (Kattegat and Skagerrak)

Code	Pelagic fishing gear	Species targeted
OTM and PTM	Mid-water trawl and mid-water pair trawl	Herring, mackerel, blue whiting, horse mackerel, sprat (for human consumption)
PS	Purse seine,	Herring, mackerel, sprat (for human consumption)
OTB and PTB(1)	Bottom otter and bottom pair trawl	Herring, mackerel, sprat (for human consumption)
GNS and GND(2)	Gillnets anchored (set), and gillnets (drift)	Mackerel, herring
LLS, LHP [and LHM]	Set longlines, handlines and pole lines (hand operated) [and handlines and pole lines (mechanised)]	Mackerel
MIS	Miscellaneous gear, including traps, pots and pound nets	Mackerel, herring, sprat (for human consumption)

(1)Bottom otter and bottom pair trawl with mesh size < 70 mm
(2) Mesh size 50 – 99 mm

Table 6.1.2: Fisheries in ICES IV (North Sea).

Code	Pelagic fishing gear	Quota species targeted
OTM and PTM	Mid-water otter trawl and mid-water pair trawl (inc. TR3)	Herring, mackerel, horse mackerel, greater silver smelt, blue whiting, sprat (for human consumption)
PS	Purse seines	Herring, mackerel, horse mackerel, blue whiting
GNS and GND(1)	Gillnets anchored (set) and gillnets (drift)#	Mackerel, herring
GTR	Trammel nets	Mackerel
LLS, LHP and LHM	Set longlines, handlines and poles lines (hand operated) and handlines and pole lines (mechanised)	Mackerel
MIS	Miscellaneous gear, including traps, pots and pound nets	Herring, sprat (for human consumption)

(1) Mesh size 50 – 90 mm

Proposed Exemptions in the JR

The proposed exemptions for pelagic fisheries are as follows:

a) *Exemption from the landing obligation for mackerel purse seine fisheries in all areas in NE Atlantic based on high survival*

b) *Exemption for landing obligation based upon high survival for North Sea Autumn Spawning Herring (Clupea harengus) in purse seine fishery in Subarea IV and Divisions IIIa and VIId.*

c) *Exemption from landing obligation based upon high survival for sprat (Sprattus sprattus) in purse seine fishery in North Sea (Subarea 4) and Skagerrak-Kattegat (Division IIIa)*

d) *Exemption from landing obligation for mackerel and herring in the North Sea, Skagerrak and Kattegat, ICES areas IIIa and IV in pound net fisheries*

e) *A de minimis exemption to the landing obligation for artisanal trawl fisheries using OTM in the southern North Sea (ICES IVbc).*

For each, underpinning information to support the exemptions is presented. The STECF comments on each exemption are given below.

STECF notes that most of the information requirements established in EWG 14-01to justify exemptions are given in the plan but that in some cases is limited and insufficient to calculate, for example, the volume of the proposed de minimis catch.

The STECF comments on each proposed exemption are given in turn below.

a) Exemption from the landing obligation for mackerel purse seine fisheries in all areas in NE Atlantic based on high survival

The JR covers only the North Sea (IV) and Division IIIa. However, this exemption covers purse seine fisheries for mackerel for all areas of NE Atlantic. NE Atlantic is not defined.

Justification for high survivability is based on the results of experimental trials on the survivability of mackerel in purse seines. The results from those studies are variable. Lockwood et al (1983) found that the mortality of mackerel was high if fish were crowded to densities corresponding to those experienced in the late phases of purse-seine fishing (i.e. when the purse is almost closed). Huse and Vold (2010) also simulated crowding and slipping of mackerel from purse seines. Five repeat experiments were performed, all of which showed that crowding has a major effect on survival rates. In all five experiments, mortality was higher among the crowded fish (80–100% mortality) than the controls (0.1–46% mortality), and the difference was significant ($p = 0.01$). The experiments demonstrate that excessive crowding before slipping mackerel from purse seines should be avoided in order to avoid massive fish kills (Huse and Vold, 2010). Mortality of mackerel at crowding densities in the region of 30kg m^{-3} was found to be 10-20% (Lockwood et al, 1983) and 28% (Huse and Vold, 2010).

As anecdotal evidence for high survival, “swimming” i.e. the process of holding fish in the purse seine, for periods up to 48 hours to increase quality and subsequent price for fish as a result of emptying their stomachs is presented as further evidence of high survivability.

80% rule

On the basis of these studies, the JR provides reasoned arguments for the use of an "80% rule" when hauling a purse net. The 80% refers to the degree the seine is closed. The arguments presented suggest that for a typical purse seine used by Danish, Swedish and UK RSW vessels, the average size of the purse seine will be around 720 m long and 200 m deep. The JR notes that individual catches above 1000 tonnes are rare, and that a crowding density of 20 kg m^{-3} is considered precautionary based on the work of Tenningen (2014) and Huse and Vold (2010). They demonstrated survival rates of between 10% -28%crowding densities of about 30 kg m-3 (10%-28%). If this is considered by managers to represent high survival, the proposal suggests that retraction of more than 80% of the purse seine will still leave 130,000 m^3 which would be enough volume within the purse seine to secure high survival assuming catches of less than 1000t.

The JR also includes proposals on an operational plan for the implementation of the mackerel exemption for the purse seine fishery as follows: “*The purse seine must be fitted with a visible buoy clearly marking the 80% limit. To facilitate compliance, control and documentation the vessel and gear shall be equipped with an electronic sensing system recording and documenting when and*

where the purse seine has been hauled beyond the 80% limit. Quantities of released fish must be reported in the logbook in order to ensure full and unbiased recording. Purse seine fishing operations that retrieve the purse seine beyond the 80% mark are not subject to this exemption."

The arguments for the 80% rule based on the information presented seem reasonable and the proposed measures to ensure compliance with the rule if properly implemented are likely to ensure that in most purse seining sets, crowding in clean catches of mackerel will not exceed 20kg m^{-3}. There remains some concern, however, on the ability of such a rule to ensure high survival. Survival is not only related to the crowding density but also to the crowding duration. The proposal indicates that a typical purse seine fishing operation from shooting the net until the whole net has been hauled usually takes about 1.5 hours, where shooting takes about 5 minutes, pursing about 20 minutes and hauling about 60 minutes. Huse and Vold (2010) indicate that crowding duration in their experiments were either 10 minutes or 15 minutes duration and was chosen on the basis of video documentation of commercial purse seining provided by the Norwegian coast guard. Their experiments showed that a crowding duration of only 10 min may be fatal to mackerel. It would be desirable if a relationship between crowding density and duration with mortality could be established, but STECF notes that at present the data are too sparse to determine such a relationship. As crowding duration may be a key factor in survival, if haul duration in practice is greater than that assumed for the experiments, then mortality rates could be greater than those observed.

STECF also notes that the JR also includes a proposed exemption for herring in the purse seine fishery in Subarea IV and Divisions IIIa and VIId. However the proposal is for a 90% rule on the grounds that crowding mortality of herring is lower than that for mackerel. Operationally, it is conceivable that if clean catches of mackerel and herring could be identified and the appropriate hauling rule could be applied *a priori*, the vessel's system to monitor the proportion of the net hauled would need to be set to monitor 80% or 90% accordingly. This may imply that the skipper will know *a priori* what will be caught. In the case of mixed catches of mackerel and herring, it is not clear how much of the purse seine should be hauled and there is no experimental information on the mortality of slipped mixed catches of mackerel and herring.

STECF conclusion

Assuming the experiments undertaken on the crowding effects on mackerel mortality referred to in the JR are representative of the conditions experienced under commercial purse seine fishing operations, in particular crowding duration, the results indicate that implementation of the 80% rule as described in the JR is likely to result in crowding densities of mackerel less than 30kg m-3 and a survival rate of around 70%. STECF cannot comment whether this constitutes "high" survivability.

b) Exemption for landing obligation based upon high survival for North Sea Autumn Spawning Herring (*Clupea harengus*) in purse seine fishery in Subarea IV and Divisions IIIa and VIId.

Justification for high survivability is based on the results of experimental trials on the survivability of fish including herring released from purse seines. The results from such studies are variable. However, one study Tenningen et al (2012) indicated that herring are less susceptible to crowding than mackerel and that crowding densities less than 150kg m^{-3} did not exert mortality rates greater than the control group (0.9%-2.0%).

As for the mackerel exemption, “swimming” i.e. the process of holding fish in the purse seine, for periods up to 48 hours to increase quality and subsequent price for fish as a result of emptying their stomachs is presented as anecdotal evidence for high survival.

90% rule

The JR provides reasoned arguments for the use of a "90%" rule when hauling a purse net for herring. This is based on a typical purse seine used by Danish, Swedish and UK RSW vessels, measuring 720 m long and 200 m deep. Tenningen (2014) has estimated that where 70-80% of a typical purse seine is hauled, there is 130,000 m^3 of water within the net.

Under the assumption that individual herring catches above 1000 t are rare, and that a crowding density of 150 kg m-3 will result in 0.9%-2.0% mortality, STECF estimates that assuming 70%-80% of the purse net is hauled, then for a clean catch of herring of 1000 t, the crowding density within the purse would be 0.08 kg m^{-3}. STECF notes that this is much lower than the density where mortality of herring was observed to increase. STECF notes that Figure 2 in the JR is a duplicate of Figure 1, which pertains to the survival of mackerel and not herring and hence there is no supporting information to estimate what the crowding density of herring would be if 90% of the net is hauled. STECF was unable to check the figures quoted from Tenningen (2014) as this citation relates to a PhD thesis which was not made available to STECF during the meeting.

The JR includes proposals on an operational plan for the implementation of the herring exemption for the purse seine fishery as follows: “*The purse seine must be fitted with a visible buoy clearly marking the 90% limit. To facilitate compliance, control and documentation the vessel and gear shall be equipped with an electronic sensing system recording and documenting when and where the purse seine has been hauled beyond the 90% limit. Purse seine herring fishing operations that retrieve the purse seine beyond the 90% mark should not be subject to the exemption*.”

STECF notes that the sentence “*Quantities of released fish must be reported in the logbook in order to ensure full and unbiased recording*” which is included in the proposed exemption for mackerel is absent from the proposal for herring.

The arguments for the 90% rule based on the information presented seem reasonable and the proposed measures to ensure compliance with the rule if properly implemented are likely to ensure that in most purse seining sets, crowding in clean catches of herring will not exceed 20kg m-3. However, STECF has some concerns on the ability of such a rule to ensure high survival. Survival is not only related to the crowding density but also to the crowding duration. The proposal indicates that a typical purse seine fishing operation from shooting the net until the whole net has been hauled usually takes about 1.5 hours, where shooting takes about 5 minutes, pursing about 20 minutes and hauling about 60 minutes. Tenningen (2012) indicate that crowding duration in the experiments was 10 minutes and was chosen on the basis of the experimental procedure of Huse and Vold (2010). It would be desirable to establish a relationship between crowding density and duration with mortality could be established, but STECF notes that at present the data are too sparse to determine such a relationship. As crowding duration may be a key factor in survival, if haul duration in practice is greater than that assumed for the experiments, then mortality rates could be greater than those observed.

STECF conclusion

Based on the figures quoted in the JR from Tenningen (2014), STECF estimates assuming 70%-80% of the purse net is hauled, then for a catch of herring of 1000 t, the crowding density within the purse would be approximately 7.69 kg m^{-3} which is much lower than the density where mortality of herring was observed to increase (Tenningen, 2012). There is no supporting information in the JR to indicate what the crowding density is likely to be if 90% of the purse is hauled.

Assuming the experiments undertaken on the crowding effects on herring mortality referred to in the JR are representative of the conditions experienced under commercial purse seine fishing operations, in particular relating to crowding duration, the results indicate that implementation of an 80% rule is likely to result in crowding densities much lower than those where mortality of herring has been observed to increase.

STECF also suggests that for control and enforcement purposes, it would appear sensible to use a common rule for all purse seine operations rather than have different rules as proposed (i.e. 80% for mackerel and 90% for herring).

c) Exemption from landing obligation based upon high survival for sprat (*Sprattus sprattus*) in purse seine fishery in North Sea (Subarea 4) and Skagerrak-Kattegat (Division IIIa)

The JR proposes and exemption from the landing obligation for sprat caught by purse seine vessels in the North Sea (Subarea IV) and the Skagerrak and Kattegat (Division IIIa). There is an adequate description of the purse seine gear. However, the reasons why an exemption for sprat is sought are not explained.

A brief description of the purse seine catches of sprat in 2013 is presented indicating that 6 vessels participated in the fishery in 2013 and catches were low ranging from 1 t to 120 t.

High survival.
The basis for the exemption is high survivability observed for other small pelagic species (e.g. mackerel and herring) and not sprat. STECF is unaware of any studies on the survival of sprat slipped from purse seines.

90% rule
The JR includes proposals on an operational plan for the implementation of the sprat exemption for the purse seine fishery in the same way as for herring and mackerel.

The JR makes the assumption that survival of sprat slipped from purse seines is the same as for herring i.e. there would be no additional mortality compared to control groups if the crowning density in the net does not exceed 150 kgm^{-3}. STECF has no information to determine whether this is likely to be the case. There is also no information available, to estimate the potential effect on the survival of slipped sprat given much smaller purse seines are used in this fishery.

STECF conclusion

STECF concludes that there is currently no information available, to reliably estimate the survival rates of sprat slipped from purse seines. STECF can therefore not comment on whether this exemption is appropriate or not.

Furthermore, the size of the purse seines used to catch sprat in 2013 is smaller than the typical purse seine nets deployed to catch herring meaning that crowding densities could be much higher.

d) Exemption from landing obligation for mackerel and herring in the North Sea, Skagerrak and Kattegat, ICES areas IIIa and IV in pound net fisheries

This exemption relates to herring and mackerel catches in pound net fisheries in the North Sea (IV) and Division IIIa (Skagerrak and Kattegat).

There is an adequate description of the pound net gear but no details of the area of operation other than they are staked out perpendicular to the coast in a permanent location for the fishing season. Fish are held in the holding area which is emptied daily, or in bad weather, up to 4-5 days.

STECF notes that there are no reasoned arguments presented in the JR as to why this exemption is sought.

High survival

The JR does not provide any direct scientific evidence relating to mackerel or herring survivability from pound nets but uses studies that show survival of released fish (cod) to be close to 100% as the basis for the exemption. The JR states that as handling time is short for such gears that similar survivability is expected for mackerel and herring as seen for cod. The JR reports that Danish catches of mackerel and herring from pound nets in IV and IIIa for the years 2010 – 2013 are low, with catches of mackerel and herring averaging 94 kg and 446 kg for mackerel and herring respectively. STECF notes that the JR contains a footnote that catches from other MS are to be added. Furthermore, STECF notes that there are inconsistencies between the area sub-totals and total catch estimates presented in the table.

STECF notes that while pound nets are relatively benign gears and the handling time for catches is short, the emptying process does require that the fish are hauled out of the water. Such a process will inevitably result in overcrowding and may result in abrasive injury, which pelagic species are particularly susceptible to. In addition elevated stress levels are known to be a significant contributing factor to fish mortality.

STECF conclusions

There is insufficient data and information in the JR to assess the likely survival rate of mackerel and herring released from Pound nets under operational conditions. While such gears operate by trapping fish inside a static netting structure, the hauling process is likely to lead to overcrowding and damage. STECF also notes that studies have shown large differences between the survival of demersal species such as cod and pelagics, with pelagic species showing much higher mortality rates. However, a lack of quantitative information prevents any firm conclusions on the likelihood of high survival being made. STECF further notes that given the low level of catches of herring and

mackerel involved, the contribution the catches from this fishery make to overall mortality levels is negligible.

3. A de minimis exemption to the landing obligation for artisanal trawl fisheries of all Member States using OTM in ICES sea area IVbc (south of 54 degrees north).

The JR seeks a de minimis exemption to discard mackerel, horse mackerel, herring and whiting caught by pelagic trawlers up to 25 m overall length (LOA) using gear type OTM in ICES divisions IVb and IVc south of 54 degrees north. The de minimis being sought is 3% of total annual catches in the 1st year and 2% for the 2nd year with a proposed review on the de minimis percentage after 2 years of implementation and monitoring.

The evidence presented in support of the exemption is based on the French fleet and the JR states that it should apply equally to the small number of vessels from other Member States that fish for the same species in the same areas and in the same way. STECF is unaware whether other Member States have similar vessels to the French fleet described.

The footnote to the title of this exemption in the JR specifically excludes OTB gear, as it is considered as a mixed fishery. STECF also notes that the JR does not include any fishery for small pelagics using midwater pair trawl (PTM), despite the fact that information on 2012 discards is provided for combined OTM and PTM in Table 2 and described as targeting mackerel. Further clarification on whether PTM gears should be included in the JR may be warranted.

The JR includes a description of the French fleet using OTM in the IVbc. The fleet comprises 78 vessels up to 25m LOA. The same fleet also operates in ICES division VIId. There is limited information presented on catches.

The JR acknowledges that it is not yet not possible to precisely estimate 2013 discard rates although highlights a French observer r programme (ObsMer) which has been set up to collect such data. No other discard estimates for 2013 were available to the STECF.

Using the data reported in the JR, a de minimis exemption of 3% (for 2015) would represent 360 t (3% of total catches of 12000 t). It is not clear in the JR where the valued of 12000 t originates but it is assumed to be the total catches of the French fleet.

STECF notes that from the information presented it is not possible to precisely identify which vessels or trips would be subject to a de minimis exemption or whether it is intended that the exemption would apply to specific fishing operations carried out in the course of any given fishing trip. It appears that the exemption is being sought for under 25m (LOA) vessels that carry both midwater trawls, (possibly single (OTM) and pair (PTM)and bottom trawls (OTB) but only for trips or fishing operations that deploy midwater trawls, but this needs further clarification. Furthermore, it also appears that if a vessel deploys both bottom trawls and midwater trawls on the same fishing trip, then that trip would be considered a mixed fishery trip. Therefore it could be argued that they should be excluded until the introduction of landing obligation for demersal fisheries.

Difficulty to improve selectivity.
The reasons why discarding occurs in the artisanal small pelagic fishery are described in the JR and can be summarised as follows:

- For whiting, discarding is mainly due to catches of whiting below 27 cm and it is difficult to avoid such catches with a mesh size less than 70 mm.

STECF notes that there is no information presented to demonstrate that increases in selectivity to avoid whiting catches are in fact difficult to achieve in accordance with article 15.5(c)(i). STECF can therefore not evaluate whether this assertion is correct or not.

- Mackerel and herring discards in 2012 were mainly due to quota limitations and/or the difference in MLS between IV (30 cm) and VII (20 cm) and suggests that harmonising the minimum size in both areas to 20cm would help reduce unwanted catch of undersized mackerel for the fishery.

STECF notes that harmonising the minimum size of mackerel at 20 cm would increase the proportion of any mackerel caught in subarea IV that could be landed and sold for human consumption. However, it remains unclear whether such catches would in fact be wanted, since quota limitations is also identified to be one of the main reason why discarding currently occurs. Furthermore, it is unclear whether this statement constitutes a proposal to set the minimum conservation reference size for mackerel at 20 cm or whether it is merely an observation.

- For horse mackerel discarding represents only a small percentage of the catches and appears to be due to a lack of market. The JR indicates that increase in selectivity to reduce these discards is difficult in practice.

STECF notes that there is no information presented to demonstrate that increases in selectivity to avoid unwanted catches of horse mackerel are in fact difficult to achieve in accordance with article 15.5(c)(i). STECF can therefore not evaluate whether this assertion is correct or not.

- Some discarding arises because of mechanical damage incurred in the fishing operation. The JR indicates that few solutions to reduce such discards currently exist especially in terms of selectivity.

STECF notes that mechanical damage to part of the catch during the fishing operation is unavoidable in many cases for many different fisheries and currently results in discarding. However, damaged fish account for part of the overall fishing mortality and STECF considers that such catches should be reported and accounted for. Whether such catches need to be landed is a decision for managers.

STECF considers that while the above arguments are credible, they do not constitute clear scientific evidence to indicate that increases in selectivity are difficult to achieve.

Disproportionate costs of handling unwanted catches.

The JR presents reasoned arguments in support of this de minimis exemption on the grounds of disproportionate costs of handling unwanted catches.

STECF conclusions

STECF concludes that it is not possible to precisely identify which vessels or trips would be subject to a de minimis exemption from the information given in the JR or whether it is intended that the exemption would apply to specific fishing operations within a given fishing trip.

STECF concludes that the information in the JR does not constitute scientific evidence to allow an assessment of whether increases in selectivity are difficult to achieve.

STECF concludes that the JR presents reasoned qualitative arguments in support of a de minimis exemption on the grounds of disproportionate costs of handling unwanted catches in the artisanal fishery using midwater trawl in ICES Divisions IVb,c. However, whereas Article 15.5.c(ii) of EU regulation 1380/2013 stipulates that the de minimis exemption shall apply to avoid disproportionate costs of handling unwanted catches, for those fishing gears where unwanted catches do not represent more than a certain percentage, to be established in the plan, of total annual catch of that gear, STECF notes that no such percentage is established in the plan.

c) Joint Recommendations for the North Sea:Industrial fisheries

Discard Plan for industrial fisheries

Given there are no proposed exemptions for de minimis or high survivability contained in the joint recommendations for industrial fisheries in Kattegat, Skagerrak and the North Sea, STECF has not carried out any detailed evaluation of this discard plan. STECF does acknowledge that the descriptions of the fisheries contained in joint recommendations is comprehensive and clear and would appear to cover all of the relevant industrial fisheries in this region.

d) Joint Recommendations for the North West Waters Region: Pelagic Fisheries

The proposal for a specific discard plan for the North West Waters region submitted to STECF for review is labelled as a draft proposal for consultation purposes. STECF has reviewed it as if it were a Joint Recommendation for a discard plan for the region.

Definition of the pelagic fisheries

The definition of pelagic fisheries in the proposal pertains to small and large pelagic fisheries and fisheries for industrial purposes in the North West Waters, comprising ICES sea areas Vb, VI and VII, as per Article 15.1(a) of Regulation (EU) No 1380/2013.The list of species and fishing methods that exploit small pelagic species in the region are adequately specified in Tables 1 - 4 of the proposal and are reproduced below. (Tables 6.1.3 – 6.1.6)

Table 6.1.3. Fisheries in ICES Vb, VIa, VIb

Code	Pelagic fishing gear	Quota species targeted
OTB	Otter trawls– bottom	Mackerel, herring, horse mackerel, blue whiting, boarfish, argentine
OTM	Otter trawls midwater, other	Mackerel, herring, horse mackerel, blue whiting, boarfish, argentine
PTB	Pair trawls – bottom (other)	Mackerel
PTM	Pair trawls – midwater	Herring, mackerel
PS	Purse seines	Mackerel, blue whiting
LMH	Handline	Mackerel
LTL	Trolling	Mackerel

Table 6.1.4. Fisheries in ICES VII (excluding a, d and e)

Code	Pelagic fishing gear	Quota species targeted
LMH	Handline	Mackerel
LTL	Trolling and poles and lines	Albacore tuna
PTM	Pair trawls – midwater	Blue whiting, mackerel, horse mackerel, albacore tuna, boarfish, herring
OTM	Otter trawls – midwater	Blue whiting, mackerel, horse mackerel, boarfish, herring, albacore tuna
OTB	Otter trawls – bottom	Herring
PS	Purse seines	Mackerel, horse mackerel

Table 6.1.5. Fisheries in ICES VII d-e

Code	Pelagic fishing gear	Quota species targeted
OTB	Otter trawls (not specified)	Sprat
GND	Driftnets	Mackerel, herring
LMH	Handlines and polelines	Mackerel
OTM	Otter trawls – midwater (other)	Sprat, horse mackerel, mackerel, herring, boarfish
PTM	Pair trawls – midwater (other)	Horse mackerel
PS	Purse seines	Mackerel, horse mackerel

Table 6.1.6. Fisheries in ICES VIIa

Code	Pelagic fishing gear	Quota species targeted
OTM	Otter trawls – midwater	Herring
PTM	Pair trawls – midwater	Herring
LMH	Handlines	Mackerel
LMH	Gillnets	Herring

Proposed Exemptions in the JR

The proposed exemptions for pelagic fisheries are as follows:

a) A de minimis is proposed for the blue whiting pelagic trawl fishery with on board processing of the catches that produce surimi base in ICES sea areas VII.

b) A de minimis exemption is proposed for the albacore tuna pelagic pair trawlers in ICES sub-area VII.

c) A de minimis exemption to the landing obligation for artisanal trawl fisheries of all Member States using OTM in ICES sea area VIId.

d) A de minimis exemption for boarfish in ICES sea areas VI and VII.

For each, the reasons why the exemptions are being sought is explained and evidence in support of the exemption is presented.

STECF notes that most of the information requirements established in EWG 14-01to justify exemptions are given in the plan but that in some cases is limited and insufficient to calculate, for example, the volume of the proposedde minimis catch.

The STECF comments on each proposed exemption are given in turn below.

a) A de minimis is proposed for the blue whiting pelagic trawl fishery with on board processing of the catches that produce surimi base in ICES sea areas VII.

The proposed exemption is clearly defined in terms of to which fishery it would be applied.

STECF notes that given the data provided by the plan the volume of this exemption can be estimated to be between 213 and 700 tonnes depending on the reference year used for the landings. The % asked for the de minimis (7%) is, according to the plan, similar to the average level of discarding of this stock by this fleet.

STECF notes that the exemption is supported by reasoned arguments on the difficulty of improving selectivity in this fishery although no quantitative analysis is provided in relation to this. STECF also notes that the current mesh size in the codend used in this fishery is of 54mm while regulation allows a mesh size from 32 to 54mm. The exemption is also supported by estimates of the loss in turnover due to different direct or indirect effects of the landing obligation which vary from a minimum of € 0.9 to maximum of € 1.6 per kilogram.

STECF conclusions
For the proposed de minimis exemption for the blue whiting pelagic trawl fishery with on board processing of the catches that produce surimi base in ICES sea areas VIII, STECF concludes that the exemption is sufficiently well argued with respect to the difficulty of improving the selectivity and with respect to the additional handling costs that the vessel is likely to incur.

b) A de minimis exemption is proposed for the albacore tuna pelagic pair trawlers in ICES sub-area VII.

The proposed exemption is clearly defined. The reported volume of discards of this species varies between 71 tonnes (3% of total landings) and 411 tonnes(12% of total landings).STECF notes that given the landings reported in the plan for the last three years of this stock by this fleet, the total volume of catch that would have been subject to a de minimis exemption ranges from a minimum of 71 tonnes to a maximum of 244 tonnes (7% of the landings in 2013).

The proposed exemption is supported by argumentation that discards are due to the low commercial value of some catches (due to the damage of the fish) and not to the catches of individuals under the minimum landing weight. In support of this argumentation the size structure of the tuna catches is provided in the plan. Given this information, STECF notes that catches of individuals below 46 cm (2kg) are negligible. The exemption is also supported by the fishing opportunities lost if the exemption is not considered, which according to the estimations provided by the plan, will be in the order of 13.4% of the turnover obtained by the fleet.

