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43rd PLENARY MEETING REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-13-02)

PLENARY MEETING,
8-12 July 2013, Copenhagen

Edited by John Casey & Hendrik Doerner

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PLENARY MEETING

8-12 JULY 2013, 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 8 to 12 July 2013. The Chairman of the STECF, Dr John Casey, opened the plenary session at 10:00h. 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 12 July.

2. LIST OF PARTICIPANTS

The meeting was attended by 30 members of the STECF, two external experts, and four JRC personnel. Three Directorate General Maritime Affairs and Fisheries personnel (DG MARE) attended parts of the meeting. Section 8 of this report provides a detailed participant list with contact details.

The following members of the STECF informed the Chairman and Secretariat that they were unable to attend the meeting:
Georgi Daskalov
Sakari Kuikka
Christoph Stransky

3. INFORMATION TO THE PLENARY

3.1. STECF plenary – information from the secretariat

The secretariat informed the Committee on a recent update of the STECF web site section 'About STECF' where a updated information on the STECF work flow, declarations and STECF members CVs have been placed (http://stecf.jrc.ec.europa.eu/about-stecf).

4. STECF INITIATIVES

4.1. Scope and Terms of reference for EWG 13-16 – Landing obligation in EU Fisheries

Background

Article 15 of the new CFP Basic Regulation (BR) recently agreed by the European Parliament and the Council, introduced a discard ban or landing obligation. This represents a fundamental shift in fisheries policy. The final text agreed by the Council and European Parliament includes a number of exemptions and flexibility tools that raise issues for implementation, catch forecasting, stock assessment and control and monitoring. The European Commission has requested STECF and ICES to consider these issues. At a scoping meeting involving STECF and the ICES Secretariat held during the summer plenary of STECF these issues were discussed and a draft work plan agreed between STECF and ICES of how to address them.

Exemptions issues relating to the discard ban

Survival

Article 15 paragraph 2(b) of the BR provides for an exemption from the landing obligation for the following:

> "*species for which scientific evidence demonstrates high survival rates, taking into account the characteristics of the gear, of the fishing practices and of the ecosystem*;"

This raises three issues:

- **Demonstration:** It is considered that Member States are likely to undertake survival studies to avail of this exemption. In the short-term based on previous STECF advice in 2012, which identified methodological and operational limitations in many earlier studies, there will be a requirement for the provision of guidelines or identification of best practice for undertaking discard-survival studies. In developing such guidelines consideration should also be given to providing a predefined list of species and fisheries that could be considered for exemption.

- **Definitions of high:** There is currently no objective means to define 'high survival rates'. Therefore there is a need to develop an objective framework which will provide managers with a range of the likely impacts of different options depending on the definition used. There is a need to articulate what the impacts would be if a proportion of the landed catch that would have discarded might otherwise have survived and how this may affect estimates of fishing mortality, SSB and associated reference points.

- **Control and Enforcement Issues:** There are risks associated with such a derogation to discard from a control and enforcement perspective. There are also implications for TAC setting procedures and monitoring of catch uptake that need to be considered.

STECF suggests that this would be best dealt with by the STECF Expert Group (EWG 13-16).
In the longer term there is a need for continued methodological development and the provision of a detailed manual for undertaking such survival experiments.

The above point is more appropriate for ICES and will be taken forward for consideration at the ICES ASC (SCICOM/WGFTFB).

<u>De minimis Exemptions and Quota flexibility Tools</u>
Article 15 paragraph 3(c) provides for a further exemption (*de minimis*) from the landing obligation as follows:

> ***"****3(c) provisions for de minimis exemptions of up to 5% of total annual catches of all species subject to an obligation to land as set out in paragraph 1. The de minimis exemption shall apply in the following situations:*
>
> *i) where scientific evidence indicates that increases in selectivity are very difficult to achieve; or*
>
> *ii) to avoid disproportionate costs of handling unwanted catches, for those fishing gears where unwanted catches per fishing gear do not represent more than a certain percentage, to be established in the plan, of total annual catch of that gear.*
>
> *Catches under this provision shall not be counted against the relevant quotas, however, all such catches shall be fully recorded."*

Two issues need to be addressed:

- **Issues surrounding definitions of *de minimis***: It is unclear what is intended by the legislation and clarification is required on how this provision should be interpreted. The potential impacts of *de minimis* exemptions will vary considerably across species depending on how *de minimis* is applied in practice. A range of scenarios are possible and these should be illustrated by example.

- **Issues surrounding the conditionalities**: The regulation allows for de minimis exemptions with two conditionalities (i.e. "improvements in selectivity are considered to be very difficult" or "to avoid disproportionate costs of handling unwanted catches"). There is no objective means to define what constitutes "very difficult" or "disproportionate costs of handling". Therefore there is a need (i) to identify appropriate metrics that can be applied and (ii) to identify appropriate threshold or trigger levels based on these metrics.

Article 15 paragraphs 4a and 4b provide for quota flexibility mechanisms through inter annual and inter species quota flexibility as follows:

1. *"4a. As a derogation from the obligation to count catches against the relevant quotas in accordance with paragraph 1, catches of species that are subject to an obligation to land and that are caught in excess of quotas of the stocks in question, or catches of species in respect of which the Member State has no quota, may be deducted from the quota of the target species provided that they do not exceed 9 % of the quota of the target species. This provision shall only apply where the stock of the non-target species is within safe biological limits.*

2. *4b. For stocks subject to a landing obligation, Member States may use a year-to-year flexibility of up to 10% of their permitted landings. For this purpose, a Member State may allow landing of additional quantities of the stock that is subject to the landing obligation provided that such quantities do not exceed 10% of the quota allocated to that Member State. Article 105 of the Control Regulation shall apply."*

- **Issues surrounding inter-species quota flexibility**: Similar to the de minimis exemption, it is unclear what is intended by the legislation. Depending on the implementation, the potential impacts will vary considerably across species. These impacts are best illustrated by means of worked examples.
- Clause 4b (inter-annual flexibility) is not considered an issue and will not be addressed by ICES or STECF in the short term.

Clauses 3c and 4a both involve flexibility that has the potential to increase catches of an individual species in excess of the TAC allocation. Both mechanisms should be considered together as the impacts could be cumulative.

STECF suggests that analysis of these provisions is best dealt with by the STECF Expert Group (EWG 13-16) and where possible should be illustrated through worked examples to provide guidance on the potential magnitude of the issues. Once this has been established, ICES will consider the potential impact of this in the provision of future catch advice at a later meeting (to be arranged).

<u>Catch estimation</u>

Article 16 paragraph 1 bis states the following:

"Article 16.1bis When a landing obligation for a fish stock is being introduced, fishing opportunities shall be set taking account of the change from setting fishing opportunities to reflect landings to setting fishing opportunities to reflect catches on the basis that for the first and subsequent years, discarding of that stock will no longer be allowed."

Provisional work has highlighted significant differences in catch (particularly discard) estimates contained in ICES (Intercatch) and the STECF effort databases. There is a clear need and desire from the Commission to provide an agreed single estimate of catch. STECF EWG 13-16 will evaluate the scale of the issue through a historic comparison of catch estimates, disaggregated into landings and discards, from the STECF and ICES data sources for advised TAC species. This will require the provision of catch data from both sources and will require resources for this to be undertaken. This would be best done through an *ad hoc* contract with the datasets prepared in time for the September STECF EWG meeting. EWG 13-16 will report on these differences and by example articulate why these differences occur. Based on the results from the comparison between data sets, stocks/TACs will be categorised depending on the extent of discarding, availability and the utility of the information.

There will almost certainly be a need for a joint STECF-ICES follow up meeting (to be arranged) to resolve the issues and to progress towards an agreed methodology. This meeting could also consider the implications for assessments and catch advice.

This combination of meetings will be used to inform the European Commission on the extent of discard information and how this can be applied in the provision of catch advice.

Control, monitoring and enforcement

Recitals 48a and 49 of the BR set out the principles for control and enforcement in the CFP:

(1) *"Recital (48a) In order to ensure compliance with the rules of the Common Fisheries Policy, effective system of control, inspection and enforcement, including the fight against IUU fishing activities, should be established.*

(2) *Recital (49) The use of modern, effective technologies should be promoted in the framework of the Union system for control, inspection, and enforcement. Member States and the Commission should have the possibility to conduct pilot projects on new control technologies and data management systems."*

Specific to the landing obligation Article 15 paragraph 8 states:

> *"Article 15.8 Member States shall ensure detailed and accurate documentation of all fishing trips and adequate capacity and means for the purpose of monitoring compliance with the obligation to land all catches, inter alia such means as observers, CCTV and other. In doing so, Member States shall respect the principle of efficiency and proportionality."*

The introduction of the landing obligation, signals a significant change from the current control system which has a high level of on-shore monitoring, to a system where at-sea monitoring and control will be required in order to monitor compliance. This raises the following issues that should be considered:

- There is no definition of what constitutes "*detailed and accurate documentation*" nor is there a quantified definition of what constitutes "*adequate capacity and means*".

- It is recognised that there is a legal requirement to record discards in EU logbooks currently, but there appears to be no evidence that the validity of the data actual recorded has been evaluated. Such an evaluation could be undertaken by comparing the estimates from observer programmes with the EU logbook data and would provide a useful insight into current documentation of catches.

- There are a number of tools available to support the delivery of accurate catch and auxiliary (e.g. effort) data. Each tool has advantages and disadvantages in terms of the information they provide.

- Exemptions (e.g. *de minimis* and survival) as well as inter-species quota flexibility have control and enforcement implications if not properly documented.

- Currently, the discarded component of catches is monitored mainly for scientific purposes using DCF funded observer programmes. In this case observers are not authorised to enforce regulations. Typically, observer coverage is ~1% of total effort and therefore cannot be considered adequate for ensuring compliance. Given that not all species are covered by article 15, there will be a continued requirement for at-sea monitoring programmes but the role of scientific observers in respect of species that are covered is still unclear There are a number of possible implications for current observer programmes, including vessel access and bias in catch estimates.

STECF suggests that this would be best dealt with by the STECF Expert Group (EWG 13-16).The pros and cons of the relevant control tools will be described and how that could contribute to compliance of the landings obligation and the provision of detailed and accurate documentation.

<u>Support for the development of discard plans</u>

Article 15 paragraph 3a provides for the development of regional discard plans as follows:

> *"3a. Where no multiannual plan or no management plan in accordance with Article 18 of Regulation (EC) No 1967/2006 for the fishery in question is adopted, the Commission may adopt a specific discards plan on a temporary basis under the rules stipulated under Article 17. Member States may cooperate in accordance with Article 17 with a view to the Commission adopting a specific plan, for no more than a 3 year period, on the landing obligation and specifications in paragraph 3 (a)-(e), by means of delegated acts in accordance with the procedure in Article 55 or in the ordinary legislative procedure."*

The supporting information and specific content of discard plans has not yet been defined. To assist Member States in formulating joint recommendations that will form the basis of the

discard plans there is a need to develop guidelines. These should articulate the information and minimum acceptable standards for the elements of the discard plans:

(a) definition of fisheries and timelines for implementation.

(b) exemptions on the basis of high survivability;

(c) provisions for *de minimis* exemptions

(d) provisions on documentation of catches;

(e) fixing of minimum conservation reference sizes.

STECF suggests that this would be best dealt with by the STECF Expert Group (EWG 13-16).
EWG 13-16 will use the outcomes of topics considered above to provide preliminary considerations on the specific content requirements for discard plans. Further work will be required to provide more detailed guidance.

Ecosystem Issues

The obligation to land all catches may have broader ecosystem impacts, particularly in terms of energy flows within the ecosystem and direct impacts on scavenging species. This issue should be dealt with by the appropriate ICES working groups. In the context of the Black Sea and Mediterranean, this will need to be considered by the appropriate scientific bodies covering these areas e.g. GFCM.

5. ASSESSMENT OF STECF EWG REPORTS

5.1. STECF-EWG-13-03 and 13-04: Annual Economic Report of the EU fleets 2013

Request to the STECF

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

Background

Following the 2013 DCF call for economic data on the EU fishing fleet, EWG 13-03 & 13-04 was requested to analyse the data and comment on the economic performance of the EU and Member State fishing fleets between 2008 and 2013.

STECF observations

STECF notes that some Member States did not provide all the data requested under the 2013 fleet economic data call issued by DG MARE. Furthermore, the quality (questionable accuracy) of some Member States data submissions remains a concern. Missing and questionable data compromises the ability of the STECF EWG to produce comprehensive and accurate analyses of fleet economic performance at the national, regional and EU level, and to undertake the additional analyses requested.

At the requests of DG MARE, the 2013 AER contains more qualitative information and analysis on drivers and trends in fleet economic performance such as capacity imbalance, discards / high-grading, MPAs, poor stock recruitment / stock recovery situations, market prices, ITQs systems, certification, decommissioning etc) than previous AERs. Furthermore the Report contains predictions and forecasts of future economic performance undertaken using the EIAA and BEMTOOL models.

In response to a further request from DG MARE, the report also presents an assessment of the economic performance of EU fleets targeting nine stocks subject to long-term management plans. The analyses were undertaken to specifically assess the economic performance of fishing vessels when fishing such stocks at rates consistent with MSY.

STECF conclusions

STECF concludes that the Annual Economic report prepared by the EWG 13-03 and 13-04 represents the most comprehensive assessment of the performance of EU fishing fleets currently available, and despite its limitations through incomplete or missing data sets, STECF endorses the Report.

Furthermore, 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.

STECF also concludes that the general request for more qualitative information related the economic performance of the fleet is relevant, but with the information submitted through the data call such evaluations have limited value. For factors such as MPA's, stock recovery situation, ITQ systems, certification etc. more information is needed in order to make an informed assessment, and it should be carefully considered whether such requests should be a part of the ToRs for future EWGs.

The analyses undertaken to assess the economic performance of fishing fleets targeting nine stocks subject to long-term management plans proved to be complex. Difficulties arose because of the inability to distinguish between effects arising as a direct result of the management plans and those arising through other external factors. STECF developed guidelines (STECF 10-04) on how to undertake impact assessments of management plans which include a scoping phase to identify all factors which may influence the economic performance of fishing fleets. Such assessments must also address biological and technical factors. Consequently the impact of long-term management plans on the economic

performance of fishing fleets cannot be assessed by the sole use of the results of the analyses presented in the AER.

5.2. STECF-EWG 13-05: DC-MAP Part II

Request to the STECF

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

STECF is also requested to advice on planning of next steps (drafting of the external reference documents; involvement of end-users; preparation of guidelines on EMFF OPs and AWPs; issues resulting from the 1st meeting).

STECF observations

EWG 13-05 was a follow up meeting from the EWG 13-02 DCMAP I meeting held in April 2013. The conclusions from the first meeting were considered as the starting points for the discussions. In addition a consultation document, prepared by the EC, a number of working documents on related issues and the reports from a number of ad-hoc contracts were provided to the EWG as input to the meeting (http://stecf.jrc.ec.europa.eu/web/stecf/ewg1305).

The consultation document "EU Data Collection for Fisheries 2014-2020" provided to the EWG by the EC is composed of four building blocks: block A is stating the general principles, established by the political compromise on the basic regulation; block B defines the contents of the common core data collection programme applicable for the next 7 years; block C defines the MS obligations, and block D defines the contents of the Master Reference Register (MRR), the flexible part of the data collection programme. The EWG 13-05 focused on block B and D of the consultation document and provided comments to the content of the document by track changes in the text. These are provided in the annex of the EWG 13-05 report.

STECF notes that while the EWG 13-05 was not able to fully address all of the extensive list of items in its terms of reference the EWG 13-05 Report contains novel proposals that provide the foundations of a future DC-MAP. STECF suggests that following feedback from the Commission, further development of the present proposals and any outstanding issues could be addressed during the forthcoming EWG 13-18 meeting which is scheduled for 25-30 November 2013. STECF stresses, that to make effective progress, it is essential that STECF receives feedback from the Commission on both the EWG 13-02 and 13-05 Reports.

5.3. STECF-EWG-13-06: Evaluation of fishing effort regimes in European waters – part 1

Request to the STECF

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

STECF comments

STECF notes that the Terms of Reference relating to fishing effort regimes in the following sea areas have largely been successfully addressed bt the Report of the EWG 13-06:

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. and the Bay of Biscay,

The EWG 13-06 Report provides updated estimates of trends in fishing effort, landings and discards by species, CPUE and LPUE by fisheries and species, and partial fishing mortalities for effort regulated and non-regulated fisheries by Member States.
Nevertheless, due to time constraints and/or data deficiencies the following elements of the Terms of Reference were not completely addressed but will be dealt with during the forthcoming STECF EWG 13-13 fishing effort regime evaluations part 2 (7-11 October 2013, Barza d'Ispra, Italy):

- comparative analyses regarding cod and sole selectivity of fully documented fisheries (FDF) and fisheries not participating in FDF schemes,
- detailed evaluations of the national implementation as regards fishing effort derogations granted under the provisions of article 13 of the new cod plan (Counc. Reg. No 1342/2008), and
- spatio-temporal patterns in cod catchability.

2013 DCF Fishing Effort Data Call

The EWG 13-06 Report is based on data submitted by Member States in response to the 2013 DCF fishing effort data call in 2013. STECF notes a general improvement in Member States' submissions with regard to data completeness and quality as well as improved compliance with deadlines. However, the work of the EWG 13-06 once again was compromised by delays in some Member States' submissions, incomplete and erroneous data submissions and re-submissions.

STECF notes that its 2012 recommendations to amend the 2013 DCF data call to support fishing effort regime evaluation were implemented and that these changes have supported and will continue to support the accomplishment of specific ToR. STECF notes that the DCF data call in 2013 imposed an additional workload on Member States because of the need to re-aggregate and resubmit data for earlier years than 2012 in addition to the data requested for 2012. The outcome of the call was that Denmark, Portugal and UK (without Scotland) have revised their complete time series of fisheries-specific catch and effort data. Catch (landings and discards) and effort Data from Spain were provided for 2012 and discard data were provided for earlier years thereby enabling an improved evaluation of the effort regime for Southern hake and *Nephrops*.

ICES (WGMIXFISH 2013) has undertaken a detailed comparison of the 2011 fisheries data received by ICES in 2013 and the 2011 data submitted to STECF under the 2012 DCF effort data call. STECF notes that while the fisheries-specific data on landings and nominal effort were found to be highly consistent in both data sets, the ICES estimates of discards were consistently higher than the estimates of discards provided in the STECF data base. The pronounced differences (of the order of 50% difference) in discard estimates are mainly due to different raising procedures applied. STECF notes that both ICES and STECF experts are fully aware of such discrepancies and the issue will be addressed during the latter part of 2013 to try to develop the most appropriate methodology to derive consistent estimates.

STECF has proposed an Index of Discard Coverage (DQI) to facilitate the use of the discard estimates provided in the STECF data bases on fisheries-specific catch and fishing effort. The DQI is expressed by stock, fishery and Member State as the proportion of national landings covered by discard estimates in relation to the total national landings;

$$DQI = \Sigma Ld / \Sigma L$$

where L denotes landings (t) and Ld landings with a discard estimate.

While the DQI is a useful indicator of the proportion of landings by fishery by Member State and stock that are sampled for discards, it does not reflect the level of discarding each fishery carries out. Furthermore, the DQI does not distinguish between a fishery with a high discard rate and a fishery with a low discard rate, or the level of sampling allocated to each fishery. It's an exploratory tool that allows the identification of the proportion of overall landings by fishery that was sampled.

In order to aid interpretation of the DQI, the DQI is further classified in three separate groups as follows:

- A = 67 % or more of the landings have an accompanying discard estimate,
- B = 34-66 % of the landings have an accompanying discard estimate, and
- C = less the 33 % of the landings have an accompanying discard estimate.