STECF conclusions
For the proposed de minimis exemption for the albacore tuna pelagic pair trawlers in ICES sub-area VII, STECF concludes that the discards for which the exemption is asked is essentially highgrading. Furthermore STECF concludes that the argumentation from the costs side is not related to the handling costs but on the loss of fishing opportunities due to, precisely, such highgrading practices. Thereby STECF concludes that the arguments in support of the exemption are not well founded.

c) A de minimis exemption to the landing obligation for artisanal trawl fisheries of all Member States using OTM in ICES sea area VIId.

The JR seeks a de minimis exemption to discard mackerel, horse mackerel, herring and whiting caught by pelagic trawlers up to 25 m overall length (LOA) using gear type OTM and targeting mackerel, horse mackerel and herring in ICES divisions VIId. The de minimis being sought is 3% of total annual catches in the 1st year and 2% for the second year with a proposed review on the de minimis percentage after 2 years of implementation and monitoring.

The evidence presented in support of the exemption is based on the French fleet and the JR states that it should apply equally to the small number of vessels from other member States that fish for the same species in the same areas and in the same way.

The JR includes a brief description of the French fleet using OTM in VIId and IVbc and indicates that the majority of activity is in VIId. The fleet comprises 78 vessels up to 25m LOA. There is limited information presented on catches.

The JR acknowledges that it is not yet not possible to precisely estimate 2013 discard rate from the French ObsMer programme. No other discard estimates for 2013 were available to the STECF.

Using the data reported in the JR, a de minimis exemption of 3% (for 2015) would represent 360 t (3% of 12000 t). It is not clear in the JR where the valued of 12000 t originates.

STECF notes that it is not possible to precisely identify which vessels or trips would be subject to a de minimis exemption from the information given in the JR or whether it is intended that the exemption would apply to specific fishing operations. It appears that the exemption is being sought for under 25m (LOA) vessels that carry both midwater trawls (OTM; there is also the possibility that vessels also work with midwater pair trawls, PTM) and bottom trawls (OTB) but only for trips or fishing operations that deploy midwater trawls. Furthermore, it also appears that if a vessel deploys both bottom trawls and midwater trawls on the same fishing trip, then that trip would be considered a mixed fishery trip therefore it could be argued that they should be excluded until the introduction of JRs landing obligation for demersal fisheries

Difficulty to increase selectivity.
The reasons why discarding occurs in the artisanal small pelagic fishery are listed in the JR and can be summarised as follows:

- For whiting, discarding is mainly due to catches of whiting below 27 cm and it is difficult to avoid such catches with a mesh size less than 70 mm.

STECF notes that there is no information presented to demonstrate that increases in selectivity to avoid whiting catches are in fact difficult to achieve in accordance with article 15.5(c)(i). STECF can therefore not evaluate whether this assertion is correct or not.

- Mackerel and herring discards in 2012 were mainly due to quota limitations and/or the difference in MLS between IV (30 cm) and VII (20 cm) and suggests that harmonising the minimum size in both areas to 20cm would help reduce unwanted catch of undersized mackerel for the fishery.

STECF notes that harmonising the minimum size of mackerel at 20 cm would increase the proportion of any mackerel caught in subarea IV that could be landed and sold for human consumption. However, it remains unclear whether such catches would in fact be wanted, since quota limitations may also be a reason why discarding currently occurs. Furthermore, it is unclear whether this statement constitutes a proposal to set the minimum conservation reference size for mackerel at 20 cm or whether it is an observation.

- For horse mackerel discarding appears to be due to a lack of market and the JR indicates that it would seem difficult to increase selectivity as discards already represent a really small percentage of the catches.

STECF notes that there is no information presented to demonstrate that increases in selectivity to avoid unwanted catches of horse mackerel are in fact difficult to achieve in accordance with article 15.5(c)(i). STECF can therefore not evaluate whether this assertion is correct or not.

- Some discarding arises because of mechanical damage incurred in the fishing operation. The JR indicates that few solutions to reduce such discards currently exist especially in terms of selectivity.

STECF notes that mechanical damage to part of the catch during the fishing operation is unavoidable in many cases for many different fisheries and currently results in discarding. However, damaged fish account for part of the overall fishing mortality and STECF considers that such catches should be reported and accounted for. Whether such catches need to be landed is a decision for managers.

STECF considers that while the above arguments are credible, they do not provide sufficient scientific evidence to indicate that increases in selectivity are difficult to achieve.

Disproportionate costs of handling unwanted catches.

The JR presents reasoned qualitative arguments in support of a de minimis exemption on the grounds of disproportionate costs of handling unwanted catches.

STECF conclusions

STECF concludes that it is not possible to precisely identify which vessels or trips would be subject to a de minimis exemption from the information given in the JR or whether it is intended that the exemption would apply to specific fishing operations within a given fishing trip.

STECF concludes that the information in the JR does not provide sufficient scientific evidence to allow an assessment of whether increases in selectivity are difficult to achieve.

STECF concludes that the JR presents reasoned qualitative arguments in support of a de minimis exemption on the grounds of disproportionate costs of handling unwanted catches in the artisanal fishery using midwater trawl in ICES Divisions IVb,c. However, whereas Article 15.5.c(ii) of EU regulation 1380/2013 stipulates that the de minimis exemption shall apply to avoid disproportionate costs of handling unwanted catches, for those fishing gears where unwanted catches do not represent more than a certain percentage, to be established in the plan, of total annual catch of that gear, STECF notes that no such percentage is established in the plan.

d) A de minimis exemption for boarfish in ICES sea areas VI and VII

STECF notes that the proposal is for a de minimis exemption from the landing obligation for boarfish catches in the pelagic fisheries for horse mackerel in ICES subarea VII which takes place in spring (January-May) and autumn (September-December). The gear is midwater trawl (OTM) with a codend mesh size of 32-54 mm. The proposed exemption clearly specifies the fishery to which it would be applied.

STECF notes that the proposed de minimis exemption is for 1% (year 1) and 0.75% (year 2) of the TAC for boarfish with a review on the percentage to be applied in the 3rd year of application. In terms of calculating what this would mean in terms of volume of permitted discards of boarfish, STECF notes that based on the agreed TAC for the period 2011 -2014, a 1% de minimis would range from 300 t and 1275 t depending on the reference TAC year. Similarly a 0.75% de minimis would range from about 247 t to 956 t.

STECF notes that the proposed exemption is supported by reasoned qualitative arguments on the difficulty of improving selectivity in this fishery and while there is no scientific evidence presented to support such arguments, STECF acknowledges that at present no such evidence exists. The proposal for the exemption is also supported by estimates of the loss in turnover to the broader Netherlands Pelagic sector, including the potential costs of retaining and landing boarfish catches. As the Netherlands pelagic fleet has no quota for boarfish, estimates of the potential loss in revenue to the fleet are also given, assuming that quota for other species would need to be used (species flexibility) in the absence of a de minimis exemption. STECF notes of the Member States who participate in this fishery, only the Netherlands, France and Germany have no boarfish quota.

STECF conclusions

STECF concludes that the proposed de minimis exemption to discard boarfish in the pelagic fisheries for horse mackerel in ICES subarea VII is supported by reasoned qualitative arguments on the difficulty of improving selectivity in this fishery and while there is no scientific evidence presented to support such arguments, STECF acknowledges that at present no such evidence exists.

STECF concludes that the arguments regarding additional handling costs appear reasonable and notes that the supporting arguments are based on plausible estimates of reduced revenues for the Netherlands' pelagic fleet assuming that freezer space would need to be used for boarfish rather than horse mackerel and the need to transfer quota from other species because of a lack of boarfish quota for that fleet.

STECF notes that in accordance with the provisions of Article 15.5.c (ii) the JR establishes de minimis percentages of 1% and 0.75% respectively for years 1 and 2 of the plan. STECF also notes that at present, there is no information available to determine whether such percentages are representative of the proportion of boarfish in the total annual catch of the pelagic trawl fishery for horse mackerel.

e) Joint Recommendations for the South Western Waters Region: Pelagic fisheries

STECF notes that the objective of the JR is to define a discard plan for the small and large pelagic fisheries and fisheries for industrial purposes in the South West Waters (species subject to catch limits), comprising ICES sub areas VIII, IX, X and CECAF areas 34.1.1, 34.1.2, 34.2.0. It defines partial exemptions of the landing obligation for some specific fisheries, and recommends changes to the minimum conservation reference size (MCRS) of anchovy.

STECF notes that the fisheries concerned are summarised in Tables 1 to 4 of the JR. STECF concludes that they provide a clear description of the fleets (from France, Portugal and Spain), areas and fisheries concerned.

The JR proposes the following exemptions from the landing obligation:

e) A total exemption for the anchovy, horse mackerel, jack mackerel and mackerel in purse seine fisheries in ICES areas VIII, IX, X and CECAF 34.1.1, 34.1.2, 34.2.0 based on high survivability.

STECF notes that the fishery to which the exemption would apply is clearly defined. The exemption is supported in the JR by an explanation on how this fishery operates and by a specific survival study (Arregi et al., 2014) in which "slipping" (releasing fish before the net is fully taken on board if the catch is unwanted by the skipper) is simulated and survival rates of anchovy, horse mackerel, jack mackerel and mackerel are estimated. The survival rates provided by this study vary in relation to the species as well as the crowding time and total catch (density). The survival rates for the different species obtained in the study are: mackerel 3%-100%; horse mackerel 89.7%-100%; anchovy 54.2%-97.8%; sardine 83.9% -100%and chub mackerel 100%. As stated in the study, survival rates depend crucially on the crowding time and the density of fish within the net which is in keeping with findings of other published studies, which is also referred to in the JR. According to Arregi et al (2014), crowding time related to slipping, under real fishing conditions, is estimated to be less than 5 minutes in duration.

f) Ade minimis exemption is proposed for the blue whiting pelagic trawl fishery with on board processing of the catches that produce surimi base in ICES sea areas VIII. The proposed exemption is clearly defined in terms of the fishery to which it would be applied.

STECF notes that given the data provided by the plan the volume of this exemption can be estimated to be between 213 and 700 tonnes depending on the reference year used for the landings. The % asked for the de minimis(7%) is, according to the plan, similar to the average level of discarding of this stock by this fleet.

STECF considers that the exemption is supported by reasoned arguments on the difficulty of improving selectivity in this fishery although no quantitative analysis is. STECF also notes that the current mesh size in the codend used in this fishery is of 54mm while regulation allows a mesh size from 32 to 54mm.

The exemption is also supported by estimates of the loss in turnover due to different direct or indirect effects of the landing obligation which vary from a minimum of € 0.9 to maximum of € 1.6 per kilogram.

g) Ade minimis exemption is proposed for the albacore tuna pelagic pair trawl fishery in ICES sub-area VIII. The proposed exemption is clearly defined. The reported volume of discards of this species varies between 71 tonnes (3% of total landings) and 411 tonnes(12% of total landings).STECF notes that given the landings reported in the JR for the last three years of this stock by this fleet, the total volume of catch that would have been subject to a de minimis exemption ranges from a minimum of 71 tonnes to a maximum of 244 tonnes (7% of the landings in 2013).

The proposed exemption is supported by an argumentation that discards are due to the low commercial value of some catches (due to the damage of the fish) and not to the catches of individuals under the minimum landing weight. In support of this argumentation the size structure of the tuna catches is provided in the plan. Given this information, STECF notes that catches of individuals below 46 cm (2kg) are negligible. The exemption is also supported by the argumentation of fishing opportunities lost if the exemption is not considered, which according to the estimations provided by the plan, will be of the 13.4% of the turnover obtained by the fleet.

h) A de minimis exemption is proposed for anchovy in the pelagic trawl fishery in the Bay of Biscay (ICES Divisions VIII a,b,d,e). It is clearly defined with a maximum of 5% (4% the third year) of the total annual catches in the pelagic trawl fishery targeting anchovy (*Engraulis encrasicolus*), mackerel (*Scomber scombrus*) and horse mackerel (*Trachurus spp*) in ICES subarea VIII. Given the multispecies nature of fisheries STECF is unable to estimate the volume by stock that could result from the de minimis exemption.

The exemption is supported by reasoned argumentation on how selectivity cannot be improved. The length of the largest anchovy caught is smaller than the minimum size (MLS or MCRS) of both, mackerel and hake. It implies that selectivity improvements are unlikely to occur in this fishery. In fact, and according to the JR, avoidance practices (changes in fishing areas) have already been implemented by the fishermen to avoid greater discards. Nevertheless STECF notes how some discards of damaged anchovy could be classed as highgrading.

The exemption is also supported by a non-quantitative argumentation of the disproportionate costs of handling these catches which according to the plan are: extra sorting work, limited capacity of storage, and cost of storage boxes and icing.

i) Ade minimis for 5% for the catches of anchovy, mackerel, horse mackerel and jack mackerel in the purse-seine fishery in ICES subareas VIII, IX, X and CECAF 34.1.1, 34.1.2, 34.2.0.

The exemption is clearly defined in terms of fleets and stocks considered although STECF cannot estimate the volume by stock that would result from the de minimis exemption. STECF also notes

that this exemption is addition to the exemption sought for the same fishery based on high survivability (exemption a).

The exemption for mackerel and horse mackerel is supported by the fact that the association of these two species in mixed shoals makes improvements in selectivity very difficult.

The exemption is also supported by reasoned arguments that disproportionate costs would result from separating and storing these catches.

STECF also notes that for anchovy the % asked for the de minimis is conditional on granting of the total exemption due to high survival rate asked for this fishery (exemption a). If this high survival exemption is approved the % of the de minimis asked will be 2%. If the high survival exemption is refused the % of the de minimis asked will be 7%. The exemption is supported by an argumentation on the difficulties to improve the selectivity. The de minimis exemption for Jack Mackerel (5%) is supported by analogy with mackerel and horse mackerel. No further information is given for jack mackerel.

STECF cannot estimate the volume by stock that could result from the proposed de minimis exemption for any of the stocks of the exemption asked for this fishery.

STECF notes that the JR also proposes changes to the minimum conservation reference size (MCRS) for European anchovy (*Engraulis encrasicolus*) in ICES subarea IX from 11 cm to 9 cm. The argumentation is based on the consistency with the MCRS for anchovy set by Regulation (CE) N° 1967/2006 in the Mediterranean Sea. It also proposes a change to the MCRS for the same species in the CECAF area 34.1.2, from 12 cm to 9 cm. The argumentation is based on the size of first maturity which according to the available studies for this area is established between ranges of 7.8 to 10 cm (STECF– PLEN-13-01).

STECF conclusions

STECF concludes that most of the information requirements proposed by EWG 14-01to support the proposed exemptions are given in the JR but that in some cases the information provided is limited and insufficient to calculate, the volume of the de minimis catch.

For the exemption for the purse seine fishery on the basis of high survivability, STECF concludes that, assuming the results of the survival study are representative of survival rates under commercial fishing operations, the proportion of slipped fish surviving would likely be greater than 50%. However, it would be advisable to undertake further work to confirm that the experimental conditions are representative of commercial fishing operations.

STECF notes that in addition to this exemption a de minimis exemption has also been proposed for the purse seine fishery. STECF concludes that this exemption is supported by reasoned arguments which demonstrate the difficulties of improving the selectivity in this fishery.

For the proposed de minimis exemptionfor the blue whiting pelagic trawl fishery with on board processing of the catches that produce surimi base in ICES sea areas VIII, STECF concludes that the exemption is sufficiently well argued with respect to the difficulty of improving the selectivity and with respect to the additional handling costs that the vessel is likely to incur.

For the proposed de minimis exemption for the albacore tuna pelagic pair trawlers in ICES sub-area VIII, STECF concludes that the discards for which the exemption is asked is essentially highgrading. Furthermore STECF concludes that the argumentation from the costs side is not related to the handling costs but on the loss of fishing opportunities due to, precisely, such highgrading practices.

For the proposed de minimis exemption for the anchovy pelagic trawl fishery in the Bay of Biscay (ICES Divisions VIII a, b, d, e), STECF concludes that the exemption is well argued for mackerel and horse mackerel given the difficulties of improving selectivity with other measures apart from those currently in place. Nevertheless for the case of anchovy, STECF concludes that the discards for which the exemption is asked is essentially highgrading, at least partially. Furthermore STECF concludes that part of the argumentation from the costs side is not related to the handling costs but on the loss of fishing opportunities due to, precisely, such highgrading practices or to the absence of market for damaged anchovy.

STECF concludes that the proposed reduction in MCRS of anchovy to 9cm, given the size maturity of this species, will keep the fishery directed to mature individuals of anchovy, so would not impact on juvenile anchovy. STECF also concludes that the reduction of the MCRS for anchovy in both areas would increase the level of catches that could be sold for human consumption without increasing fishing mortality. Furthermore, STECF considers that harmonising MCRS with other areas may have benefits for control and enforcement.

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Arregi, L. Onandia, I. Ferarios, J.M., Ruiz J. and Basurko O.C. 2014. Assessing fish survival from slipping in purse seine fisheries of European southern waters. AZTI-Tecnalia, Sukarrieta, 44 pp.

f) Joint Recommendations for the Mediterranean Region: Pelagic fisheries

STECF observations pertaining to all joint recommendations for discard plans for the Mediterranean

Five joint recommendations associated with pelagic fisheries in the Mediterranean region were reviewed:

(i) *Discards management plan for Western Mediterranean Sea (GSAs 1-12 except for GSAs 3 and 4) joint recommendation agreed by fisheries directors of France, Spain and Italy.*

The JR applies to the following fisheries: French mid-water pelagic trawlers and purse seiners with light sources from Italy, France and Spain. Limited information is given in the plan concerning the number of vessels or licenses involved in each fishery as well as target species and description of fishing operations. There is no information regarding the volumes of landings and discards.

(ii) Discards Management Plan for Malta and the South of Sicily (GSAs 15-16) – Joint Recommendation agreed by Italy and Malta

The JR applies to the following fisheries: Italian pelagic pair trawlers, Italian purse seiners and Maltese purse seiners. Very limited information is given in the JR concerning the number of vessels involved in each fishery (provided only by Malta) as well as target species and description of fishing operations (provided only by Italy). There is no information regarding the volumes of landings and discards.

(iii) Discards Management Plan in North Adriatic Sea (GSA 17) – Joint Recommendation by Croatia Italy and Slovenia

The JR applies to the following fisheries: Italian pelagic pair trawlers, Italian purse seiners, Slovenian purse seiners and the 'Srdelara' Croatian purse seiners. Very limited information is given in the JR concerning the number of vessels or licenses involved in each fishery (provided only by Croatia and Slovenia) as well as target species and description of fishing operations (provided only by Italy). There is no information regarding the volumes of landings and discards.

(iv) Joint recommendation to the European Commission for a specific discard plan for pelagic fisheries in southern Adriatic Sea, western and eastern Ionian Seas (GSAs 18-19-20)

The JR applies to the following fisheries: Italian pelagic pair trawlers, Italian purse seiners and Greek purse seiners. Limited information is given in the JR concerning the number of vessels involved in each fishery (provided only by Greece) as well as target species and description of fishing operations. There is no information regarding the volumes of landings and discards.

(v) Greek discard plan for pelagic fisheries in Aegean Sea and Crete Island (GSAs22 and 23)

The plan applies to the purse seine fishery carried out in the Aegean and Crete island waters. Limited information is given in the plan concerning the number of vessels, their spatial distribution, the characteristic of the gear employed (only purse seine), fishing operations and target species. There is no information regarding the volumes of landings and discards.

STECF comments

De minimis exemptions on the basis that either increases in selectivity are very difficult to achieve, or to avoid handling unwanted catches would create disproportionate cost.

The main aim of the JR's is the application of de minimis exemption on the basis of the low amount of discards and disproportionate costs due to handling unwanted catches. The JR's do not consider the increase in selectivity as basis for de minimis exemption.

STECF notes that that the content of the above plans are broadly similar, with the only substantive differences being the levels of de minimis being sought. Given the similarities, STECF has provided collective comments on all the plans and also made observations pertaining to specific plans where relevant.

STECF notes that the JRs for discard plans (in the case of GSA 22 and 23it is a recommendation from Greece only) provide limited descriptions of small pelagic fisheries occurring in each GSA/MS. They essentially propose a de minimis exemption to discard up to 3%, 5% or 7%, depending on the fishery, for the small pelagic species having a MCRS in the Mediterranean. All

the JRs have a duration of three years and proposes to adopt the de minimis exemption during the first and second year at a fixed rate, in some cases [plan (ii) and plan (iv)] the de minimis is differentiated between gear types i.e. 3% of catches from the purse seine 7% of catches associated with pelagic trawls, whereas in other [plans (i); (iii); and (v)] it is not differentiated between gears. However, the basis for calculating the de minimis is not clearly specified. It is not clear whether the percentages will apply to the total annual catches of all species or to the total annual catches of each species concerned. Furthermore no data are given in the JRs that can be used to support or justify the de minimis percentages sought.

Table 6.1.7 below provides a summary of the percentage de minimis being sought in each plan and the fisheries from which the de minimis volume is to be calculated.

Table 6.1.7. Summary of the percentage de minimis being sought in each plan and the fisheries from which the de minimis volume is to be calculated.

Management Plan	De minimis	Base fishery for calculation of the de minimis volume
(i) Western Med. GSA 1-21 and GSA 3	5%	Not specified
(ii) and South of Sicily GSA 15-16	3%/7%	Purse Seine/Pelagic Trawls
(iii) North Adriatic (GSA 17)	5%	Not specified
(iv) South Adriatic, W & E Ionian Seas (GSA 18-19-20)	3%/7%	Purse Seine/Pelagic Trawls
(v) Aegean and Crete Island (GSA 22-23)	3%	Not specified

It stipulates that appropriate data on discards will be collected during the first year which will be analysed during the second year. According to the results obtained the de minimis percentage may be revised during the third year. The de minimis percentage will be allocated to the different fisheries (pelagic trawlers or purse seiners) by each MS according to national fleet composition.

The JR's apply to all pelagic species in the Mediterranean with a Minimum Conservation Reference Size (MCRS), listed in the Annex III of the EU Reg. 1967/2006. STECF notes that, although not clearly mentioned in the JR, pelagic species with MCRS caught with purse seines and pelagic trawls are the European anchovy (*Engraulis encrasicolus*), European sardine (*Sardina pilchardus*), jack mackerels (*Trachurus trachurus*and *T. mediterraneus*) and mackerels (*Scomber scombrus* and *S. colias*).

Each JR advocates a three year plan using an adaptive approach with the defined de minimis exemptions for the first 2 years to allow collection and analysis of discard data with a possible revision during the third year on the basis of this analysis. STECF notes that the main rationale of this de minimis exemption is to allow collection and analysis of discard data. However, apart from a reference to an Italian pilot study there is no indication in any of the JR as to how this data will be collected. It would be useful for Member States to outline data collection programmes that are planned to fulfil this objective.

STECF questions whether data to estimate discard volumes is available through the DCF. Furthermore, if data are unavailable or the quality is questionable to support the JRs, the reasons should be clearly stated.

Each JR expresses reasoned arguments related to the increase of costs in handling unwanted catches supported in some JR with a qualitative assessment of the costs. However, article 15.5.c(ii)

of EU regulation 1380/2013 stipulates that the de minimis exemption shall apply "*to avoid disproportionate costs of handling unwanted catches, for those fishing gears where unwanted catches do not represent more than a certain percentage, to be established in the plan, of total annual catch of that gear*", STECF notes that no such percentage is established in any of the plans.

In order to assess the likely impact of proposed exemptions, information may be required including catch composition data on small pelagic fisheries that could be used to estimate the proportion of undersized fish in the catches and potential de minimis catch volumes together with quantitative estimates of the disproportionate costs of handling the unwanted catches separately by fishery.

STECF notes that no estimates of discard volumes of undersized fish are provided in the JRs because of lack of 'clear and reliable' data. STECF notes that data to estimate discard volumes should be available from the DCF and advises that an effort should be made to use DCF data to provide estimates of discards volumes and percentages. Furthermore, if data are unavailable or the quality is questionable, to support the JRs, the reasons should be clearly stated. STECF notes that several of the JRs (plans (ii); (iii), and; (iv)) make reference to the scientific publication by Santojanni et al. (2005), that states that the high amount of discards reported for the Italian pelagic pair trawl fleet is constituted by species not subject to minimum landing size (presumably sprats). STECF notes that such assumption is not supported by what is presented in the paper and it refers to a fishery carried out in the Northern Adriatic Sea (GSA 17). Furthermore, STECF notes that the JR for the Aegean Sea and Crete Island (plan v) did not consider data reported in Tsagarakis et al. (2012), where data on discards of the Greek Ionian purse seine fishery are presented.

According to the JRs landings and discards will be continuously monitored during the year and if the de minimis threshold is reached discarding will cease and all catches for the rest of the year will be landed. Furthermore, in Italian waters the authorities will examine the feasibility to conduct a pilot study, possibly with observers on board. The details or aim of such a pilot study are not specified.

For Italy the plan states that "*Upon reaching the management threshold and therefore completely blocking discards for the fishery in question, the Administration reserves the right to use part of the share for another fishery*." What this means in practice is unclear.

Several reasons are described in the plan which would create disproportionate cost for handling the unwanted catches. These include:

- the low amount of discards;
- the extended coastline with numerous landing ports;
- the lack of necessary infrastructures on land to handle discards;
- increased labour, storage and preservation costs;
- decreased time allocated to profitable fishing;
- limited space onboard to store the fish; and
- arrangements for transportation, sale/disposal, increased disposal costs ('special waste' disposal).

STECF notes that arguments related to increased handling costs are not unique to fisheries in the Mediterranean. The arguments in support of a de minimis exemption on the grounds of disproportionate costs of handling would be strengthened if such cost estimates were included in the JRs as in the example presented by France for the port of Sète.

Minimum conservation reference sizes

The JRs state that it is not appropriate to include elements related to MCRS. However, Spain requests, with the purpose ofharmonisingsizes between contiguous areas, the inclusion of the same flexibility to Atlantic horse mackerel in the recent TAC and Quota regulations. Provision has been made for up to5% of the purse seine catches of horse mackerel between 12 and 15cm could be landed for human consumption. STECF notes that the Spanish request would seem contrary to article 15 of the CFP regulation (Regulation (EC) 1380/2013 which states that fish below the MCRS cannot be used for human consumption. STECF therefore suggests it is up to managers to decide whether this exemption is appropriate or not. Furthermore STECF notes that to achieve the same objective ofharmonisingthe MCRS in the Mediterranean with adjacent sea areas, the JR could propose to change the MCRS to 12 cm.

Exemptions on the basis of high survivability

The JR's states that it is not appropriate to include elements related to survivability.