STECF considers category A estimates to be sufficiently reliable to be used for assessment purposes, as the majority of the landings by species and fishery are accompanied with a discard estimate. However it should be noted once again that this DQI cannot inform on the quality of the discard rate estimates supplied by nations (as affected for example by the proportion of fishing trips sampled for discards).

Category B discard estimates are considered to be less reliable than category A and require careful scrutiny before they are used for assessment purposes.

Category C discard estimates are the least reliable and STECF considers that they should not be used for assessment purposes.

STECF notes that all fisheries-specific parameters for the various fishing effort regimes can be downloaded at the corresponding aggregation level as digital Appendixes to the present report from the EWG 13-06 web page: http://stecf.jrc.ec.europa.eu/web/stecf/ewg1306.

Effort regime evaluation for the Baltic

Deployed effort of regulated gears remained rather constant in both cod plan areas A (subdivisions 22-24) and B(subdivisions 25-28) (slight increase in regulated otter trawls).

The effort-regulated otter trawls are the major cod gears, contributing 67 and 82% to the catch in areas A and B in 2012, respectively. The second among the ranked cod gears are gill nets. Cod discards are generally low but slightly higher for area B, showing an increasing trend in most recent years for regulated otter trawls.

With a lack of information from Estonia, small boats <8m LOA were found to constitute 7 and 12% to the overall effort deployed in the Baltic in 2011 and 2012, respectively. Small boats are primarily operating in the northern cod plan area C(subdivisions 29-32).

STECF undertook a provisional quantitative analysis regarding the estimation of effort deployed in units of days at sea by Member State, and compared the national uptake with the calculated maximum effort available. STECF notes that its approach to estimate the maximum days at sea available per year and Member State from the product of its number of active vessels using one of the regulated gears times the days at sea per vessel can only serve as an approximation of the effort ceiling. The provisional uptake analysis revealed that the average annual uptake of available days at sea over the time period 2008-2012 remained in the range of 36-38% in area A, 34-47% in the area B and 53-83% for the areas A and B combined.

According to the information submitted by member States, only Denmark has operated under the fully documented fisheries (FDF) scheme in the Baltic in 2012. The reported Danish catch of cod caught in fully documented fisheries with regulated gears amounted to 333 t in area A and 406 t in area B, representing 3% of the overall catch. A preliminary analyses of cod selectivity revealed that non-FDF fisheries were catching younger fish. However, the effects of different age reading methods applied in different national institutes remain unclear. Such preliminary results require further investigation.

Close correlations between fishing mortality and fishing effort measured in kW days at sea as well as between partial fishing mortalities and the specific fishing effort by fisheries were found. While good correlation does not always mean ‘cause and effect’, the results here suggest that management of fishing mortality by fishing effort in units of kWdays may provide a useful auxiliary measure to catch constraints and technical measures.

Effort regime evaluation for the Kattegat

Fisheries in the Kattegat are almost exclusively conducted by Denmark and Sweden (88% and 11% of the total regulated effort in 2012, respectively) using predominantly trawls and primarily the gear class TR2. The TR2 gear constitutes 90% of the total regulated effort. Beam trawls are forbidden.

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 while the German TR2 effort is partly under the derogation CPart13B between 2010 and 2011. STECF notes that the uptake of the regulated gear TR2 exceeds the maximum effort levels defined in the annual TAC and quota regulations since 2010 as Member States applied additional effort allocations under article 13 of the cod plan.

Only Sweden reported under the derogation article 11 in gear category TR2, achieving the <1.5% cod catch by using a sorting grid. This represented 68% of the Swedish TR2 effort in Kattegat 2012. The effort deployed by passive gears (GN1, GT and LL1) is relatively small, with a stable share of around 3% of the total regulated effort in 2012. The effort deployed by unregulated gear categories (including effort under the derogation CPart11) was 30% of the total effort in 2012.

In 2012, the nominal effort (kW days at sea) deployed by small vessels (LOA<10m) constituted 12% of the total effort in the area.

According the ranked regulated gear groups' contributions to cod catch and landings in 2012, only the TR2 is estimated to exceed the level of the cumulative 20% and thus considered subject to annual effort adjustments (Coun. Reg. 1342/2008, art. 12(4)).

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.

The estimated cod CPUE and respective effort transfer factors between donor and receiving regulated gear groups based on averages 2010-2012 are given below. Red cells are indicated to be imprecise due to lack of adequate discard information. Yellow cells indicate sufficient sampling and green cells good sampling information. The conversion factors are estimated based on CPUE while LPUE values are also provided.

Kattegat												
	donor gear	receiving gear						2010-2012				
		GN1	GT1	LL1	TR1	TR2	TR3	CPUE	LPUE		factor =	CPUE donor/CPUE receiving
3a	GN1		1	1	1	1	1	183	50		if factor > 1 then	
3a	GT1	0.005		1	0.014	0.009	0.125	1	1		factor = 1	
3a	LL1	0.005	1		0.014	0.009	0.125	1	1			
3a	TR1	0.388	1	1		0.67	1	71	25		if CPUE=0 or LPUE = 0 then	
3a	TR2	0.579	1	1	1		1	106	41		CPUE=1 or LPUE=1	
3a	TR3	0.044	1	1	0.113	0.075		8	8			

STECF notes that that ICES did not provide an analytical assessment of cod in the Kattegat in 2013. STECF EWG 13-06 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, except for the part dealing with partial fishing mortalities by fisheries. 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 (77% of the total 2012 regulated effort in area 3b), followed by the Eastern Channel (17%, 3b3), while the Skagerrak represents a smaller component (6%, 3b1). In all three sub areas, regulated effort has decreased since 2003. In area 3b2 (North Sea), regulated effort is equally shared between beam trawls and demersal trawls/seines (48% and 46% of total 2012 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. In the Eastern Channel, demersal trawls/seines are also the main gears (65% of the 2012 regulated effort in the area, mainly smaller mesh size 70-99mm TR2), but with beam trawls and passive gears representing important fisheries (19% and 16% of the 2012 regulated effort respectively). The main gears in management area 3b1 (Skagerrak) are demersal trawls/seines (88% of the 2012 regulated effort) with a predominance of TR2.

The estimated overall reduction in effort (kW days at sea) in 2012 of regulated gears in the entire area 3b amounts to 45% compared to the average 2004-2006 and to 12% compared to 2011.

Since 2003 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) in 2012.

TR1 and TR2 gears were identified as the major cod catching gears and exceeded the 20% cumulative cod catch in 2012 and are thus considered subject to annual effort adjustments (Coun. Reg. 1342/2008, art. 12(4)).

In 2012 fully documented fisheries again represented only a small but increasing proportion of the total effort (5.6%). The importance of the main cod gear (TR1) has increased further and is estimated at 28.9% of the TR1 effort deployed in 2012. In total, 36% of cod catches by EU vessels were taken during FDF trials.

A preliminary analyses of selectivity for cod by FDF and non-FDF fisheries, indicated that cod catch compositions at age from FDF fisheries were rather similar to the catch compositions at age from non-FDF fisheries. This effect may be due to the fact that Member States may not have undertaken separate sampling to provide separate national catch composition estimates for FDF and non-FDF fisheries. Further investigations need to be undertaken to confirm or refute these observations.

The estimated cod CPUE (average 2010-2012) and respective effort transfer factors between donor and receiving regulated gear groups for the cod management area comprising the Skagerrak, North Sea, EU part of IIa, and Eastern Channel are given below. Red cells indicate imprecise values due to lack of adequate discard information. Yellow cells indicate sufficient sampling and green cells good sampling information. STECF notes that the EWG 13-06 report also provides the conversion factors for each of the three sub-areas mentioned above.

Skagerrak, North Sea and 2 EU, Eastern Channel

	donor gear	receiving gear								2010-2012		
		BT1	BT2	GN1	GT1	LL1	TR1	TR2	TR3	CPUE	LPUE	factor = CPUE donor/CPUE receiving
3b	BT1		1	0.271	1	0.513	0.255	1	1	267	267	if factor > 1 then
3b	BT2	0.176		0.048	0.245	0.09	0.045	0.198	1	47	42	factor = 1
3b	GN1	1	1		1	1	0.94	1	1	985	962	
3b	GT1	0.719	1	0.195		0.369	0.183	0.81	1	192	140	if CPUE=0 or LPUE = 0 then
3b	LL1	1	1	0.528	1		0.496	1	1	520	519	CPUE=1 or LPUE=1
3b	TR1	1	1	1	1	1		1	1	1048	903	
3b	TR2	0.888	1	0.241	1	0.456	0.226		1	237	126	
3b	TR3	0.037	0.213	0.01	0.052	0.019	0.01	0.042		10	10	

The Report presents partial fishing mortalities by regulated fisheries and Member States in relation to the estimated fishing mortality by ICES (2013) and the landings and discards volumes in relation to the estimated total catch for the year available. STECF notes that the correlations between the partial Fs for cod and effort are significant for some important regulated metiers catching cod but insignificant for others. In all three sub-areas 3b1, 3b2 and 3b3, the correlations between the summed partial Fs of cod for regulated gears and respective sums of fishing effort in units of kW days at sea are statistically significant. While good correlation does not always mean 'cause and effect', the results here suggest that management of fishing mortality by fishing effort in units of kWdays may provide a useful auxiliary measure to catch constraints and technical measures.

Mortality due to discarding has generally been high, but has declined since 2008.

STECF notes that there are indications of reductions in partial Fs from catches of the Scottish TR1 and TR2 fisheries operating under the provisions of article 13.2.c of the cod plan, mainly caused by reductions in their partial F through reduced discard rates. The German and French fisheries operating under the provision of article 13.2.b are either negligible or have reduced their contribution to cod fishing mortalities substantially. STECF notes that more detailed analyses of the national partial F reductions as stipulated in article 13 of the cod plan as requested in ToR 9 will be conducted during the forthcoming STECF EWG 13-13 (7-11 October 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 56% less in 2012 compared to 2003. Regulated effort by trawl and seine gears (TR gears under Coun. 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 2012 for those nations reporting in both years. Overall effort of

small boats (LOA<10m) is 10% higher in 2012 compared to 2003 although it has been relatively stable since 2006.

The most important category in terms of cod catch and landings is TR1 which over the period 2010-2012 on average, accounted for 94% and 99% of the total cod landings and catches by weight respectively from VIa. The second most important gear category is TR2, which can be seen to be a gear category with Nephrops as the dominant species in the landings. Based on the relative contribution TR1 is the only gear group where the percentage cumulative cod catch in 2012 exceeded 20% and thus considered subject to annual effort adjustments (Coun. Reg. 1342/2008, art. 12(4)).

The table of international conversion factors is based on average CPUE (2010-2012). Discard data are scarce for many regulated gear groups but have been interpreted as representative for TR1 and TR2.

West of Scotland

	donor gear	receiving gear						2010-2012		
		BT1	BT2	GN1	LL1	TR1	TR2	CPUE	LPUE	factor =
3d	BT1		1	0.143	1	0.004	0.333	1	1	if factor > 1 then
3d	BT2	1		0.143	1	0.004	0.333	1	1	factor = 1
3d	GN1	1	1		1	0.028	1	7	7	
3d	LL1	1	1	0.143		0.004	0.333	1	1	if CPUE=0 or LPUE = 0 then
3d	TR1	1	1	1	1		1	252	33	CPUE=1 or LPUE=1
3d	TR2	1	1	0.429	1	0.012		3	2	

Overall the correlation between partial F of cod and estimated fishing effort of regulated gears is statistically significant but negative. STECF is unable to determine the reason why there are negative or insignificant relationship between F and effort for the greatest cod contributors to cod catches from VIa. Nevertheless from the information reported by Member States, the management measures in place in VIa have not been successful in achieving a reduction in fishing mortality.

STECF further noted that the metier contributing most to partial F of cod is the Scottish TR1 gear operating under special condition CPart13D (fishing west of the management line delimiting the cod recovery zone). Furthermore, there are no indications that the Scottish TR1 fishery working under any of articles 13.2.B, C or D have contributed to a reduction in fishing mortality of cod west of Scotland. STECF notes that detailed analyses of the national partial F reductions as stipulated in article 13 of the cod plan as requested in ToR 9 will be conducted during the forthcoming STECF EWG 13-13 (7-11 October 2013).

Effort regime evaluation for the Irish Sea

During 2003-2010, overall nominal effort (kW*days at sea) for boats LOA>=10m declined continuously by 43%. Since then, effort has remained stable. The trend in fishing effort of regulated gears appears similar with a decrease by 54% during 2003-2010 and remained stable from 2010 to 2012. Since 2007, the dominating regulated gear in terms of kW dayshas been the trawled TR2 (>70%) with an increasing trend (79% in 2012). Since 2009, the cod plan provisions of article 13.2 a, b and c are applied when using effort-regulated gears.

During 2006-2012, small boats' effort (LOA<10m) varied without a clear trend and constituted among 12-15% of the overall effort deployed.

STECF notes that discard information available within the Irish Sea is incomplete and thus impedes analyses of catch compositions and trends by fisheries. Based on the relative contributions to overall deployed effort, GN1, TR1 and TR2 are gear groups where the proportional cumulative cod landings in 2012 exceeded 20% and are thus subject to annual effort adjustments (Coun. Reg. 1342/2008, art. 12(4)).

The table of international effort conversion factors is based on average CPUE (2010-2012) is given below. LPUEs are used for GN1, GT1, and LL1 fisheries as time series of discard data were not available. TR2 and BT2 are the only two gear categories where discard data were available over the three previous years.

		BT2	GN1	GT1	LL1	TR1	TR2	CPUE	LPUE	factor =
3c	BT2		0.03	0.081	1	0.172	1	92	59	if factor > 1 then
3c	GN1	1		1	1	1	1	3033	3033	factor = 1
3c	GT1	1	0.375		1	1	1	1136	1136	
3c	LL1	0.011	0	0.001		0.002	0.013	1	1	if CPUE=0 or LPUE = 0 then
3c	TR1	1	0.176	0.471	1		1	535	523	CPUE=1 or LPUE=1
3c	TR2	0.859	0.026	0.07	1	0.148		79	42	

STECF notes that the correlations between the summed partial Fs for landings of the regulated fisheries and their estimated fishing efforts are insignificant. STECF is unable to determine the reason why the relationship between partial Fs of most Member State fisheries using regulated gears are not significantly correlated with their specific effort estimates. STECF notes that the lack of discards prevents reliable conclusions regarding the effects of fishing effort management in relation to cod in the Irish Sea.

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. In terms of kW*days, France contributed 38 %, Ireland 22%, England and Wales 17%, the Netherlands 6%, Belgium 5%, Scotland 4%, Spain 4%, Germany 3% and Denmark 2% (2012).

Trends in fishing effort for the sensitive cod gears and non-regulated gears are presented in the Report. Spanish data are only included for 2012 as no data for earlier periods have been submitted by the Spanish Authorities. The demersal fisheries are dominated by the gears TR1, TR2 and BT2. In recent years (since 2008) fishing effort has been relatively stable, with the increase in 2012 due to the inclusion of Spanish data for 2012 only. Total effort for countries excluding Spain has remained stable overall. For "unregulated" gears most of the effort is Dutch, French, Danish and Irish pelagic trawl fisheries, with a recent (since 2009) increase of Danish and Irish pelagic boats fishing for boarfish in the Celtic Sea.

STECF notes that the correlations between the summed partial F of catches from all regulated gears and their specific effort estimates in kW days at sea over the main fisheries

(effort regulated fisheries in the cod plan) are insignificant in the entire Celtic Sea (7bcefghjk). However, the relations between summed partial F of catches and fishing effort from all regulated gears become significant when the area is reduced to the ICES subdivisions 7fg. While good correlation does not always mean 'cause and effect', the results here suggest that management of fishing mortality by fishing effort in units of kWdays may provide a useful auxiliary measure to catch constraints and technical measures.

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 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 2007-2012 and by 5% from 2009 to 2012. The major effort regulated gears are the bottom trawls. Bottom trawl effort subject to effort regulation decreased by 18% since 2007 and by 13% since 2009. Given that Spain has not provided data for small vessels (LOA<10m) and that Portuguese data do not provide gear or fishery specific information, STECF is unable to conclude on the effects of small vessels. STECF is also unable to estimate trends in the maximum fishing effort in days at sea per year and the annual uptake of that effort by regulated fisheries due to data deficiencies.

In 2012, Spanish and Portuguese regulated bottom trawls landed at least half of the hake and anglerfish and the 95% of *Nephrops* caught in Divisions VIIIc-IXa. In general, the landings of southern hake, *Nephrops* and anglerfish reported in response to the DCF data call are substantially lower than the figures used by ICES (2013). The LPUE for hake displays a continuous increase since 2004, and catch rates (CPUE OR LPUE) of *Nephrops* in 9a have continuously decreased since 2006. The same trend is apparent in both the data submitted to STECF in response to the DCF data calls and the data estimated by ICES.

Depending on data availability and expected data revisions, STECF will address and accomplish the ToR during its forthcoming meeting STECF EWG 13-13 in October 2013.

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 and the static nets, account for only a relatively small proportion (about 15%) of the overall deployed effort.

The effort (kW days at sea) of gear groups regulated by fishing effort appears to have remained stable since 2009 after a major drop prior to 2008. From 2009-2012, the reported regulated beam trawl (≥ 80 mm) effort steadily increased and by 2012 was 17% higher compared with 2009. Over the same period, the lower reported effort by regulated static nets (< 220 mm) decreased by 42%. The effort from the vessels <10m fluctuated between 13% and 25% of the effort deployed by the vessels >10m and shows an increasing trend since 2005.

STECF notes that estimated sole catches are dominated by effort regulated beam trawls (67% in 2012), while static nets contributed a minor share (6% in 2012). STECF reiterates its observation that a relatively high percentage of sole is landed by gears that are not being regulated by this regulation. Sole catches of unregulated gears are in excess of 27% of the overall sole catches in area 7e for each year of the data series (2004-2012). The otter trawl gear is the main unregulated gear involved and accounts for over of 22% of total sole catches.

STECF notes that only UK (England and Wales) had vessels operating under an FDF scheme for the first time in 2012. 7 vessels were operational in the FDF fisheries using the regulated beam trawl gear (3a) and one vessel using the unregulated beam trawl gear (mesh size <80mm). The total numbers of English vessels operating such gears are 43 and 2 respectively. The effort of the FDF fisheries to the total deployed effort by the regulated beamers (3a) and unregulated beamers amount to 17% and 1% respectively. The catches of sole from to FDF fisheries represent 23% and 28% of the total international catches of the 3a regulated gears and the unregulated beamers, respectively. The specific request regarding sole selectivity of FDF and non- FDF fisheries was deferred to the forthcoming STECF EWG 13-13 on fishing effort regime evaluations part 2 (7-11 October 2013, Barza d'Ispra, Italy).

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 fleet show a stable uptake on a low (around 10%) and high level (around 65%) respectively. The English regulated static gear (3b) show a slight increase in uptake (20%-40%) over time whereas the French regulated static gear show a stable uptake of around 45%. National amendments to the effort regulations were granted to UK in 2011. 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.

STECF notes that the correlations between the summed partial Fs for sole landings of the regulated fisheries and their estimated fishing efforts are significant for the period 2005-2012. While good correlation does not always mean 'cause and effect', the results here suggest that management of fishing mortality by fishing effort in units of kWdays may provide a useful auxiliary measure to catch constraints and technical measures for the regulated gears. The lack of discard information in the assessment and forecast of fishing opportunities should be considered when assessing management risks.

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. The requested sections on catches and CPUE (comments, table and graphs) could not be updated due to resource constraints during the EWG 13-06. The EWG experienced extreme difficulties in preparing the data and the interpretation of them is confounded by data deficiencies described in section 4 of the report. STECF also 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): http://stecf.jrc.ec.europa.eu/web/stecf/ewg1306

Bottom trawl effort is concentrated in ICES Area VI as well as the Continental shelf and slope to the west and southwest of Ireland and the UK. Bottom trawl effort in the Bay of Biscay, the Cantabrian Sea and off the Portuguese coast increased in 2012 compared to 2010 and 2011. 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 of the deep sea regulation. 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 again in 2010, but has reduced again in 2011 and 2012. Longline effort was concentrated on the shelf and slope between Shetland and Portugal but has been in decline in recent years. Longline effort from the Azores has shown an increase since 2009. In the mid 2000s gill net effort was concentrated in the Celtic sea and Porcupine Bank. Due to existing 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.

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. 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. Furthermore, data on discards is scarce and patchy and in some cases, is of dubious quality.

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 catch and effort data for the Northern Bay of Biscay (ICES Div. VIIIa) and the southern Bay of Biscay (ICES Div. VIIIb). In VIIIa, 90% of the reported deployed effort in 2012 was French, 9% Spanish and 1% Belgian. The main French fisheries are otter trawl, trammel net, gill net and pelagic trawls. The main Spanish fisheries are longline, otter trawl and gill net. In VIIIb, 69% of the reported deployed effort in 2012 was French, 25% Spanish and 6% Belgian. The main French fisheries are otter trawl, trammel net, gill net, longline and pelagic trawl. The main Spain fisheries are otter trawl, longline and pelagic trawl.

Due to data deficiencies, STECF was unable to fully evaluate the effort regime for sole in the Bay of Biscay. France and Spain provided the data on trends in fishing capacity requested in the data call, in the unit of gross tonnage and for the year 2012 only.

From 2010 to 2012 the overall trend in fishing effort in units of kW days at sea increased by 4% in the area VIIIa and by 35% in VIIIb, although this observation is largely due to the inclusion of Spanish data for 2012 only. During 2010-2012, less than 50% of the reported deployed effort (kW days at sea) was accounted for by vessels carrying the special fishing

permit in area VIIIa. In area VIIIb, the relative contribution of licensed vessels varied between 57% and 68%.

During 2010-2012, small boats (LOA<10m) contributed about 20% to the effort deployed in area VIIIa and about 10%-15% in area VIIIb after significant increases in deployed effort by small boats for earlier years in both areas. Spain has not provided any information regarding deployed fishing effort of small boats operating in the Bay of Biscay.

STECF notes that the correlations between the summed partial Fs based only on landings from the major fisheries and the corresponding reported fishing effort are significant in area 8a but insignificant in area 8b. As those analyses do not take account of discards and the time series do not incorporate Spanish data, there results are questionalble and may not be representative.

5.4. STECF-EWG-13-07: Evaluation of 2012 MS Technical Reports under DCF

Background

STECF-EWG-13-07 took place 1-5 July 2013 in Brussels mainly to conduct the evaluation of MS 2012 Annual Reports for Data Collection to be presented to the STECF July 2013 plenary. Results of the other ToRs the EWG dealt with will be dealt in a separate report for STECF review by written procedure by 27 September 2013.

Request to STECF

STECF is requested to review the MS evaluation-grids for the 2012 data collection Annual Reports conducted by EWG-13-07 evaluate the findings and make any appropriate comments and recommendations.

Observations of the STECF

STECF acknowledges the intensive and thorough work performed by EWG 13-07. The Annual Reports for 2012 were reviewed in relation to Member States National programmes for 2012. Additionally, tables with information from end users on data transmission in 2012 provided by DG Mare were also used to review the MS Annual Reports 2012.

STECF notes that the pre-screening of Annual Reports by ad-hoc contracted experts again worked smoothly and speeded up the review process substantially. While overall MS compliance with the requirements of the DCF and National Programmes was good, compliance by some Member States decreased with respect to the submissions for the year 2011.

The EWG 13-07 evaluation tables include comments on 2012 data transmissions prepared and provided by DG MARE. STECF notes that information sources provided in these tables were labeled as ICES, GFCM and JRC/DG MARE. JRC/DG MARE information was based on the JRC coverage reports providing an overview of the timeliness and contents of the MS'

data submissions to JRC. JRC's evaluations of Member States' data submissions are based on data specifications defined in the DCF data calls (no cross-checks with MS National programmes) issued by DG MARE. In addition, the Coverage Reports summarise findings regarding major data omissions and data deficiencies detected by JRC and by Expert Working Groups convened under the STECF. JRC data coverage reports are available on: http://datacollection.jrc.ec.europa.eu/docs/coverage . The data transmission tables including the STECF comments are meant to be sent by DG MARE to the relevant Member State for comments and explanations on any data transmission deficiencies indicated.

Conclusions of the STECF

Data transmission

STECF concludes that EWG 13-07 did its best in supporting the Commission in identifying relevant data transmission failures. Nevertheless, due to the complexity of the task, it should not be assumed that the EWG has detected all data transmission failures and deficiencies. Furthermore in some cases, it is possible that deficiencies may have been wrongly indicated, e.g. where Member States were not obliged to collect data. Such a situation can arise because the end-users did not have access to information to explicitly determine what Member States' obligations had been.

STECF concludes that future reviews of data transmission would be further improved if DG MARE would provide information on what the data transmission tables are based on, clear definitions of headings, and any MS derogations accompanying the data transmission tables.

MS Annual Reports

The EWG 13-07 part 1 report provides sufficient information to identify cases of non-compliance in relation to the review of the MS Annual Reports and the National programmes.

5.5. STECF-EWG-13-08: Advice on stocks - part 2

Request to STECF

STECF is requested to review the report of the STECF Expert Working Group 13-08, evaluate the findings and make any appropriate comments and recommendations.

STECF response

STECF reviewed the Review of Advice for 2014 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 2014 part 2 (STECF-13-11). The report is available on http://stecf.jrc.ec.europa.eu/reports/review-advice.

The Report presents 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 2013 (STECF 12-22), since no new information on the status of or advice for such stocks was available at the time the present review took place.

STECF notes that the ICES approach for data limited stocks has remained largely unchanged from that used to provide advice for 2013; the exception being for some species classified as long-lived. While the principle of the approach has not changed, for some long-lived stocks assessed using trends only, the criterion for assessing whether the proportional change in the recent period (most recent 2 years) compared to an earlier period (preceding 3 years) has been modified to compare the average of the most recent 3 years with the average for the preceding 5 years. The reasons for this approach for only a sub-set of stocks that would classify as long-lived are not specified in the ICES advice sheets.

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

6.1. Identification of plaice spawning and nursery areas in ICES areas VIId and VIIe and possible closures or other management measures

Background

The TAC for plaice in the Channel (VIId and VIIe) currently covers both areas but ICES indicates that there may be two stocks under this single TAC. It provides separate advice for each of the areas and advises that management measure(s) should be implemented to control fishing mortality (F) effectively in each of them.

ICES does not expressly advocate a split of the TAC, possibly on account of the fact that spawning migrations occur during the first quarter of the year across the two areas: tagging studies show that 15% of the plaice caught in VIId during Q1 come from VIIe and 50% from area IV.

Supporting scientific evidence:

ICES advises the following for plaice in VIId and VIIe:

- splitting the TAC area will ignore the spawning migration of plaice from VIIe to VIId during Q1:15% of the plaice caught in VIId during Q1 come from VIIe and 50% from area IV;

- discards are not included in the assessment – up to 50% in VIId (leading to increased uncertainty) but close to 0 in VIIe;

- conservation state/scientific knowledge differ for these two areas: only trends in F and SSB for VIId; FVIIe is twice the value of FMSY (0.48 and 0.24, respectively);

- conservation state is improving in VIId and VIIe (possibly be due to a strong recruitment in 2010, it may therefore not reflect the underlying state of the stocks);

- TAC advice for VIId is twice that of VIIe (4,300t and 2,100t, respectively);

- plaice distribution in VIId is strongly correlated to substrate type, especially for juveniles;

- market price appears to be very low during Q1 due to fish being in poor condition (low condition factor).

Terms of reference

In light of the above, STECF is requested to:

1. To advise on the relevance for conservation purposes of possible seasonal closure(s) of plaice spawning and/or nursery areas in VIId and possibly VIIe.

2. If such measures are deemed relevant, identify areas and seasons that should be closed Suitable areas should be identified by means of rhumb lines sequentially joining positions enclosing a portion of sea. For each advised closure, STECF should explain the grounds for conservation that justify the measure (whether it is a spawning, nursery area or any other feature that might otherwise justify protection).

3. Assess the social and economic effects of any recommended measures, as well as the possible trade-offs and indirect effects on other fisheries in the same area (gains, losses, deviation of effort on other fisheries). STECF should for instance explore the effects on:

- metiers targeting plaice

- metiers targeting sole in VIId

- metiers submitted to the sole management plan in the Western Channel and those not submitted to the plan (derogation or unregulated gear)

- North Sea plaice and sole management plan

- metiers targeting other fish stocks

- metiers targeting other species e.g. brown crab, scallop and cephalopods

- mixed fisheries targeting a combination of the above

4. If deemed relevant, STECF should also explore the likely effect of the advice on the conservation status of targeted species and non-targeted species, where suitable.

5. In case STECF does not advise on area/seasonal closures, it is requested to examine alternative measures that allow management of the relevant fisheries to ensure better conservation than the status quo.

Background documentation can be found on: https://stecf.jrc.ec.europa.eu/web/stecf/plen1302

STECF comments[1]

Closures as a means to achieve conservation objectives

ICES areas VIId and VIIe are currently treated as a single management unit but ICES recognise and assess VIId and VIIe plaice stocks separately. ICES provides catch advice based on a trends-based assessment for the VIId stock but provides catch advice for the VIIe stock based on a full assessment and has established reference points.

During Q1, a proportion of the VIIe plaice stock migrate into area VIId to spawn and are taken in the area VIId fishery. The mixing of VIId and VIIe stocks in the VIId area Q1 fishery complicates the independent control of the exploitation rates on the two stocks. Independent control of exploitation rates is necessary given the different size and status of the two stocks.

STECF (2010) proposed alternate options for the management of plaice stocks in ICES Divisions VIId and VIIe, taking account of the migration patterns of plaice between areas VIIe and VIId. STECF observes that the methods applied to assess these options in 2010 can be generalised to address the current Terms of Reference.

STECF considers that the main rationale for seasonal closure(s) of plaice spawning and/or nursery areas in VIId and VIIe, as suggested in the Terms of Reference, would be to give more independent control of exploitation rates in the VIId and VIIe stocks, in particular by restricting the catch of plaice from the VIIe stock that are caught in the area VIId Q1 fishery.

STECF notes that control of catches in the area VIId Q1 fishery may be necessary to control exploitation rates on the VIIe stock, but STECF does not consider that closures would be a necessary or suitable option for achieving this control at the present time and based on the evidence currently available.

The reasons are:

(1) Evidence on mixing of VIId and VIIe plaice in area VIId during Q1 is insufficient to define areas for seasonal closures that would disproportionately reduce mortality of VIIe plaice at a spatial scale smaller than the whole of area of VIId.

(2) Area VIId plaice catches in Q1 are dominated by plaice from the VIId and North Sea (Sub-area IV) stocks (assumed to contribute 65% of catches from area VIId in Q1 in

1 'stocks' and 'areas' are defined as follows in the STECF comments
'VIId stock' refers to the VIId plaice stock assessed by ICES. In the Channel, the plaice in this stock are always assumed to be caught in area VIId.
'VIIe stock' refers to the VIIe plaice stock assessed by ICES. Plaice in this stock may be caught in area VIId or area VIIe during Q1, but are assumed to be caught in area VIIe only during Q2-4.
'area VIId' refers solely to the geographical Division VIId defined by ICES. Plaice from the VIId stock can be caught here. Plaice from the VIIe (and North Sea (Sub-area IV)) stock can also be caught here in Q1.
'area VIIe' refers solely to the geographical Division VIIe defined by ICES. Plaice from the VIIe stock can be caught here.

assessments) and both these stocks are categorised as having good status in the advice for 2013 (ICES, 2012a,b).

(3) Seasonal closure of any areas of VIId used predominantly by juvenile plaice is not expected have a significant influence on the mortality of adult plaice from the VIIe stock since adults from the VIIe stock undertake the Q1 spawning migration into VIId.

(4) Even when the objectives of a seasonal closure can be identified, the effects of closures are difficult to predict and the risks of interrupting known patterns of fishing activity and impact may be disproportionate in relation to the potential benefits of the seasonal closure. In the case of any VIId Q1 seasonal closure, there is a risk of higher discarding by moving the fishery away from an area where adult plaice aggregate and/or to areas where the availability of sole is lower.

Proposed alternative to seasonal closures

Alternate management options, which lead to lower risk of unpredictable and unwanted outcomes and for which a better supporting evidence base currently exists, were identified by STECF (details follow).

Since STECF did not deem seasonal closures a suitable conservation measure, STECF did not address points 2-4 in the Terms of Reference and immediately addressed Point 5 that asks STECF to examine alternative measures that ensure better conservation than the *status quo*.

STECFnotes that one influence on catches of the VIIe stock in the VIId area Q1 fishery is the uptake of VIId plaice TAC[2] in Q1. STECF notes that uptake rates of VIId quota in Q1 have been relatively stable in recent years, ranging from 25.4 to 32.6% in the period 2009-2012, for which detailed information of Q1 landings were available (calculated from data presented in the 2013 Report of the ICES WGNSSK (ICES, 2013)).

STECF observes that another influence on catches of the VIIe stock in the VIId area Q1 fishery is the extent of mixing of VIIe adult plaice with VIId plaice in Q1. STECF observe that ICES WKFLAT (ICES, 2010) conducted an analysis of historical tag data using only mature fish tagged in area VIIe and at liberty for more than 6 months. Most of the tagging took place in the 1970s. The probability that a tag was returned was weighted by the ratio of biomass/ catch in each area and year. WKFLAT estimated that 14% of male and 9% of female plaice migrated into VIIe during Q1. Based on their interpretation of the tagging analysis, WKFLAT concluded that 10 to 15% of the plaice catch in Q1 in VIId should be allocated to VIIe. ICES assumes an allocation of 15% in the advice for 2013 (ICES, 2012a, b).

STECF notes that variation in the proportion of VIIe plaice in area VIId catches will influence the uptake of TAC for the VIIe stock in the Q1 VIId fishery. As an initial approach, STECF has considered the effects of 10% to 15% mixing on TAC uptake, to account for the range of values originally reported by WKFLAT (ICES, 2010).

STECF notes that the proportion of VIIe plaice in area VIId catches during Q1 is likely to depend on the relative sizes of the VIId and VIIe stocks. However, there is insufficient recent information on migration rates between areas VIIe and VIId to account for any effect of changes in relative stock sizes at present. One assumption, based on the historic tagging data

2 The ICES assessment assumes that the plaice catch in area VIId during Q1 includes 50% plaice coming from North Sea to spawn in area VIId and 15% plaice coming from area VIIe to spawn in VIId. These catches are removed from the VIId assessment and reallocated to ICES Sub-area IVand Division VIIe assessments.

analysed by WKFLAT (ICES, 2010), would be that 10-15% of VIIe plaice migrate into VIId during Q1, with the absolute numbers migrating thus depending on the size of the VIIe stock.

STECF developed a method to assess the effects of:

(1) changes in the proportion of the VIId plaice TAC taken from area VIId in Q1,

(2) changes in assumptions about the contribution of VIIe plaice to the VIId Q1 landings, on relationships between a 'stock-based' and 'area-based' TAC for VIId and VIIe.

The method and underlying assumptions are documented in Annex 1 of this report section.

The STECF calculations were based on the ICES TAC advice for 2013, as linked to this request: 4300 tonnes for the VIId stock and 2100 tonnes for the VIIe stock (ICES, 2012 a, b). This advice corresponds with the agreed TAC (VIId and VIIe combined) of 6400 tonnes for 2013. The results of the STECF calculations are shown in Figures 6.1 to 6.4.

STECF notes that increases in the proportion of VIId TAC taken in Q1 will lead to linear reductions in the proportion of TAC for the VIIe stock that can be taken in area VIIe. The Q1 uptake of VIId TAC has been 25.4% to 32.6% in the period 2009-2012. This uptake rate would lead to a reduction in the remaining area VIIe TAC of 5.3% to 6.9% (with assumed mixing of 10% of VIIe plaice with other plaice taken in the VIId Q1 fishery) or 8.1% to 10.5% (assumed mixing 15%) (Fig. 6.1.). These percentage reductions are equivalent to 112 to 145 tonnes (10% mixing) and 170 to 221 tonnes (15% mixing) (Fig. 6.2).

Figures 6.3. and 6.4. show comparable relationships between the proportion of plaice from the VIIe stock in catches in area VIId during Q1 and the proportion of VIIe area TAC and absolute TAC remaining to be caught in area VIIe.

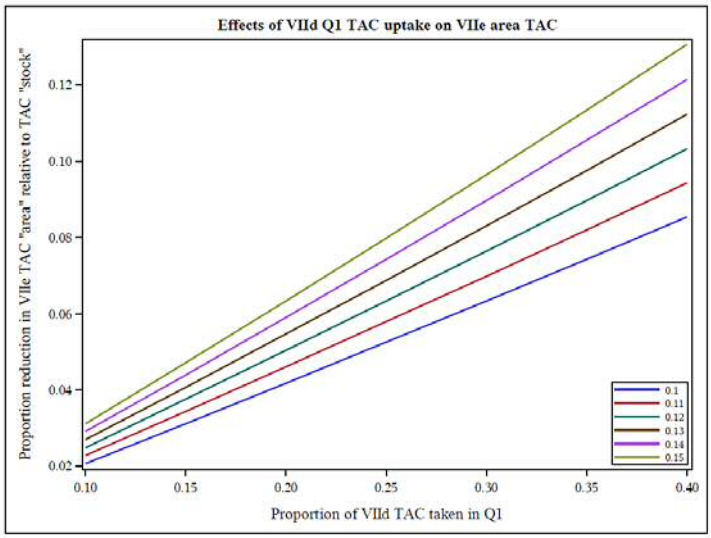

Figure 6.1. Effects of changes in the proportion of plaice from the VIIe stock taken in area VIId Q1 catches on the TAC remaining to be caught in area VIIe. The reduction in remaining TAC in area VIIe is expressed in relation to the TAC for the VIIe stock. Coloured lines represent the effects of changing proportions of VIId Q1 TAC uptake (see panel in figure for key). Currently, ICES assume that VIId Q1 catches comprise 15% plaice from the VIIe stock and the Q1 uptake of VIId TAC has been 25.4 to 32.6% in the period 2009-2012.

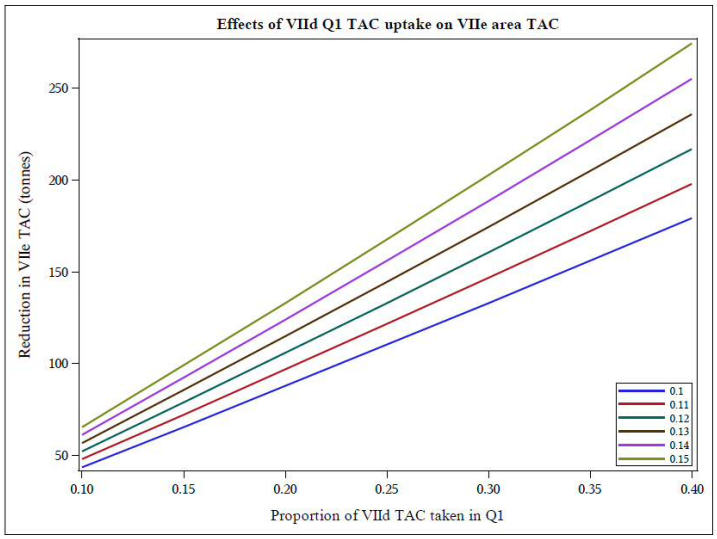

Figure 6.2. Effects of changes in the proportion of the VIId TAC taken in Q1 on the TAC remaining to be caught in area VIIe during Q2-4. The reduction in the remaining TAC in VIIe is expressed in tonnes. Coloured lines represent the effects of changing proportions of the VIIe stock mixing with other plaice in VIId during Q1 (see panel in figure for key). Currently, ICES assume that VIId Q1 catches comprise 15% plaice from the VIIe stock and the Q1 uptake of VIId TAC has been 25.4 to 32.6% in the period 2009-2012.