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g) Request for scientific advice on the sprat fishery in the Black Sea

Background

In accordance with Article 15 of the CFP (Regulation (EU) 1380/2013), all fisheries for small pelagic species which are subject to catch limits will fall under the landing obligation as from 1 January 2015. For the Black Sea effectively this will apply to pelagic fisheries for sprat (*Sprattus sprattus*). Catches of turbot caught in such fisheries will also fall under the landing obligation from 1 January 2015 given this species is also subject to catch limits in the Black Sea.

So far, the Members States concerned in the sprat fishery for the Black Sea (i.e. Bulgaria and Romania) have not submitted any joint recommendation for a multiannual plan or a discard plan as provided for in Article 15. Under Article 15(7) where no such plan is in place the Commission must adopt a delegated act setting a de minimis exemption subject to the conditions set out in Article 15(5c) (i.e. increases in selectivity are very difficult or to avoid handling unwanted catches would create disproportionate costs)..

Terms of Reference

Based on the assumption that no joint recommendations from the relevant Member States will be forthcoming and to assist the Commission to set a de minimis provision for the sprat fishery in the Black Sea STECF is requested to:

1. Provide, where possible, estimates of discard rates for sprat and turbot in the sprat fisheries in the Black Sea for Bulgarian and Romanian vessels.

2. Taking account of (1) above, comment on whether there is sufficient biological, technical and/or economic evidence to support a de minimis exemption on the basis that either increases in selectivity are very difficult to achieve or to avoid handling unwanted catches would create disproportionate costs.

STECF observations

Discard rates for sprat and turbot in the sprat fisheries in the Black Sea for Bulgarian and Romanian vessels.

The only information available to STECF on discarding for Bulgarian and Romanian vessels are data on discards of sprat by Romanian vessels submitted in response to the 2013 data call under the DCF and are summarised in Table 6.1.8.

Table 6.1.8. Estimated discards of sprat by Romanian vessels (units are unknown).

year	Reported landings	Reported discards	Discard %
2008	234.896	NE	
2009	90.707	1	1.102451
2010	29.625	9.446	31.88523
2011	123.513	2.331	1.887251
2012	84.871	3.42	4.029645

NE = no estimate

No data on discarding of turbot are available. Noting that turbot is a sought after and valuable pecies, STECF consider that discarding of turbot in fisheries in the Black Sea is likely to be negligible.

Evidence to support a de minimis *exemption from the landing obligation*

STECF concludes that the reported discard of sprat by Romanian vessels reported in Table 6.1.8 above does not provide any evidence to support a de minimis exemption on the basis that increases in selectivity are very difficult to achieve or that handling unwanted catches would create disproportionate costs.

STECF is unaware of any other biological, technical and/or economic evidence to support a de minimis exemption on the basis that increases in selectivity are very difficult to achieve or to avoid handling unwanted catches would create disproportionate costs. Therefore STECF cannot comment on this issue.

6.2. Alternative modelling approaches supporting the 2015 Atlantic Skipjack stock assessment

Background

Skipjack is one the three topical tuna species caught by EU purse seiners in the Atlantic Ocean. As highly migratory species, management measure constraining fishing activities deployed in the Atlantic Ocean on these species falls under the scope of the International Commission for the Conservation of Atlantic Tunas and are based on scientific advice and management recommendations released by the ICCAT Scientific Committee.

Traditional stock assessment models (SA) have been difficult to apply to skipjack because of certain key aspects of its biology. Skipjack spawns in an opportunistic manner throughout the year and over large areas, so recruitment is continuous but heterogeneous in space and time. This explains why cohorts cannot easily be identified. Furthermore, skipjack growth parameters vary with latitude. The catch-at-age matrix will, therefore, not be consistent because fish of the same age will exhibit different sizes depending on their past movement patterns. Another difficulty arises from the fact that skipjack tuna is often a secondary species, depending on the price differential and catchability of other target species such as large yellowfin. Consequently, estimation of the effective effort exerted on skipjack (e.g. effort proportional to fishing mortality) remains problematic, and catch rate may sometimes depict a different trend than abundance.

In order to overcome these difficulties, in addition to conventional SA models (surplus production model, may be integrated models as SS3, data-poor approaches) and to support the SA to be carried out in 2014, the European Union would like to contribute to a discussion on alternative SA approaches and, with this aim, to propose the use of size-structured models and length-based Reference Points, commonly used for of hard-to-age species.

Request to the STECF

However, such integrated size-structured SA models are not used by tuna RFMOs and the STECF would be then asked to explore, to discuss and to suggest possible ways to support such approaches.

SKJ stock structure:
- A two-stock assumption (East and West) as adopted until now by SCRS
- An alternative five-stock assumption (based on spatial distribution of catch and tagging data) with 2 components in the West and 3 in the East.

The STECF will be asked to explore, to model and to discuss the SKJ SA for the two candidate stock structures and to write a scientific document to be considered as a contribution of the EU to the SA process carried out by the ICCAT Scientific Committee.

As results of this ad hoc contract, a report will have to be delivered for the 23.06.2014 at the latest by the selected expert in integrated size-structured SA models. She or he will have obviously to

work in coordination with the EU scientist in charge of the SKJ SA in the ICCAT context, Daniel Gaertner from IRD.

Request to the STECF [request as modified following discussion and clarification by the European Commission, 7 July 2014]:

- To review and report on the contract document 'Application of length-based assessment methods to skipjack fisheries in the Atlantic Ocean' and determine whether the size-based assessment methods trialled in the report are recommended for further development and/or adoption.
- To report on the advantages and disadvantages of adopting a [2 West Atlantic and 5 East Atlantic] stock assumption for the Atlantic Ocean skipjack tuna assessment rather than the two stock assumption currently used by ICCAT.

STECF comments

STECF observes that the contract report 'Application of length-based assessment methods to skipjack fisheries in the Atlantic Ocean' describes an application of the Then-Hoenig-Gedamke (THG) method to estimate fishing (F) and total mortality (Z) rates for one West Atlantic and two East Atlantic skipjack stocks. The THG method provides estimates of F by expressing Z in the preceding Gedamke and Hoenig (2006) method as a function of catchability, fishing effort and natural mortality. Fitting the THG model requires a time-series of mean length and fishing effort.

STECF observes that the THG method was applied successfully to the West Atlantic stock and results were broadly consistent with those previously obtained using APSIC (A Stock Production Model Incorporating Covariates: a non-equilibrium logistic Schaefer model was assumed). In the East Atlantic, where the THG method was applied to data from areas (1) south of 10°N and east of 30°W and (2) north of 10°N and east of 30°W, the application was not successful. In both areas variation in mean lengths of skipjack through the period when estimates of fishing effort were also available was very small. The authors considered it unlikely that the model would provide valid estimates of F without greater contrast in mean length.

STECF observes that Gaertner (2010) has previously fitted the Gedamke and Hoenig (2006) model to skipjack length data from the eastern Atlantic to estimate Z, but he was able to use a longer time series of length data that included greater contrasts in mean length because this model, as opposed to the THG model, did not require effort data. Both THG and Gedamke and Hoenig (2006) methods assume that growth is adequately described by the Von Bertalanffy Growth Equation (VBGE), that growth is constant through time and that the mortality rate is constant among ages and over time. STECF observes that a recent analysis of skipjack growth data suggests that some of these assumptions may not be met (Fonteneau 2014b). Further, there is no current consideration of the existence of, and any effects of, sexually dimorphic growth.

STECF observes that a range of alternate methods are available for the assessment of data-limited and data-moderate stocks, including other size-based methods. In addition to the Then-Hoenig-Gedamke (THG) model proposed and tested in the Hoenig (2014) report and the developments of this model that are proposed, alternate size-based “data-poor” and “data-moderate” approaches could be considered for assessing the status of Atlantic skipjack (e.g. Cope and Punt, 2009; other extensions of the SEINE (Survival Estimates In Non-Equilibrium situations; an implementation of the Gedamke and Hoenig (2006) method) model (e.g. as described in in Brodziak et al (2012));

Carruthers et al (in press)). Given the challenges Hoenig (2014) encountered when applying the THG model to 2 eastern stocks, STECF observe that other assessment methods could be reviewed in the eastern Atlantic, and a subset of the reviewed models for which data are available and assumptions best met could be trialled. STECF observes that the assessment methods to include in any review would not necessarily have to be size-based.

STECF observes that Atlantic skipjack tuna catches are recorded from the area 40°N to 40°S (although they are low in the gyres), while tagging has been conducted mostly in the eastern Atlantic and from 5°S to 30°N (Fonteneau 2014a). While this limits opportunities for resolving the movements, migrations and stock structure of Atlantic tuna, the analyses of distances travelled and the frequencies and timing of tag recoveries presented in Fonteneau (2014a) are sufficient to show that levels of stock mixing from East to West and from North to South are relatively low. These low levels of mixing support the current assumption that the population dynamics and responses to mortality of skipjack tuna in the East and West Atlantic are not linked. However, the evidence from tagging data for limited North to South stock mixing does not support the current assumption that there are single stocks in the East and West Atlantic. STECF observes that evidence for the existence of more stocks than currently assessed is also provided by growth data and the distribution and size composition of skipjack caught in the fisheries (Gaertner et al. 2008; Gaertner 2010; Fonteneau 2014a,b)

STECF observes that available evidence on stock structure from tagging, growth and size composition data supports the identification of at least four stocks (the NE, SE, SW & NW Atlantic areas proposed by Fonteneau (2014a)) and there is some evidence to support an assessment of eastern Atlantic skipjack using five stocks as proposed by Fonteneau (2014a). STECF observes that both of the stock structures (2 East Atlantic stocks, 2 West Atlantic stocks or 5 East Atlantic stocks, 2 West Atlantic stocks) described by Fonteneau (2014a) are better supported by tagging, growth and size composition data than the current 2 stock assumption.

STECF observes that, pending the collection of tagging and other data that would contribute to improved stock identification, a better assessment of the status of Atlantic skipjack is likely to be obtained by assuming that there are 2 East Atlantic stocks and 2 West Atlantic stocks or 5 East Atlantic stocks and 2 West Atlantic stocks. This is because a more refined definition of stocks increases the probability of detecting dynamics and responses to fishing mortality.

STECF conclusions

ToR a. Review of report

The stock assessments trialled and presented in the Hoenig (2014, Commitment No. 682915) report assumed one Western and two Eastern stocks of Atlantic Skipjack tuna. STECF agrees with the conclusion of the Hoenig report that the size-based Then-Hoenig-Gedamke (THG) method for assessing total mortality could reasonably be applied to the western Atlantic skipjack stock, but not to the eastern stocks. For the eastern stocks, other assessment methods could be reviewed, and a subset of the methods, for which data are available and assumptions best met, could be trialled.

ToRb. Stock structure

STECF conclude that the assumptions of 2 eastern and 2 western stocks, or 2 western and 5 eastern stocks, are better supported by available data than the existing ICCAT assumption of 1 eastern and 1 western stock.

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6.3. Sea bass fisheries and their management

Background

ICES has provided assessments of the stock of seabass for 2013 identifying 4 potential stock areas. The stock distribution has increased; ICES identifies that there is evidence of local depopulation despite increasing incidence of the species. Considering the life cycle of this species there is a need to ensure that management measures are appropriate to the stock and can provide the necessary protection to limit mortality to prevent a decline in regional and local populations.

In 2012 and 2013 through expert meetings the Commission and Member States have been considering the introduction of a TAC for seabass. ICES has previously identified that a TAC may not be the most suitable means to effectively control mortality for this stock. Some Member States have also mentioned the CFP reform (landing obligation) as an argument against the introduction of a new TAC.

In addition recreational fisheries play a significant part in the total outtake. Member States have identified the existing various direct and indirect fishery national management measures that impact on both recreational and commercial activity.

Member States have been asked to consider their national controls on this species and identify possible management measures they could adopt. However there remains a need to evaluate the combined impact of these various management measures on the stock and to explore how these measures can be co-ordinated to effectively conserve the stock; the setting of particular catch limits for various fisheries should be considered.

Request to the STECF

STECF is requested to assess and comment on the national management measures of the Member States to determine their impact on the current stock distribution of Seabass. In particular STECF is asked to:

- Identify the contribution to mortality from the direct and indirect fisheries on a Member State basis;
- Identify for directed fisheries potential limits, and management indicators and possible avoidance/ technical measures for indirect fisheries.
- STECF are asked to identify management measures that can be considered precautionary or would allow for the management of the stock at MSY.

In addition STECF is asked, considering the latest advice for these stocks, to comment on:

- the effectiveness of the current national measures in controlling catches and in preventing an increase in fishing mortality and/or a decline in biomass for each stock;
- the likely effectiveness of existing national measures, under the current stock situation, in maintaining the stock at MSY levels if
    - existing commercial effort levels remain constant;
    - or if existing catches are maintained

- If possible comment on the potential impact on the stock if this situation is maintained over a 3-5year timescale;
- Lastly STECF is asked to recommend measures that could be applied now to ensure that the stock is maintained within MSY levels.

STECF observations

The following information is based on the sea bass report (No. SI2.680348) and on the latest ICES stock assessment report (ICES 2014).

Sea bass stock structure and biology

The stock structure of sea bass remains poorly defined, and ICES has pragmatically split the populations into four stocks: i) North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h); ii) west of Scotland and west/ south of Ireland (VIa, VIIb,j); iii) Bay of Biscay (VIIIa,b) and iv) Iberian coast (VIIIc, IXa). Currently, only the northern stock in IVb,c & VIIa,d-h has an analytical assessment, which indicates a rapidly declining biomass due to an extended period of poor recruitment and increasing fishing mortality. Some aspects of the biology of sea bass, including slow growth, delayed maturity, longevity to around 30 years, site fidelity in adults, and formation of offshore spawning aggregations, make the stock vulnerable to overexploitation and to local depletion. For the other putative stocks, no stock assessment is available. The information on stock status included in this report is therefore based on the assessment of North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c and VIIa,d-h) stock unit. However, some of the fisheries descriptions apply also to Bay of Biscay (VIIIa,b) stock unit.

Sea bass commercial fisheries

Sea bass commercial fisheries in areas IVb,c and VIIa,d-h comprise a mixture of inshore fisheries, with a large contribution of small-scale (artisanal) fisheries using mainly hook and line and gillnets and offshore fisheries targeting pre-spawning and spawning aggregations of sea bass. In the Bay of Biscay,sea bass is targeted mainly using trawls although longline, other hook and line fishing and gillnetting takes also place.In Iberian waters (Divisions VIIIc , IXa), a significant proportion of the catch is from a mixed fisherywhile trawls and seines are little used. One of the biggest of the sea bass fisheries on the stock in areas IVb,c and VIIa,d-h is the targeted fishery on mature fish aggregating to spawn on offshore areas in the western Channel and approaches, including off North Devon and Cornwall. This is primarily a fishery involving around 30 French pair-trawlers, and smaller numbers of UK pair trawlers. This fishery operates from winter to spring on or near spawning grounds in the Channel when sea bass are aggregated. This is an offshore fishery, usually outside the 12 miles zone, and mesh size used is 100 mm or sometimes more. This fishery is responsible for over 25% of the total commercial and recreational fishery removals and for around 25% of the total fishing mortality of F(5-11) = 0.33 estimated by WGCSE 2014 for the years 2011 - 2013.

Sea bass recreational fisheries

The total recreational removals for areas IVb,c and VIIa,d-h are estimated around 1400t – 1600t compared with total reported commercial fishery landings of 4100t on average during 2009-2012. In the Bay of Biscay (VIIIa,b), recreational landings are estimated to be an average of 1430 t (2009-2011) compared with an average commercial landing of 2540t. From information available, the

precision of the combined international estimate in areas IVb,c and VIIa,d-h is likely to be moderate, with relative standard errors of at least 20%. The ratio of recreational removals estimates in each country is a very consistent proportion of the combined recreational and reported commercial fishery landings (France: 25%; England: 28%; Netherlands: 26%; Belgium: 29%). The recreational catch estimates exclude figures for Wales or any other European countries without surveys that could report sea bass catches. It is concluded that recreational fishing may account for around 25% of total fishery removals and fishing mortality and this represents a significant missing catch from the assessment for earlier years with no recreational fishery survey estimates. ICES IBPbass (ICES 2014a) developed a method to reflect this additional mortality in the Stock Synthesis assessment model. The historical trends in recreational catches are unknown, but they are likely to differ from commercial catch trends. It is possible that, before the large growth in biomass of the stock in the 1990s, recreational fishing may have been a much larger proportion of total fishery removals than at present.

Current management measures

There are several national and EU wide controls on commercial and recreational fisheries for sea bass, which range from a moratorium on commercial fishing for sea bass around Ireland, minimum landing sizes, sea bass licencing for commercial fisheries in France, weekly or monthly boat limits in some commercial fisheries, closures of nursery areas in England and Wales, some closed seasons for French fleets and bag limits for recreational fisheries in several countries. There is no TAC for any of the stocks assessed by ICES. Detailed information is provided in the sea bass report (No. SI2.680348).

Stock status and proposed management measures

Fishing mortality on the North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h) stock increased at the same time as the stock biomass increased in the 1990s and 2000s and F has continued to increase as stock biomass has recently declined.
It is possible for fisheries to maintain catches despite declining biomass, and hence inflict higher F, particularly for fisheries targeting spawning and feeding aggregations.

In order to achieve F_{MSY}, a combination of national measures to reduce effort in the directed inshore fisheries, combined with measures to manage the offshore international fisheries on spawning sea bass, is urgently needed in the North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h).

STECF conclusions

Generally speaking, catches of seabass in ICES IVb,c & VIIa,d-h can be broadly split into three categories: (i) recreational; (ii) commercial fisheries targeting seabass, and; (iii) fisheries where seabass are taken as a commercial by-catch in mixed demersal fisheries. Based on 2010-2013 data, recreational fisheries account for 26% of the overall catch (commercial and recreational); commercial targeted fisheries account for 33% (mid-water pair trawls and lines) and;other commercial fisheries where seabass are taken as by-catch account for 41% of the overall catch.

According to ICES (ICES 2014) and as reported in the sea bass report (No. SI2.680348), the largest contribution to the *commercial* landingsfor the North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h) stock is made by the targeted French and UK midwater pair trawls fishery. These

take over 34% of the *totalcommercial* landings and are responsible for around 25% of the total (commercial and recreational combined) fishing mortality (i.e. total F(5-11) = 0.325) estimated by WGCSE 2014 for the years 2011 - 2013. Other targeting commercial fisheries are lines fisheries mainly from France and UK, amounting to 8% of the total catch respectively. The remaining *commercial* catches are attributed to line fisheries targeting Sea bass (11%), while the remainder (and majority) of catches from commercial activity are associated with seabass caught as by-catches in demersal towed and static gears (Table 6.3.1).

The Member States' contributions of the commercial landings of the North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h) stock, are as follows: France 65%; UK 21%, Netherlands 9%, Belgium 4% and around 1% for the other MS. The combined recreational fisheries from France, UK, Netherlands and Belgium are around 25% of the total landings of commercial and recreational fisheries in recent years.

In the Bay of Biscay (VIIIa,b), based on the average of 2010-12 data, France takes 91% of the sea bass landings and Spain the remaining 9%. France targets sea bass using mainly nets and midwater trawls.Recent estimates of recreational landings into France were 38% of the total of recreational and commercial French fisheries.

In the Iberian coast (VIIIc, IXa), based on the average of 2009-11 data, Portugal takes 61%, Spain 36% and France 3% of the commercial sea bass landings. In this area, a significant proportion of the landings are from a mixed fishery.

STECF concludes that in the absence of explicit gear- and Member State-specific estimates of fishing mortality, the landings by Member State and gear group relative to the overall landings of seabass is an appropriate proxy to estimate the contribution to the total mortality on sea bass. Based on the information presented in the sea bass report (No. SI2.680348), the approximate percentage contribution to the overall mortality by gear and Member State is given in Table 6.3.1.

Table 6.3.1. Average commercial and recreational landings of sea bass by country and gear group (where available) 2010 – 2013 and approximate contribution to overall mortality of sea bass.

Fishery	Landings	Percentage
UK(E&W) trawls	147	2.6
France trawls	793	14.0
UK(E&W) midwater	57	1.0
France midwater	1408	24.8
UK(E&W) nets	361	6.4
France Nets	139	2.5
UK(E&W) lines	175	3.1
France lines	305	5.4
UK(E&W) other	65	1.1
France other	142	2.5
Belgium	165	2.9
Netherlands	384	6.8
Channel Isles	54	1.0
recreational France 2009-11	940	16.6
recreational England 2012	335	5.9
recreationalNetherlands 2010-11	138	2.4
recreational Belgium 2013	60	1.1
TOTAL	5667	100

1. Identify for directed fisheries potential limits, and management indicators and possible avoidance/ technical measures for indirect fisheries.

See paragraphs 3 and 6 for information on potential limits and possible avoidance and technical measures. STECF considers that there is a range of possible management indicators but these would be dependent on the management objective and the available stock specific data and information.

2. STECF are asked to identify management measures that can be considered precautionary or would allow for the management of the stock at MSY.

STECF notes that ICES has not identified any precautionary reference points for sea bass stocks. However, a range of potential measures is available and could be considered for the management of the stock at MSY(Table 6.3.2).These could be implemented at a national, regional and EU level and include (in no particular order of preference):

(i) Catch limits
(ii) Improvements in selectivity;
(iii) Bag limit for recreational fisheries
(iv) Spatial and temporal closures
(v) Effort restrictions and licensing
(vi) Catch and release
(vii) Spatiotemporal tariff management

Table 6.3.2. Range of potential management measures applicable to the different fisheries catching sea bass in i) North Sea, Channel, Celtic Sea and Irish Sea (ICES IVb,c & VIIa,d-h); ii) west of Scotland and west/ south of Ireland (VIa, VIIb,j); iii) Bay of Biscay (VIIIa,b) and iv) Iberian coast (VIIIc, IXa). X signifies a potential management measure applicable to a particular fishery group.

	Fisheries		
Management measures	**Target Fisheries**	**By-catch fisheries**	**Recreational Fisheries**
Catch limits	X		X
Improvements in selectivity	X	X	X
Bag limits for recreational fisheries			X
Spatial and temporal closures	X	X	X
Effort restrictions and licensing	X	X	X
Catch and release			X
Spatiotemporal tariff management	X	X	X

(i) STECF notes that stock definition and management area for sea bass by ICES is pragmatic and may not correctly identify the true stock structure. STECF also notes evidence from tagging for strong site fidelity in adult sea bass, resulting in many fish returning to the same coastal sites after spawning each year. Catch limits e.g. TAC or individual vessel limits, for the whole area could allow mobile fisheries to contribute to an increase in F in excess of F_{MSY} on any sub-stocks or localised populations. If catch limits such as TACs or individual vessel limits are to be considered as a means to manage fishing mortality on sea bass effectively, the resultant allocation of fishing opportunities would be complex and would need to be set at spatial scale which reflects the spatial structure of the various sub-populations which is currently poorly understood. In addition, STECF observes that the landings statistics from the commercial fishery are uncertain due to the likelihood of underreporting. Unreported removals are associated with the allowances under article 65(2) of the EU Control regulation 1224/2009, which permits disposal of up to 30kg of fish for personal consumption without supplying sales slips and article 14 (1&4), which exempts the mandatory recording in logbooks of catchesof all species less than 50kg . For small-scale, low-volume fisheries catching sea bass, this legal missing catch could be significant except in countries such as France where log-book schemes require reporting of all landings in under-10m fleets (Armstrong and Drogou, 2014 [report No. SI2.680348]). The uncertainty in the landings statistics due to underreporting should be considered when decisions are made on which management measures and associated data-reporting requirements could potentially be applied to the fishery.

(ii) Improvements in selectivity consistent with an increase in size at first capture would be beneficial in improving yield per recruit and spawning biomass per recruit (more detailed information is given in the sea bass report No. SI2.680348). Increases in mesh size and/or avoidance of juvenile areas would be required for example, but the implications for catches of other species taken in the fisheries need to be considered. Increasing the size at first capture in recreational and commercial line fisheries, by increasing the MLS, would result in a further increase in release rates. Post-release mortality in both recreational and commercial fisheries is poorly understood at present and appropriate studies are needed.

(iii) Recreational catches could be limited by the setting of bag limits. The bag limit would be determined by the desired overall outtake and the recreational fishing effort.This could be combined with a catch-and-release system, where once bag limits have been reached any subsequent catch should be released (see point vii). Recreational fisheries survey data should be analysed to predict the likely impact of different bag limits on reducing fishing mortality. In particular, the expected compliance rate associated with bag limits under current fisheries control and enforcement schemes should be assessed. Recreational fisheries are a significant component of the landings (around 25% for the North Sea, Channel, Celtic Sea and Irish Sea stock of sea bass and 38% for Bay of Biscay (VIIIa,b)), and thus the introduction of bag limits as a means to reduce fishing mortality should be considered.

(iv) The closure of targeted fisheries with well-defined spatial-temporal catch patterns could achieve a substantial reduction in fishing mortality (e.g. around 25% of the current F is attributed to the spawning-grounds fisheries in ICES IVb,c & VIIa,d-h) on adult sea bass provided the effort of the vessels involved in the fishery is notallowed to be displaced to other components of the sea bass populations within the stock area or in neighbouring stock areas. Spawning-grounds fisheries of sea bass are well defined in space and time, and target large sea bass individuals with a high spawning potential. As the location of spawning areas may vary from year to year (and during the same season), it is therefore important that any spatial and temporal closures during spawning should have sufficient coverage of all the main areas of spawning. However, it is not clear where or how the effort would be displaced or how displacement could be prevented. The likely compliance rate with the closures and the potential impact of effort displacement on other species are also unknown. From a control and enforcement perspective it is crucial that the defined spatial closures are sufficiently large to ensure effective control. Closures would also need to be accompanied with suitable control provisions such as appropriate VMS transmission times for fishing vessels active in the area.

(v) Direct control of fishing effort (e.g. days at sea) could be considered but it is noted that this may be complex for sea bass. Direct control of fishing effort could involve limiting the available number of licences to both recreational and commercial fishermen, and/or associated restrictions related to variables contributing to effective effort, such as number and/or length of gillnets or longlines. However, the relationship between fishing effort and fishing mortality is unknown and studies have shown (e.g. Faroe Island studies) compensatory adaptations by business in an attempt to maintain or at least minimise the impacts of reduced fishing time allocations. The introduction of effort limiting measures would need be monitored and assessed to ensure that the required reduction in fishing mortality is in practice, being achieved.

(vi) The usefulness of management by spatiotemporal tariffs, where fishers ‘pay’ from an individual allocation of ‘effort credit points’ according to spatiotemporally varying tariffs, such as the recently proposed system (Kraak et al. 2012), could perhaps be explored. In some areas at some times of the year fishers would pay credits at a high rate per fishing day, whereas in other areas and/or other times of the year fishers would pay credits at a lower rate per fishing day. Similar as with real-time closures this would require monitoring of catches to identify areas with high concentration of juvenile or adult sea bass, and establishment of appropriate tariff levels. VMS or GPS would verify the fishers’ location. This system is in fact spatiotemporal effort management and can include temporal/seasonal closures.