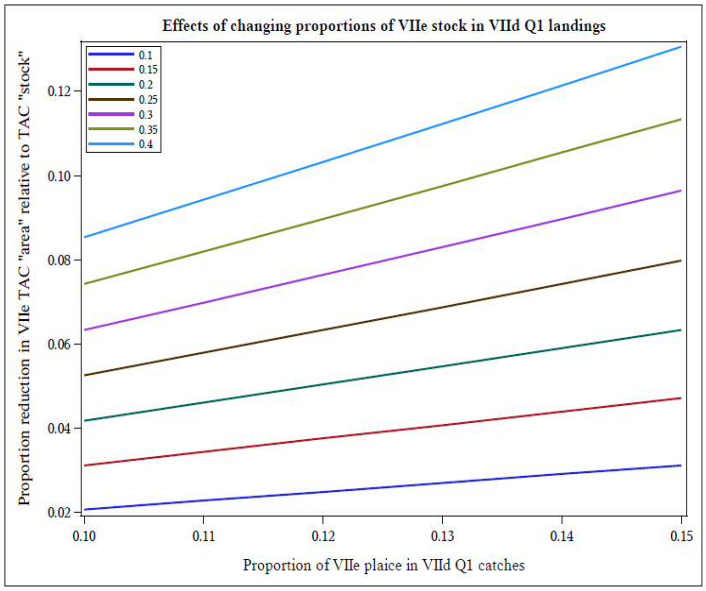

Figure 6.3. Effects of changes in the proportion of plaice from the VIIe stock in area VIId Q1 catches on the TAC remaining to be caught in area VIIe. The reduction in remaining TAC in area VIIe is expressed in relation to the TAC for the VIIe stock. Coloured lines represent the effects of changingproportions of VIId Q1 TAC uptake (see panel in figure for key). Currently, ICES assume that VIId Q1 catches comprise 15% plaice from the VIIe stock and the Q1 uptake of VIId TAC has been 25.4 to 32.6% in the period 2009-2012.

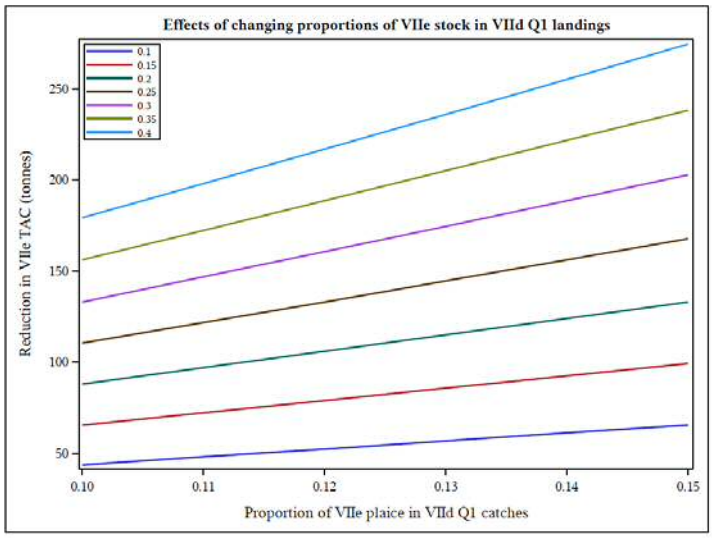

Figure 6.4. Effects of changes in the proportion of plaice from the VIIe stock in area VIId Q1 catches on the TAC remaining to be caught in area VIIe. The reduction in the remaining TAC in VIIe is expressed in tonnes. Coloured lines represent the effects of changing proportions of VIId Q1 TAC uptake (see panel in figure for key). Currently, ICES assume that VIId Q1 catches comprise 15% plaice from the VIIe stock and the Q1 uptake of VIId TAC has been 25.4 to 32.6% in the period 2009-2012.

To ensure that catches from the VIIe stock do not exceed the TAC, any uptake of VIIe plaice TAC in area VIId during Q1 would need to be compensated by a reduction in the VIIe plaice TAC that can be taken in area VIIe.

The preceding analyses show the proportions and quantities of the overall VIIe plaice TAC that need to be "compensated" given various assumptions about mixing of VIIe plaice in VIId and the Q1 uptake of VIId TAC. Note that the information in the analyses can only be used if Member States fleets have sufficient quota for the VIIe stock in area VIIe to "compensate" for their Q1 uptake of VIIe stock quota in area VIId. Hence, STECF calculated the uptake of VIIe stock quota by Member States by quarter, and assessed whether uptake of VIIe plaice quota in Q1 in VIId exceeded the VIIe plaice quota available in area VIIe in Quarters 2 to 4.

Landings of plaice from area VIId in Q1 in 2012 (reported by WGNSSK (ICES, 2013) and by the relevant Member States), and an assumed 15% proportion of VIIe plaice in VIId Q1 landings, imply landings from the VIIe stock of 55 tonnes (Belgium), 83 tonnes (France), 4.5 tonnes (Netherlands) and 12 tonnes (United Kingdom) respectively in 2012. When the Q1 landings of plaice from the VIIe stock in area VIIe are compared with the Q2 to Q4 combined landings of plaice by nation from the VIIe stock in area VIIe it is apparent that the Belgian, French and United Kingdom fleets would have had sufficient quota for the VIIe stock in area VIIe in 2012 to "compensate" for their Q1 uptake of VIIe stock quota in area VIId. The Netherlands reported no landings from VIIe but had 65 tonnes of quota (Table 6.2.) that could potentially have been used to "compensate" for the 4.5 tonnes of landings of VIIe plaice from VIId in Q1.

Table 6.1. Landings of VIId and VIIe plaice by nation and quarter from ICES Divisions VIId and VIIe in 2012. Note that the landings are expressed by area, not stock, and thus the Q1 landings in VIId comprise fish from the North Sea (Sub-area IV), VIId and VIIe stocks.

VIId plaice	Q1	Q2	Q3	Q4	Year
Belgium	370.256	97.316	105.922	471.226	1044.720
France	553.421	663.314	438.911	306.416	1962.062
Netherlands	29.848	9.787			39.635
UK	79.651	113.218	215.565	132.496	540.930
Total	1033.176	883.635	760.398	910.138	3587.347

VIIe plaice	Q1	Q2	Q3	Q4	Year
Belgium	59.547	15.152	24.451	34.914	134.064
France	88.686	59.073	51.988	24.738	224.485
Netherlands					
UK	221.135	191.074	332.303	262.052	1006.564
Total	369.368	265.299	408.742	321.704	1365.113

VIId&e plaice	Q1	Q2	Q3	Q4	Year
Belgium	429.803	112.468	130.373	506.140	1178.784
France	642.107	722.387	490.899	331.154	2186.547
Netherlands	29.848	9.787	0.000	0.000	39.635
UK	300.786	304.292	547.868	394.548	1547.494
Total	1402.544	1148.934	1169.140	1231.842	4952.460

Table 6.2. Percentage uptake of VIId and VIIe plaice quota by nation and quarter from ICES Divisions VIId and VIIe in 2012. An asterisk in the final column indicates that the quota is the final quota allocation after exchange among member states

VIId plaice	Q1	Q2	Q3	Q4	Year	TAC-VIIde	
Belgium	30.4%	8.0%	8.7%	38.8%	85.9%	1216	*
France	24.0%	28.7%	19.0%	13.3%	85.0%	2308	*
Netherlands	45.9%	15.1%	0.0%	0.0%	61.0%	65	*
UK	5.4%	7.7%	14.6%	9.0%	36.7%	1473	
Total	20.4%	17.5%	15.0%	18.0%	70.9%	5062	

VIIe plaice	Q1	Q2	Q3	Q4	Year	TAC-VIIde	
Belgium	4.9%	1.2%	2.0%	2.9%	11.0%	1216	*
France	3.8%	2.6%	2.3%	1.1%	9.7%	2308	*
Netherlands	0.0%	0.0%	0.0%	0.0%	0.0%	65	*
UK	15.0%	13.0%	22.6%	17.8%	68.3%	1473	
Total	7.3%	5.2%	8.1%	6.4%	27.0%	5062	

VIId&e plaice	Q1	Q2	Q3	Q4	Year	TAC-VIIde	
Belgium	35.3%	9.2%	10.7%	41.6%	96.9%	1216	*
France	27.8%	31.3%	21.3%	14.3%	94.7%	2308	*
Netherlands						65	*
UK	20.4%	20.7%	37.2%	26.8%	105.1%	1473	
Total	27.7%	22.7%	23.1%	24.3%	97.8%	5062	

STECF therefore concludes, that one set of options for the management of VIId and VIIe plaice stocks, that would allow for greater independent control of exploitation rates, would be developed by determining the national catches of VIIe plaice in area VIId during Q1 and

subtracting these from the VIIe stock quota allocations for the same nations in area VIIe, ensuring the relative stability in the quota share between the Member States involved in the fisheries.

STECF notes that uptake of TAC (and hence national quotas) of plaice in VIId in Q1 could be set to a given proportion of the annual TAC (and hence national quotas) to limit catch rates of VIIe plaice in Q1.

However, it is important to recognise that the assumption that a fixed proportion of the VIId Q1 landings comprise VIIe plaice may be unrealistic if there are changes in the relative sizes of VIId and VIIe stocks. Nevertheless, if a fixed proportion of the VIIe adult plaice always migrated to VIId in Q1 then the composition in catches would be determined by the ratio $SSB_{StockVIId}$:$SSB_{StockVIIe}$. For a proportion migrating, P_M, the proportion of VIIe plaice in VIId landings of adult plaice (assuming random mixing between plaice from the two stocks), would be given by $SSB_{StockVIId}/(P_M \times SSB_{StockVIIe})$. If a value of 15% mixing were achieved when the biomass ratio $SSB_{StockVIId}$:$SSB_{StockVIIe}$ was 2:1, then this would equate to a mixing of 7.5% when ratio was 4:1 and 30% when ratio was 1:1.

Variation in the relative SSB of the VIId and VIIe stocks since 1980 was estimated from the time series of relative SSB from the VIId assessment reported by ICES (ICES, 2012a) and the time series of SSB estimated from the VIIe assessment (ICES, 2012b). There is two-fold variation in the ratio of $SSB_{StockVIId}$:$SSB_{StockVIIe}$ in the existing time series. In the most recent years, $SSB_{StockVIId}$:$SSB_{StockVIIe}$ has generally been larger than in the early years in the time series. The start of the time series described the state of these stocks in the years that are closest to the dates of the tagging experiments used by ICES (2010) to estimate mixing rates. Based on this simple analysis, STECF notes that the contribution of VIIe plaice to VIId Q1 catches may be lower than 15% today and that the use of 15% is likely to be a conservative assumption when calculation the impact of area VIId landings on the VIIe stock.

STECF conclusions

Of the management options that would help to further separate the control of exploitation rates for the VIId and VIIe plaice stocks, seasonal or other area closures are not recommended by STECF as a necessary or suitable option at the present time and based on the evidence currently available.

An alternate option for separating the control of exploitation rates would involve taking account of, and directly managing when necessary, the rate of TAC uptake resulting from plaice being caught in the VIId Q1 fishery. The VIId Q1 fishery catches plaice from the VIId, VIIe and North Sea (Subarea IV) stocks.

In 2012, the rate of TAC uptake in the VIId Q1 fishery resulted in catches from the VIIe stock, by each nation participating in the fishery, that were smaller than the VIIe stock quota that was available to each nation for the remainder of 2012 in area VIIe (Q2 to Q4 inclusive). Thus, catches from the VIIe stock that were taken in area VIId during Q1 could be accounted for as part of the uptake of the VIIe stock TAC without the overall catch of VIIe plaice exceeding the TAC that was advised. This assumes that catches from the area VIId Q1 fishery comprise 15% plaice from the VIIe stock.

TACs that were advised and subsequently agreed for both the VIId and VIIe stocks for 2013 will not be exceeded if the 2012 rate of VIId TAC uptake in Q1 is maintained in 2013(where

VIId TAC uptake is expressed as the proportion of the total TAC taken in the VIId Q1 fishery) and the catch of plaice taken from the VIIe stock in area VIId in Q1 is counted against the remaining VIIe stock TAC.

If the relative sizes of the VIId and VIIe stocks change markedly in future (e.g. outside the range recorded 2009-2012), the proportion of the VIId TAC that can be taken in Q1 could be capped to limit catches of plaice from the VIIe stock during Q1.

If the relative sizes of the VIId and VIIe stocks change markedly in future, it will be necessary to revisit assumptions about the proportion of VIIe stock plaice contributing to VIId Q1 catches.

References

ICES (2010) Report of the Benchmark Workshop on Flat-fish (WKFLAT). ICES CM 2010/ACOM:37

ICES (2012a) Report of the Working Group on the Assessment of Demersal Stocks in th North Sea and Skagerrak (WGNSSK). ICES CM 2012/ACOM:13

ICES (2012a) 6.4.8 Plaice in Division VIId (Eastern Channel) ICES Advice for 2013.

ICES (2012b) 5.4.9 Plaice in Division VIIe (Western Channel) ICES Advice for 2013.

ICES (2013c) Report of the Working Group on the Assessment of Demersal Stocks in th North Sea and Skagerrak (WGNSSK). ICES CM 2013/ACOM:xx (in draft)

STECF (2010) Scientific, Technical and Economic Committee for Fisheries (STECF) - Review of scientific advice for 2011 - Consolidated Advice on Stocks of Interest to the European Community (eds. Casey J., Vanhee W. & Doerner, H.). Publications Office of the European Union, Luxembourg, ISBN 978-92-79-18926-5, JRC62286, 489 pp. http://publications.jrc.ec.europa.eu/repository/handle/111111111/15335

Annex 1

Method used by STECF to assess the effects of:

(1) changes in the proportion of the VIId plaice TAC taken from area VIId in Q1,

(2) changes in assumptions about the contribution of VIIe plaice to the VIId Q1 landings,

on relationships between a ‘stock-based’ and ‘area-based’ plaice TAC for VIId and VIIe.

The method generalises an approach introduced by STECF (2010) and assumes:

(1) Random mixing of VIId and VIIe fish in VIId during Q1

(2) The proportion of VIIe plaice SSB in VIId during Q1 is not influenced by the relative sizes of the two stocks

Parameters:

$P_{i,j,k}$ = proportion, $L_{i,j,k}$ =landings, $T_{i,j,k}$ =TAC

Subscripts area i (D or E or C, combined), period j (Q1 or Y, year), stock k (D or E or M, mixed)

Thus,
$L_{D,Q1,M}$ Quarter 1 landings in area VIId of all plaice
$L_{D,Q1,E}$ Landings from TAC for VIIe stock taken in VIId
$P_{D,Q1,E}$ Proportion VIIe plaice in area VIId during Q1
$P_{D,Q1,D}$ Proportion of annual VIId plaice landings taken in Q1
$T_{D,Y,M}$ TAC for area VIId
$T_{E,Y,M}$ TAC for area VIIe
$T_{C,Y,D}$ TAC for stock VIId
$T_{C,Y,E}$ TAC for stock VIIe
(denoting TAC by area is for tracking the location of TAC uptake in the analysis and does not require that areas VIId and VIIe are treated as separate or combined management area(s))

Given,
$T_{D,Y,M} = T_{C,Y,D} + (P_{D,Q1,E} \times L_{D,Q1,M})$ eqn 1
$T_{D,Y,M} = L_{D,Q1,M} \times (1/ P_{D,Q1,D})$ eqn 2

So,
$L_{D,Q1,M} \times (1/ P_{D,Q1,D}) = T_{C,Y,D} + (P_{D,Q1,E} \times L_{D,Q1,M})$
$T_{C,Y,D} = ((1/ P_{D,Q1,D}) \times L_{D,Q1,M}) - (P_{D,Q1,E} \times L_{D,Q1,M})$
dividing by $L_{D,Q1,M}$
$T_{C,Y,D}/ L_{D,Q1,M} = (1/ P_{D,Q1,D}) - P_{D,Q1,E}$
$L_{D,Q1,M} = T_{C,Y,D}/ ((1/ P_{D,Q1,D}) - P_{D,Q1,E})$ eqn 3

Further, to estimate expected landings of VIIe plaice in Q1 in VIId as a function of the total landings from VIId in Q1
$L_{D,Q1,E} = L_{D,Q1,M} \times P_{D,Q1,E}$ eqn 4

and to assess the extent to which these landings reduce available TAC to be taken in VIIe and increase available TAC in VIId, in absolute terms:
$T_{E,Y,M} = T_{C,Y,E} - L_{D,Q1,E}$ eqn 5

and as a proportion of the stock VIIe TAC
$dT_{E,Y,M} = (T_{C,Y,E} - L_{D,Q1,E})/ T_{C,Y,E}$ eqn 6

and to assess the extent to which changes in Q1 landings from VIId as a proportion of TAC lead to inflation of the area VIId TAC (ie. a TAC that includes VIId and VIIe plaice), in relation to the VIId stock TAC
$dT_{D,Y,M} = (T_{C,Y,D} + (T_{C,Y,D} \times P_{D,Q1,E} \times P_{D,Q1,D}))/ T_{C,Y,D}$ eqn 7

An excel spreadsheet and SAS program are available to conduct the calculations described for different values of T, L and P

6.2. Request for a review of the Maltese management plan for Lampuki, dolphinfish FAD fisheries

Background

Member States are expected to adopt management plans for fisheries conducted by trawl nets (demersal and pelagic), boats seines (including both towed and surrounding seines), shore seines, surrounding nets and dredges within their territorial waters.

The plans shall include conservation reference points such as targets against which the recovery to, or the maintenance of stocks within, safe biological limits for fisheries exploiting stocks at/or within safe biological limits is ensured (e.g. population size and/or long-term yields and/or fishing mortality rate and/or stability of catches). The plans shall ensure the sustainable exploitation of stocks and that impact of fishing activities on marine eco-systems is kept at sustainable levels.

The Management plans may incorporate any measure included in the following list to limit fishing mortality and the environmental impact of fishing activities: limiting catches, fixing the number and type of fishing vessels authorized to fish, limiting fishing effort, adopting technical measures (structure of fishing gears, fishing practices, areas/period of fishing restriction, minimum size, reduction of impact of fishing activities on marine ecosystems and non-target species), establishing incentives to promote more selective fishing, conduct pilot projects on alternative types of fishing management techniques.

Malta has submitted a revised management plan for Lampuki, dolphinfish FAD fisheries.

Background documentation can be found on:

https://stecf.jrc.ec.europa.eu/web/stecf/plen1302

Terms of reference

STECF is requested to provide advice on:

1) A previous version of the plan was reviewed by STECF on its 38th plenary meeting of 7-11 November 2011, Brussels. The STECF is now requested to assess if Malta properly addressed the comments made by the STECF on this earlier version.

2) STECF is also requested to review the scientific basis for the current version of the management plan, to evaluate its findings and the management measures proposed.