(vii) Consideration could be given to the introduction of compulsory catch and release for recreational fisherman. This measure would only be effective in case of high post-release survival.

3. The effectiveness of the current national measures in controlling catches and in preventing an increase in fishing mortality and/or a decline in biomass for each stock.

There are numerous regulations at the national level, which are described in details in the sea bass report (No. SI2.680348). Nevertheless, given the recent trends in F and SSB, STECF concluded that the combined current national measureshave not been effective in controlling catches and in preventing an increase in fishing mortality and/or a decline in biomass for the North Sea, Channel, Celtic Sea and Irish Sea stock of sea bass. For the other stocksii) west of Scotland and west/ south of Ireland (VIa, VIIb,j); iii) Bay of Biscay (VIIIa,b) and iv) Iberian coast (VIIIc, IXa), STECF is not in the position to determine the effectiveness of the national measures as an assessment of the stock status and trends in not available.

4. The likely effectiveness of existing national measures, under the current stock situation, in maintaining the stock at MSY levels if:

- existing commercial effort levels remain constant;
- or if existing catches are maintained
- If possible comment on the potential impact on the stock if this situation is maintained over a 3-5yr timescale;

According to ICES short term forecast, at the current level of F, the SSB of sea bass of North Sea, Channel, Celtic Sea and Irish Sea stock will continue to decline (about 23% in 2016 compared to 2015). This is also due to a combination of fishing in excess of F_{MSY} and poor recruitment in recent years. Thus, STECF considers that the current existing national measures as a whole, if commercial effort and catches are maintained at the level observed in 2013, are likely to not be effective to control F and allow the stock to recover to MSY levels over a 3-5 years' timescale.

5. STECF is asked to recommend measures that could be applied now to ensure that the stock is maintained within MSY levels.

STECF notes that to reach F_{MSY} as advised by ICES (ICES 2014), would require a reduction in Fof around 60%. It is unlikely that any one single measure of those identified above will be sufficient to bring F to $F_{MSY.}$ A package of measures, including several of those identified above, will likely be required across themain commercial and recreational fisheries, depending on the management objectives for the different fisheries.

Additional observations:

Given the diversity of recreational and commercial sea bass fisheries, any given management measure could have highly inequitable economic and social impacts. Furthermore, the various parties involved in the exploitation of sea bass may have different objectives for their fisheries, thus making it necessary to consider potential economic and social impacts on both the commercial and recreational sector when taking management decisions. Therefore, the choice of specific management actions will not be straight forward as these will impact different sectors of the fishery and generate different social and economic downstream effects. Furthermore, when considering

management objectives and the instruments to apply, an economic assessment should also consider possible differences in control and enforcement costs as well as the expected compliance levels associated with the various segments in the fishery.

References

ICES 2014a (in prep). Report of the Interbenchmark Protocol on Sea bass in the Irish Sea, Celtic Sea, English Channel and southern North Sea (IBPbass). ICES CM

ICES. 2014b. Report of the Working Group on Celtic Seas Ecoregion (WGCSE), 13–22 May, Copenhagen, Denmark. ICES CM 2014/ACOM:12.

STECF 2014. Request for Services - Sea bass. Commitment No. SI2.680348. Paper for STECF July 2014 Sea bass fisheries in Europe and their management. Mike Armstrong (contract lead) and Mickael Drogou, Independent scientific experts, UK and France (background documents on: https://stecf.jrc.ec.europa.eu/plen1402).

6.4. Update of the STECF assessment of closed areas

Background

As part of a previous review of the technical measures, in 2007 the Commission requested STECF to evaluate the utility and effectiveness of existing measures limiting fishing activity in an area (closed areas).

The original analysis followed a two-step approach. First, an overview was made of existing closed areas within EU waters and of any existing material that could be used to evaluate their effectiveness. This first meeting of the STECF subgroup on Management of Stocks (SGMOS-07-02) was held in March 2007; it prepared an inventory of closed areas and identified a process and the data requirements for an evaluation of the closed areas in the inventory, considering maximum use of existing evaluations and information. Second, most of the closed areas in the North Sea and Atlantic identified at the first meeting were evaluated during a second meeting of SGMOS-07-03 held in October 2007.

The Commission is now in the process of a further review of the technical measures in light of the new CFP and in this context would like to update the advice provided by STECF. The review should take account of relevant ICES and STECF advice since 2007 and also be expanded to several closures that have been introduced since then. Closures that have been deleted should not be included.

To support this request the Commission commissioned an ad hoc contract to:

- Review and update the earlier evaluation carried out by STECF of the efficiency of the closed areas on conservation of marine organisms; and
- Using the framework used by STECF extend this analysis to closed areas introduced since the STECF assessment.

Background documents on: https://stecf.jrc.ec.europa.eu/plen1402

Terms of Reference

STECF is requested to review the report prepared under an ad hoc contract, evaluate the findings and make any appropriate comments and recommendations.

STECF comments and advice

1. **Blue ling closed areas**

Blue ling are highly vulnerable to overexploitation because fisheries are generally targeting spawning aggregations. The stock became overexploited from mid-90s, and closed areas to protect spawning aggregations were introduced in 2009**.**

Latest ICES assessment shows that fishing mortality has been decreasing since 2001 and is currently below F_{MSY} while the biomass is increasing. ICES further considers that maintaining the current closed areas will provide protection for the spawning aggregations, but that this may not be needed if the current TAC management regime is effective in limiting fishing mortalities as intended (ICES, 2014).

STECF in the past has suggested that reopening of blue ling closures should only be considered if there is clear evidence that recovery has taken place. This may take a long period due to the fact that blue ling is a slow-growing and late-maturing species. At least one full life cycle (20-30 years) is needed to demonstrate that management has been effective at reversing the negative trends in stock development (STECF, 2007). STECF acknowledges that the closed areas for blue ling may have contributed to the recently observed increases in stock biomass but it will be some years before it will be possible to confirm whether that is the case.

STECF advice

While acknowledging that the closed areas for blue ling may have contributed to the recently observed increases in stock biomass STECF notes that it will be some years before it will be possible to confirm whether that is the case. Hence STECF considers that its previous advice (STECF, 2012) remains appropriate and the present closures should be maintained Furthermore, in an attempt to provide additional protection to blue ling spawning aggregations, the option to extend the existing closures to include the spawning aggregations in Division VIb should also be considered.

2. **Gillnets below 200 m**

Limits for fishing with gillnets over 200 m were implicitly implemented in order to protect deep water sharks, reduce discards and reduce ghost fishing from lost or abandoned nets. Most deepwater sharks, such as the leafscale gulper shark (*Centrophorus squamosus*) and the Portuguese dogfish (*Centroscymnus coelolepis*), are considered to be long-lived with a low productivity and thus can only sustain very low rates of exploitation. Both species continue to be in a depleted state and ICES 2013 advice is for no catches.

In keeping with its previous advice (STECF 2008, 2009, 2010), STECF considers that the removal of the restrictions will not help the recovery of the shark stock.

STECF advice

STECF considers that to reduce exploitation on deepwater sharks, the present restrictions to fish with gillnets at depths greater than 200 m should be maintained and extended to other areas. Furthermore, additional protection for deepwater sharks could be provided ifthe current derogations that permit deployment of gillnets at depths between 200 m and 600 m are removed.

3. Plaice Box

The plaice box was introduced in 1989 to reduce discarding of undersize plaice with the expectation that yield and spawning stock biomass would increase. Although yield and spawning stock biomass decreased and remained low until 2007, the stock has now recovered and is presently at historical high levels (ICES, 2014).

Several studies have indicated that neither benthic nor piscean diversity showed any pronounced changes that can clearly be attributed to the plaice box. Although beam trawl fishing effort has reduced, it has never completely stopped (derogated fleets still fish actively and their effort and capacity has increased) in the closure (Beare et al., 2010).

In the short to medium term, dispensing with the closure is unlikely to have a measurable effect on the status of North Sea plaice stock. However, STECF notes that any increased beam trawl activity in the area of the plaice box that might occur should the closure be dispensed with is unlikely to result in a reduction in unwanted catches of small plaice.

STECF advice

Taking into account the need to reduce unwanted catches of small plaice, STECF advises that until such time that the effectiveness of the landing obligation in reducing unwanted catches is better understood, it would be premature to dispense with North Sea plaice box.

4. *Nephrops* restrictions

Several closed areas have been implemented to protect spawning stocks in the Porcupine Bank and in the context of the recovery plan for Iberian Norway lobster stocks and southern hake. The Porcupine Bank closure has been effective in reducing fishing mortality and increasing stock abundance.(STECF,2013). Fishing mortality is currently below F_{MSY} proxy (ICES, 2014). Nevertheless, the reduction of the closure period to 1 month in 2013 implies that now the fishery is opened in a period (June and July) of high activity corresponding to the peak female emergence. STECF was not able to provide a quantitative prediction of the impact of this partial reopening the fishery. However, it would most likely lead to increased mortality on females which may be detrimental to future stock productivity (STECF, 2013).

Since the Porcupine Bank stock has just begun to show improvements, and in accordance to previous STECF advice (STECF, 2013), it is likely that the reopening of the Porcupine Bank closure will have a detrimental effect on the observed small recovery.

STECF advice

Regarding the Iberian coast, the Norway lobster stock in FU26 has yet to recover. In line with ICES latest advice (2014) that catches should be reduced to the lowest possible levels and that effective technical measures should be implemented, STECF advices that the closure should be maintained.

For FU28 (Porcupine Bank), as the stock is only qualitatively assessed by ICES to be stable, STECF also advices that the closure should be maintained.

5. Haddock Box

ICES in 2013 has evaluated the haddock box and concluded that there is no evidence of a change in the fishery selection pattern after the introduction of the closure, although for most ages, densities are now higher inside than outside the haddock box (ICES, 2013b). The stock continues to be in a poor state. Although fishing mortality has decreased in the last decade, SSB is at B_{lim} as recruitment between 2006 and 2011has been extremely low. Discards significantly increased in 2013 and are expected to remain high in 2014 as a consequence of the strong 2012 and 2013 year class. Therefore ICES advises that further management measures should be introduced to reduce catches of small haddock and to protect the incoming recruitment haddock in order to maximize their contribution to future yield and SSB (ICES, 2014).

STECF advice

Taking into account both the need to protect incoming recruitment and to reduce unwanted catches, STECF advises that until such time that the effectiveness of the landing obligation in reducing unwanted catches is better understood, it would be premature to dispense with the haddock box closure.

6. Northern Hake closed area

The hake boxes were introduced to improve the selection pattern and protect juveniles. STECF (2007) recommended that this area closure be maintained. Since 2007 the northern hake stock has recovered to levels not seen for many years, with biomass at the highest observed level over the period 1978- 2013 and strong recruitment of 0-group hake in 2012 (ICES, 2014).

STECF (2007) advised that the closure may have contributed to an unquantifiable extent to the recovery of the stock. STECF notes that F is still above F_{MSY} and increased in 2013, and discards have increased sharply in recent years.

STECF advice

Given that F on Northern hake is still above F_{MSY} and that discards have increased sharply in recent years, STECF advises that until such time that the effectiveness of the landing obligation in reducing unwanted catches is better understood, it would be premature to dispense with the Northern Hake closure.

7. NEA Mackerel Box

Advice provided by ACFM in October 2002 provides a strong indication that the mackerel box was beneficial for conservation of Northeast Atlantic mackerel. Fishing mortality in 2013 is estimated to be below F_{MSY} and SSB has increased considerably since 2002 and remains high, above MSY $B_{trigger}$. However, the stock distribution has changed since 2007, expanding north-westwards during spawning and the summer feeding migration. In view of this shift in distribution of mackerel, a further evaluation using up-to-date fishery and survey data should be carried out to determine if the current mackerel box arrangement remains an effective conservation measure.

Therefore, STECF considers that until there is evidence that dispensing with the SW mackerel boxwill not posea risk the stock, it should be retained in its present form. Further, with the landing obligation coming into force for pelagic species in 2015 and given that a major aim of the mackerel box is to afford some protection to juvenile mackerel through reducing discarding of unwanted catches of juvenile mackerelretention of the box may provide an effective means of reducing unwanted catches.

STECF advice

Given that the mackerel box may provide an effective means of reducing unwanted catches of juvenile mackerel, STECF advises that until such time that the effects of the landing obligation on reducing unwanted catches is better understood it would be premature to dispense with the NEA Mackerel Box.

8. Norway pout

The area covered by the Norway pout box is an important nursery ground for juvenile haddock and whiting. The Norway pout stock dynamic is highly variable from year to year. Stock size has increased following the very high recruitment in 2012 and fishing mortality has decreased in recent years to below the long-term average. Both haddock and whiting North Sea stocks, the main bycatch species in the Norway pout fishery, have experienced poor recruitment. For haddock fishing mortality has continually decreased and is below target reference points, while biomass is above. For whiting, biomass is very low approaching B_{lim}.

STECF notes that the impact of the closed areacan not readily be distinguished from other interacting effects of technological development in the fishery, including changed selectivity and fishing behaviour in relation to bycatch rates. Therefore STECF considers that, until there is evidence that dispensing with theNorway pout boxis unlikely to have an adverseimpact on whiting and haddock stocks, it should be retained. Furthermore, , the Norway pout box may also provide an additional effective means of reducing unwanted catches which is in keeping with the major aim of the landing obligation.

STECF advice

STECF advises that until there is evidence that dispensing with the Norway pout box is unlikely to have an adverse impact on other stocks, especially whiting and haddock, it should be retained. Furthermore, the Norway pout box may also provide an additionaleffective means of reducing unwanted catches which is in keeping with the major aim of the landing obligation.

9. Sandeel (Firth of Forth)

STECF (2007) concluded that the closure partially met the goal to improve sandeel availability for a dependent predator (kittiwakes). Following the closure there appears to have been an improvement in the age one and older sandeel abundance until around 2003.

The Western Central sandeel stock in the North Sea has declined to a very low level. The qualitative evaluation of fishing mortality is extremely low, yet stock biomass has failed to recover.

STECF advice

STECF advises that dispensing with the closure to sandeel fishing in the Firth of Forth most likely slow down any future recovery of the stock in the Western central North Sea management area.

10. Herring

Spawning grounds closures. Closures were intended primarily to limit the risk of overfishing during the period of the year when herring are densely aggregated. In 2007 STECF recommended that the closures could be removed given that most herring stocks were in a better condition than when the closures were implemented, and that most of this stock improvement seems to be due to controls on overall fishing pressure. Consequently the closures in Division VI were removed. Several other closures however are still maintained in the Irish Sea, south coast of Ireland and east coast of England.

STECF advice

The 2007 STECF advice that spawning ground closures for herring could be removed is still valid in most cases. However, the North Sea autumn spawning stock is currently in a low productivity phase. As the management plan for herring in the North Sea and Skagerrak is to be evaluated in 2014, STECF advises that it would be appropriate to retain the East coast of England spawning closure at least until the results of that evaluation are available and to consider the merits of whether to retain or dispense with the closure after that time.

Nursery areas closures. STECF (2007) was able to review information on herring nursery ground closures in the Irish Sea, but had no information on closures in the western North Sea. The North Irish Sea herring stock biomass is above $MSYB_{trigger}$ since 2006 while fishing mortality is around F_{MSY}. Acoustic surveys confirm the significant increase in 1+ herring biomass (ICES, 2014). STECF notes that the combined effect of the Irish Sea nursery area with the closure of the juvenile herring fishery seems to be effective at protecting herring juveniles. Since a management plan for Irish Sea herring is currently being developed, STECF considers that the issue of whether to retain or dispense with the nursery area closure should be included in the discussions of the plan. For the nursery closures in the western North Sea there was no new information available to permit an evaluation and therefore no recommendation can be made.

Closed area for sprat to protect herring (off Jutland). STECF (2007) concluded that the sprat closed area was performing sub-optimally in protecting sprat nursery areas and juvenile herring. STECF therefore recommended that a closure be maintained and that further analyses be carried to determine if it might perform better in an alternative configuration. However, the North Sea autumn spawning stock is currently in a low productivity phase. As the management plan for herring in the North Sea and Skagerrak is to be evaluated in 2014, STECF advises that it would be appropriate to retain the closure to sprat fishing off Jutland at least until the results of that evaluation are available and to consider the merits of whether to retain or dispense with the closure after that time.

IIa areas closure. As noted by STECF (2007) the objective of the closure is still unclear although it seems to have been introduced to reduce catch misreporting between areas. STECF reiterates its advice for the removal of the closure, if relevant management authorities are confident that modern control systems e.g. VMS can minimise area misreporting.

11. Cod

West of Scotland (VIa) closures. The west of Scotland cod stock continues to suffer from impaired recruitment and biomass is still extremely low and well below Blim. ICES (2014) states that TAC, effort restrictions, and spatial management of fisheries have not controlled mortality levels.

STECF advice

STECF continues to advise that dispensing with the "windsock" and Clyde closures will not help the recovery of cod in division VIa. Additionally, the closures may also provide an additional effective means of reducing unwanted catches which is in keeping with the major aim of the landing obligation.

Celtic Sea (VIIfg) closure. The Celtic Sea cod closure was proposed by French, Irish and UK fishermen as an alternative to days-at-sea limits. STECF (2007) concluded that the closure has played a role in the reduction in the fishing effort. The stock biomass increased significantly after 2011, as a result of the recruitment of the very strong 2009 year class. However, in 2013 biomass is decreasing close to $MSYB_{trigger}$ while F has increased and is now over F_{MSY}. Furthermore, catches are mainly composed of 1 to 3 years old, making the stock quite vulnerable to recruitment failure (ICES, 2014).

STECF advice

Since the Celtic Sea closure has been effective in decreasing fishing effort and that the cod stock is still highly dependent on recruitment and thus vulnerable to overexploitation, STECF advises that the Celtic Sea closure should be maintained until there is evidence that reopening it will not jeopardise the sustainability of the cod stock.

Irish Sea (VIIa) closure. The Irish Sea cod closure was introduced as an emergency measure in 2000 to protect spawning cod. STECF (2007) noted that a derogation for prawn (*Nephrops*) fishing, and a reduction in spatial extent to cover only the spawning sites in the western Irish Sea, have significantly diluted the effectiveness of the closure in reducing fishing mortality on spawning cod. The stock continues to be extremely depleted. Biomass is still well under B_{lim} and F is above F_{msy}.

STECF advice

STECF considers that dispensing with the closure would not help the Irish Sea cod stock to recover from the severely depleted state. Furthermore, STECF advises that to afford further protection to cod with the aim of aiding recovery of the stock, it would be appropriate to re-establish the original 2000 specification of the closed area.

STECF general considerations

STECF concludes that assessment of closed area need to be conducted on a case by case basis, taking into account: the efficiency of the closure in relation with its original objectives (usually protecting juveniles or reducing catch on adults aggregations), the current and predictable state of the stocks impacted by the closure, the effectiveness or potential effectiveness of complementary or alternative management measures.

STECF considers that the opportunity of reopening closed areas could especially be assessed in the frame of the definition of long term management plans, when complementarities between various management options are discussed.

STECF advices that, in the context of the upcoming landing obligation, the reopening of closed areas dedicated to juvenile protection should be carefully considered. Decisions need to be coordinated and take into account the effects of the landing obligation on reducing the unwanted catch of juveniles. In many cases,until such time that the effectiveness of the landing obligation in reducing unwanted catches is better understood, it is premature to consider dispensing with closures aimed at protecting juveniles or depleted stocks.

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6.5. Extension of the current deep-sea sharks TAC to CECAF area around Madeira –

Background

Council Regulation[1] fixing fishing opportunities for EU vesselsfor certain deep-sea stocks lists a number of deep-sea sharks for which a TAC is set. These sharks are considered to be highly vulnerable to exploitation as they are long-lived, late maturing and low fecundity species. It is generally accepted that there is an urgent need to protect deep-sea sharks from fishing even if sharks are taken as by-catches in relative small quantities.

1 See Council Regulation (EU) No 1262/2012.

TACs for deep-sea sharks are based on ICES advice for ICES sub-areas. Zero TACs are set for a growing group of 18 sharks caught in most ICES sub-areas (V, VI, VII, VIII, IX, X, XII) but not in CECAF area. Although its abundance may vary across areas, in the absence of detailed information on stock identity, stock structure and stock dynamics, for a number of species ICES considers the existence of a single stock in the whole North-East Atlantic area. The STECF notes[2] that there is no available information on stock structure, catch trends or fisheries catching deep-sea sea species in general and in particular deep-sea sharks for CECAF areas 34.1.1, 34.1.2 and 34.2. These include EU waters adjacent to Madeira, the Canary Islands and Azores. Knowing that deep-sea sharks are widely distributed and migratory species it follows that it may be appropriate to extend management measures applied in ICES sub-areas to CECAF adjacent area.

In 2014 the Commission requested[3] the STECF to collect available information on deep-sea sharks and relevant fisheries catching these species and advise on whether there is a need to introduce management measures such as setting TACs for individual stocks in CECAF areas 34.1.1, 34.1.2 and 34.2. Based on a study (Morato 2012) the STECF concluded that a zero TAC for deep-sea sharks caught in waters around Madeira (CECAF area 34.1) has been established since 2008 and discards, mainly from the black scabbard fishery, are known to be low. These findings are somehow inconsistent with information provided by Portugal on catches of deep-sea sharks. Portugal confirmed catches and landings of 160 tonnes of deep-sea sharks in CECAF area 34.1.2 in 2012. In the Portuguese report on the activity of its fleet in 2012, landings of leafscale gulper shark (a species considered endangered in the NE-Atlantic, under 0 TAC and one of the main by-catch species in the black scabbard fishery) are among the top 5 landings by the Madeira fleet.

Terms of Reference

On the basis of the information provided by Portugal on landings of deep-sea sharks in 2012 in Madeira (background documents on: https://stecf.jrc.ec.europa.eu/plen1402) and on any other relevant information[4] the STECF is requested to advise on whether it is appropriate from a conservation point of view to extend the TAC area for deep-sea sharks to CECAF areas, in particular to area 34.1.2 around Madeira.

STECF response

The response provided below is built upon the information provided in STECF 2010 Plen-10-03 report, STECF 2012 Plen-12-03 report and STECF 2014 Plen-14-03 report and which dealt with black scabbard fish inwaters around Madeira, fish stocks of Outermost Regions (Madeira and Azores) and the biological situation of deep-sea stocksand the state of play of their fisheries in CECAF divisions 31.1.1, 34.1.2 and34.2.

The CECAF areas 34.1.1, 34.1.2 and 34.2 include waters around Madeira and the CanaryIslands and partially the southern part of the Economic Exclusive Zone of Azores,which isthe northern part of wider CECAF area (Figure 6.5.1). Most of the Azorean maritimeterritory is located within ICES Division X and, thus, all information compiledfor Azoreanfisheries is considered to belong to ICES statistical subarea X.

2 STECF 45th Plenary meeting report (24-28 March 2014).
3 STECF 45th Plenary meeting report (24-28 March 2014).
4Such as the STECF report on the Evaluation of Fishing Effort Regime in European Waters - Part 2 (STECF-13-21).

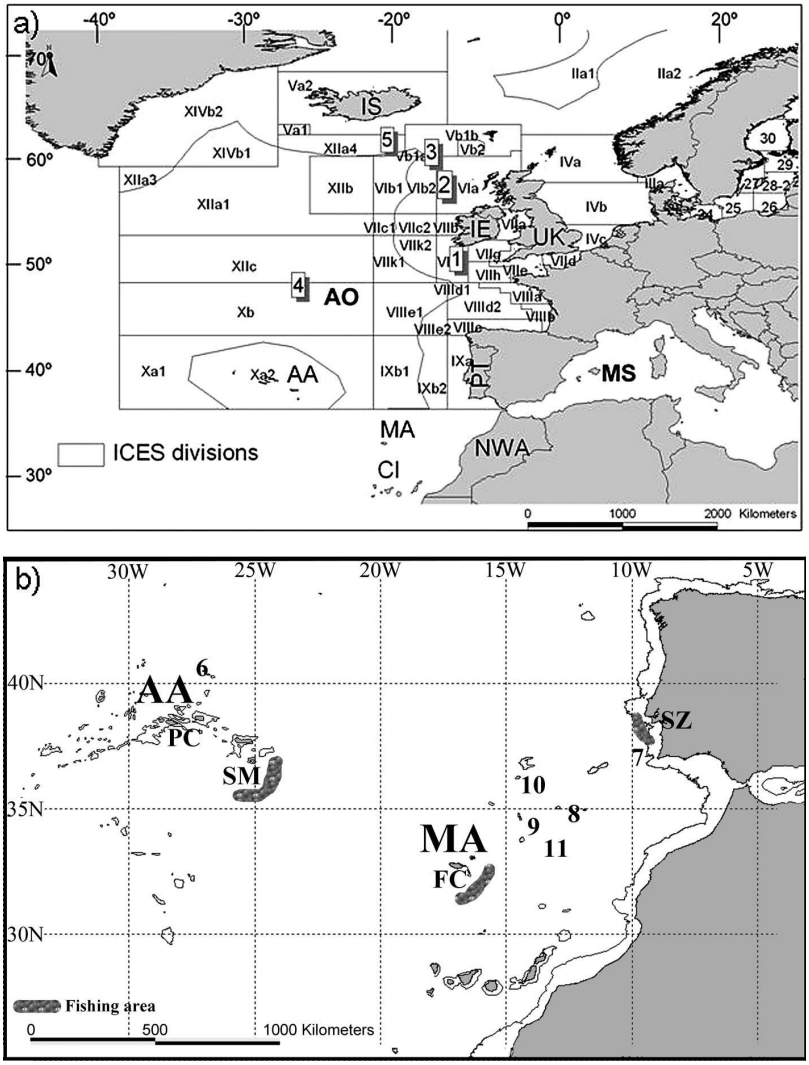

Fig. 6.5.1. – a) Map of the northeast Atlantic with the ICES divisions and b) the southern northeast Atlantic with the sampling locations of black scabbardfish and the 1000 m isobath. AA, Azores Archipelago; AO, Atlantic Ocean; CI, Canary Islands; FC, Funchal; IE, Ireland; IS, Iceland, MA, Madeira Archipelago; MS, Mediterranean Sea; NWA, Northwest Africa; PC, Pico Island; PT, mainland Portugal; SM, Santa Maria Island; SZ, Sesimbra (mainland Portugal); UK, United Kingdom; 1, Porcupine Seabight; 2, Rockall Trough; 3, Hatton Bank; 4, Faraday seamount; 5, Reykjanes Ridge; 6, Sedlo seamount; 7, Gorringe seamount; 8, Ampère seamount; 9, Unicorn bank; 10, Lion seamount; 11, Seine seamount.

A list of deepwater shark species present in ICES and CECAF areas is presented in Table 6.5.1.

Table 6.5.1.- List of deep-sea sharks species present both in ICES and CECAF Areas.

Scientific name	**Common name**
Centrophorus lusitanicus	Lowfin gulper shark
Centrophorus granulosus	Gulper shark
Centrophorus squamosus	Leafscale gulper shark
Centroscyllium fabricii	Black dogfish
Centroscymnus coelolepis	Portuguese dogfish
Centroscymnus crepidater	Longnose velvet dogfish
Dalatias licha	Kitefin shark
Etmopterus princeps	Greater lanternshark
Apristuris spp	Iceland catchark

Chlamydoselachus anguineus	Frilled shark
Deania calcea	Birdbeak dogfish
Galeus melastomus	Blackmouth dogfish
Galeus murinus	Mouse catshark
Hexanchus griseus	Bluntnose six-gilled shark
Etmopterus spinax	Velvet belly
Oxynotus paradoxus	Sailfin roughshark (Sharpback shark)
Scymnodon ringens	Knifetooth dogfish
Somniosus microcephalus	Greenland shark

Studies of the life history parameters of these species suggest that they are slow growing, mature relatively late in life and have low fecundities (Clarke *et al.*, 2001; Clarke *et al.*, 2002a, 2002b; Girard and DuBuit, 1999). These characteristics imply that they cannot sustain high levels of fishing pressure. *C. squamosus* is a bathidemersal elasmobranch, appearing among the 145 and 2 400 m depth. Its distribution is very broad, findingin the Eastern Atlantic, Western Indian Ocean and Western Pacific. Found on or near the bottom of continental slopes; also found pelagically in the upper 1,250 m of water 4,000 m deep. Reach a maximum length of 164 cm. Ovoviviparous, with maturity at 128 cm L_m, their life span estimates of 21-70 years (*C. squamosus*) and 11-35 years (*D. calceus*). Presumably feeds on fish and cephalopods. Utilized and fishmeal and dried salted for human consumption; meat and fins (low value) and liver oil (very high value), and occasionally for its mature eggs. They show very lowResilience, minimum population doubling time more than 14 years (Fec=5-8). Also show very high vulnerability (86 of 100), being included in the IUCN red lists.

In Madeira waters, the deepwater sharks*C. squamosus* and *D. calceus*, are abundant between 700 m and 900 m. *C. coelolepis* is more abundant deeper (1,300 m) but gravid females are more abundant inshallower waters. *C. squamosus* spawns in the Portuguese waters off Madeira archipelago. (Severino et al, 2009) Recent data shows that pregnant females may be also found off Iceland (Moura et al., 2014), and occasional captures of pregnant females off Portugal and off Galicia have also been reported (Bañon *et al*., 2006) suggesting a wide reproduction area.

C. squamosus presents a distribution pattern characterized by a spatial segregation by sex, size and maturity likely driven by the factors depth and temperature (Moura et al., 2014). It is admitted that this species makes large scale migrations along its distribution area, probably associated with reproduction.A recent study used fishery-dependent data (vessel monitoring systems, logbooks and official daily landings) available for a period before the mentioned EU regulation on discards, investigate the spatial distribution and overlap between the black scabbardfish and the leafscale gulper shark taken by the longline fishery operating off mainland Portugal (Veiga *et al*., 2013). Results indicated that in fishing grounds where the black scabbardfish is more abundant, the relative occurrence of this deepwater shark is reduced. The Portuguese dogfish data gave similar results (Veiga, unpublished data). These findings could preclude the proposal of alternative management measures to be adopted in this particular fishery, particularly where it concerns the minimization of deepwater shark bycatch.

The current ICES advice (2008) concludes that 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 catch rate series for the two species in Sub-areas V, VI, and VII suggest that both species are severely depleted and that they have been exploited at unsustainable levels. In Division IXa, lpue (landings per unit of effort) series are stable for leafscale gulper shark and declining for Portuguese dogfish.

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 catch rate 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.Consequently, deep-sea shark TAC 0 in Northeast Atlantic andICES Subarea X (Azores) (EC Reg 1262/2012) wasestablished.

STECF notes that there is no assessment on the deepwater sharks, specifically on *C. squamosus*, both neither in ICES nor in CECAF areas. However, taking into account their life history characteristics, the deepwater squaliformes sharks were found to be the most vulnerable to overexploitation, with lowest predicted recovery rates (Anon., 2001; Clarke *et al.*, 2003). These sharks are taken by all demersal deepwater gear-types in the area, mainly longlines. Given their vulnerability, and the fact that Portuguese dogfish and leafscale gulper shark are considered to be depleted in ICES Northeast Atlantic andICES Subarea X (Azores), a zero catch of Portuguese dogfish and leafscale gulper shark was set.

In Madeira CECAF 34.1.2 area, the black scabbardfish (*Aphanopus carbo*) longline fishery is one of the oldestrecorded deepwater fisheries dating back to the mid-17th century. The drifting deepwaterlongline in Madeira Islands is very specialized targeting black scabbardfish (Morato 2012). Thefishery takes place year round in CECAF area 34.1.2 largely inside the Madeira ExclusiveEconomic Zone. The number of vessels dedicated to this fishery peaked in 1988 with a total of95 vessels. However, in recent years (2009-2010) the fleet comprises of ca. 15 vessels. Landingsof black scabbardfish have steadily declined since 1998. In recent years total landings ranged from 4,200 tonnes in 2000to 1,800 tonnes in 2010.

The longline black scabbardfish fishery has the potential to captureother deepwater species, mainly deepwater sharks. The discard rates are known to be low andsome species of deep water sharks are landed in Madeira (Morato 2012). However, a zero TACfor deepwater sharks has been established in Madeira since 2008 which may potentially lead toan increase in discarding of deepwater sharks.

There are an extensive number of deep-sea sharks species caught as by-catch in longline fisheries.At least eleven squaliformesdeepwater sharks are regularly caught in the waters west andnorth of Ireland (Gordon and Swan, 1997). However only two, Portuguese dogfish*Centroscymnus coelolepis* and leafscale gulper shark *Centrophorus squamosus* arelanded (Charuau *et al.* 1995). The livers of others, such as birdbeak dogfish *Deaniacalceus,* kitefin shark *Dalatias licha* and greater lantern shark *Etmopterus princeps*(Iglesias and Paz, 1995) are sometimes retained, but the carcasses are discarded.

There is a directed long-linefishery for *Dalatias licha* at the Azores and in the early 1980s this species accounted forabout one fifth of total Azorean fish landings (Silva, 1983). Landings from this fisheryhave declined from 896 tonnes in 1991 to 31 tonnes in 1999. In the most recent yearssmall numbers of *Centrophorus squamosus* have also been landed in this area.

A smalllong-line fishery for *Centrophorus squamosus* and *Centroscymnus coelolepis* also existsat Madeira but landings never exceeded 30 tonnes throughout the 1990s (Anon., 2000b). The information provided by the Portuguese Authorities (Table 6.5.2) shows total landings for 2012. Despite a zero TAC for the species since 2008, landing amounts 160 t for *C. squamosus*.

Table 6.5.2.- Species of deep-sea sharks unloaded for each port and catch zone in Madeira.

	SPECIES	**AREA OF CATCH**	**PORTS OF UNLOADING**	**TONNES**
GUQ	Leafscale gulper shark	34.1.2	Porto Moniz	1.47
DCA	Birdbeak dogfish	34.1.2	Funchal	0.40
GUQ	Leafscale gulper shark	34.1.2	Paul do Mar	0.88
CYO	Portuguese dogfish	34.1.2	Funchal	0.02
GUQ	Leafscale gulper shark	34.1.2	Funchal	157.9

STECF considers that, due to thesimilarities of the deep longline fisheries for black scabbardfish in Madeira with those in theAzores and mainland Portugal, by-catch and discard levels may also be similar. In fact, in Madeira waters, by catch can range from a 2.5 to an 8.4 % of total catch, while discards are below the 12.1 % of total capture. *Centrophorus squamosus*is the most important species in the by-catch, and did not represent more than 5.8% in weight of total catch.STECF suggeststhat although only low levels of discards have been reportedin these fisheries, bycatches shouldbe closely monitored in the future in order to assess the impact of the fisheries for blackscabbardfish on deepwater sharks (STECF 2014 Plen-14-03). Given the lack of analytical assessment, STECF is unable to assess whether the low bycatches of deepwater sharks pose a threat to thestocks of such species in these areas. Little information was available to STECF for fisheries ininternational waters of the CECAF area 34.1.1, 34.1.2, and 34.2 targeting black scabbardfishand which take as bycatch deepwater shark species.STECF suggests that some discards mitigation measures can be applied, mainly based on fishing selectivity,spatial-temporal closures and protection of vulnerable sizes and vulnerable species. Involvement of fishermen into management to comply in a better manner withmitigation measures will be desirable.

STECF conclusions

Given the lack of analytical assessment, STECF is unable to quantify how by-catches of deep-sea sharks taken in the fishery for black scabbardfish in CECAF areas 34.1.1, 34.1.2 and 34.2 impacts on the populations of deep water sharks. However, STECF notes that their biological characteristics make them very vulnerable to over-exploitation and are likely to be severely depleted. Furthermore, their populations are widely distributed throughout the North East Atlantic. On this basis, STECF

advises that appropriate management measures for the conservation of these species should be extended to cover the full distribution of the stock. However, STECF has noted previously, where species are taken as a by-catch (non-target), TAC controls as a means of regulating fishing mortality where they are implemented as landings limits may not meet the objective of controlling fishing mortality as by-caught species will continue to be caught and discarded once their quota is exhausted. STECF therefore considers that the application of a zero TAC is unlikely to offer any significant conservation benefit and other measures such as spatial-temporal constraints, technical measures or effort restrictions may be more appropriate. STECF further notes, that despite the introduction of a zero TAC in 2008, landings data from CECAF area 34.1.2 shows that the TAC is not constraining landings.

STECF notes that in EU and international waters of I, V, VI, VII, VIII, XII and XIV and ICES division II and VI (Regulation (EC) 43/2014), there is a footnote associated with the zero TAC for spurdog which states "*that shark(1)catches taken with longlines when accidentally caught, these species shall not be harmed and specimens shall be promptly released*". However, these species are not identified as prohibited species under article 12 of Regulation (EC) 43/2014 nor in the TAC and quota regulations for deepwater species (Regulation (EC) 1262/2012), although recital 7 in this regulation notes that deep water sharks are depleted and that no directed fishery should take place.

Currently two TACs exist for deep water sharks (i) EU and international waters of V, VI, VII, VIII and IX and (ii) EU and international waters of X. In both areas the current TAC is zero. It is therefore unclear (a) whether these species if caught in a longline fishery targeting black scabbard should be returned to the sea unharmed and (b) whether there is a difference in current management arrangements between ICES divisions (I, V, VI, VII, VIII, XII and XIV) and ICES division X. STECF therefore considers that clarification on these issue is required if the current management arrangements are to be extended to CECAF areas.

While the above points may be somewhat academic as under current arrangements (zero TAC or prohibited species) all catches of deepwater sharks must be returned to the sea, it does present important considerations for the forthcoming introduction of the landing obligation. STECF notes that if deepwater sharks are considered a prohibited species in accordance with article 15.4a of Regulation (EU) 1380/2013, then this would imply that these species would be exempt from the landing obligation. On the other hand, if these species are not exempt then STECF notes that they must be landed but may not sold for human consumption because of the zero TAC. In practice, this means that any catch of deep water sharks would potentially "choke" the targeted fishery for black scabbard as soon as any by-catches of deep water sharks are taken unless they could be offset against the quotas of other species as allowed for under Article 15.8 of the CFP or some discarding is allowed under a de minimis exemption.

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6.6. Modification of legal size of Japanese clam

Background

The Japanese or Manila clam (*Ruditapes philippinarum*) stock in the Bay of Arcachon is the largest in France, estimated by IFREMER at more than 7000 tonnes with landings of 400 to 600 tonnes per year The minimum landing size for Japanese or Manila clam (is currently set at 35 mm by Regulation (EU) No 227/2013 which amended Regulation (EC) No 850/98.

The Commission has received a request from the French authorities to modify this minimum size to take account in differences in growth rates of the stock of Japanese clam in the Bay of Arcachon. Based on studies conducted by IFREMER (background documents on: https://stecf.jrc.ec.europa.eu/plen1402) it appears that the clams in this area have much slower growth rates than in other areas. According to this view, the fishing industry in the area assert that it would be appropriate to lower the minimum landing size (30cm) for the Bay of Arcachon reflecting differences growth rates and prevailing environmental conditions.

Terms of Reference

STECF is requested

- To review the supporting study from IFREMER and evaluate whether the differences in growth rates and environmental conditions may justify the introduction of a lower minimum landing size for the Bay of Arcachon and whether this would have an impact on the stock of Japanese clam in the area.

- Comment on whether for sedentary shellfish species like Japanese clams it is more appropriate to set minimum sizes at local level rather than at a European level reflecting differences in stocks.

STECF observations

Two IFREMER reports (Sanchez *et al.* 2010 and 2012) were submitted to the STECF as supporting studies for the request to lower the minimum landing size to 30 mm. IFREMER has carried out surveys every two years since 2006 for direct evaluation of the clam stock in Arcachon Bay. Before 2006, surveys were conducted in 2001 and 2003. Relative abundance and biomass of the different clam species present in the bay (*R. philippinarum*, by far the dominant species, *Venerupis decussata* and *Polititapes aureus*) are reported for each of the 16 strata plus 4 additional strata defined in the bay. Regarding the Japanese clam, total abundance and biomass are estimated for each stratum. The distributions of sizes are presented for the whole bay (2003, 2006, 2008, 2010 and 2012) and by stratum (2012). In 2012 the size distribution was unimodal, with very low presence of smaller (less than 20 mm) and larger individuals (greater than 35 mm). No information is available on catches and sizes in 2013, which would have allowed knowing the result of the 2012 low recruitment in the size structure the following year. The size distributions by stratum show that recruitment varies among strata. Dang *et al*. (2010) reported that recruitment events in the exploited area varied spatially, but with uniformly low values.

The estimated exploitable stock (≥ 35 mm) in 2012 was 721 t for 58 million individuals, while in 2010 it was 916 t for 71 million individuals. In 2012 the size structure was unimodal, with most individuals between 26 and 32 mm. For comparison, it is indicated that in the Gulf of Morhiban, located around 400 km northwards the study area, in southern Bretagne, most clams are between 30 and 42 mm. The abundance of juveniles (less than 17 mm) has markedly decreased over the period 2008 – 2012 in the Gulf of Archacon. In 2012 recruits (<17 mm) were much less abundant than observed in the previous survey in 2010. It is likely that because of low recruitment in 2012, the mean size increased from 25.0 mm in 2010 to 27.2 mm in 2012. The report emphasizes the low abundance of juveniles in 2012 and a continued reduction in the number of individuals >35 mm, which contribute to the renewal of the stock.

Data on abundance, biomass and distributions of sizes were not jointly analyzed with environmental variables.

STECF comments

The STECF in its winter plenary in November 2007 (Plen-07-03) http://stecf.jrc.ec.europa.eu/documents/43805/44832/2007-11_PLEN+07-03_JRCxxx.pdf) was requested to give an opinion on changing the *R.philippinarum* minimum landing size from 40 mm to 35 mm. According to The NWWRAC (Opinion of 3 September 2007), estimates of size-at- first - maturity for *R. philippinarum* is generally within the range 23 to 28 mm, thus, a minimum size of 35 mm would still allow multiple opportunities for spawning. STECF concluded that based on the information available, the increased risk to the stocks of *R.philippinarum* of changing the minimum size from 40mm to 35mm was low. However, STECF indicated that the results of a specific research programme on growth of Japanese clam would provide a stronger scientific basis on which

to recommend a revised minimum landing size. In 2008 the EU chose to reduce the minimum landing size to 35 mm on the basis of the STECF advice.

When compared to the situation in 2010, the 2012 survey showed a significant increase in average density in weight per m^2 (+22%) for all species and for total biomass for Manila clams (+23%); a moderate increase in average density for all species in terms of population numbers per m^2 (+8%) and total abundance (+6%); a 21% decrease in exploitable biomass in terms of weight; and a significant drop in the juvenile population in terms of numbers and weight (-77% and -74 % respectively).

Regarding the size-at-first maturity, Robert *et al.* (1993) refers to spawners as clams > 25 mm in the Arcachon Bay and Dang *et al.* (2010) define adults as >26 mm individuals in the Morbihan Gulf. Accordingly, the proposed minimum landings size of 30 mm would be slightly higher than the size-at-first maturity reported by these authors. The mean age to reach 35 mm is 2.9 year (Dang *et al* 2010). These authors found within the Bay of Arcachon heterogeneous growth performance and spatial and temporal variability of spawning events at the km scale. An economic study assessing the result of the proposed measure is lacking. Considering that the value depends on the size, it remains unclear whether lowering the minimum landing size further would be really beneficial for fishermen in the mid or long- term.

STECF conclusions

STECF notes that no updated information on the Japanese clam biology in the Arcachon Bay has been submitted to STECF to support the view that growth and size-at-first maturity in Arcachon Bay is different from that observed in other areas.

STECF notes that the 2012 stock assessment shows the juvenile abundance rate is the lowest of the whole data set. This reveals a certain level of stock fragility and a lack of recruitment to compensate may lead to a reduction in exploitable biomass for 2014. Stock weakness is further accentuated by a continued reduction in the number of clams measuring over 35 mm which not only provide a fishery but also contribute biologically to stock renewal. STECF considers that lowering the minimum landing size may worsen the state of the stock.

Generally, in cases where differences in growth and in the size-at-first-maturity are demonstrated for the same species in different areas, the minimum landing size could be set differently considering the population specific growth in each area. However, STECF notes that this would require evidence on a relevant scale subject to independent and periodic review. However, STECF notes that having different minimum sizes will complicate control and enforcement, particularly in circumstances where shellfish from different localities are presented on the same market.

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6.7. Request for an STECF opinion on assessment of the Member States annual reports whether the conditions for exclusion in accordance with Article 11(2) of Regulation (EC) No 1342/2008 remain fulfilled

Background

Council Regulation 1342/2008 establishes a long-term plan for cod stocks and the fisheries exploiting these stocks. Under Article 11(2) the Council may, acting on a proposal from the Commission and on the basis of information provided by the Member States and on the Advice of STECF, exclude certain groups of vessels from the application of the effort regime.

The current exclusions for groups of vessels from Sweden, the United Kingdom, Ireland and Poland are described in Council Regulation (EC) No 754/2009, as amended. Member States must submit annually, appropriate information to the Commission and STECF to establish that the conditions for any exclusion granted remain fulfilled. Reports on Art 11 are due 31st March.

Ireland have identified that sampling has not occurred for the exempted vessels in 2013 , but that on the basis of previous comparative examinations between the use of grids and the use of an inclined panel in the same fishery that there is a high probability that the terms of the exclusion have been met.

Poland reported to COM that in 2013 management period polish group of vessels exempted under Art11 did not fish for saithe in the area concerned. Nevertheless, Poland would like to maintain in force the exemption from the effort regime for its group of vessels.

Terms of Reference

Based on the information provided by the Member States (background documents on: https://stecf.jrc.ec.europa.eu/plen1402) in support of the continuing exclusions granted under Article 11 in their annual reports, the STECF is requested to assess whether the groups of vessels concerned have been complying with the conditions set out in the decision on exclusion. In carrying out its assessment, the STECF is requested to:

a) advise whether the data on catches and landings submitted by the Member State support the conclusion that during the preceding fishing season (from the date of the exclusion), the vessel group has (on average) caught less than or equal to 1,5% of cod from the total catches of the vessels concerned;

In this instance STECF is asked to additionally consider the background paper provided by Ireland in relation to the sampling of the excluded vessels in 2013. STECF is asked to comment on the assumptions made in the calculation of the possible impact of the use of grids in 2013 and if the paper presents a reasonable indication of the likely catch of the vessels in the 2013 year.

b) specify the reasons, if the information presented gives indications on the non-fulfilment of the conditions for exclusion.

In carrying out its assessment, the STECF should consider the rules on vessel group reporting established in Article 4 of Commission Regulation (EU) No 237/2010 laying down detailed rules for the application of Council Regulation (EC) No 1342/2008.

STECF observations and conclusions

Data received from Sweden, The United Kingdom, France and Ireland.

Sweden

The data concern 91 vessels targeting *Nephrops*, fishing with the grid and 70 mm in areas a and bi. According to their Table 1, 34 kg cod was caught and landed. According to Table 3, 37 trips were observed. The Table indicates that 0.8 % of effort was observed. No cod was caught during the observed trips.

STECF conclusions

STECF notes that the catch sample data provided indicates that in 2013, the proportion of cod in the catches of the Swedish vessels fishing with the grid and 70 mm in areas a and bi under Article 11(2) of the cod management plan (Council Regulation (EC) 1342/2008), was less than 1.5%.

UK

The Minches and the Clyde

The data concern 41 vessels targeting *Nephrops*, fishing with 80 mm mesh size in areas 2b2, and 2d The Clyde, 2d The Minches and 2d "other" areas; but only 37 of them are fishing in the relevant areas The Minches and the Clyde. In total these vessels made 24 trips in the Clyde and 511 in The Minches. According to their Table 1, 20.9 kg cod was caught and landed (in two trips in The Minches). Within all the trips undertaken by these vessels in The Minches and The Clyde, the cod landings never exceeded the 1.5% threshold. STECF deduced that the information in Table 3 concerns 18 observed trips in The Minches, one in The Clyde and one in 2d "other"; the 19 observed trips in The Minches and The Clyde concern 13 of the 37 vessels involved and the effort deployed in the observed trips represent 4% of total effort of these vessels in the management period this represents.

In these 19 trips a total of 94 kg of cod was caught and discarded, and this amounts to 0.47% of the overall catches. Among the 18 sampled trips in the Minches, the average percentage of cod in the catches was 0.8% (ranging from 0% to 4.5%). Of three of these trips the percentage of cod in the catches exceeded 1.5% (4.5%, 3.2%, and 2.6%). Bootstrap analyses (as PLEN-11-03) of the 18 trips' data indicate that the average percentage of cod exceeded the 1.5% threshold in 1.7% of the cases.

In the one single observed trip in the Clyde the percentage of cod in the catch was 0.2%.

Many of the 37 vessels that had fished under exemption by Article 11 in The Minches and/or The Clyde, had also conducted 10 trips in area 2b2 and 54 in area 2d "other". The latter fishing activities are not exempted from the effort regime, and therefore STECF has not considered their catches in those trips.

STECF conclusions

Because only one trip in The Clyde was sampled, STECF cannot conclude anything about the statistical probability that during the 2013 fishing season the group of vessels fishing in The Clyde on average caught less than or equal to 1.5% of cod compared to the total catches.

STECF notes that the catch sample data provided indicates that in 2013, the proportion of cod in the catches of the UK vessels fishing with 80 mm mesh size in areas The Minches under Article 11(2) of the cod management plan (Council Regulation (EC) 1342/2008), was lessthan 1.5%.

Isle of Man

The data concern 22 vesselsfrom the Isle of Man targeting queen scallop mainly between June and September. One of those trawlers had no activity during the referred period.According to their Table 1, 1 kg cod was landed. According to Table 3, 149 trips were observed. These observed trips concerned 10 of the 21 vessels involved and the effort deployed in the observed trips represent 32.3 % of total effort of these vessels in the management period this represents.
In these 149 trips a total of 140.5 kg of cod was caught and discarded. No-one observed trip had cod catches exceeding 1.5%, and the average of the percentages of cod in these trips was 0.037% (min=0.0% - max 0.59%).The percentage of the overall cod catches to the total catches amounts to 0.034%.

STECF conclusions

STECF notes that the catch sample data provided indicates that in 2013, the proportion of cod in the catches of the group of vessels from Isle of Man targeting queen scallop under Article 11(2) of the cod management plan (Council Regulation (EC) 1342/2008), was less than 1.5%.

France

TR1 vessels West of Scotland (Vb – VIa)

In the report submitted by France the group of 8 vessels concerned is described as targeting saithe. Within the trips undertaken by these vessels in the West of Scotland (Table 1), the range of depth during the fishing operations is between 411 and 1088 m. According to Table 3, 7 observer trips were conducted in 2013 (Table 3), of which 6 trips conducted in depth more than 580m,where no catch of cod and saithe can occur, and only one trip between 215 and 235 m a common fishing depth when targeting saithe in West of Scotland. STECF notes inconsistencies in Table 3 because all the observed trips are described as targeting saithe.

STECF notes that according to data provided cod landings and cod catches never exceeded the 1.5%.

STECF conclusion

In the absence of clarification on the depth during the observed trips and the non-observed trips STECF cannot conclude on the proportion of cod in the catches of the French TR1 vessels fishing in the West of Scotland under Article 11(2) of the cod management plan (Council Regulation (EC) 1342/2008).

LL vessels West of Scotland (Vb – VIa)

Within the 43 trips undertaken by thetwo vessels concerned in the West of Scotland (Table 1), the reported cod landings never exceeded the 1.5% threshold. 5 observer trips were conducted in 2013 (Table 3); the effort deployed in these observed trips represents 10.3% of total effort of these vessels. There were no cod catches recorded on any of the observed trips.

STECF notes that in the French report it is mentioned that the fishing depth is generally between 300m and 400m and in Table 3 the fishing depth during the observed trips was between 180m and 250m.

STECF conclusion

STECF notes that the catch sample data provided indicates that in 2013, the proportion of cod in the catches of the French longliners targeting hake fishing in the West of Scotland under Article 11(2) of the cod management plan (Council Regulation (EC) 1342/2008) was less than 1.5%.

Ireland

TR1 vessels in VIa.

The data concern 5 vessels operating mainly in ICES Division VIa in the TR1 (120mm) gear category. According to Table 1, 11839 kg cod was landed during the 43 fishing trips. According to Table 3, 10 trips were observed. In these 10 trips a total of 2372 kg of cod was caught of which 772 kg was landed and 1596 kg discarded. The percentage of the overall cod catches to the total catches of these trips amounts to 1.03 %. The average of the percentages of cod in these trips was 1.1 % (ranging between 0.0% and 7.5 %). One observed trip had cod catches exceeding 1.5%, and during that particular trip cod catches amounted to 1533 kg. Bootstrap analyses (as PLEN-11-03) of the 10 trips' data indicate that the average percentage of cod exceeded the 1.5% threshold in 27% of the cases.

STECF conclusion

STECF considers, based on the information provided, that while during the sampled trips the 5 Irish TR1 vessels concerned had cod catches of, on average,<1.5%, the bootstrap analysis suggests that thereis a 27% probability that the true proportion of cod in the catches of the vesselsconcerned exceeds 1.5%.

TR2 vessels in VIIa using the sorting grid.

Seven vessels continued to operate with the Swedish grid in 2013. Unfortunately, owing to an error in the design of the 2013 sampling programme, there was no sampling of those seven vessels. No data were available for the calculation of the percentage of cod in the catches in 2013.

A background paper was provided by Ireland in relation to the case of the excluded vessels in 2013. That paper presents an estimation of what percentage of cod catches is likely to have been reached with the grid in 2013 based on observer 2013 data on vessels using the separator panel and a scientific paper (D. Rihan, 2009) presenting comparison of selectivity between the separator panel and the grid.