3) STECF is requested to evaluate if the plan contains elements that account for the state of the exploited resources, and if the fishing pressure of the fisheries concerned is expected to

exploit the stocks in line with their production potentials so that the plan may maintain or revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame.

STECF response

Elements outlined in the proposed management plan

Description of fishery

Lampuki or dolphinfish *(Coryphaena hippurus)* is an epipelagic marine species known to migrate over considerable distances. Traditional small-scale fisheries for lampuki are carried out in the Central Mediterranean (Sicily, Malta, Tunisia, Libya) and the Western Mediterranean (Balearic Islands). There is some evidence that artisanal Algerian vessels also target *C. hippurus.*

The lampuki FAD fishery is an artisanal fishing system that consists of a floating structure anchored to the bottom by means of rocky blocks. Attached to the floating device are palm fronds which serve to provide a shaded area which attracts and provides a refuge for lampuki (and other fish?). As lampuki aggregate under the FADs, they are caught with surrounding nets.

It is likely that the Italian, Tunisian, Maltese, Spanish and Libyan fisheries and probably fisheries from other Mediterranean countries all exploit a single, shared stock.

The lampuki fishing season in Malta ranges from 15 August to 31 December, but is extended to January whenever bad weather conditions result in reduced fishing days during the season. Fishing authorization is given for a maximum of 130 vessels, with a limit on the number of FADs per vessel. Fishing operations start within 25- miles from the coastline, usually starting at 7 miles (Camilleri, 2007).). By way of derogation from Council Regulation (EC) 1967/2006, vessels larger than 12 m (LOA) fishing for lampuki, are currently allowed to fish within the 25-miles Fisheries Conservation Zone around the Maltese Islands, The number of licenses and proposed duration of the fishing season fulfil the requirements of Regulations 1967/2006 and 1343/2011. Vessels using FADs also use other fishing gear throughout the year.

The proposed Maltese management plan applies to authorized fishing vessels using FADs targetting lampuki. In 2011, the fleet comprised 123 boats with an overall tonnage and power of 1,258 GT, and 16,122 kW respectively. This represents 11% of the total capacity of registered Maltese fleet. In 2011, lampuki landings were 342 t which represents about 18% of total landings. As of January 2013, the recreational category of vessels in the Maltese Fishing Vessel Register (FVR) is composed of 1,915 vessels. In accordance with Article 17 of Council Regulation 1967/2006, the use of towed nets, surrounding nets, purse seines, boat dredges, mechanised dredges, gillnets, trammel nets and combined bottom-set nets and longlines for highly migratory species are prohibited for recreational fisheries. Fish caught by vessels making recreational fishing cannot be sold.

The need for management of highly migratory species as *Coryphaena hippurus* is highlighted through its inclusion on the list of highly migratory pelagic species in Annex I of the 1982

Convention on the Law of the Sea (FAO, 1994). In the Atlantic region only two organizations provide advice on Lampuki: The GFCM for Lampuki in the Mediterranean, Black Sea and connecting waters; and the Caribbean Regional Fisheries Mechanism (CRFM) for the Caribbean Sea.

Biological characteristics and the state of the exploited resources

Some information on the age, maturity and spawning season of Coryphaena and by-catch species caught in the lampuki fishery using FADs is provided. Such information is derived from several sources and is not specific to the lampuki caught in the vicinity of Malta.

Based on information from professional fishers and patterns from the monthly density maps of Maltese catches, lampuki seem to migrate from the South of Malta (Marsaxlokk) to the west of Gozo (Xlendi) as the FAD fishing season progresses from August to December.

An analysis of the overall length frequency distributions of lampuki catches from around the Maltese Islands in 2005-2011 has shown a decrease in minimum and average sizes in recent years. On the other hand, there is a clear monthly modal progression in sizes composition of landings, from august to January that can be attributed to the growth of immature individuals. Recreational fisheries target adult individuals, but no information on the amount or size composition of recreational catch is provided in the plan.

Six decades of data on landings are presented while effort data is only available for a shorter time period. For a long time catches fluctuated around a stable mean and even though in the proposed plan it is alleged that the current level of lampuki fishing is not threatening the conservation of the target fish stock as shown by the "stable catch per unit effort", the only CPUE time series presented in the plan (Figure 12, Page 22) indicates a declining trend.

STECF notes that considerable knowledge gaps regarding the biology, fisheries and population dynamics of lampuki currently and STECF considers that with the available information a reliable assessment of stock status is not possible at present. STECF notes that in an attempt to improve the knowledge base on the biology and fisheries for lampuki, Malta is involved in ongoing international research initiatives.

Fishing pressure and if concerned fisheries are duly described and expected to exploit the main target stocks in line with their production potentials. Advise whether the plan is expected to maintain or to revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame.

Available fishing effort data for Malta are only in terms of total number of vessels participating in the fishery (including vessel details such as vessel LOA, GT, engine kW) and the total number of FADs deployed. The nominal annual fishing effort of the lampuki FAD fleet expressed in terms of number of FADs fished *number of fishing trips shows an overall increasing trend during the period 2006-2011. There is no information about the incidence of recreational fisheries exploiting lampuki.

In addition, there is no detailed information on the fisheries operating in the different countries as regards fishing effort, gears in use, size structure, etc. With regard to landings, official statistics indicate that between 2001 and 2005 the main landings of lampuki in the Mediterranean were Tunisia (63%), Malta (26%) and Spain (11%). Since 2006 and up to

2010 the relative contribution of different countries accounting for lampiki landings changed and were as follows: Italy 56%, Tunisia 26%, Malta 10%, Spain 4% and Libya 4%. Malta did not increase its total lampuki landings over the last decade.

There is no formal stock assessment of lampuki. The status of the species still remains unknown and there is a need to undertake an assessment at a regional level, rather than just on the component of the stock that is exploited in Maltese waters.

Pre-agreed harvest control rules based either on catch limitation, fishing pressure or biomass levels

The plan argues that given the stable historical time series of Maltese lampuki landings, the Maltese lampuki fishery, if considered alone is sustainable. Hence, the proposal to maintain fishing effort at the current level. The number of fishers participating in the FAD fishery is already fixed.

The management of this fishing activity is in principle co-coordinated in the frame of GFCM with all those countries with fleets targeting lampuki in order to develop and implement integrated effective management measures.

The assessment of the socio-economic impact of the potential management measures, considers three simulations with different scenarios over 2012-2017; freezing all fishing effort; freezing fishing capacity in terms of number of vessels but allowing the number of fishing trips to fluctuate; reduce fishing effort though the introduction of a temporary cessation for the period spanning from 1 January to 31 January.

Impact of fishing activities on marine environment (protected habitats and species)

The gear in use does not contact the sea floor; consequently, no impact on the grounds can be foreseen. The main by-catch species in the FAD fishery for Lampuki are the pilot fish (*Naucrates ductor*) and modest quantities of small-sized amberjack (*Seriola dumerili*). The same by-catch species are reported in the Sicilian and Mallorcan lampuki fisheries. There are also minor catches of chub mackerel (*Scomber japonicus*) and horse mackerel (*Trachurus trachurus*). Occasional catches of juvenile albacore (*Thunnus alalunga*) and juvenile bluefin tunas (*Thunnus thynnus*) also occur. They are immediately returned to the sea alive, since most indviduals are below the minimum legal size or quotas have been already reached.

FADs are anchored using limestone blocks that are abandoned on the fishing ground as the gear is removed. In the study of Pace et al. (2007) however, they found only a limited abundance of slabs. As the study was carried out in areas where trawling is permitted it is possible that trawlers clear trawling lanes from such obstructions. Moreover, slabs may gradually sink into the sediment until they are completely buried and/or disintegrated from natural erosion. Limestone slabs dropped on sandy/muddy habitats may have a positive impact on the benthos providing a more heterogeneous habitat, effectively acting as small artificial reefs and thus increasing biodiversity

Mechanisms of monitoring and review of the plans

Malta's proposals for the future management of the lampuki resource are mainly focused on improved monitoring and surveillance of the fishing fleet and its activity, combined with

enhancement of data collection and knowledge about the biology of the species and the behaviour of the fleet targeting lampuki. The management instruments that are considered possible are necessarily implemented at a national level, even though there are ongoing attempts to involve the GFCM in a management plan for the entire Mediterranean.

The planned monitoring by the Maltese authorities comprises an obligation for all vessels having license for the lampuki fishing with FADs to complete logbooks and implementation of a satellite-based monitoring system. The fishing season for lampuki using FADs, which will normally extend from 15th August to end of December, will be permitted to extend until 31 January whenever adverse weather prevents full use of the available fishing days in the normal season. Vessels using FADs will also be obliged to land in designated ports.

Sound management requires robust and representative data which are currently lacking. Consequently, the plan also defines a more comprehensive data collection programme to fill gaps and to better understand the biology and population dynamics of the stock. A joint regional stock assessment of *C. hippurus* is also planned. The work plan will include studies on stock identity, critical habitats and ecological requirements for the development of different life-stages, growth parameters, maturity ogives, assessment of the impact of fisheries based on FADs, by-catch and impact on the environment. Recreational fisheries will be the subject of pilot studies that provide information on catches and size compositions, in order to evaluate their impact on the lampuki population.

STECF observations

The lifespan of lampuki is of the order of 4 years. However, the Maltese FAD fishery targets juvenile lampuki (age-group 0, fish in their 1st year of life) and is therefore recruitment-dependent. Average length in the catches is around 35 cm. Therefore, the lampuki fishery is mainly based on recruits, and the catches depending mainly on the strength of recruitments. On the contrary, the recreational fishery targets the adult fraction of the population. The impact of either fishery remains unknown.

In the context of a stock assessment, the distribution, migration and stock structure of a species defines the geographical limits of the management unit. Moreover, one of the key issues for stock assessment in highly migratory species such as lampuki is to obtain reliable estimates of distribution and abundance at different times of the year and over large spatial scales. Such information is required in order to understand how best to allocate fishing opportunities over time in different regions. It is also important to identify and quantify the influence of the factors that may contribute to the changes in distribution and abundance. Despite the fact that *Coryphaena hippurus* is one of the priority species for the GFCM the only information on the status of the Mediterranean lampuki stock currently available is a stock assessment based on fisheries data collected in the western Mediterranean in the vicinity of the island of Mallorca. Hence, because the assessment form the western Mediterranean only takes into account fisheries data from a small part of the supposed distribution of the stock, the assessment results are unlikely to be representative of the stock staus throughout the entire Mediterranean.

Although the precise stock status is unknown for the stock of *C. hippurus* caught by the Maltese fleet, the observed decrease in CPUE for the Maltese lampuki FAD fishery and the observed decline in minimum and average sizes in the landings raises the concern, that

growth overfishing may be occurring. Furthermore, recent increase in landings into other Mediterranean countries, and in particular the dramatic rise of Italian landings, may also have contributed to the observed decrease in mean size of lampuki in the Maltese landings

Catch per Unit Effort (CPUE) for the FAD fishery, potentially constitutes an index of stock abundance. Hence an increase in CPUE can be interpreted as a population increase. However, changes in CPUE can also be explained by changes in fishing efficiency, natural fluctuations in population abundance (especially for fishieries targeting recruits) or in fishermen behaviour. Over 2006-2011 the CPUE for the Maltese lampuki FAD fishery declined. At the same time nominal annual fishing effort, expressed in terms of number of FADs fished *number of fishing trips increased especially from 2010 to 2011 (64% increase), while lampuki landings were 342 m (very similar to the 2006-2011 average). While these observations may indicate a decreasing trend in availability of lampuki to the Maltese FAD fleet, in the absence of a more reliable stock assessment, STECF is unable to determine whether the apparent decline is due to overexploitation or due to other factors affecting recruitment of lampuki. Nevertheless, the information available suggests that some form of effort limitation in addition to a restriction on the maximum number of vessels, such as limiting the number of FADs per vessel, may be an appropriate means to control fishing effort.

Malta currently provides a long times series of data on landings, which is less informative for monitoring the changes in stock size over time than catch data and only a short time series of effort data. In other countries, such information is either lacking or is imprecise. Fisheries data from all countries exploiting lampuki need to be combined before a reliable assessment can be undertaken. In the absence of a reliable assessment, STECF is unable to assess whether the elements of the proposed management plan for the Maltese FAD fishery for Lampuki will maintain or revert fisheries productivity to higher levels in line with MSY.

STECF response to the elements listed in the terms of reference.

1) STECF acknowledges that the lampuki plan submitted by the Maltese authorities is much more comprehensive and contains more relevant information than the previous version. One of the main STECF comments in its Plenary of November 2011 was that no information was available on the status of the lampuki stock. This is still the case, given that no stock assessment has been done since that time. Nevertheless, Malta cannot be held solely responsible for the absence of an assessment, since a meaningful assessment of lampuki is required at a regional scale and needs to incorporate fisheries data from a number of Mediterranean countries. Furthermore, there is a need to monitor recreational catches of lampuki in addition to the commercial fishery catches. No information is provided in the management plan on recreational catches of lampuki.

2) Based on the biological, social and economic aspects of the fishery the defined main objective of the Plan is the ensuring of the sustainability of the stock through the monitoring of Maltese vessels and ensuring the financial stability for fishers.

The management plan aims to freeze the current fishing capacity of the Maltese fleet exploiting lampuki using FADs and targeting *Coryphaena hippurus*, until the research required to improve knowledge on the biology and fisheries has been carried out. STECF notes that a limitation on the number of vessels only, may not restrict fishing effort.

Furthermore, the number of FADs per vessel has increased in recent years i.e. effective deployed effort has increased, but this increase has not led to an increase in the average landings by the fleet. STECF suggests that to control effort the management plan should set limits to both the number of vessels and the number of FADs per vessel. Furthermore, it would seem appropriate to restrict both number of vessels and number of FADs per vessel to no greater than the average numbers over the recent period (2006-2010).

3) The indicator used in the Plan for the assessment biological sustainability is the stability of Maltese landings oscillating at an annual average of 350t. STECF notes that if this metric is used without taking into account the effort required to maintain stability in landings, it is not a reliable indicator of stock abundance and is a highly ineffective indicator of sustainability. It is important to note that catches of lampuki by several other Mediterranean countries that share the same stock with Malta have dramatically increased in recent years and the contribution of the Maltese FAD fishery to the overall exploitation rate on lampuki in the Mediterranean is relatively small.

With regard to socio-economic aspects, the predicted change in profits per vessel under the scenario that abundance decreases has not been evaluated.

Coryphaena hippurus is an epipelagic species, living is open waters. Given the migratory and shared nature of the dolphinfish resource, STECF considers that a regional approach for assessment and management is required.

STECF conclusions

Given the available information, STECF is unable to assess the potential impact of the provisions in the proposed Maltese management Plan on the current exploitation status of lampuki or on the likely biological, social or economic consequences.

To undertake such assessments, there is a need to gather fisheries-dependent and fisheries-independent data to define what constitutes the stock or stocks of lampuki in the Mediterranean and to understand the stock(s) and fishery dynamics. Such data need to be gathered from fisheries from all countries exploiting lampuki throughout the entire Mediterranean.

The following minimum information is required:

(a) Better definition of the boundaries of the unit stock
(b) Detailed information of landings of each country involved by gear, including recreational fisheries.
(c) Detailed information on standardized fishing effort of each country involved
(d) Data on size/age structure of the landings
(e) Identification and quantification of the influence of fisheries-independent factors contributing to changes in abundance and spatial distribution
(f) In addition, fishery-independent indices of abundance would also be valuable.

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6.3. Request for a review of the Greek management plan for trawl fisheries

Background

Member States are expected to adopt management plans for fisheries conducted by trawl nets (demersal and pelagic), boats seines (including both towed and surrounding seines), shore seines, surrounding nets and dredges within their territorial waters.

The plans shall include conservation reference points such as targets against which the recovery to, or the maintenance of stocks within safe biological limits for fisheries exploiting stocks at/or within safe biological limits is ensured (e.g. population size and/or long-term yields and/or fishing mortality rate and/or stability of catches). The plans shall ensure the sustainable exploitation of stocks and that impact of fishing activities on marine eco-systems is kept at sustainable levels.

The Management plans may incorporate any measure included in the following list to limit fishing mortality and the environmental impact of fishing activities: limiting catches, fixing the number and type of fishing vessels authorized to fish, limiting fishing effort, adopting technical measures (structure of fishing gears, fishing practices, areas/period of fishing restriction, minimum size, reduction of impact of fishing activities on marine ecosystems and non-target species), establishing incentives to promote more selective fishing, conduct pilot projects on alternative types of fishing management techniques.

In 2012, an Expert Working Group of the STECF (EWG 12-10) assessed the stocks of the main species targeted by Greek trawlers. The report on this assessment was reviewed by the STECF during its 41st plenary meeting, held from 5 to 9 November, 2012.

In 2013 Greece has submitted the scientific basis for a management plan for the trawl fishery together with proposed measures.

Background documentation can be found on:

https://stecf.jrc.ec.europa.eu/web/stecf/plen1302

Terms of Reference

STECF is requested to review and scrutinize the management plan.

STECF is in particular requested to evaluate the findings, to make appropriate comments, also with respect to the elements/measures included in the management plan and to advise whether it contains elements that account for the state of the exploited resources and if the fishing pressure of concerned fisheries is expected to exploit the stocks in line with their production potentials so that the plan is expected to maintain or to revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame.

STECF is requested to review the scientific basis for the Greek management plan for trawlers, to evaluate its findings and the management measures proposed, and to indicate if the conclusions of the plan are consistent with the objective of sustainable exploitation of the stocks concerned

STECF is further requested to indicate, on the basis of the assessment carried out in 2012 by EWG 12-10, appropriate target values identified for F_{msy} and B_{msy} for the following species in GSAs 20, 22 and 23:

- *Mullus barbatus*
- *Mullus surmuletus*
- *Merluccius merluccius*
- *Spicara smaris*

STECF Response

The following STECF review of the proposed management plan for trawl fisheries in Greek waters, is based on a draft report prepared under ad hoc contract and submitted to the STECF in advance of its July 2013 (STECF PLEN 13-02) plenary meeting.

STECF observations

Description of bottom trawling fisheries in Greece.
Bottom trawlers numerically constitute a modest percentage of the Greek fleet (<2%), but their landings are about 25-30% in weight of the total landed products. The majority of trawlers exploit Aegean Sea grounds, especially in the northern part. In 2009, fishing effort in the central and northern Aegean Sea was about 55% of the total exerted effort of the Greek trawlers. The percentages for the southern Aegean Sea including the Crete and the Ionian Sea were 33% and 12% respectively. Most of the vessels operate on sandy and muddy grounds over the continental shelf and the upper part of the slope in general to 450m depth. Landings are composed of a species assemblage and red mullet, hake, horse mackerel, picarel and rose shrimp together account for about 40% by weight of the total landings.

The Greek industrial fishing vessels in 2009 numbered 17,248 vessels, comprising 322 bottom trawlers, 267 purse-seiners and 16,659 vessels of the artisanal multi-license fleet that utilize longlines and nets. A reduction of the total fleet of about 22% occurred in terms of number of boats from 1991 to 2009. For bottom trawlers, the reduction was of about 24%. It is assumed in the Plan that such reductions have continued after 2009 at similar rates.

Five species, that are among the main targets of the bottom trawlers and for which stock assessment information is provided are as follows: *Mullus barbatus* (red mullet), *Mullus surmuletus* (striped mullet), *Merluccius merluccius* (European hake), *Spicara smaris* (picarel) and *Parapenaeus longirostris* (pink shrimp).

Management Regulations

As for most of the Mediterranean fisheries, the Greek fleets are managed through control of effort which is accompanied by technical measures.