The analysis presented shows that the catches of cod are reduced by 88% when using the grid in comparison with the panel. Observer data show that the percentage of catches of cod when using the panel is 1.54 % in 2013. Under the assumption that the catches of the other species are not affected by the grid, the percentage of cod catches is estimated at 0.19% for vessels using the grid. That percentage could be underestimated because it is likely that when using the grid the bulk catches is significantly reduced.

During the meeting, STECF got clarification on comparison of the bulk catches between the separator panel and the grid based on 2012 observer data. During those observed 2012 fishing trips the bulk caches per tripwere on average 6729 kg when using the separator panel and 3767 kg when using the grid. Based on those data it is estimated that when using the grid the bulk catches are reduced by 44% in comparison with the separator panel.

If that amount of reduction of the bulk catches is taken into account the percentage of cod catches when using the grid in the Irish Sea are estimated at 0.34% instead of 0.19%.

The information presented by Ireland constitutes evidence suggesting that it is highly likely that the vessels using the grid in 2013 maintained cod catches below 1.5%. In addition STECF notes that the catches of cod are significantly reduced with the grid in comparison with the panel.

STECF conclusion

STECF notes the absence of catch sample data for 2013, and considers that it is likely that the proportion of cod in the catches of the Irish TR2 vessels fishing with the sorting grid in the Irish Sea under Article 11(2) of the cod management plan (Council Regulation (EC) 1342/2008), (Reg. 712/2010 Article 2) was less than 1.5%.

6.8. Request for an evaluation of national measures taken under Art 13(6) of the cod plan

Background

In accordance with Article 13.2 of Council Regulation 1342/2008 establishes a long term plan for cod stocks and the fisheries exploiting these stocks the Member States may increase the maximum allowable fishing effort within applicable effort groups. Member States are required to notify the Commission of any planned increase of the fishing effort allocation by April 30 of the year during which such compensation for effort adjustment shall take place. The notification shall include details of the vessels operating under the special conditions referred to in Article 13 (2) (a-d), the fishing effort per effort group that the Member State expects to be carried out by those vessels during the year and the conditions under which the effort of the vessels is being monitored, including control arrangements.

Under Article 13.7 the Commission shall request STECF to compare annually the reduction in cod mortality resulting from the application of point (c) of Article 13 (2) of the cod plan with the reduction it would have expected to occur as a result of the effort adjustment referred to in Article 12(4).

Not all Member States have allocated additional effort only on the basis of Article 13 (2) (c) and have identified additional allocation on the basis of Article 13 (2) (a,b and d). Member States are required to submit by March each year a report on the amounts of effort used within the actions during the previous year.

Information on the respective measures has now been submitted by FR, IR, UK.

Terms of Reference

Based on information provided by the United Kingdom, France, Ireland, Germany and Denmark (background documents on: https://stecf.jrc.ec.europa.eu/plen1402) justifying fishing effort increases for 2013 under the conditions laid down in article 13.2 (c) of the cod plan (Council Regulation (EC) No 1342/2008), and the reports of effort allocated under these measures, STECF is requested to assess the effectiveness of the relevant cod avoidance measures undertaken pursuant to Article 13.2 (c). In carrying out its assessment, the STECF is requested to compare the impact on cod mortality which results from the application of this provision (cod avoidance or discard

reduction plan) with the reduction it would have expected to occur as a result of the fishing effort adjustment referred to in article 12.4 of the cod plan.

In light of its conclusions of the assessment referred to above, STECF is requested to advise the Commission on any appropriate adjustments in effort to be applied for the relevant areas and gear groupings as laid down in article 13.7 of the cod plan as a result of the application of Article 13.2 (c).

Additionally, based on any relevant information obtained from the EWG 14-06 and in conjunction with the information provided by Member States justifying fishing effort increases for 2013 pursuant to Article 13.2 of the cod plan Council Regulation (EC) No 1342/2008) under conditions other than paragraph 13.2 (c), STECF is requested to assess the additional effort applied by the Member States concerned in terms of its compatibility with the conditions and objectives of the plan and in terms of its impact on cod mortality. STECF is requested to identify instances where this assessment is not possible and to indicate specific information for each action that should be provided to enable such assessment.

STECF is requested to identify where possible any cumulative or in combination impact as a result of the actions undertaken under Article 13 (2).

STECF response

Previous STECF comments (see PLEN-13-02) regarding the difficulties associated with the evaluation of the effects of the Article 13c provisions remain relevant but will not be reiterated here. Last year (PLEN-13-02) STECF carried out an evaluation in response to the same ToR using the partial F values for the affected fleets as computed by EWG-13-06; these values were compared with i) the required reduction under the cod plan and ii) the observed change in overall F for the stock concerned. STECF could not use the same approach this year as EWG-14-06 did not analyse catch data and could therefore not compute partial F values for the affected fleets. Therefore, the ToR could not be adequately addressed.

In terms of more qualitative comments on the various actions undertaken by the Member States, STECF has nothing to add beyond the comments made in previous years' reports (e.g. PLEN-13-02).

Germany

Germany only submitted a table, without explanatory cover letter, documenting the total number of kW days allocated and used by TR1 and TR2 in the respective management areas. It is not known to which provision of Article 13.2 the table relates; last year it was 13.2(b), the provision according to which cod catches have to be smaller than 5% of the catches. According to the table, only the TR1 fleet in area 2b used extra effort allocated under Article 13.2, namely 450,481 kW days (about 65% of what had been notified for that fleet and area) on top of the 954,390 kW days according to Article 12. As explained above, at present STECF cannot estimate the reduction in partial F by this group of vessels for comparison with the required reduction in F or the change in overall F.

France

France provided a cover note stating that the provision under consideration was Article 13.2(b). France submitted tables documenting the effort notified and used under Article 13 by the respective

fleets in the respective areas in 2013, plus lists of the individual vessels concerned. According to their table and letter, of the 1,451,944 kW days notified for the TR2 fleet in the North Sea and Eastern Channel, only 1,421,287 kW days were used, because 5 of the 240 vessels that had requested the derogation did not comply with the condition laid down in point 2 (b) of Article 13 of the Regulation. On the other hand, for TR1 in the North Sea and Eastern Channel the notified amount of 690,780 kW days has been increased to 1,839,943 kW days because 8 vessels were added to the 3 vessels in the original notification; the document states that these vessels have respected the condition laid down in point 2 (b) of Article 13 of the Regulation. Lastly, for TR1 in the West of Scotland, the used effort was as notified (2,580,678 kW days). As explained above, at present STECF cannot estimate the reduction in partial F by these groups of vessels for comparisons with the required reduction in F or the change in overall F.

Ireland

Ireland provided a list of vessels using selective gears and the number of kW days used by each individual vessel. It involves 54 vessels using an Inclined Separator Panel with TR2 gear in ICES Area VIIa, having used a total of 476614 kW days; and 9 vessels using a Swedish Grid with TR2 gear in ICES Area VIIa, having used a total of 87006 kW days. In the table it is noted that effort data for West of the cod management area are not yet available. As explained above, at present STECF cannot estimate the reduction in partial F by these groups of vessels for comparisons with the required reduction in F or the change in overall F.

Denmark

As in previous years, Denmark provided substantive submissions including descriptive narratives, an analysis (see below), effort data for the various gear types, and some documentation on control measures. Denmark utilised Article 13.2(c) in the Kattegat TR2 fleet under a comprehensive Danish Cod Avoidance Plan since 2010 with the following measures:

1. Closed area in the Kattegat
2. Closed area in the Sound
3. Use of square mesh panel in the Kattegat (October- December)
4. Use of fishing pools in eliminating discards
5. Use of selective gear (Seltra 180 mm) in the Kattegat (January-September)

Using a modelling approach (described in the peer-reviewed paper Vinther and Eero 2013), the Danish documents report an expected reduction in fishing mortality by 2013 to 26% of the baseline (2008). Year-on-year application of 25% reductions since 2009 would have resulted in a reduction by 2013 to 24% of the baseline. Nevertheless, STECF reiterates from last year (PLEN-13-02) that no attempt was made to estimate the actual, observed reduction. As explained above, at present STECF cannot estimate the actual reduction in partial F by these vessels for comparisons with the required reduction in F or the change in overall F.

UK

As in previous years, the UK provided substantive submissions including descriptive narratives, effort data, and gear descriptions. There is a separate document on gear descriptions by DARD (Northern Ireland) and one on the Scottish Conservation Credits Scheme by Scotland. The UK utilised the provisions of Article 13.2(b), 13.2(c), and 13.2(d) for TR1 and TR2 in the North Sea and Eastern Channel, the West of Scotland, and the Irish Sea (see Table 6.9.1).

kW Days		Sea area / category					
		North Sea (area b)		Irish sea (area c)		West of Scotland (area d)	
		TR1	TR2	TR1	TR2	TR1	TR2
Actions	13(a)	-	-	-	-	-	-
	13(b)	358,570	208,888	-	-	-	967
	13(c)	4,600,419	5,078,125	13,508	1,856,374	1,001,595	904,877
	13(d)	-	-	-	-	434,799	-
	TOTAL	4,958,989	5,287,013	13,508	1,856,374	1,436,394	915,159

In the documentation these actions are further broken down by each Fisheries Administration, by sea area and by activity type.

In Scotland there were six categories of action under Article 13.2(c):

- No fishing within mandatory seasonal closures and Real Time Closures
- Fishing trips where fishing took place exclusively beyond a specified 'deep water line' in Areas IIa and IVa;
- Fishing trips where fishing took place exclusively south of 59 degree latitude in Area VIa;
- Fishing trips where the area of capture was exclusively within Area IVa and where landings constituted of not less than 40 per cent of Monkfish and/or Megrim;
- The exclusive use of specified selective gears while fishing with a category of regulated gear; and,
- Participation in a trial of fully documented cod fisheries (Catch Quotas).

In Northern Ireland there were two categories of action under Article 13.2(c):

- No fishing within mandatory seasonal closures, Real Time Closures and compliance with a voluntary seasonal closure in the East Irish Sea;
- The exclusive use of specified selective gears while fishing with a category of regulated gear.

In England there were three categories of action under Article 13.2(c):

- The mandatory compliance with all UK Government seasonal and real time fishery closures,
- Use of selective fishing gear,
- Participation in trials for fully documents fisheries (catch quota).

The separate document of the Scottish government on the Scottish Conservation Credit Scheme provides several analyses that attempt to quantify the impact of the measures. Preliminary analyses suggest that the impact is still in the desired direction but the reductions in cod catches attributable to the Scheme appear to be smaller than in previous years.

As explained above, at present STECF cannot estimate the actual reduction in partial F by these Article 13.2 actions for comparisons with the required reduction in F or the change in overall F.

6.9. Request for an evaluation of the effectiveness of Highly Selective Gears being used by English administered vessels

Background

At its November 2013 and March 2014 plenarymeetings, STECF commented on the performance of two variants of a NetGrid which were tested through a Fisheries Science Project. This Project tested two variants of a NetGrid trawl design being used in the North Sea *Nephrops*fishery to avoid catches of whitefish. At its March plenary STECF concluded that if the raw haul by haul data had been included in the report they would have been able to provide a much more comprehensive informed opinion of the effectiveness of the Net Grid trawl on reducing catches of cod and other species except *Nephrops*, for which it is clear that catches by both the Net Grid and control trawls were unaffected, and that no other additional data is required.

This raw data is now attached which includes haul by haul information for the trials of both variants of the NetGrid (background documents on: https://stecf.jrc.ec.europa.eu/plen1402).

Terms of References

STECF is asked to evaluate the final set of results of scientific trials on variants of a NetGrid *Nephrops* trawl design submitted by the UK and in particular to assess the extent that both variants of the design can be expected to reduce the catches of whitefish that are frequently caught and discarded from the North Sea *Nephrops* fishery. In particular STECF are asked to comment on the overall reduction in the catches (both landings and discards) of other commercial species likely to be achieved by this trawl and on the extent to which both variants of the design can be expected to retain catches of*Nephrops*.

STECF observations

The STECF response, to the specific requests in the Terms of reference, complements that provided during the STECF PLEN 14-01 and it can be summarised as follows:

STECF observations

1. ***The extent that each design can be expected to reduce the catches of adult and juvenile cod. STECF are further asked to comment on the possible impact on cod mortality arising from the use of this gear.***

Catch comparison analysis carried out at the STECF PLEN 14-02 demonstrate that the Net Grid versions can be expected to reduce the catches of adult cod. While there is evidence that both grids did not reduce the catches of juvenile cod and consequently is unable to assess the potential impact of either gear on total cod mortality.

Contrarily, while Armstrong and Catchpole (2013) conclude that the long version was more efficient at releasing cod than the short version, STECF did not see any statistical differences on size selection properties between the two grid versions.

2. ***To what extent does the data and information provided in relation to the technical characteristics of each of the designs support the conclusion that catches of cod by such gears will be less than or equal to 5% (five) from the total catches***

In addition to the observation provided during the STECF PLEN 14-01, as raw data of total catch per haul have been provided, there is now a clear perception of the cod catch reduction with the use of the modified gears (both in the long- and short-version).STECF notes that cod accounted for about 2% of the total catch in the experimental trawls and 2.5% in the control trawl. Such differences in the cod catch ratio, compared to the control trawl, are due to a high significant reduction in the catch of cod using the Net Grid trawls ($p<0.01$). A large reduction of around 77% by weight was achieved when using experimental trawls. Nevertheless, the study demonstrated that also a significant reduction of around 55% in the rest of the catch ($p<0.05$) occurred in the Net Grid trawls, resulting in a lower total catch volume, therefore fewer cod could have made up a much higher percentage contribution of the total catch.

3. ***The extent that both variants of the design can be expected to reduce the catches of whitefish that are frequently caught and discarded from the North Sea Nephrops fishery. In particular STECF are asked to comment on the overall reduction in the catches (both landings and discards) of other commercial species likely to be achieved by this trawl.***
4. ***The extent to which both variants of the design can be expected to retain catches of Nephrops.***

STECF confirms what has been stated in the STECF PLEN 14-01. As regards the extent that both variants of the NetGridcan be expected to retain catches of *Nephrops* and to reduce the catches of whitefish that are frequently caught and discarded from the North Sea *Nephrops* fishery, it can be seen that *Nephrops* and whiting dominate the catch in both Net Grid version. The small reduction of *Nephrops* catch of around 6% was insignificant ($p=0.271$) by either version of the Net Grid but the catches of whiting and all other fish was significantly reduced.

5. ***In cases of scientific uncertainty please specify the information and data that have to be improved; in particular concerning the sampling strategy including sampling precision levels and intensities in relation to catch and discards data and, where relevant, the description of gear properties and its effect.***

STECF considers that the data and information provided after the STECF PLEN 14-01are now sufficient to draw robust conclusions and consequently is able to assess the potential effectiveness of either gear.

STECF conclusions

STECF acknowledges the initiative by the UK fishing industry and scientists, through the Fisheries Science Partnership (FSP) of the Defra-funded collaborative research programme of scientific research, for having undertaken trial studies on gear modifications designed to reduce catches of cod and other by-catch species.

Catches from the modified trawls showed that both versions of the Net Grid did not significantly affect the retention of marketable *Nephrops*.

There is evidence that the Net Grids can potentially reduce the adult but not the juvenile cod catches.Net Grid trawls can also reduce the catches of whitefish that are frequently caught and discarded from the North Sea *Nephrops* fishery.

The effect of both grid variants (short or long) was significant ($p<0.05$) only on whiting and cod catches, while it unaffected the catches of *Nephrops* and haddock as well as the cod catch ratio.

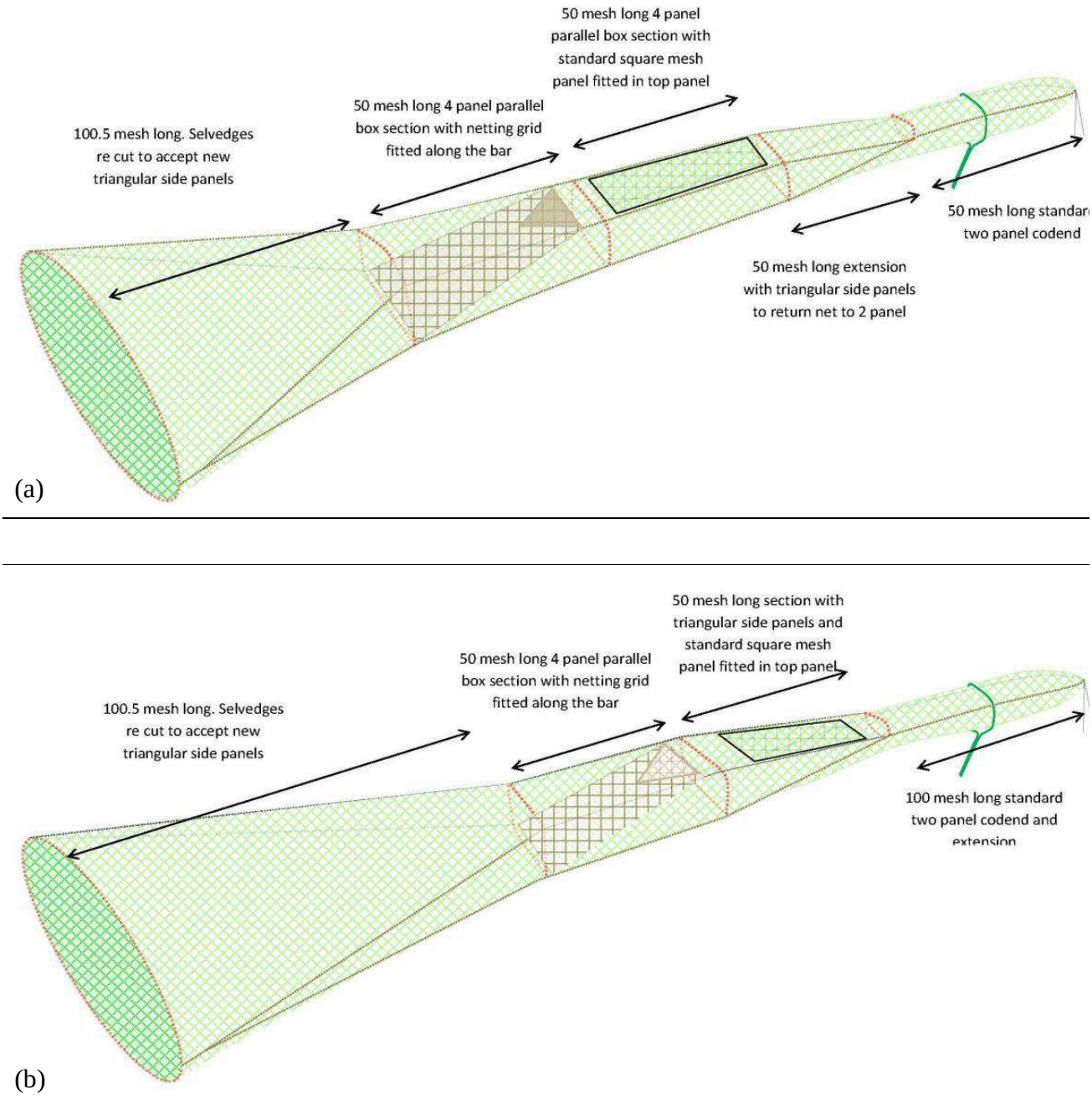
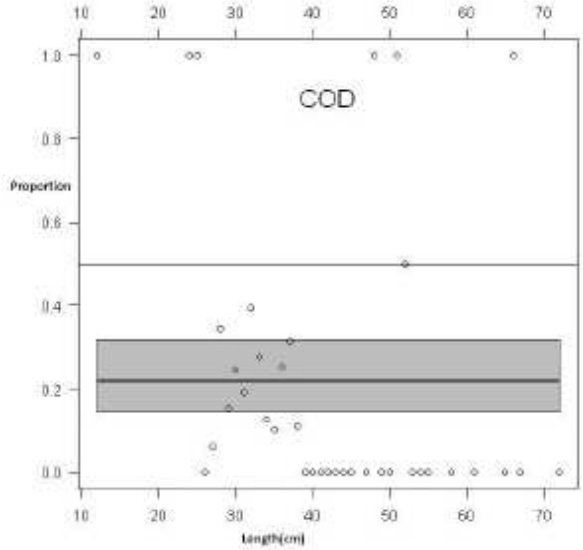
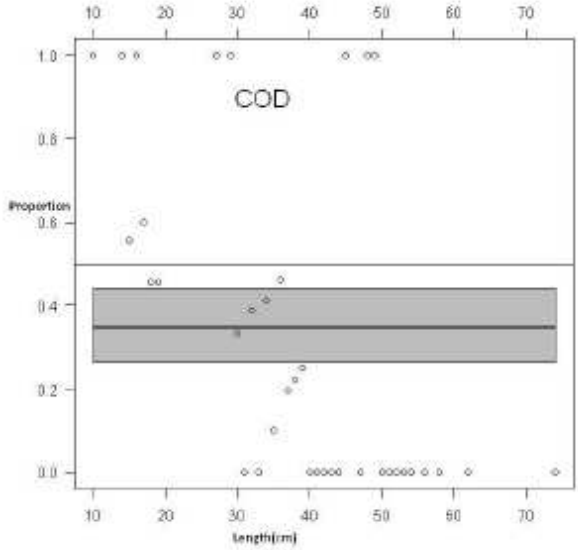


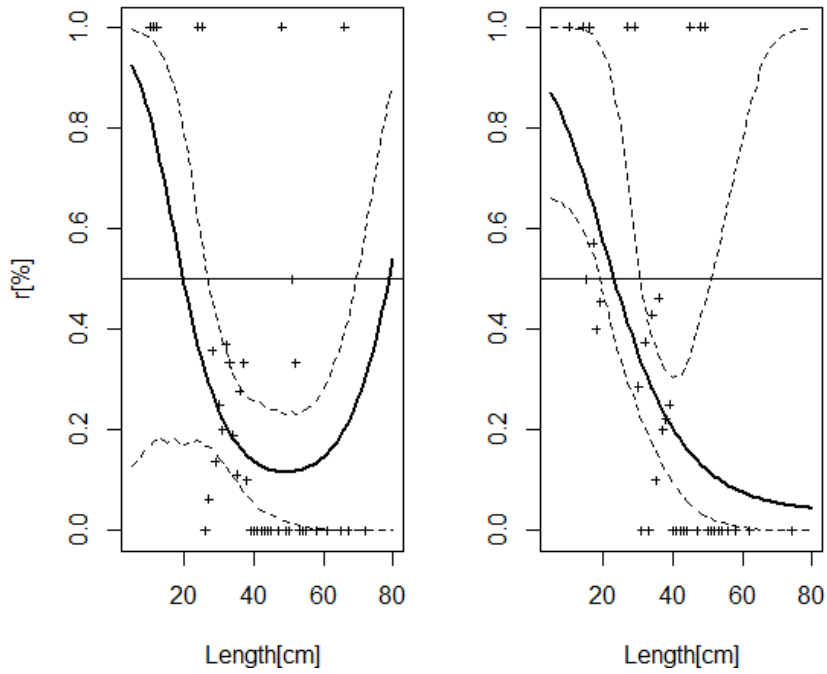
Figure 6.9.1. Net Grid modified (a) Design 1 long version; (b) design 2 short version.

Version1



Version2





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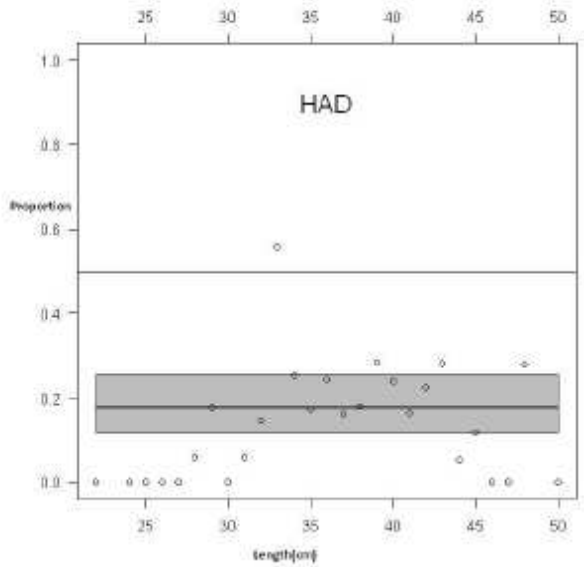

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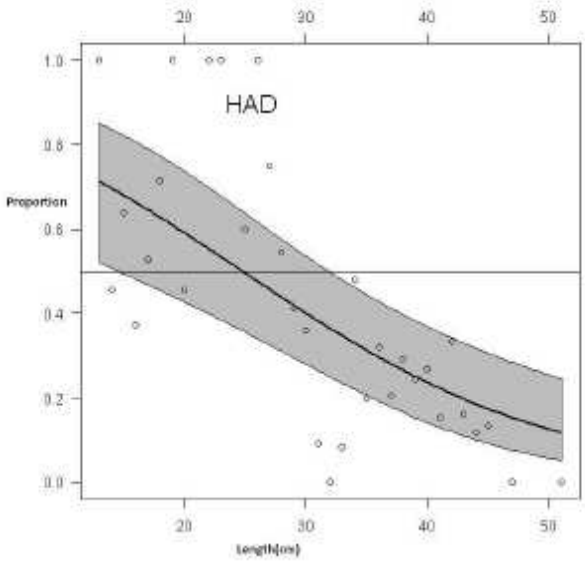

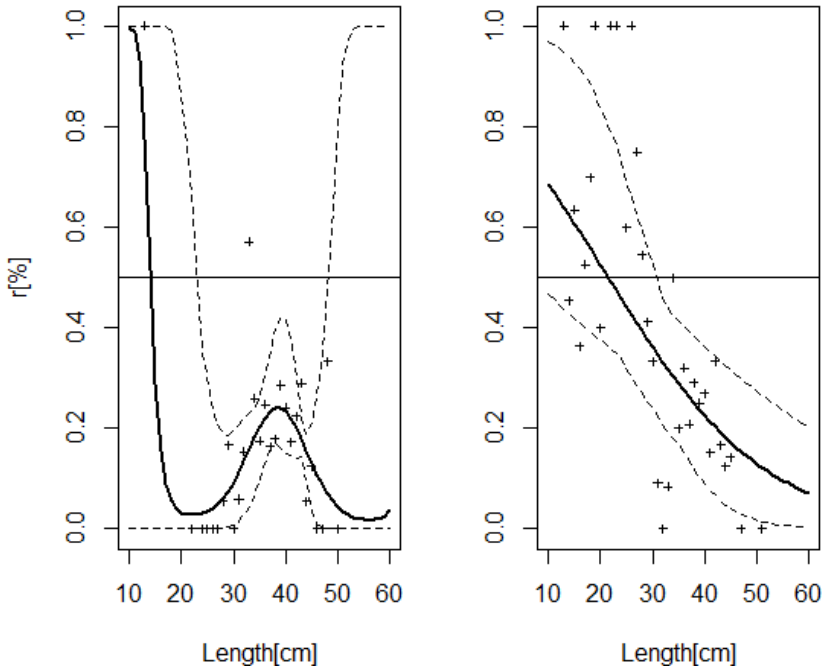

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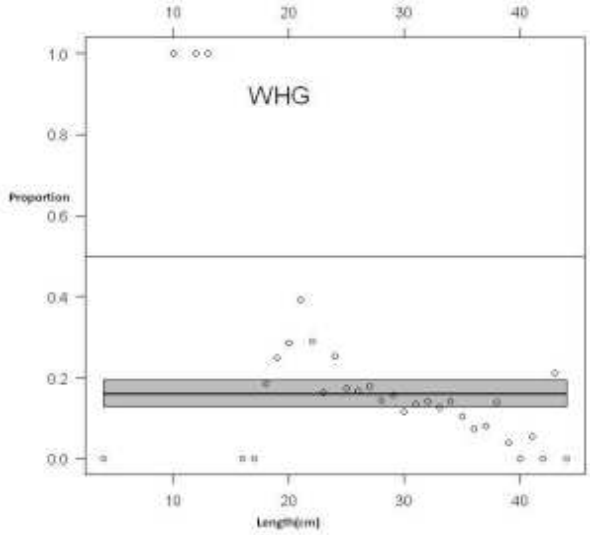

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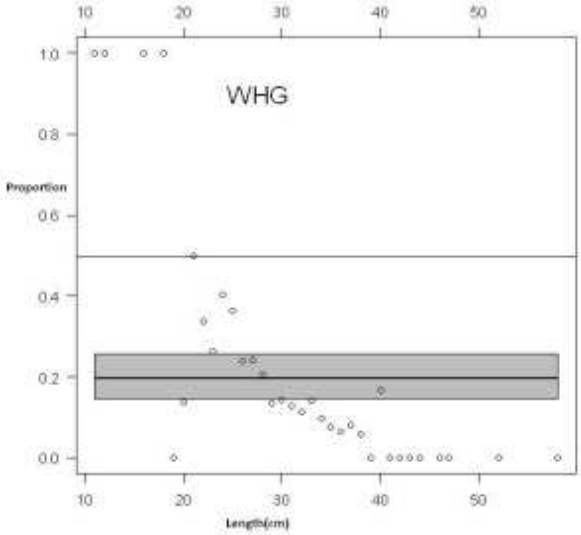

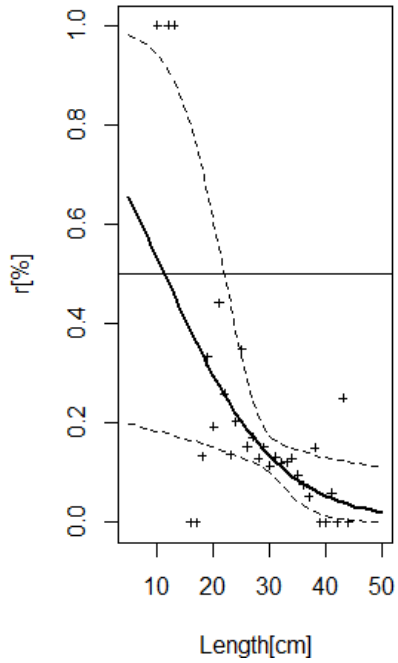

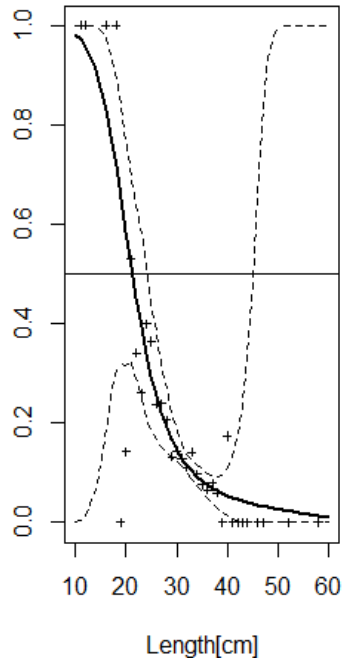

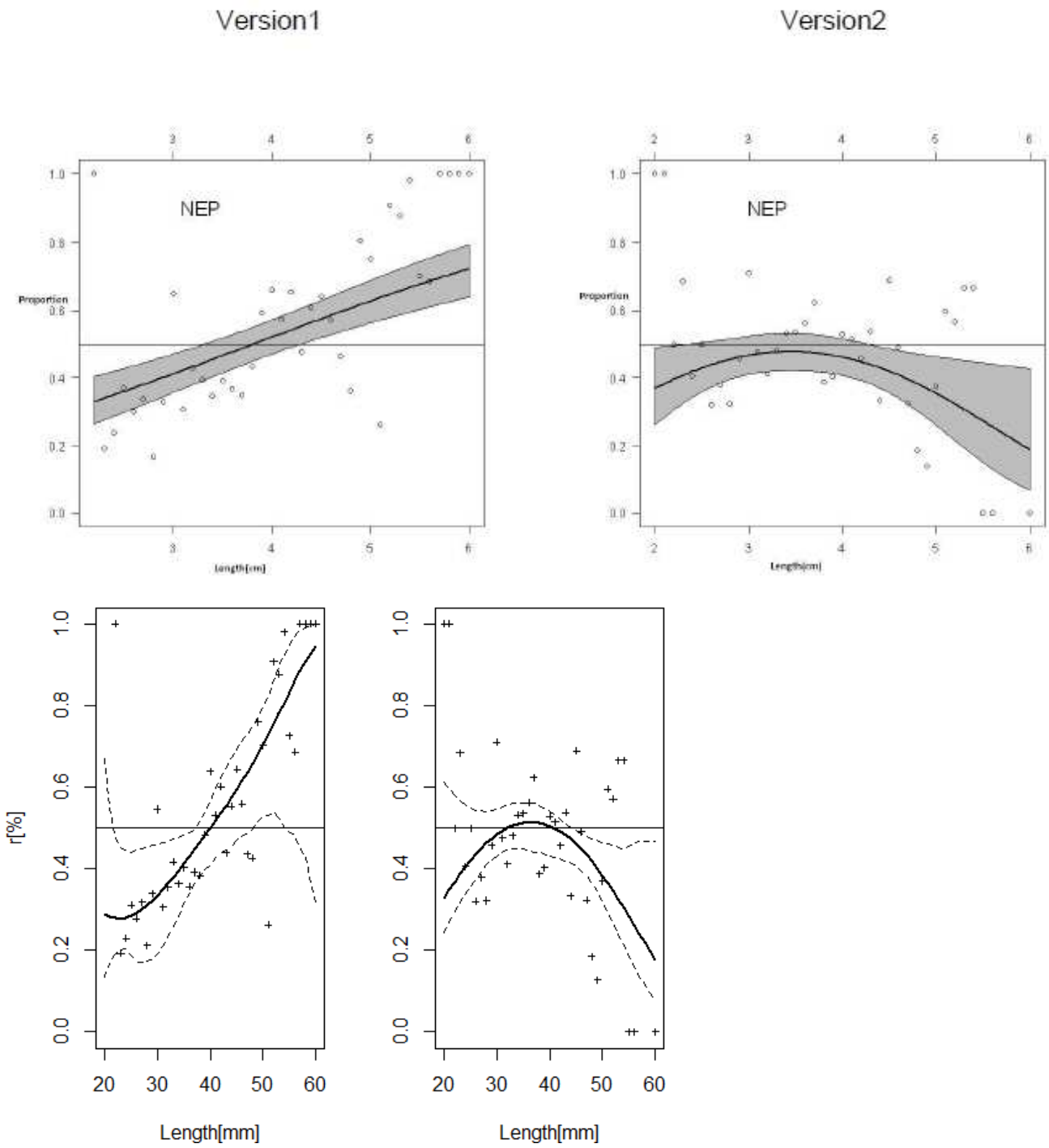

Annex – Summary of the work carried out:

1. **Development of a database and queries**

2. **Data check**

- The three invalid hauls (e.g. 9, 12 and 13) of the first trial, see Annex 3 at page 24 of Armstrong and Catchpole (2013) are included in the raw dataset. While haul 16 of the second trial is not present;
- They carried out in total 14 hauls in the first trial and 10 in the second. Without the 3 invalid hauls in the first trial they should have 11 valid hauls, while in the table at page 14 results of 12 hauls are presented. STECF decided to carry out the data analysis with all the 14 hauls;
- Ratios presented in Armstrong and Catchpole (2013) are slightly different by those found by the STECF;

3. Differences between control- and experimental-trawl *(t-test and Two-way ANOVA)*

- Differences between Control- and Experimental-trawl, without and with NetGrid respectively, have been investigated (*paired t-test*). In this case the NetGrid type was not taken into account. Furthermore, the differences between the control and experimental trawl (1st factor) has been examined across the NetGrid type (short or long version, 2nd factor) using a *two-way anova* (e.g. interaction *netgrid:trawltype*). The following data have been compared:
    a. Catch of cod (COD);
    b. Cod catch ratio (cod catch/total catch);
    c. Pooled catch of other species;
    d. Catch of *Nephrops* (NEP);
    e. Catch of haddock (HAD);
    f. Catch of whiting (WHG).

4. Catch comparison analysis

- The analysis was conducted using the software tool SELNET.Information about the SELNET software can be obtained by consulting Sistiaga et al. (2010), Eigaard et al., (2011b), Frandsen et al. (2011), Wienbeck et al. (2011), Madsen et al. (2012), Herrmann et al. (2012) and Sala et al. (in press).SELNET offers a variety of size selection models and methods for analysis, including the double bootstrap technique used in the current analysis.
- Substantial differences between the current models and those reported in Armstrong and Catchpole (2013) have been found for COD, HAD and WHG, whilst no differences were noted for the models of NEP.

6.10. Additional management measures for the Baltic cod stocks

Background

In 2014, ICES provided the assessment of the Baltic cod stocks indicating that additional specific measures are needed to address the poor state of the Baltic cod stocks.

As regards Baltic cod in subdivisions 22-24, ICES stated that different reproductive units exist in different subdivisions. There is a need to reduce the risk of local depletion of the western Baltic population spawning in subdivision 22. To this end, ICES recommended several possible approaches to reduce fishing mortality for the spawners in subdivision 22. These are:

a) a temporal and spatial spawning closure in Subdivision 22, with the appropriate timing (i.e. February–April) and area (deeper than 20 m);

b) a separate (sub-)TAC for Subdivision 22 (as for the Downs component in North Sea herring);

c) additional effort restrictions in Subdivision 22."5

As regards Baltic cod in subdivisions 25-32, ICES stated that there may be a need for additional measures to protect the older cod stock, therefore it advised to reduce the fishing pressure on pelagic stocks in subdivisions 25-26.

In addition, ICES highlighted uncertainties in the assessment of the cod stocks caused by e.g. mixing between eastern and western cod stock in subdivision 22 and pointed out that a separate resident stock in subdivision 22 might exist.

Request to the STECF

STECF is requested to assess, comment and elaborate on the above measures recommended by ICES. In particular STECF is asked to:

- For the period of 2007-2013 to identify catch and effort levels of relevant stocks in relevant subdivisions where additional measures are to be applied. The catch and effort levels have to be presented by month and by gear;
- Identify the percentage of cod caught in area deeper than 20 m and area shallower than 20 m of subdivision 22 on the basis of 2013 data and further specifying the most common gears used and the months when the catch was made;
- Identify the best timing for fisheries closure in Subdivision 22 in order to protect cod spawners;
- Provide for a possible separate (sub-)TAC level for cod to be established for 2015 in subdivision 22;
- Provide for a specific effort levels restricting cod fishery in subdivision 22 for 2015;
- Comment on the appropriateness to change the definition of eastern and western cod stocks, as well as to quantify the catches (in tonnes) of eastern cod in subdivisions 22, 23 and 24 made in 2013.

Also, STECF may propose any other alternative measures, if any, that it deems appropriate in order to improve the state of the Baltic cod stocks.

STECF observations

The TOR makes requests for several different types of information concerning cod belonging to the part of the western Baltic stock in sub-division 22. Background documentation was not provided but some information relevant to the request was found in the ICES WG report (ICES, 2014) and in a number of scientific publications including, most recently, Eero et al (2014).

Available genetic information on biological stock structure (Nielsen et al 2003, 2005) suggests two separate stocks in the Baltic. The stocks are identified as a western Baltic cod population resident in sds 22-24 and an eastern Baltic population mainly resident in sds 25-32. There is increasing

5ICES Advice, May 2014, 8.3.2. Cod in Subdivisions 22-24, p 5

evidence to suggest that movement of the Eastern Baltic stock into sd 24 takes place where it mixes with the western Baltic population. There has been speculation that a separate stock exists in sd 22 (the 'Belts') but scientific evidence for this is lacking. In addition, there is evidence of a separate resident population in sd23 (Lindegern *et al*, 2013). Current ICES advice is that "the cod spawning in Subdivision 22 belonging to the western Baltic cod biological population". Although there does not appear to be a separate cod stock in sd 22, there do appear to be localised differences in spawning time for Western Baltic cod in different parts of sds 22-24, with the sd 22 component spawning earlier in the year than cod found in sd 24. The particular focus of the request is reducing the risk of local depletion in the sd 22 reproductive unit.

STECF notes the request for detailed information on catches (landings and discards) and effort. The request is for information on stocks and relevant subdivisions by month and by gear. Potential sources of data on landings and effort include ICES and the STECF effort database, however, there are constraints associated with both sources. For example the ICES information presented by sd in (ICES, 2014) is annual and presented only for coarse gear distinctions ('active' or 'passive') and effort data are not provided. On the other hand, the STECF database contains both catch and effort information for rather more gears but only holds data at quarterly level. If the intention is for detailed discussion on potential temporal and gear specific measures (including a consideration of impact) then disaggregated data are required. STECF considers that the relevant data should be available in the countries involved in the cod fisheries and that an 'ad hoc' contract involving scientists with close knowledge of the data should be set up to collate and present this.

STECF also notes the request for depth-specific fishery information for different gears in sd 22. This relates to the observation that spawning areas are generally limited to depths greater than 20m (ICES, 2014). Again, information of this type was not available at the STECF plenary and potential sources are less obvious. One option is to investigate whether the FishFrame database (ICES) contains relevant material. Another possibility might be to utilise VMS data linked to landings and to bathymetric data using a GIS approach. Such data are available for some fleets and the example in Figure 6.10.1 is taken from the ICES WG report (ICES, 2014) and shows Danish trawler effort distribution from VMS. This technology is not fitted on smaller vessels so only provides a partial picture but nevertheless may provide guidance on areas of highest cod catch. The example figure shows the location of considerable trawler activity in sd 22 in the first quarter when spawning occurs.

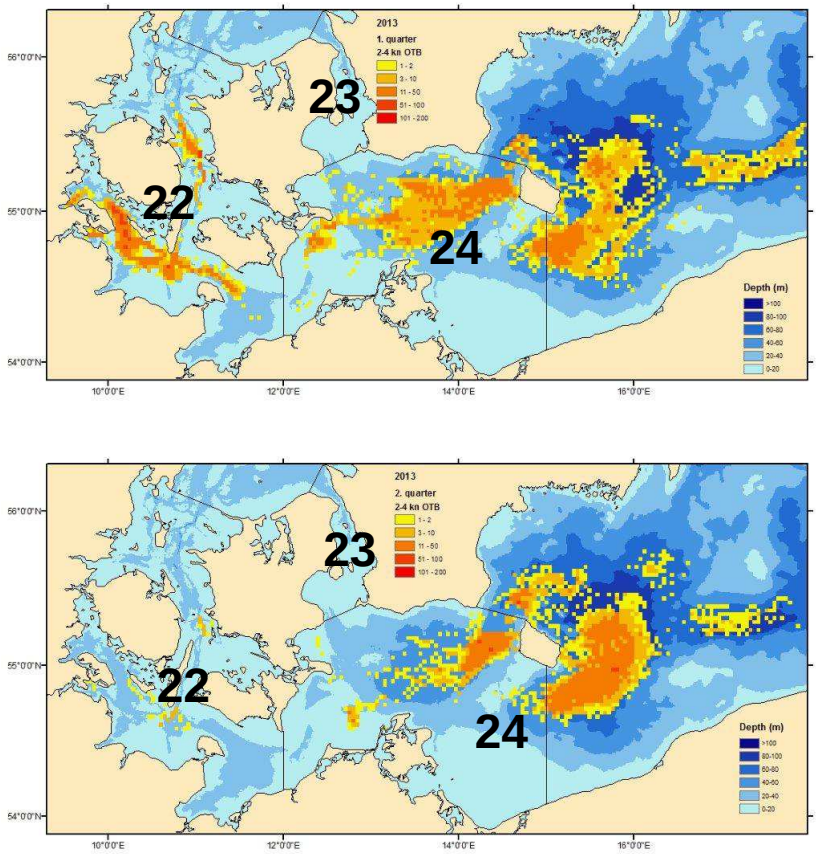

Figure 6.10.1 From ICES (2014)

STECF observes that cod aggregate to spawn and that the most effective way to protect spawners is to ensure the timing of a closure covers the period during which spawning takes place and that the closure coincides spatially with the aggregation. Information on spawning time in SD 22 is reported by Bleil et al (2009). Peak spawning in sd 22 occurs in the period March-April so that a closure starting in thefirst quarter would be beneficial in protecting fish as they gather in advance of spawning. The precise dates for closing and re-opening the area and the spatial definition need to be informed by the analysis of more detailed fishery data referred to above and also by examination of fish distributions derived from fishery independent surveys. STECF notes that since the sd 22 reproductive unit contributes to the overall recruitment ofwestern Baltic cod, it would be helpful to know what the relative contribution of this unit is (compared with, say, the sd 24 unit which spawns later, in June –July (Bleil and Oeberst, 2012)).

Without the additional, detailed analysis of catch and effort information, STECF is unable to address the question of a separate TAC for sd 22 in 2015 or to advise on specific effort levels for sd 22 in 2015. Establishing a basis for splitting the TAC should also include some reference to the distribution of fish in different parts of sd 22-24 informed by fishery independent survey data. In considering a separate TAC approach for this area some other considerations are important. STECF notes that recent simulations (Eero et al 2014) suggests that the movement of fishing activity and out-take from one part of sd 22-24 to another needs to be managed carefully. This is because of the very different biological characteristics in different parts of the overall area. Partitioning the overall TAC and shifting some of the TAC away from sd 22 (where the cod are generally bigger) to sd 24

(where the size of fish is currently much smaller), implies that more of the smaller fish in sd 24 would need to be caught in order to take the overall TAC. This in turn could lead to the unintended consequence of higher fishing mortality rate on the western Baltic stock as a whole arising from a measure to protect the sd 22 reproductive unit. However, this is also confounded by the fact that a proportion of the cod taken in sd24 actually belong to the Eastern Baltic stock (Eero et al. 2014); this latter fact would then reduce the increase in F on the western Baltic stock as a result of shifting TAC from sd22 to sd24 with the scale of reduction depending on the extent of stock mixing.

With respect to the stock definitions for the Western Baltic cod stock (sds 22-24) and Eastern Baltic cod stock (Sd 25-32), STECF notes that there is presently considerable uncertainty surrounding the dynamics and distribution of the Eastern Baltic stock (sds 25-32) and its interaction with the Western stock. The uncertainty is related to a variety of factors including environmental changes, changes in biological characteristics and predator prey interactions. Survey (BITS) results tend to indicate quite good recruitment for the Eastern Baltic population, but this does not seem to be subsequently detectable in the adult population and the proportion of larger fish decreases rapidly in the landings. It is unclear whether this is because of decreased growth rate due to scarce food or some other factor. The uncertainty is compounded by technical difficulties in age reading for this stock to the extent that the age structure of the stock has become uncertain. In recent years the distribution of this stock has generally shifted to the south and west with higher abundance in sd 25 and across the subdivision boundary into sd 24. STECF is not able to say whether the observed changes are permanent or will revert back to a previous state in due course. In view of this uncertainty, STECF does not consider it appropriate to change the definitions at the present time.

STECF notes that recent research suggests that catches in sd 24 contain an increased proportion of the eastern Baltic cod stock. STECF is not, however, able to quantify the catches of Eastern Baltic cod in sds 22, 23 and 24. Information from recent genetics work (Eero et al 2014) showed that 88% of fish sampled from sd 24 were of Eastern Baltic cod stock origin whereas individuals sampledin sd 22 were all of western cod stock origin. It should be noted, however, that the samples were taken over a short space of time (June 2011) and it is unclear whether the situation is stable or whether the proportions vary through time. Before attempting to quantify annual catches a more complete picture is required.

STECF conclusions

STECF was unable fully to address the TOR owing to time constraints and lack of relevant data available during the plenary. STECF concludes that in order to provide advice on measures for sd22 in the specific way requested, more comprehensive and detailed data are required. These data include fishery dependent data – catch, effort, VMS and also fishery independent survey data. STECF has identified a number of potential sources of data to help inform a decision on measures to protect cod in sd22 and draws attention to a number of issues related to specific parts of the request. In addition, STECF notes that there is evidence of a separate resident population in sd23 and that this should also be considered in any future analysis (Lindegren *et al*, 2013). STECF also concludes that the collation and preparation of data and further analysis would be best conducted outside of the STECF plenary and with expert input from those most closely involved with the data and ongoing scientific advice in this area. STECF concludes that an ad hoc contract would be an efficient way of progressing this advice.

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6.11. Dutch proposal to amend the timing of the triennial North Sea Mackerel egg-survey, from 2014 to 2015

Background

The EC guidelines on NP modifications sets out: 'Member States wishing to make the following type of amendment to their National Programme for the year N+1 should submit their proposed amended National Programme to the Commission:

- Modification of surveys or pilot studies that have an effect on the temporal aspects (continuity of survey series), spatial aspects (coverage), technical aspects (change in gear, technology) or financial aspects of the National Programme.

(...)In their amended National Programme, Member States should provide a justification for each proposed amendment and a description of the impact this will have on the data quality and coverage.'

The Netherlands has requested to amend the timing of the triennial North Sea Mackerel egg-survey, from 2014 to 2015 with the following justification:

'This year, the triennial North Sea Mackerel egg-survey was scheduled in the Dutch National Programme for the duration of 3 weeks, starting early June. Due to the Norwegian withdrawal from this survey, The Netherlands scheduled a 4th week to sufficiently cover the entire spawning period. This matter has been discussed with DG MARE support at various occasions. However, while under way, the Dutch Research vessel had to call port in Norway due to severe technical problems. Despite hard work by the vessel's engineers as well as experts from the vessel's shipyard, the technical problems could not be solved within the timeframe the survey had to be executed. As the survey has to take place during the spawning season, the timing of this survey is crucial to its success.

Several solutions were investigated, including replacing the vessel by another vessel. Despite various options, no adequate solution could be found within the required time frame. This left no other option but to cancel the survey for 2014. As this survey is crucial to the perception of the North Sea component of the mackerel stock, The Netherlands plans to postpone the entire survey to 2015 as was discussed with and agreed upon by the mackerel assessment and data experts. The vessel owner indicated to be able to facilitate the survey in 2015. The relevant ICES groups have been informed on this situation as well.'

Terms of References

STECF is requested to evaluate whether such a shift will have scientific implications and whether carrying out this survey with 1 years delay still has value compared to not doing it at all.

The remaining question from the DCF and National Programme point of view is whether this postponement requires a resubmission of the Dutch multi-annual programme for 2015-2016.

STECF response

Northeast Atlantic (NEA) mackerel is assessed as one stock, but comprises three spawning components: the combined southern and western components and a separate North Sea spawning component. Only the North Sea component is sufficiently distinct to be clearly identified as a separate spawning component. STECF notes that there is no directed fishing on the North Sea component which is considered to be at a low abundance relative to its status pre the 1960's collapse and management measures are in place to protect this component of the NEA stock. The present North Sea mackerel egg survey is not used in the assessment but is used to monitor the status of the development of the component relative to the stock. The absence of a 2014 value will preclude an update on this status by ICES in 2014.

STECF considers that a 2015 survey is necessary to track ongoing changes the status of the North Sea component. Failure to undertake the survey will result in a gap in the survey series of 6 years and given the depleted status of this stock, this is unadvisable.

STECF further notes that harmonising the timing of both the triennial North Atlantic and North Sea surveys in 2016 could also be considered as this will provide an overall synoptic view of the entire stock.

Regarding the necessity for the member state to amend and resubmit its national programme, STECF considers that this is an administrative matter and not within the remit of the committee.

6.12. Fishing effort ceilings allocated in Sole and Plaice fisheries of the North Sea

Background

In accordance with Article 9 of the Council Regulation (EC) No 676/2007 establishing a multi-annual plan for fisheries exploiting stocks of plaice and sole in the North Sea the maximum level of fishing effort available for fleets where either or both plaice and sole comprise and important part of the landings or where substantial discards are made should be adjusted to avoid that planned fishing mortalities rates are exceeded.

The Commission has to request STECF advice on the maximum level of fishing effort necessary to take catches of the plaice and sole. When preparing the advice STECF should take into consideration TAC advice and follow the Regulation (EC) No 676/2007. Similar advice was requested from STECF in the previous years.

Terms of References

STECF is requested:

- to advise on the maximum level of fishing effort necessary to take catches of the plaice and sole equal to the EU share of the TACs adopted according to the multi-annual plan for plaice and sole in the North Sea (R (EC) No 676/2007);
- to report on the annual level of fishing effort deployed by vessels catching plaice and sole, and to report on the types of fishing gear used in such fisheries;
- to provide the ranking of the gear groupings as provided in Annex IIa of the FO regulation according to contributions of those gears to plaice and sole (separately) catches and landings in 2013.

STECF response

STECF observes that similar advice has been requested since 2007 (see STECF winter plenary reports from 2007 up toand including 2011 and the STECF summer plenary report of 2012 and 2013; STECF review of scientific advice reports from 2007 up to and including 2014). STECF follows the same approach for the current request. STECF notes that the TAC advice (following the

regulation [R (EC) No 676/2007]) given for North Sea sole and plaice respectively implies a 5% reduction in F in 2015 relative to F in 2014 for sole but an increase of 37% for plaice.

Assuming (as before [STECF review of scientific advice since 2007 until 2014]) a proportional relationship between fishing mortality and effort in kW*days, and a constant EU share of the TAC for plaice, STECF considers that the best estimate of the maximum level of fishing effort necessary to take catches equal to the EU shares of the TACs, would be equivalent to a 5% reduction in effort in 2015 relative to 2014 when considering sole in isolation and a 37% increase when considering plaice in isolation.

Plaice is mainly caught together with sole in a mixed beam trawl fishery. Therefore, the **maximum** level of fishing effort necessary to take catches of **both species**equal to the respective EU shares of their TACs, would be equivalent to anincrease in effort in 2015 relative to 2014 of 37%. STECF notes that this amount of effort would likely lead to a mismatch between effort and the sole TAC adopted according to the flatfish plan [R (EC) No 676/2007], potentially leading to over quota sole catches (under the assumptions of the calculations above the sole TAC would be overshot by around 1.9 kilo tonnes, or around 17%)

STECF notes, however, that in order to deal with the imbalance in effort, there is a potential for spatial management to balance the mixed fishery TACs of both species under some circumstances. 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 codend 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. If there is surplus effort available in addition to that required to take the sole TAC, it would be possible to redeploy that effort within a spatial management regime (subject to any constraint resulting from the NS cod plan).