While overall effort is controlled by limiting the number of fishing licenses, there are some technical measures that define the gear specifications and limit fishing activity in time and space. Moreover, some output controls, such as minimum legal landed size are defined for several stocks.

Management also follows the specific measures prescribed in Community legislation for the Mediterranean that includes the prohibition of fishing in depths lower than 50m or at a distance less than 3 miles from the coast or in any case at a distance less than 1.5 miles, as well as the prohibition of fishing on *Posidonia* beds or on other sensitive habitats.

Greek National legislation also prescribes a seasonal closure for bottom trawling of 4 months from June to September.

STECF Response to the elements listed in the Terms of Reference

A. Biological characteristics and the state of the exploited resources

Elements contained in the plan

MEDITS surveys abundance indices standardized using Generalized Additive Modeling techniques were used for the analysis of their evolution in time. No statistically significant

trends in abundance were found for any of the species presented, except for picarel in both sub-areas (GSA20 and GSA22+23) which shows an increasing trend in abundance for recent years.

The exploitation status of the stocks was assessed using a biomass dynamic model approach. A non-equilibrium Schaefer production model was applied in the Aegean and Ionian seas for each one of the main target species.

Runs were accomplished through scripts developed in 'R' and were based on official landing statistics for the 1990-2009 period reported by the Greek National Statistical Service, combined with standardized biomass indexes derived from the trawl surveys.

Assessments are provided separately for 2 areas: the Ionian sea (GSA20) and the Aegean sea-Crete island seas (GSAs 20 and 22-23 respectively).

The estimated values for relative *F* and *B* (Fcurr/F_{MSY} and Bcurr/B_{MSY} respectively) provided in the plan, suggest that in both areas red mullets and picarel stocks are in healthy condition and are being exploited at rates below F_{MSY}.. On the contrary, hake stocks in both areas are subject to slight overfishing ($F/F_{MSY} \cong 1.1$) but with biomass at safe levels. The pink shrimp stock of the Aegean Sea appears slightly overfished ($B<B_{MSY}$but current *F* is at safe levels ($F<F_{MSY}$) while in the Ionian Sea, both stock biomass and fishing mortality are at sustainable levels. Results suggest that the stocks of red mullet, striped mullet and picarel were over-fished ($B<B_{MSY}$) until the late 90's but improvements in stock biomass were observed thereafter.

Given that these stocks are quite abundant in shallow waters, in the plan is hypothesized that the progressive implementation of increases in the trawl codend mesh-size and the prohibition of bottom trawling in depths < 50m, combined with the seasonal fishing ban that protects recently-settled recruits, may have contributed to the observed improvement in the state of these stocks. In particular, it is likely that the improved status of picarel, traditionally caught with boat seines, can be at least in part be attributed to the progressive reduction in the use of boat seines culminating in a complete ban.

red mullet	Aegean	Ionian
B/Bmsy	1.550	1.430
F/Fmsy	0.420	0.490
MSY	2453	391
Catch	1591	276
F(2009)	0.175	0.189
Fmsy	0.416	0.386

stripped mullet	Aegean	Ionian
B/Bmsy	1.550	1.740
F/Fmsy	0.440	0.230
MSY	1906	300
Catch	1304	120
F(2009)	0.178	0.085
Fmsy	0.404	0.369

Picarel	Aegean	Ionian
B/Bmsy	1.720	1.200
F/Fmsy	0.270	0.650
MSY	4760	1146
Catch	2175	908
F(2009)	0.104	0.262
Fmsy	0.385	0.405

Hake	Aegean	Ionian
B/Bmsy	1.100	1.100
F/Fmsy	1.090	1.090
MSY	3373	995
Catch	4042	1189
F(2009)	0.299	0.283
Fmsy	0.275	0.260

Pink shrimp	Aegean	Ionian
B/Bmsy	0.940	1.070
F/Fmsy	0.920	0.780
MSY	2254	51
Catch	1945	43
F(2009)	0.290	0.183
Fmsy	0.315	0.235

	GSA	Species	F/F_{MSY}	B/B_{MSY}	F_{01}	$F_{current}$	Status of F	Status of B
IONIA	20	*Boops boops*	NA	NA			NA	NA
	20	*Mullus barbatus*	0.65	1.21	0.53	0.67	Sustainably exploited	Above B_{MSY}
	20	*Mullus surmuletus*	0.83	*0.88*			Sustainably exploited	Below B_{MSY}
	20	*Spicara smaris*	0.30	1.15			Sustainably exploited	Above B_{MSY}
	20	*Merluccius merluccius*	NA	NA	0.27	0.89	Exploited unsustainably	
	20	*Nephrops norvegicus*	2.06	0.18			Exploited unsustainably	Below B_{MSY}
	20	*Spicara flexuosa*	0.42	1.58			Sustainably exploited	Above B_{MSY}
AEGE	*22&23*	*Merluccius merluccius*	*NA*	*NA*	*0.24*	*0.83*	*Exploited unsustainably*	
	22&23	*Nephrops norvegicus*	1.61	0.62	0.12	0.32	Exploited unsustainably	Below B_{MSY}
	22&23	*Mullus barbatus*	1.18	0.91	0.52	0.56	Exploited unsustainably	Below B_{MSY}
	22&23	*Mullus surmuletus*	1.12	0.88			Exploited unsustainably	Below B_{MSY}
	22&23	*Boops boops*	0.62	0.66			Sustainably exploited	Below B_{MSY}
	22&23	*Spicara smaris*	1.67	0.21			Exploited unsustainably	Below B_{MSY}
	22&23	*Spicara flexuosa*	1.25	0.60			Exploited unsustainably	Below B_{MSY}

Table 6.3.1 Main results of the assessments presented in the Management Plan (upper block) and those relative to the ad hoc EWG (lower block) for the 2 areas "Aegean"(GSAs 22 and 23) and "Ionian" (GSA20).

STECF comments

STECF notes that no information on biological characteristics of the 5 main target species for bottom trawlers (hake, red mullet, striped red mullet, picarel and pink shrimp) is presented in the Management Plan.

STECF considers that because of the uncertainty associated with standardization of effort data and partitioning among different fleets, the approach of using catch and survey indices chosen for fitting the production model used in the plan is appropriate.

STECF notes that absolute values of F_{MSY} and B_{MSY} for *Mullus barbatus, Mullus surmuletus, Merluccius merluccius*, and *Spicara smaris* are provided in the plan (see text tables above). However, STECF considers that such reference points are uncertain and should be treated as preliminary estimates. This is mainly due to the characteristics of the data set and the evolution of the fisheries that such data represent ("Recovery only" type sensu Hilborn & Walters,1992). STECF notes that with such an approach only *r* and some optimum harvest rate can be satisfactorily estimated, while the estimation of the parameters as *K* and *q* remain uncertain and consequently, the absolute values of current *B* and *F* are also uncertain. STECF therefore considers that the ratios of B/B_{MSY} and F/F_{MSY} are more appropriate metrics to assess stock status than the absolute values of B and F.

B. Fishing pressure and if concerned fisheries are duly described and expected to exploit the main target stocks in line with their production potentials. Advise whether the plan is expected to maintain or to revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame

Elements contained in the plan

The changes in the fishing fleet behaviour, size and in fleet capacity has been assessed and presented in the plan. Based on the available information it is stated that a continuous reduction of fishing vessels and capacity has occurred up to 2009 and has continued in the last 4 years and such reductions have been taken into account in the projections presented.

The overall annual discard ratio of the bottom trawl fishery ranges from 28-35% in biomass depending on the area and the season (Machias, 2001; Tsagarakis, 2008). The main fraction

of discards is composed by non-commercial species. The fraction of the catch discarded is assumed to have remained constant.

In the proposed management plan, all the management measures related to bottom trawling currently implemented are retained. However, the following additional measures are proposed:

- Enlargement of the 4-month temporal closure of the bottom trawling for an additional period of 15 days and a one month closure (February) of the artisanal fisheries (gillnets and long-lines) targeting hake.
- Monitoring of landings, effort, age structure of the catch, discard rates of the stocks involved in trawling fisheries through the Greek Fisheries Data Collection Program in accordance with EC 93/2010 Regulation. Monitoring which includes concurrent at-market and at-sea sampling carried out on monthly and quarterly basis respectively. It will cover all areas exploited by the Greek fleets, i.e Aegean, Cretan (GFCM GSAs 22 and 23) and Ionian seas (GSA20).
- In addition, temporal changes in population size for many demersal species, will be followed through the annual "MEDITS" bottom-trawl survey.
- The main target stocks of the bottom trawl fishery will be assessed on an annual basis. Assessments will include in particular: hake, picarel, red mullet, striped mullet and pink shrimp
- Reference points expressed in terms of fishing mortality (F) and stock biomass (B) rates will be set to monitor stock status with a view to sustainable exploitation.
- In case that the annual assessments reveal that F/F_{msy} is higher than 1 and B/B_{msy} is lower than 1 for any of the examined stocks, additional management measures will be taken. Based on the identified over-exploitation levels those measures will include complementary fishery closures aiming to bring exploitation rate at optimum levels.

The MP text describes how the Management plan will intend to drive fisheries productivity to levels in line with MSY. The simulations presented were aimed at identifying measures that would drive overfished stocks to healthier status in relation to F_{MSY} and B_{MSY}. From a visual inspection of the graphs, it is apparent that healthier conditions could be reached in few years, provided that the spatial distribution of fishing effort remains unchanged. In the MP it is stated that due to the multi-species nature of the bottom-trawl fishery, this half-month closure will be beneficial not only for those stocks that are heavily exploited but for all demersal fishes caught by bottom trawl gears.

STECF comments

The plan contains a fairly good description of the evolution and spatial distribution of fishing effort by area. Moreover, estimates of fishing mortality and biomass-based reference points are presented in the plan and management measures that are intended to drive the target stocks to healthier conditions were also proposed. However, taking into account data limitations (as mentioned in the plan), STECF notes that the results of the assessments are uncertain and as a result, the expected outcomes of the enforcement of the planned measures are also uncertain.

Furthermore, given the information available, STECF is unable to fully estimate the effective contributions of trawlers and the small scale fleet to any reduction of *F* that may arise as a result of the proposed additional closures. This is because separate catchability (*q)* values for

each fleet are not available and also because the artisanal fleet has a very dynamic and unpredictable behavior that the simulations are unable to capture.

Given the information in the plan and the associated uncertainty of the results of the simulations presented, STECF is not able to ascertain with confidence whether the provisions of the plan will result in exploitation of the main target stocks in line with their optimum production potentials, or whether the plan is expected to maintain or to revert fisheries productivity to higher levels in line with MSY.

C. Pre-agreed harvesting control rules based either on catch limitation, fishing pressure or biomass levels

STECF comments

Well-defined rules for controlling harvesting for determining annual fishing effort are not formally presented. The plan simply states that further reduction of fishing effort will be applied if biomass remains below the reference level ($B<B_{MSY}$) and/or fishing mortality is above the reference level $F>F_{MSY}$.

D. Impact of fishing activities on marine environment (protected habitats and species)

Few considerations on the environmental impact of fishing activities with bottom trawl nets on the marine eco-systems are included in the MP. The argument is addressed only with regard to discards and some statistics regarding the 2009 discard rates are presented. Discard rates of the main target species such as hake, red mullets and pink shrimp fluctuate from 0-11% by weight, and the discards mostly comprise individuals below the legal minimum landing size. The commercially important species, for which the discard rate is much higher, on average about 10%, are *Merluccius merluccius* and *Parapenaeus longirostris*. No information on the extent that the new legal codend mesh size or other enforced technical measures may have reduced discards is provided and the likely consequences of the proposed management measures on discard rates are not discussed.

STECF Comments

STECF notes that there is no information in the plan to permit STECF to assess the impact of the proposed measures on the marine environment. However, STECF considers that the proposed measures will have no additional negative impact on the marine environment as they simply aim to reduce fishing pressure without any additional impact on coastal fishing grounds or sensitive habitats that are in need of special protection.

E. Mechanisms of monitoring and review of the plans

Elements contained in the plan

The management plan foresees that the fleets will be closely monitored through the Greek Fisheries Data Collection Program.

Monitoring will include concurrent at-market and at-sea sampling carried out on monthly and quarterly basis respectively and scientific cruises. Market sampling will provide information on landings by species and size composition while at-sea sampling, the species and size composition of the catch and discards. All monitoring activities, including the "MEDITS"

survey, will cover all areas exploited by the Greek fleets, i.e Aegean, Cretan (GFCM GSAs 22 and 23) and Ionian seas (GSA 20).

The MP states that the exploitation status of the main target stocks of the bottom trawl fishery (hake, picarel, red mullet, striped mullet and pink shrimp) will be assessed on an annual basis.

STECF comments

The Plan for monitoring the effects of the proposed measures and the stock status is described in outline only. Specific details are not listed in the plan.

F. Comparison with the results of the assessments performed in 2012 by the ad-hoc EWG

Elements contained in the plan

It is reported that the assessments of stock status for red mullet, striped red mullet and picarel in GSA 22&233 (Aegean Sea + Crete) presented in the plan are not consistent with the previous assessments of status on STECF 12-21. In the proposed MP, those stocks are assessed as being exploited sustainably while the assessments undertaken by STECF 12-21 indicate that they are exploited unsustainably. Only for hake do both assessments coincide.

In the case of GSA 20 (Ionian Sea) both assessments are in complete agreement, with picarel, red mullet and striped red mullet considered as sustainably exploited, and the European hake exploited unsustainably.

The proposed MP raises several criticisms regarding the STECF 12-21 assessments of stock status including issues relating to reliability of catch data, and overestimation of fishing effort due to assumptions about increases in technical efficiency arising from fleet modernization.

In the MP is stated that data used by the STECF EWG (STECF 12-21) ad-hoc EWG were extracted from different sources for which quality and reliability are difficult to assess. Such data often are in disagreement with official data. Particular criticisms are expressed regarding the reconstruction of missing data in time series through extrapolations of observations made in other time periods, without taking into consideration likely changes in effort and/or exploitation pattern over time.

Another critical aspect concerns the standardization made by the EWG of fishing effort which assumes an annual increase of 2.74% in fishing efficiency due to fleet modernization. This assumption is questioned in the new plan which argues that the adopted coefficient of correction may give rise to overestimates of effort. The plan argues that the resulting estimates of effort are unrealistic particularly for the last 15 years when no modernization programs aimed at enhancing gear and/or boat efficiency occurred.

STECF comments

STECF considers that the differences found between the two assessments can be explained by the use of different data sets, methods and assumptions. As a result, STECF is unable to determine which, if either of the assessments undertaken is likely to be the most representative of reality.

General Observations on the plan

The analysis of the stock status is exclusively based on dynamic model approaches, using official landings data and an index of abundance derived from trawl surveys. Other alternative stock assessment approaches were excluded, because no age structure of commercial catches was available, thereby preventing the use of age-based analytical approaches.

Overall, the quality of data used in the new plan is quite low, imprecise and with time series showing important gaps. Foreign catches, especially those from Turkey are not taken into account, even though they may be significant and important for the assessment of the exploitation status of some stocks, especially for those considered less sedentary. The current (2012) exploitation status of the stocks can not be defined as fisheries data were available up to 2009 only.

The complexity of the activity exerted in the area, with vessels distributed along a wide area, with numerous landing sites, and the high development of small scale fisheries makes difficult the gathering of representative information on catch composition, age structure of the catches by métier and discard rates for all the demersal resources. In recent years, in addition to the logistical difficulties, the economic crisis in Greece has resulted in several gaps in data collection.

As a result, time series of biomass indexes derived from trawl surveys and combined with commercial catches (instead of catch and effort data) were considered to constitute the more robust datasets to use in conjunction with Dynamic Biomass Models. Such a choice meant that assumptions on the importance of temporal changes in fishing power due to technological creep along time that may strongly condition results were not required. However, STECF notes that in any case, the used approach (DBM) may fail to capture the dynamic changes in recruitment, growth and exploitation patterns at age. This is particularly crucial whenever different management measures are enforced (as in this case) over the assessment period and which may condition fishers behaviour and modify the species composition and their size structures.

The length of the assessment time series is relatively short and in some/all cases lacks sufficient contrasting in periods of light and heavy fishing pressure. Consequently, the results are less informative and more uncertain than is desirable. As in-depth technical documentation is not provided in the MP, STECF is not able to completely evaluate model outputs.

The projections predict a quite rapid recovery of the stocks, but such predictions are also dependent on the precision of the estimates of model parameters. STECF notes that in general, projections based on production model dynamics often estimate considerably faster recovery times than do projections from age-structured methods (Prager, 2005).

The proposed plan also alleges that enforcement of the proposed measures, while allowing an enhancement of the hake or pink shrimp stock status will not have noticeable affects on fishers' revenues. The socio- economic impact of the proposed management scenarios has been addressed, although no further details are given, except that no major changes are expected since catches would remain around the average value of the last decade. The proposed closures have been already discussed with the Greek Fishermen Associations.

STECF Conclusions

STECF considers that as it is not possible to reliably assess stock status in terms of spawning stock biomass and fishing mortality with the available data and information, STECF is unable to evaluate whether the MP is likely to deliver the stated objectives of maintaining the stocks at levels consistent with MSY objectives.

STECF also notes that as the most recent data year used for the stock assessments is 2009, it is not appropriate to assume that the current stock status (i.e. 2013) is comparable to the assessment presented in the MP. . However, STECF notes that data limitations (no DCF data have been collected by Greece since 2008) represent an impediment to evaluating the current state of the stocks.

In addition, the MP does not prescribe any explicit harvest control rules to ensure future sustainable exploitation rates.

STECF also considers that as several of the stocks are also exploited by other (EU and non-EU) countries, an up-to-date assessment should be conducted including fishery-dependent data from such countries. Furthermore, the Greek management plan should also take into account exploitation on the stocks by all countries exploiting the relevant resources.

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6.4. Request for a review of the Croatian management plan for purse seine fisheries

Background

Member States are expected to adopt management plans for fisheries conducted by trawl nets (demersal and pelagic), boats seines (including both towed and surrounding seines), shore seines, surrounding nets and dredges within their territorial waters.

The plans shall include conservation reference points such as targets against which the recovery to, or the maintenance of stocks within, safe biological limits for fisheries exploiting stocks at/or within safe biological limits is ensured (e.g. population size and/or long-term yields and/or fishing mortality rate and/or stability of catches). The plans shall ensure the sustainable exploitation of stocks and that impact of fishing activities on marine eco-systems is kept at sustainable levels.

The Management plans may incorporate any measure included in the following list to limit fishing mortality and the environmental impact of fishing activities: limiting catches, fixing the number and type of fishing vessels authorized to fish, limiting fishing effort, adopting technical measures (structure of fishing gears, fishing practices, areas/period of fishing restriction, minimum size, reduction of impact of fishing activities on marine ecosystems and non-target species), establishing incentives to promote more selective fishing, conduct pilot projects on alternative types of fishing management techniques.

In line with the commitment undertaken by signing of the Act of Accession Croatia has an obligation to adopt a management plan for fisheries conducted in territorial waters by trawl nets, boat seines, shore seines, surrounding nets and dredges as of 01 July 2013. Croatia has dully submitted scientific bases for a management plan covering purse seine fisheries.

Background documentation can be found on:
https://stecf.jrc.ec.europa.eu/web/stecf/plen1302

Terms of Reference

STECF is requested to review the scientific basis for the management plan, to evaluate its findings and the management measures proposed.