Such a spatial approach would give a mechanism for balancing the respective quota, such that anyremaining plaice quota can be fished without any unintended sole catch, when the sole quota has been exhausted. It would require spatial effort regulation, restricting the transfer of existing and potential additional effort from the more northerly North Sea (plaice fishery) to the mixed sole and plaice fishery in the southern part of the North Sea (see also SGMOS-10-06b, impact assessment of North Sea sole and plaice multi-annual plan).

The main regulated gear catching sole and plaice are the beam trawls with mesh size equal to or larger than 80 mm and less than 120 mm (BT2); bottom trawl with mesh size equal to or larger than 100 mm (TR1); bottom trawls with mesh size equal to or larger than 70 mm and less than 100 mm (TR2); and to a lesser extent beam trawls with mesh size equal to or larger than 120 mm (BT1);gill nets (GN1); trammel nets (GT1); bottom trawls with mesh size equal to or larger than 16 mm and less than 32 mm (TR3) and longlines (LL1). The deployed level of effort (kW*days) in the North Sea for these gears over the period 2000-2013 is presented in table and figure below.

Table 6.13.1 – Effort (‘000 kWdays) of the regulated gear in the North Sea (2003-2013)

ANNEX	REG AREA	REG GEAR	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
IIa	IV	BT2	60346	59373	58960	50362	48377	36065	36874	36242	31570	27386	29453
IIa	IV	TR1	31732	25414	24714	25178	21604	24341	24208	21513	20600	20235	19016
IIa	IV	TR2	19369	18609	17248	16131	16233	16433	14847	13500	11645	9669	7358
IIa	IV	BT1	5675	4967	4613	5347	3254	2039	1673	1631	1525	2799	3331
IIa	IV	GN1	3434	3518	3359	3304	2309	2484	2463	2555	2615	2427	2213
IIa	IV	GT1	970	1039	1056	1974	1821	1143	1228	840	926	1017	1115
IIa	IV	TR3	3153	3085	2429	1790	834	928	614	1139	365	526	884
IIa	IV	LL1	265	168	188	120	44	421	765	416	235	125	107

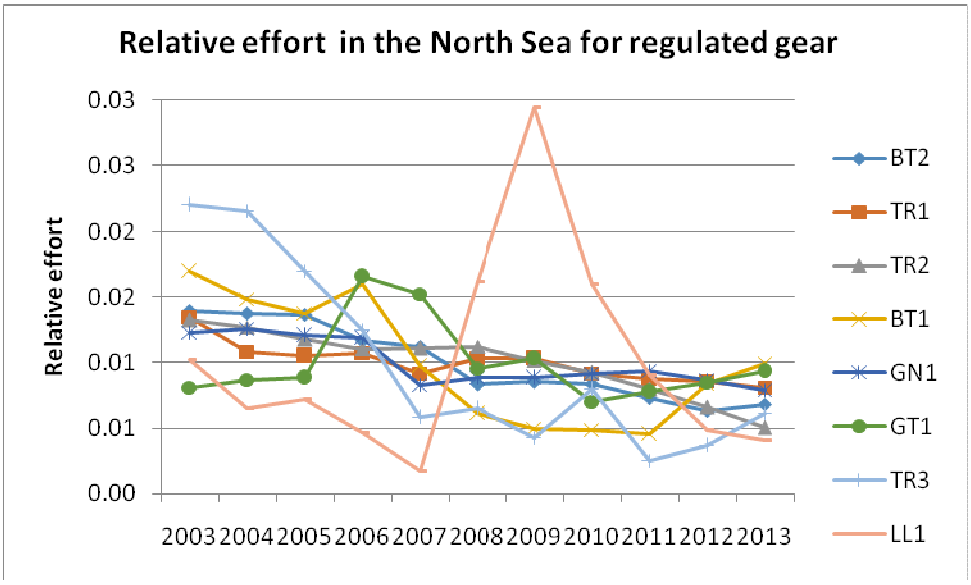

Figure 6.13.1 – Trends in effort for the regulated gear in the North Sea (2003-2013). Each line is relative to the average of the time series.

The ranking of the gear groupings according to Annex IIa of the FO regulation in the North Sea on catches/landings for plaice and sole in 2013 could not be calculated at the time of this meeting but will be available following the “Evaluation of fishing effort regimes in European waters – part 2” (EWG 14-13: Fishing effort Part 2 – 29/09/2014-03/10/2014).

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6.13. Design of at sea surveys on Mauritanian octopus fisheries

The STECF is requested to review and to provide its advice on the report produced under the STECF *ad hoc* contract with EU internal reference on the design of at sea surveys on Mauritanian octopus fisheries (background documents on: https://stecf.jrc.ec.europa.eu/plen1402).

This report should provide for:

- establishing an inventory of indicators facilitating the monitoring and the evaluation of such a spatiotemporal management strategy. Among others, these indicators should inform the scientists on:
  a. the status and the changing conditions of the West African upwelling,
  b. the recruitment level and its variability (Recruitment Index),
  c. the abundance level of the population and its fluctuations (Abundance Index).
- describing the methods and means – including the means at sea - which would be needed to collect data directly related to the establishment of these indicators, taking more particularly into account:
  a. the access to remote sensing data and the possible use of scientific and / or professional naval resources,
  b. the different components of the white cape octopus population, inshore and offshore,
  c. the possibility of establishing both fisheries dependent and fisheries independent indices.

STECF observations

STECF notes that the contract report (ARES(2014)1027351) addresses all of the items in Terms of Reference.

In relation to the inventory of indicators, STECF considers that:

The proposals to monitor and assess the hydrographic conditions using an upwelling INDEX off West Africa appear feasible and suitable to assess the status and the changing conditions of the West African upwelling. This indicator has already been successfully used in the past.

The report of the ad-hoc contract does not provide any specific inventory or guidance regarding indicator of recruitment. STECF notes that, in the absence of any age-based assessment of the stock, an index of recruitment could especially be derived from surveys data, based on CPUE of small octopus.

The report of the ad-hoc contract does not provide any specific indicator or guidance regarding indicators of the abundance level of the population and their fluctuations. STECF notes that such indicators can be derived from survey and commercial CPUE data, especially those of the industrial trawl fishery (exclusively Mauritanian since mid-2013).

Regarding the means which would be needed to collect data, required to the establishment of these indicators, STECF notes that three complementary data sources are mentioned in the ad-hoc report contract: (i) remote sensing data, especially free available SST from NOAA satellites; (ii) data from surveys conducted annually on the whole Mauritanian shelf, since 1982; (iii) CPUE of commercial fisheries, especially those of industrial trawlers. Regarding the later one, STECF note that Spanish data ended in mid-2003 (due to the null fishing opportunities for octopus included in the EU/Mauritania protocol).

More generally, STECF notes that the Solaris-Balguerias approach is based on two distinct tools. On one hand, the oscillatory model allows for the analysis of the effect of environment on the abundance of the whole octopus stock. On the other hand, General additive models (GAM) have been fitted to catch per trawl data, showing the aggregated distribution of octopus and the driving effect of SST on this distribution. No spatially explicit model has been developed at the moment, able to represent and to assess the likely effect of spatial fisheries closures.

STECF notes that the Mauritanian *Octopus vulgaris* stock is currently considered overexploited resulting in a loss of potential yield from the fishery. During its last meeting (Madrid, June 2014), the Joint Scientific Committee Management set up in the framework of the Fisheries partnership agreement between Europe and Mauritania, concluded based on the most recent available assessments (endorsed both by COPACE or by the Join scientific committee itself) that the stock is overexploited, and that no surplus are available for foreign countries. In consequence, the current protocol between EU and Mauritania does not include any fishing opportunity to European countries for *Octopus vulgaris*. EU cephalopod fleets abandoned the exploitation in Mauritanian EEZ in mid-2013.

Two seasonal closures are in place for the whole EEZ since several years (4 months overall for the industrial fishery and 2 months for the small scale pot fishery). The last Join Scientific Committee discussed the opportunity to introduce spatial restrictions, based on the idea that very stable aggregations have already been identified. The Committee concluded that additional surveys dedicated to the analysis of recruitment are currently not a scientific priority, even though the spatial management should be furthermore investigated. It could include the introduction of special/temporal closed areas based on preferred habitats which can be defined by environmental factors, and especially the mean water temperature.Such area restrictions will potentially give rise to higher recruitment, improved future yields and increased economic stability of the fishery.

STECF notes that because *Octopus* is a semelparous species, a better understanding of reproductive seasons and habits could be useful for determining the best strategy for protecting reproductive output. Whenever possible, it would be advisable to avoid catch of adult females following mating and during egg development. Larger females, in particular, may have the highest reproductive output (Hartwick 1983).

STECF comments and conclusions

STECF concludes that the Report contains useful information regarding data needs, sources and monitoring strategies for a spatial management of Octopus in Mauritania. The contract report (ARES(2014)1027351) addresses all of the items included in the Terms of Reference.

STECF considers that a spatial modelling approach could be used to identify the best location for fishing closures. Such models need as input spatial data on fishing effort, catch and biomass, as well as information on the environmental drivers. This could also be obtained from fishery dependent and independent data. STECF suggests that a feasibility approach should be conducted in order to determine whether existing data could be used for such spatial management.

Key references for the SEA and present protocol:

Anonyme 2014. Rapport de la septième réunion du Comité Scientifique Conjoint RIM-UE.

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6.14. Request to the STECF to rank the effort groups under the cod plan fishing effort regime according to their contribution to cod catches in 2013

Background

Article 12 of Council Regulation (EC) No 1342/2008 establishing a long-term plan for cod stocks sets out the rules for adjusting each year the maximum allowable fishing effort.

In accordance with paragraph 4 of the aforementioned article 12, the annual adjustment should apply to the effort groups where the cumulative catch calculated according to paragraph 3(b) of the same article is equal to or exceeds 20%. It is therefore necessary to compile a list of the aggregated effort groups and their corresponding cod catches, including discards. This list should be arranged in ascending order of cod catch in each effort group.

Terms of reference

The STECF is requested to provide the Commission with the absolute and percentage cumulative catch calculated in accordance with article 12(3) of the cod plan. The effort groups should be ranked according to their contribution to cod catches, including discards, in 2013.

STECF response

The ranking of the gear groupings according to article 12(3) of the cod plan (EC Reg. 1342/2008) could not be calculated at the time of this meeting but will be available following the "Evaluation of fishing effort regimes in European waters – part 2" (EWG 14-13: Fishing effort Part 2 – 29/09/2014-03/10/2014).

6.15. Request for STECF opinion on the offshore cod stock in the Greenland area (ICES subarea XIV and NAFO Subarea 1)

Background

The ICES advice (June 2013) for the offshore cod stock in Greenland (ICES subarea XIV and NAFO subarea 1) indicates that based on precautionary considerations there should be no offshore fishery in 2014 to improve the likelihood of establishing offshore spawning stocks in West and East Greenland. This advice is the same as for 2013.

The government of Greenland established a TAC of 5000t for 2013 and adopted a management plan for 2014 with a TAC of 10000t. The fishery can only take place under exploratory conditions as defined by the plan. These conditions include a closed season and fishing activity is only permitted in the southernmost area of West Greenland and in East Greenland. Also, the plan contains technical measures to distribute the fishing effort between four geographical areas and has a mandatory biological sampling in close collaboration with the Greenlandic Institute of Natural Resources.

Regarding the stock definition, ICES and the Greenlandic Institute of Natural Resources have indicated that based on genetic studies the current stock delimitation might not correspond to the biological spawning populations.

Terms of reference

For the cod stock distributed in Greenland in the offshore area (ICES subarea XIV and NAFO subarea 1) STECF is requested to provide opinion on the management plan adopted by the government of Greenland, including:

- assessment on whether the proposed technical measures (permitting fishing in a limited area) are likely to have any impact on catches and exploitation rate
- assessment on whether the provisions of the plan for data collection are adequate for future scientific purposes to undertake assessments/evaluation of the plan

STECF response

Elements of the management plan for Greenland (offshore) cod

The elements of the management plan for the fishery for Greenland cod in 2014-2016 are as follows:

The management plan for cod states that exploratory fishery is only permitted in the geographical area of East Greenland (ICES XIV) and the southernmost area in West Greenland (NAFO 1F), as the stock is under rebuilding.

1) The fishery is permitted in NAFO 1F + ICES XIV from June 1. – 31th of Marts. The fishery is closed from April 1. – 31th of May in order to protect spawning of cod.
2) The quota is split between four areas: 1) NAFO 1F, 2) ICES XIV split areas Q1-Q2, 3) ICES XIV split areas Q3-Q4, and 4) ICES XIV split areas Q5-Q6. (Figure 6.15.1)
3) Logbooks shall be filled by the fishing industry (including by-catch).
4) Biological samples should be collected by the fishing industry to have the permission to fish.

A vessel may choose to fish in only two of the four indicated areas. The chosen areas will be indicated in the request for a fishing authorization.

Guidelines for biological sampling.

1) **Information about the length of fish caught via random samples**
   To obtain this information, observer (or, if absent, a crew member) must once a day measure 100 randomly selected cods from a random haul.

2) **Information about the age and spawning condition of cod caught**
   To obtain this information, observer (or, if absent, a crew member) must daily remove otoliths with information about length, weight and sex from 20 randomly selected cod.

Upon request from GINR all vessel must collect and send samples of cod

Samples are shipped or mailed to Greenland Institute of Natural Resources, Postboks 570, 3900 Nuuk, Greenland. Att. Rasmus Hedeholm. Expenses for shipment of samples are paid by the companies involved in the exploratory fishery.Length samples are recommended to be mailed electronically to rahe@natur.gl.

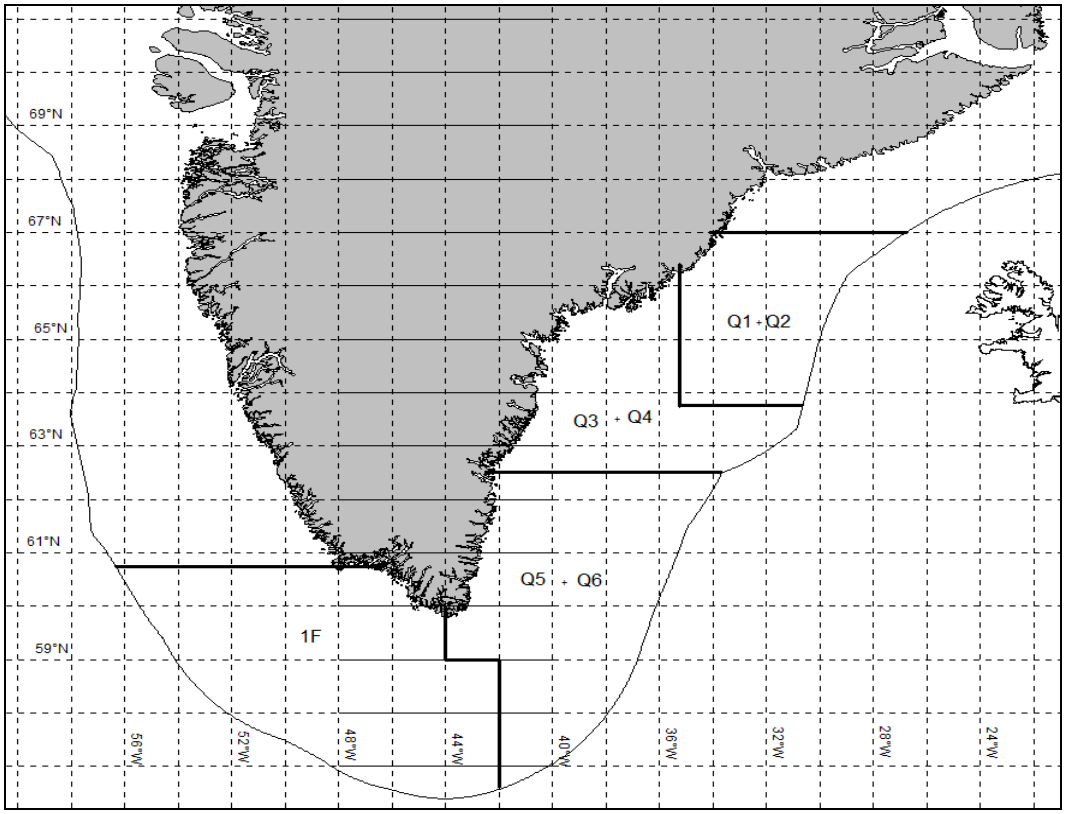

Figure 6.15.1. Map with the 4 areas

Area	Definition
NAFO 1F	West of 44°00'W and South of 60°45'N That portion of NAFO subarea 1 lying south of the parallel of 60°45' north latitude (Cape Desolation). For detailed definition seehttp://www.fao.org/fishery/area/Area21/en
ICES XIVb Q5+Q6	East of 44°00'W and South of 62°30'N
ICES XIVb Q3+Q4	North of 62°30'N and West of 35°15'W
ICES XIVb Q1+Q2	East of 35°15'W

STECF observations

General observations on the management plan

The fishery and the stock

STECF notes that since 1993, ICES advice has been for no fishing on the offshore component of Greenland cod and that no offshore fisheries directed to cod took place from 1993 to 2004. Directed fishing re-commenced in 2005 with TACs set at 5,000 t in all years except 2008 (15,000 t) and 2009 (10,000 t). Reported catches of cod in all years since the directed fishery recommenced are less than the respective TACs. The TAC for 2014 set under the first year of the management plan is

10,000 t, to be equally split between the four subareas indicated above (see elements of the management plan) implying TACs for each subarea of 2,500 t.

STECF notes that in the absence of an analytical assessment, reliable estimates of recent stock biomasses and exploitation rates are unavailable. Estimates of total mortality rates based on catch-curve analyses using data from the German groundfish survey indicate total instantaneous mortality rates (Z_{4-8}) between Z=0.13 and Z=0.85 over the period 1998 -2003, at a time when reported catches were less than 1,000 t.

Since that time, information from both the German and Greenland trawl surveys indicate that the average survey abundance index of cod (mainly 2 and 3-year-old fish) over the period 2005-2011 has increased above the average level for the preceding 13 years. Such observations have led ICES to conclude that all information indicates that the offshore cod biomass is low compared to before the 1990s and that the offshore component of Greenland cod has been severely depleted since 1990, but has started to recover since 2005.

The basis for the decision to set a combined TAC for all four subareas of 10,000 t is questionable. The justification appears to be it is less than the TACs that would result from application of the ICES data-limited (category 3 stocks) approach (11,000 t) and a joint assessment approach that derives a TAC as a proportion of the ICES assessment of Icelandic (ICES Division Va) stock.

On the one hand, in addition to survey estimates of abundance, the ICES (category 3 stocks) approach uses the landings for 2012 in the estimation of the TAC, which means that if 2012 landings had been higher or lower than those reported the TAC calculated for 2014-2016 would have also been higher or lower accordingly. Furthermore, the landings in 2012 are in agreement with the TAC set for 2012, which means that effectively the TAC in 2012 is partially determining the TAC for 2014.

On the other hand, the TAC derived using the joint assessment approach which derives the TAC as a proportion of the ICES assessment of Icelandic (ICES Division Va) stock, is determined in part by the assumed proportion (6%) of the Iceland/Greenland cod stock complex that is in East Greenland waters.

STECF considers that neither method to derive a TAC for a stock that appears to remain severely depleted is risk-averse.

STECF also notes that the management plan proposes that adjustments to the TAC which is intended to be established for the 3-year duration of the plan may be warranted if survey results indicate increased abundance. However, precisely how such adjustments are likely to be made and the magnitude of the adjustments is not specified.

STECF observation on the specific elements of the plan.

Closure of the fishery from 1 April – 31 May in order to protect spawning of cod.

STECF notes that according to ICES (2012), fishingis only allowed in East Greenland east of 44^{o}W, from 1 July - 31 December, and the "Kleine Bank" area in East Greenland is closed for all fisheries. Thisarea is delimited by: 1) 64^{o}40'N 37^{o}30'W, 2) 64^{o}40'N 36^{o}30'W, 3) 64°15'N 36^{o}30'W, and 4) 64^{o}15'N 37^{o}30'W. However, it is not clear whether following implementation of

the plan in 2014, these restrictions are to continue and at present it is not possible to assess their potential impacts on catches or exploitation rates.

STECF notes that the proposed closure from 1 April – 31 May each year has the potential to reduce fishing mortality on spawning concentrations of cod and may potentially reduce the annual rate of fishing mortality on cod. However, the realised effects on the annual fishing mortality will depend on a number of factors including *inter alia*:

a) Whether the closure results in fewer cod being caught than would have been the case without the closure.
b) Whether any potential reduction in F achieved by the proposed closure, is partly or wholly offset by increased catches of cod at other times of the year; for example through increased effort directed to catching cod outside the closed period.

STECF also notes that potential reductions in catches and exploitation rates arising through the provisions of the management plan may be reduced or nullified, if any previously existing restrictions on the fishery are removed following implementation of the plan.

Splitting the TAC into separate quotas for four sub-areas.

Compared to setting an overall TAC for the area as a whole, splitting the TAC equally between 4 sub-areas and permitting vessels to fish in only 2 of those areas may result in reduced overall catches and exploitation rates provided that the subarea quotas are effectively enforced. If the area quotas restrict catches to the less than those intended, the overall exploitation is likely to be reduced as only part of the overall quota will to be taken. However, as pointed out in the management plan, if the cod are concentrated in some subareas, there is a risk of depletion of the populations in those areas. This will to some extent depend on how quota is allocated within areas but STECF notes that there is no mention in the plan as to how intra-area quotas are to be allocated and on what basis.

Obligation to complete logbooks

Accurate reporting of catch and effort data is fundamental to undertaking stock assessments and providing best scientific advice on future fishing opportunities. STECF considers that provided appropriate data and information entered into logbooks can be verified as complete and accurate, mandatory reporting in logbooks will prove to be extremely valuable.

The provision to measure 100 randomly-selected cod from a random haul on a daily basis is likely to be sufficient to provide a representative estimate of the size composition of cod in that haul. STECF suggests that if there are less than 100 individual cod in a haul, all fish should be measured.

Obligation to collect biological samples

The plan stipulates that biological samples should be collected by the fishing industry to have the permission to fish. As for mandatory completion of logbooks, STECF considers that this initiative could prove to be an extremely valuable source of data for assessment and evaluation purposes provided that samples are collected in the randomized way intended.

STECF considers that the provision to collect record length, weight and sex and remove otoliths from 20 randomly selected cod on a daily basis would be sufficient for assessment purposes.

STECF conclusions

The STECF conclusions to each of the elements in the Terms of reference are as follows:

Whether the proposed technical measures (permitting fishing in a limited area) are likely to have any impact on catches and exploitation rate
Given the absence of reliable information on the current stock status of offshore Greenland cod, STECF is unable to assess the exploitation rate that would correspond to a TAC of 10,000 t or to assess whether such a rate would represent an increase, decrease or no change on previous exploitation rates. Nevertheless STECF notes that setting a TAC and permitting a directed fishery for the offshore component of Greenland cod, is likely to give rise to fishing mortality rates that are greater than those that would arise through incidental bycatch of cod in fisheries for other species.

STECF concludes that the proposed closure from 1 April – 31 May each year has the potential to reduce fishing mortality on spawning concentrations of cod and may potentially reduce the annual rate of fishing mortality on cod. However, the realised effects on the annual fishing mortality will depend on a number of factors related to whether the closure will result in fewer cod being caught than otherwise would have been the case.
Compared to setting an overall TAC for the area as a whole, splitting the TAC equally between 4 sub-areas and permitting vessels to fish in only 2 of those areas may result in reduced overall catches and exploitation rates provided that the subarea quotas are effectively enforced.
STECF concludes that if effectively enforced, the proposed technical measures are likely to restrict catches of offshore cod to less than or equal to the agreed subarea TACs and to restrict exploitation rates to less than or equal to the rates required to take the subarea TACs.

Whether the provisions of the plan for data collection are adequate for future scientific purposes to undertake assessments/evaluation of the plan
STECF concludes that provided appropriate data and information entered into logbooks can be verified as complete and accurate, mandatory reporting in logbooks will prove to be extremely valuable and should be encouraged. The provision to measure 100 randomly-selected cod from a random haul on a daily basis is likely to be sufficient to provide a representative estimate of the size composition of cod in that haul and which would be adequate for stock assessment and evaluation.

Obligation to collect biological samples

STECF concludes that the requirement to collect biological samples could prove to be an extremely valuable source of data for assessment and evaluation purposes provided that appropriate training is given to collectors and that samples are collected in the randomized way intended.

STECF concludes that the provision to collect otoliths and record length, weight and sex from 20 randomly selected cod on a daily basis would be sufficient for assessment and evaluation purposes.

References

ICES 2012. ICES advice 2012, Book 2, Section 2.4.1a – supporting information 2012; regulations and their effects

7. STECF RECOMMENDATIONS FROM STECF-PLEN-14-02

No new recommendations arose during discussions at the 45th plenary meeting of the STECF.

8. CONTACT DETAILS OF STECF MEMBERS AND OTHER PARTICIPANTS

[1] - Information on STECF members and invited experts' affiliations is displayed for information only. In some instances the details given below for STECF members may differ from that provided in Commission COMMISSION DECISION of 27 October 2010 on the appointment of members of the STECF (2010/C 292/04) as some members' employment details may have changed or have been subject to organisational changes in their main place of employment. In any case, as outlined in Article 13 of the Commission Decision (2005/629/EU and 2010/74/EU) on STECF, Members of the STECF, invited experts, and JRC experts shall act independently of Member States or stakeholders. In the context of the STECF work, the committee members and other experts do not represent the institutions/bodies they are affiliated to in their daily jobs. STECF members and invited experts make declarations of commitment (yearly for STECF members) to act independently in the public interest of the European Union. STECF members and experts also declare at each meeting of the STECF and of its Expert Working Groups any specific interest which might be considered prejudicial to their independence in relation to specific items on the agenda. These declarations are displayed on the public meeting's website if experts explicitly authorized the JRC to do so in accordance with EU legislation on the protection of personnel data. For more information: https://stecf.jrc.ec.europa.eu/adm-declarations and http://stecf.jrc.ec.europa.eu/web/stecf/about-stecf/cv .

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Abstract

The Scientific, Technical and Economic Committee for Fisheries hold its 46th plenary on 7-11 July 2014 in Copenhagen (Denmark). The terms of reference included both issues assessments of STECF Expert Working Group reports and additional requests submitted to the STECF by the Commission. Topics dealt with were *inter alia* assessments of multi-annual management plans, the future DCF, and Mediterranean stock assessments.

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

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