STECF is requested to evaluate whether the management plan contains elements that account:

a) the biological characteristics and the state of the exploited resources,

b) the fishing pressure and if concerned fisheries are duly described and expected to exploit the main target stocks in line with their production potentials. Advise whether the plan is expected to maintain or to revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame

c) pre-agreed harvesting control rules based either on catch limitation, fishing pressure or biomass levels

d) impact of fishing activities on marine environment (protected habitats and species)

e) mechanisms of monitoring and review of the plan

STECF response

The following STECF review of the proposed management plan for surrounding purse seine nets is based on a draft report prepared under ad hoc contract and submitted to the STECF in advance of its July 2013 plenary meeting.

STECF general observations

Six different purse seine nets are described for Croatia. Their main target species, number of licenses/active vessels and landings are summarized in the following Table.

Purse seine net	Main species landed	Number of licenses/number of active vessels in 2011	Total landings in 2011 (t)
Srdelara	*Sardina pilchardus*, *Engraulis encrasicolus*	488/233	63735.9
Tunara	*Thunnus thynnus*, other large pelagics	50	Not available
Palamidara	*Sarda sarda*, *Auxis rochei*, *Euthunnus alletteratus* *Seriola dumerilii*	85/36	109.7
Igličara	*Belonebelone*	36/5	7.2
Ciplara	Mugilidae, *Sarpa salpa*	124/43	53.4
Oližnica	*Atherina boyeri*, Mugilidae	57/17	112.1

The Srdelara targets sardine and anchovy and is the most important purse seine in terms of number of vessels involved in the fishery and volume of catches. The total catch of all purse seiners (with the exception of Tunara purse seiners) was 64019 tin 2011. 99.6% of it was realized by Srdelara whereas Ciplara, Oližnica, Igličara and Palamidara contributed <1% to the total purse seine catch.

For all Croatian purse seines, an exemption from the provisions of Article 13, Paragraph 3 of Council Regulation No. 1967/2006 is requested. According to 13(3), the use of purse seines shall be prohibited within 300 meters of the coast or within the 50 m isobath where that depth is reached at a shorter distance from the coast. Furthermore, a purse seine shall not be deployed at depths less than 70% of the overall drop of the purse seine itself as measured in Annex II of this Regulation.

STECF also notes that there is no quantitative information in the MP on the fraction of fishing area that will be inaccessible, for each of the Croatian purse seines, when Article 13 will be in force.

Almost no information is provided in the MP for the blue fin tuna purse seine (Tunara). It is mentioned, that, ‘for Tunara purse seine, the fishing plan, capacity plan and inspection plan

apply, as adopted under the International Commission for the Conservation of Atlantic Tunas (ICCAT)'and no further information is given.

STECF response in relation to each of the elements outlined in the Terms of Reference

A. Biological characteristics and the state of the exploited resources

Elements outlined in the plan

No information on biological characteristics of the target species (see Table above) of each of the Croatian purse seines is presented.

No assessments are provided for the species targeted by the Ciplara, Oližnica, Igličara and Palamidara purse seines. STECF notes that the catches of these four purse seine fisheries is low (see Table above) and biological information to assess the stocks concerned will be collected in the future, as declared in the MP.

The stock of blue-fin tuna targeted by Tunara is assessed by ICCAT and no information is provided for it in the MP.

For anchovy and sardine targeted by the Srdelara purse seine, trends in biomass, recruitment and exploitation rate in GSA 17 are presented for 2000-2011 from stock assessments carried out in the framework of the FAO ADRIAMED project. The biomass of sardine in 2011 is considered in the MP as 'intermediate' and anchovy exploitation is said to be sustainable. These inferences about the stock status of sardine and anchovy in the Adriatic are not based on any specific reference point.

Additionally, STECF notes that, in Croatia, the number of fishing days and catches of the Srdelara purse seiners (targeting anchovy and sardine) have increased in recent years. As explained in the MP, the fishers increased fishing effort to compensate for economic losses resulting from the fall in prices. The latter was mainly due to lower catch of big anchovies (fetching higher prices) but also to the fact that a significant amount of the non-anchovy catch (64%) is provided to tuna farms, at a price lower than that obtained when small pelagics are sold to the fresh fish market or to the processing industry.

STECF comments

STECF notes that, according to the most recent assessments (STECF EWG 12-19 reviewed during the Plenary meeting held in Brussels 8–12 April 2013), the stocks of sardine (*Sardina pilchardus*) and anchovy (*Engraulis encrasicolus*) in GSA 17 (shared by Italy, Slovenia and Croatia) are subject to overfishing (E>0.4).

STECF also notes that the majority of sardine caught by the Srdelara purse seine (64%) is provided to Croatian tuna farms. Any future expansion in bluefin tuna farming will most likely lead to the increase in fishing effort on sardine.

Finally, STECF notes that the target species of the Palamidara purse seine (highly migratory scombrids/carangids) are most likely stocks shared with other countries in the Adriatic Sea.

STECF concludes that the MP does not contain information to adequately describe biological characteristics and the state of the exploited resources.

B. Fishing pressure and if concerned fisheries are duly described and expected to exploit the main target stocks in line with their production potentials. Advise whether the plan is expected to maintain or to revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame

Elements outlined in the plan

The six Croatian purse seine fisheries are not described adequately. For the Srdelara purse seine, very limited information is provided (for only 2011 or for 2008-2011) concerning the number of fishing licenses, number of active vessels, catches, catch per day, days-at-sea, catch per vessel size, catch per fishing 'zone'(several fishing areas have been defined in Croatia), as well as some data outlining vessel income, fish prices and vessel costs. Only the catches of sardine and anchovy are presented for an adequate time period (1949-2011).

For the Ciplara, Oližnica, Igličara and Palamidara purse seines, only very limited information concerning the number of licenses, number of active vessels, catch and catch compositions is presented for 2011.

STECF comments

The elements presented in the proposed MP, are insufficient to allow STECF to conclude whether the plan will maintain or revert fisheries productivity to higher levels and in line with MSY (see also point C below).

To undertake such an assessment, STECF advises that all available information be analyzed and presented in the MP, including fishing effort, fishing grounds, CPUEs, landings, discards, and size compositions.

C. Pre-agreed harvesting control rules based either on catch limitation, fishing pressure or biomass levels

Elements outlined in the plan

For the Srdelara purse seine, no quantitative harvest rules are proposed in the MP. Several management measures are listed (e.g. permanent cessation of fishing, temporary cessation of fishing, limited fishing authorization, closed months/days, closed areas). However, the plan does not specify when or how each of the proposed actions will be applied. The economic impacts of taking each of the measures listed have not been considered.

For the Ciplara, Oližnica, Igličara and Palamidara purse seines, the objective of the MP is to reduce fishing pressure on the target species by 5% or to maintain it at current levels. A proposal to achieve this objective is to restrict fishing with each purse seine gear only to license holders with a historical track record of catch with that gear. No further details are specified.

D. Impact of fishing activities on marine environment (protected habitats and species)

Elements outlined in the plan

No appropriate information is presented in the MP to permit STECF to assess if the use of each of the Croatian purse seines has any effect on seagrass (*Posidonia oceanica*) beds.

Regarding by-catches and discards, the only information provided is from a study carried out in 2011, showing that the bycatch of the Srdelara purse seine was 8.7 t (7.9%) of the 109.5 t total catch analyzed. There are no data on by-catches and discards of the Ciplara, Oližnica, Igličara, Palamidara and Tunara purse seines.

STECF comments

STECF notes that, in the MP, information concerning the dimensions and characteristics of the Croatian purse seines is very limited. The drop of the Srdelara is said to be 120 m, but no information is provided concerning the heights of Ciplara, Oližnica, Igličara, Palamidara and Tunara purse seines. In order to assess whether these gears make contact with the seabed during the fishing operation, details of the fishing gears and fishing operations need to be adequately described.

E. Mechanisms of monitoring and review of the plans

Elements outlined in the plan

For the Srdelara purse seine, data required for monitoring the fishery and the stocks will be mainly gathered in the framework of the DCF. The assessments of anchovy and sardine stocks will be carried out in the framework of the FAO ADRIAMED.

For the Ciplara, Oližnica, Igličara and Palamidara purse seines, there are provisions in the MP that data will be collected for monitoring and assessing the target stocks. However, no further details or descriptions of sampling protocols, variables collected, assessment methods to be used, are provided.

STECF comments

Mechanisms for implementing and monitoring the plan have not yet been defined and are not described in the text of the proposal. There is no provision for reviewing and evaluating the plan's effectiveness or for adjusting the MP.

STECF also considers that the monitoring mechanism of the Srdelara purse seine should ensure the adequate recording of fish provided to the Croatian fish farms.

STECF conclusions

STECF is unable to assess if the stocks targeted by the Ciplara, Oližnica, Igličara and Palamidara purse seines are being sustainably exploited.

Regarding the Srdelara purse seine, STECF notes that the anchovy and sardine stocks are shared by three counties (Croatia, Slovenia and Italy) in GSA 17. In order to control the overall exploitation rate on such stocks, STECF considers that all fleets targeting these stocks (including the Croatian Srdelara fleet) should be managed at an international level.

The information provided in the MP is insufficient to permit STECF to determine whether the purse-line, of each of the Croatian purse seines, does or does not touch the seagrass bed during fishing operations. Furthermore, it is not possible, from the information provided, to assess whether or how often fishing operations take place over *Posidonia* beds or whether they overlap a significant fraction of the areas occupied by *Posidonia oceanica* or other marine phanerogames.

Given the available information, STECF is also unable to conclude on the potential impact of the requested derogations to allow the use of each of the Croatian purse seines within 300 meters of the coast or within the 50 m isobath (where that depth is reached at a shorter distance), or at depths less than 70 % of the overall drop of the purse seine as measured in Annex II of the Mediterranean Regulation.

In order to fully assess the impact of the requested derogations, the following additional information is required for each of the six purse seines types:

(g) Estimates of monthly catch volumes separated into landings and discards by species (including non-target organisms) and corresponding size compositions from catches taken outside and inside the 300 meters of the coast / 50 m isobath zone and at depths less or more than 70% of the overall drop of the purse seine.
(h) Quantitative information about monthly fishing effort deployed under the requested derogation in units of fishing time outside and inside the 300 meters of the coast / 50 m isobath zone and at depths less or more than 70% of the overall drop of the purse seine.
(i) An assessment of the socio-economic impacts of not granting the requests for derogation.

6.5. Request for a review of the Croatian management plan for bottom trawl fisheries

Background

Member States were expected to adopt management plans for fisheries conducted by trawl nets (demersal and pelagic), boats seines, shore seines, surrounding nets and dredges (for molluscs) within their territorial waters.

The plans shall include conservation reference points, either empirical or model based, such as targets against which the recovery to or the maintenance of stocks within safe biological limits can be assessed (e.g. population size and/or long-term yields and/or fishing mortality rate and/or stability of catches). The management plans shall be drawn up on the basis of the precautionary approach to fisheries management and take account limit reference points where recommended by relevant scientific bodies.

The plans shall ensure the sustainable exploitation of stocks and that impact of fishing activities on marine eco-systems is kept at sustainable levels.

The management plans may incorporate any measure included in the following list to limit fishing mortality and the environmental impact of fishing activities: limiting catches, fixing the number and type of fishing vessels authorized to fish, limiting fishing effort, adopting technical measures (structure of fishing gears, fishing practices, areas/period of fishing restriction, minimum size, reduction of impact of fishing activities on marine ecosystems and non-target species), establishing incentives to promote more selective fishing, conduct pilot projects on alternative types of fishing management techniques.

In accordance with Article 19 of the Council Regulation (EC) no. 1967/2006, the Republic of Croatia shall adopt management plans for fishing in its territorial waters for bottom trawl fisheries.

The Management Plan (hereafter MP) presented by Croatia in February 2013 applies to all fishing vessels engaged in fishing with bottom trawl in the fishing sea of the Republic of Croatia and applies from the date of the Croatian accession to the European Union.

Croatia submitted the scientific basis for the MP and justifications for a request of derogation concerning the minimum distance from the coast for bottom trawl nets, according to Article 13.11 of the Mediterranean Regulation.

Background documentation can be found on:

https://stecf.jrc.ec.europa.eu/web/stecf/plen1302

Terms of Reference

The STECF is requested to review the scientific basis for the above mentioned management plan as, to evaluate its findings, to make appropriate comments, also with respect to the elements/measures included therein, and to advise whether the plan contain adequate elements that account for:

a) the biological characteristics and the state of the exploited resources,

b) the fishing pressure and if concerned fisheries are duly described and expected to exploit the main target stocks in line with their production potentials. Advise whether the plan is expected to maintain or to revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame,

c) pre-agreed harvesting control rules based either on catch limitation, fishing pressure or biomass levels,

d) impact of fishing activities on marine environment (protected habitats and species),

e) mechanisms of monitoring and review of the plans.

STECF response

The following STECF review of the proposed management plan for bottom trawl fisheries in Croatian waters, is based on a draft report prepared under ad hoc contract and submitted to the STECF in advance of its July 2013 (STECF PLEN 13-02) plenary meeting.

STECF observations

The STECF notes that the Croatian Management Plan for bottom trawl fisheries presents a variety of useful information and scientific data, which could be used in support of the development of a valuable Management Plan.

The management plans for bottom otter trawl have the following elements:

- A description of the fishery with simulation of various trawl fishing prohibitions in Croatia.
- Ecological characteristics of the ecosystem in which the management plan is carried out.
- The current legal regulation of trawl fishing.
- The discard structure in trawl catches.
- The economic background and socio-economic effects of the management plan.
- The status of demersal fishery resources in GSA 17.
- For the definition of management measures, the following management tools are considered: trawling authorization, reducing fishing effort by implementing measures of permanent suspension of fishing activities by permanently excluding certain fishing vessels from fishing for a fee, more selective fishing techniques, fishing prohibited areas, diversification of fishing activities, intensification of regional cooperation in the framework of FAO-ADRIAMED regional project, fishermen education on sustainable fisheries and EAF.
- Additional measures applied if necessary are: reduction of fishing days, establishment of closing season of 30 days, review and increase of the area under temporary and permanent trawling ban, uniform spatial distribution of fishing effort, additional protection measures for critical areas.
- The monitoring, control and surveillance system.
- The request of derogation.

STECF observations regarding the request for derogation

References to existing national legislation relating to bottom trawling spatial prohibitions are complete. It is well known that the most important regulation measures for bottom trawling in Croatia are temporal and spatial fishing restrictions. Trawl fishing is permanently prohibited within 1 nm from mainland and island coast and above seagrass meadows, coralligenous habitats and maerl beds.

A limit of 2 nm is applied around islands Palagruža, Galijula, Lastovo, Lastovnjaci, Vrhovnjaci, Glavat, Kopište, Mljet, Vis, Barjak Mali, BarjakVeli, Ravnik, Budikovac,

ParžanVeli, Paržan Mali, Greben, Sušac, Svetac, Biševo and Brusnik. A limit of 3 nm is applied around Blitvica and Jabuka.

Moreover, trawling is prohibited in numerous bays and channels: Cres bay, Osor bay, Vinodol and Velebitchannel, Novigrad sea, part of Zadarand Pašman channels, Kaštela bay, most of the Split and Brač channels, part of the Hvar channel, part of the Neretva channel and part of the Koločep channel.

Furthermore, in numerous areas trawling is prohibited for certain part of the year or for parts of the week.

According to the existing regulations, trawl fishing is permanently prohibited in approximately 30% of the territorial sea of Croatia (8,563 km^2).

In the MP, simulations of various trawling prohibitions in Croatia waters are presented, considering the criteria of EC Regulation 1967/2006. According to Article 13 (1) (2) of that regulation, the use of towed gears shall be prohibited within 3 nautical miles of the coast or within the 50 m isobath where that depth is reached at a shorter distance from the coast, in addition minimum distance for trawling is 1.5 nm from the coastline, regardless the sea depth. In Croatian waters such a regulatory regime would prohibit trawl fishing over an area of 11,634 km^2.

While retaining the temporal closures and the prohibitions at 2 and 3 nm in the areas cited above, the plan advocates the following derogations for the remaining areas:

1. To allow trawling between 1.5 and 3 nm from the coast in areas where the depth of 50 m is reached at a longer distance from the coast, primarily along the Istrian coastline;
2. To allow trawling between 1 and 1.5 nm from the coast in areas where the depth of 50 m is reached at a shorter distance from the coast.

The request for the above derogations relate to vessels smaller than 15 m length overall.

STECF comments

STECF notes that temporary derogations in line with those listed above have been granted and will remain in place until 1 July 2014.

STECF acknowledges that there is a spatial limitation for trawling taking into the current complex system of spatial trawling prohibitions arising from conservation measures, physical obstructions to trawling and munitions dumping grounds. Nevertheless, in order to know if the conditions cited in Article 13 (5) of EC Regulation 1967/2006 are fully satisfied, further information, reported at the end of the present document, need to be provided.

STECF observations in relation to each of the elements outlined in the Terms of Reference

The biological characteristics and the state of the exploited resources

Elements outlined in the plan

Biological characteristics, spatial distribution and state of the exploited resources are described in the MP by a summary of scientific information for the main target species based both on analytical assessments and MEDITS survey data.

The majority of commercially important species in the Adriatic Sea are biologically discrete populations exploited by fishing fleets from different countries and with different intensity. Also, some species migrate, and their nursery and feeding areas are located in different parts of the northern Adriatic Sea, which fall under different jurisdictions. Consequently, any stock assessment carried out considering only the catches of one country is largely uninformative.

The MP presents stock assessment for six demersal shared stocks of the GSA 17: *Merluccius merluccius*, *Mullus barbatus*, *Nephrops norvegicus*, *Pagellus erythrinus*, *Scyliorhinus canicula* and *Solea solea*. Assessments and preliminary assessments were made by WG of FAO-AdriaMed, WG Demersal of FAO-GFMC as well as within STECF-EWGs.

According to assessment carried out in the framework of the above mentioned WGs the stocks of *Merluccius merluccius*, *Solea solea*, *Nephrops norvegicus*, *Pagellus erythrinus* and *Scyliorhinus canicula* are currently overexploited, while *Mullus barbatus* is fully exploited. The assessments of *M. merluccius*, *S. solea* and *M. barbatus* are scientifically acceptable and have been assessed using a variety of methodologies, while the assessments of the other species are considered preliminary.

Regarding the fishery independent evaluation of the stocks carried out analyzing MEDITS trends, the values of 66th and 33rd percentile of the MEDITS historical series were used as thresholds to justify the state of the resources.

STECF comments

STECF notes that the assessment results are summarized in the proposed MP but the related stock annexes were not provided to the STECF.

Regarding the fishery-independent evaluation of the stocks, the thresholds used are questionable since for several of the species there is insufficient contrast in biomass indices over the time period used for the assessments (1994-2011). STECF considers that it may be useful to statistically standardize the datasets and carry out a comparison with the data collected during the "Hvar" expedition, a trawl survey carried out in 1948/49 which represents a period of relatively low exploitation.

Both fishery-dependent and fishery-independent assessment approaches indicate that the target resources are being exploited at levels that are not consistent with MSY objectives.

In the MP is stated that the responsibility for the current resource status in the northern Adriatic Sea lies with the fleets from all countries participating in the fishing activity (Italy, Slovenia and Croatia) and that future restrictions should therefore be proportional to responsibility for the existing situation. While recognizing that the fishing pressure is not evenly exerted in the basin by the fleets of the three countries and recognizes the higher fishing pressure of the Italian trawlers, STECF considers that the measures proposed in the

plan to manage fishing mortality are rather simplistic. It is also important to underline that each fleet usually exploits different portion of the stocks and it is rather simplistic to plan fishery future restrictions based only on the effort and catch historically realized by each country fleet. Hence, in the case of shared stocks, it would be appropriate to develop more realistic (and complex) approaches. Such methodologies which can integrate stock connectivity knowledge (migration, nursery areas, etc.) and information of spatial patterns of the fishing effort and catches from VMS and logbooks, may allow identification of the exploitation pattern of each fleet exploiting the same stock.

The fishing pressure and if concerned fisheries are duly described and expected to exploit the main target stocks in line with their production potentials. Advise whether the plan is expected to maintain or to revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame.

The bottom trawl fishery is adequately described. The temporal and spatial dimension of the fishing fleets, days-at-sea, fishing operation, duration of the fishing season, landings and prices are presented in the MP. It is noteworthy that, before the accession of the Republic of Croatia to the EU, two trawling activities will be abolished; tartan operating in coastal area; and trawling for cephalopods,. Hence they are not included in the present MP, since they are no longer carried out.

STECF comments

Regarding the description of the gears used, clarification is needed on the different minimum mesh sizes of bottom trawls deployed in different sea areas [as stated in the MP: "*24 mm (from knot to knot) in inner fishing waters and 20 mm in outer fishing sea*"], because it is not clear if the sizes refer to diamond or square mesh design.

The STECF notes that the MP makes reference to seven specific mandatory measures to be implemented and a further five to be implemented apply only if necessary. It is stated that the aim of such measures is to achieve a reduction of fishing pressure, protection of marine environment with the establishment of additional protected habitats and an increase of biomass levels of demersal resources within 3-5 years. Nevertheless, in formulating such measures, the MP does not take directly into consideration the MSY or other proxy. In addition, the conditions for the introduction of the five measures listed as "if necessary" are not specified in the plan.

Pre-agreed harvesting control rules based either on catch limitation, fishing pressure or biomass levels.

Elements outlined in the plan

The expected result of the MP is to reduce the capacity of the active trawl fleet for about 10 to 15% through a decommissioning scheme, although the details of the scheme are not outlined in the MP.

The plan also proposes to reduce the potential number of working days for trawlers to 100-150 days per year, through implementing a two-day-per-week fishing ban and a 30-day closed season annually. It is proposed that the 30 day-closed season will be flexible so that different areas and seasons would be closed depending on which particular resource is in need of protection.

STECF comments

To evaluate potential effect of such measures STECF considers that a comprehensive explanation of the criteria and the procedures to be used to identify the decommissioning scheme, and periods -areas that would be subject to closure are needed.

Impact of fishing activities on marine environment (protected habitats and species)

Elements outlined in the plan

With the aim to safeguard protected habitats and species, the plan proposal contains a complex and restrictive system of spatial-temporal measures regulating trawling and banning certain trawling activities. The proposals in the plan aim at reducing the impact of trawling on marine environment through the establishment of following additional closed areas and measures:

- Protected fishing areas in the open sea in Jabuka pit, approximately 10,000 km^2, with non-take zones of approximately 2-3,000 km^2.
- Trawling ban at depths greater than 500 meters in the southern portion of the fishing grounds.
- Abolishment of "*tartan*" operating in coastal area and trawl for catching cephalopods.

Discards (referred to as "by-catch" in the plan proposal) are alleged to vary greatly in content and amount depending on area, season and time of the day when trawling is carried out. Depending on the area, total discards are stated as being low, but can reach up to 45 kg/hour in area A (Istria coastline). This is the only quantitative value provided regarding discards.

STECF comments

STECF notes that discards by areas are given in percentages for the main discarded species and no information is provided regarding the size composition of the discarded portion of commercial catches.

The information provided in the proposed plan is insufficient to permit STECF to assess the impact of bottom trawling on vulnerable marine communities.

Mechanisms of monitoring and review of the plans.

Elements outlined in the plan

The mechanisms of monitoring, control and surveillance are duly described. In particular in order to improve the implementation of the bottom trawl management plan monitoring and control, Croatia shall adopt the provision that, as of 31 December 2014, all vessels licensed for trawl fishing, regardless of size, must have a VMS device installed on board.

Moreover, Croatia has already introduced and harmonized a data gathering scheme in accordance with the EU legislation.

All vessels engaging in trawl fishing must keep a catch register and fill in a landing declaration, regardless of the length of the vessel. As of 1 January 2014, in order to provide easier and more efficient fishery monitoring and control, all vessels longer than 12 meters engaging in trawl net fishing shall have an e-logbook installed on board, ensuring a better monitoring of the fishery, it will enable cross-referencing of catch data with the VMS data.

Every three years the state of the resources will be assessed in order to redefine the objectives of the MP, as well as measures for its implementation.

STECF comments

STECF notes that the mechanisms for implementing and monitoring the plan have been fully defined and are described in the text of the proposal.

STECF conclusions

Considering that most of the demersal stocks targeted by the bottom trawl are shared with Italy and Slovenia, STECF considers that the measures in the Croatian MP should be harmonized with measures decided in the framework of FAO-AdriaMed regional project. However, at present this is not the case and the proposed MP does not describe a clear operational program. The STECF concludes that it is difficult to identify effective unilateral actions. Nevertheless, in the short-term at least, the management measures presented in the MP are expected to result in a decrease of the fishing pressure by the Croatian bottom trawl fleet both on the exploited resources and on the environment.

Regarding the request for derogation and given the available information, the STECF is unable to conclude on potential impact to allow fishing in the areas indicated in the MP. In order to fully assess the impact of the requested derogation, the following additional information is required. Such information could be derived from a trial fishery undertaken with limited fishing effort:

a) Estimates of monthly catch volumes separated into landings and discards by species (including non-target organisms) and corresponding size compositions from catches taken inside the areas where the derogation is requested.
b) Quantitative information about monthly fishing effort deployed inside the areas where the derogation is requested in units of fishing time or Km^2 and on fishing grounds outside the areas of derogation.
c) An assessment of the socio-economic impacts of not granting the request for the derogation.

6.6. Request for a review of Maltese management plan for bottom otter trawl and Lampara purse seine fisheries

Background

Member States are expected to adopt management plans for fisheries conducted by trawl nets (demersal and pelagic), boats seines (including both towed and surrounding seines), shore seines, surrounding nets and dredges within their territorial waters.

The plans shall include conservation reference points such as targets against which the recovery to, or the maintenance of stocks within, safe biological limits for fisheries exploiting stocks at/or within safe biological limits is ensured (e.g. population size and/or long-term yields and/or fishing mortality rate and/or stability of catches). The plans shall ensure the sustainable exploitation of stocks and that impact of fishing activities on marine eco-systems is kept at sustainable levels.

The Management plans may incorporate any measure included in the following list to limit fishing mortality and the environmental impact of fishing activities: limiting catches, fixing

the number and type of fishing vessels authorized to fish, limiting fishing effort, adopting technical measures (structure of fishing gears, fishing practices, areas/period of fishing restriction, minimum size, reduction of impact of fishing activities on marine ecosystems and non-target species), establishing incentives to promote more selective fishing, conduct pilot projects on alternative types of fishing management techniques.

Malta has submitted a revised management plan for bottom otter trawl and Lampara fisheries.

Background documentation can be found on:

https://stecf.jrc.ec.europa.eu/web/stecf/plen1302

Terms of Reference

A previous version of the plan was reviewed by STECF on its 38th plenary meeting of 7-11 November 2011, Brussels. The Working Group is now requested to assess if Malta properly addressed the comments made by the STECF on this earlier version.

STECF is requested to review the scientific basis for the current version of the management plan and to evaluate its findings and the management measures proposed.

STECF is requested to evaluate if the plan contains elements that account for the state of the exploited resources, and if the fishing pressure of the fisheries concerned is expected to exploit the stocks in line with their production potentials so that the plan may maintain or revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame.

STECF Response

The following STECF review of the proposed management plan for trawl fisheries in Greek waters, is based on a draft report prepared under ad hoc contract and submitted to the STECF in advance of its July 2013 (STECF PLEN 13-02) plenary meeting.

STECF observations

STECF received the document "Fisheries Management Plan", by the Maltese Fisheries Directorate, which includes the management plans proposed by Malta for the bottom otter trawl and lampara fisheries for 2013-2017.

The management plans for bottom otter trawl and lampara fisheries have the following elements:

- A description of the fishery

- For the definition of management measures, the following possible management tools are considered: freezing capacity, reducing capacity, gear- size restrictions, fishing prohibited areas, catch logbook, vessel monitoring system, fishing autorizations, and fishing seasons.

- Different scenarios are assessed in each fishery, which include their corresponding socio- economic impact, for the decision on the management measures to be adopted. The outcome of the scenario analysis is compared with the 2011 baseline data.

- Both management plans include the socio- economic impact of the potential management measures.

- The data used in the submitted Maltese management plans for bottom trawl and lampara fisheries are for the period 2006- 2012 (DCF).

- Malta proposes a reduction of fishing effort, by 30% for bottom otter trawl by the end of 2016, and a one- month closed season to be implemented as from 2014 for the next three years.

- Malta proposes a reduction of fishing effort by 20% (3 vessels by the end of 2015) for the lampara fishery.

The submitted management plans for bottom otter trawl and lampara fisheries are presented for the vessels operating within the 25 NM Fisheries Management Zone (FMZ).

STECF examined in its Plenary Meeting of November 2011 the document "Malta's Fisheries Management Plan 2011- 2015", which included among others bottom otter trawl and lampara purse seiners, and concluded that "the revised (2011) version of the Maltese Management Plan still lacks evaluations of the status of most stocks targeted by the five fisheries as well as adequate information on environmental impacts. Nevertheless, a priority is given in the MP to establishing monitoring programs and providing stock assessments in the near future." STECF noted that "the MP should include analysis of socio-economic impacts for any management measure proposed."

It is worth mentioning, as also stated in the Preamble of the document and by STECF in the revision of the previous version of the management plans, that most of the resources are shared with other countries (including third countries), and taking into account the small dimension of the Maltese bottom otter trawl and lampara fleets, the current status of the stocks depends little on the activity of the Maltese fleets. The fisheries/fleets targeting shared stocks in the Sicilian channel should be managed at an international level.

In accordance with the Act of Accession, specific provisions concerning fishing in the waters around Malta have been introduced by Council Regulation (EC) No 813/2004, i.e. the 25 nautical mile Fisheries Management Zone (25NM FMZ). Specific provisions related to the 25NM FMZ are outlined in Article 26 of Council Regulation 1967/2006. Accordingly, bottom otter trawl and lampara fisheries are already subject to a number of management measures, including fishing effort, capacity, vessel size, engine power and fishing areas.

A. Maltese management plan for bottom otter trawl fishery

The trawler fleet authorised to fish within the 25 NM FMZ consists of 12 boats having an overall tonnage of 1,056 GT, a total main engine power of 3,700 kW and provides 59 jobs. The main target species include red shrimps (*Aristaeomorpha foliacea*), red mullet (*Mullus*

spp) and pink shrimp (*Parapenaeus longirostris*). In 2011, trawler production amounted to almost 171 metric tonnes (€1.6 m). The landings of these species represented 23%, 18% and 12 % of the trawler landings respectively.

Information is available on discarded species (a list is provided in order of decreasing importance) and the size distributions are shown, although these correspond to the situation before the adoption of the 40 mm square or 50 mm diamond mesh-size at codend. The expected change on the discarded sizes will be analysed based on 2012 data.

To reduce the impact of bottom otter trawl on the environment, further studies are currently underway to relocate the authorised fishing zones found within the 3 NM zone, established in Council Regulation 1967/2006.

The scenarios considered in the MP are: reduce over- capacity through the reduction of capacity by 30% (scenario 1); reduce fishing capacity through 20% reduction in capacity and the reduction in effort by a further 10% through the introduction of a temporary cessation for the period spanning from 15 August to 15 September (scenario 2); reduce fishing capacity through 10% reduction in capacity and the reduction of effort by a further 20% through the introduction of a temporary cessation for the period 15 August to 15 October (scenario 3).

STECF Response to the elements listed in the Terms of Reference

Review the scientific basis for the current version of the management plan, to evaluate its findings and the management measures proposed.

The assessments referred to in the plan are those carried out in the frame of GFCM / SGMED in 2011 and 2012.

Evaluate if the plan contains elements that account for the state of the exploited resources

Stock assessments, conducted in 2011 and 2012 at GFCM / SGMED, are available for the following species exploited by bottom otter trawlers in the Strait of Sicily: giant red shrimp (*Aristaeomorpha foliacea*), thornback skate (*Raja clavata*), red mullet (*Mullus barbatus*), common Pandora (*Pagellus erythrinus*), black bellied anglerfish (*Lophius budegassa*), pink shrimp (*Parapenaeus longirostris*) and hake (*Merluccius merluccius*).

STECF notes that the estimates of partial F in the plan are misleading.

STECF considers that the plan includes the most recent assessment of those stocks that are targeted by the Maltese otter trawl fleet.

Evaluate if the fishing pressure of the fisheries concerned is expected to exploit the stocks in line with their production potentials so that the plan may maintain or revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame.

In view of the results obtained from stock assessments, the Maltese authorities have decided to opt for a 30% reduction in fishing effort. Malta made this decision taking into account the species that are overexploited by the Maltese fleet, the giant red shrimp and hake. STECF considers that given the multi-national nature of the fisheries for the se stocks, a 30%

reduction in effort by the Maltese fleet would appear to be excessive, and would have little impact on the overall mortality on those stocks.

In any case, STECF notes that the Maltese share of these species landings is very low and therefore, any action taken by Maltese authorities to address the overexploitation will have little, if any, effect on the status of the stock.

B. Maltese management plan for lampara fishery

The lampara fleet consists of 18 boats with an overall tonnage of 520 GT, a total main engine power of 3,236 kW. This fishery provides 25 jobs. In 2011, lampara production amounted to 176 metric tonnes (€191,000). The main target species include chub mackerel (*Scomber japonicus;* 61t in 2011) and round sardinella (*Sardinella aurita*; 43 t in 2001). Total annual landings (2006-2011) show an overall increasing trend.

The Maltese lampara fishery targets stocks shared with Sicily due to the population distribution over the Malta Bank, which connects the Maltese Islands with Sicily. The population distribution of these stocks is also characterised by large areas of international waters.

The scenarios considered in the management plan are: freezing fishing effort (scenario 1); freezing fishing capacity but allowing the number of fishing trips to fluctuate (scenario 2); reducing fishing capacity by 20% in line with the precautionary approach in the short-term and re-visiting the situation once better and more reliable biological data is obtained (scenario 3); reducing fishing capacity by 20% in line with the precautionary approach and freezing of fishing effort in the short-term and re-visiting the situation once better and more reliable biological data is obtained (scenario 4).

STECF Response to the elements listed in the Terms of Reference

Review the scientific basis for the current version of the management plan, to evaluate its findings and the management measures proposed.

Stock assessment information for the Central Mediterranean is at present not available for chub mackerel (*Scomber japonicus* and round sardinella (*Sardinella aurita)*. Stock assessments of the relevant species are planned to be undertaken in conjunction with Italian experts.

The status of the stocks is defined based on CPUE data trend (2006- 2011). The data used in the calculations were collected through logbooks for vessels over 10 m and market sales vouchers for vessels smaller than 10 m. The socio-economic indicators and targets were calculated based on a set of variables and indicators based on the economic data collected annually.

No information is available on the by- catch species.

Evaluate if the plan contains elements that account for the state of the exploited resources

In the absence of biomass target reference points such as ‘maximum sustainable yield’ from stock assessments, annual and monthly CPUE thresholds (25% percentile of the data sets)

were used as an alternative until sufficient biological data is collected to carry out a full stock assessment. The target is that CPUE trend does not decrease below the annual 25 % threshold for chub mackerel and round sardinella, which lie at CPUE of 3.09 and 2.15 kg/kW*fishing days respectively.

Taking into account the results of the analysis of the four scenarios above mentioned and until further research is carried out to assess the conservation status of the target stocks, the management plan proposes:

- 20% reduction (3 vessels) of the fishing capacity by the end of 2015
- review of the management measures in 2016
- collection of discards data, if any

STECF notes that there are currently no reliable stock assessments and the Maltese share of the overall removals from the stocks concerned is extremely small.

Evaluate if the fishing pressure of the fisheries concerned is expected to exploit the stocks in line with their production potentials so that the plan may maintain or revert fisheries productivity to higher levels in line with MSY or proxy and in which time frame.

In the absence of stock assessments for the target species, the available information on annual and monthly CPUE has been used. Annual and monthly threshold CPUE values have been defined for chub mackerel and round sardinella, based on 25% percentile of the data sets. Nevertheless, STECF notes that CPUE may not be a good stock index of abundance useful for defining any small pelagics limit reference point.

STECF conclusions

STECF acknowledges that the plans submitted by the Maltese Authorities is much more comprehensive and contain more relevant information than plans previously submitted and properly addressed most of the comments made by the STECF in its earlier version (STECF Plen 11-03).

STECF agrees, as pointed out in the management plan for the lampara fishery, on the need of assessing the status of the chub mackerel and round sardinella stocks, and that these assessments should be made considering all the fleets involved in their exploitation.

STECF considers that in absence of stock assessments it is better to use survey indices ad indices of abundance than to use CPUE. Hence it would be more appropriate to include fishery independent data (MEDITS and MEDIAS surveys) in the Maltese management plans for bottom trawl and lampara fisheries to show the trend of the main target species.

Harvest control rules are not defined at the mangement plans. Nevertheless, because of the very low contribution of the Maltese bottom trawl and lampara fleets to the total landings of the shared stocks, STECF considers that any harvest control rule should be jointly defined for all fleets exploiting the same stocks.

STECF notes that the management measures proposed have been defined based on the best but limited, knowledge on the fisheries currently available.

Malta proposes a decrease of fishing effort by 20% for the lampara fishery and by 30% for bottom otter trawl. Given that the Maltese landings of the target species by these fisheries are very low, compared to the total international landings, the proposed reductions in effort seem excessive and would have little impact on the overall mortality on these shared stocks.

Malta proposes a decrease of fishing effort by 20% for the lampara fishery and by 30% for bottom otter trawl. Given that the Maltese landings of the target species by these fisheries are very low, compared to the total international landings, the proposed reductions in effort seem excessive and would have little impact on the overall mortality on these shared stocks."
STECF notes that it is not clear, how the economic analysis presented in the plan has been undertaken. Reference is made in the text to a model, but no precise description of this model is included. Furthermore, further justifications for the assumptions about various inputs e.g. price elasticity are required.

6.7. Request for advice on proposed changes for Art 16.6 of the cod plan (R 1342/2008) to allow capacity and effort transfers between areas

Background

The Commission has proposed to amend the the Council Regulation 1342/2008 with the main aim to provide for an interim solution to some pressing problems, as recommended by scientific advice and requested by the Member States. The proposal has to be adopted through ordinary legislative process. This is the first reading of the proposal where the Parliament has adopted some new amendments. The Parliament proposed in Article 16(3) of the cod plan (R 1342/2008) to delete *the words "in 2009" where they first appear.* The Parliament has a view that such amendment provides Member States with flexibility to accommodate geographical developments in fisheries that do not target cod. Such amendment would allow the capacity and effort transfers between geographical area groupings.

Terms of Reference

The STECF is requested to advice on possible impact if the proposed amendment is adopted.

STECF response

STECF notes that the implementation of Article 16(3) was limited to 2009, the first year of the plan. However, an assessment of the impact of the Article (as implemented in 2009) has not been conducted, nor was it included as part of the "Evaluation of multi-annual plans for cod in the Irish Sea, Kattegat, North Sea, and West of Scotland (STECF-11-07)" conducted by STECF in 2011.

STECF notes that the implementation of the cod plan treats each of the four management areas separately, with each having independently defined their baseline amounts of fishing

effort and associated fishing mortality rates since 2009. Each area has been subject to systematic reductions according to the harvest control rule and Article 13 exemptions. If, according to the proposed amendment, effort in any cod-catching fisheries could increase and decrease freely through transfers between areas, there is then an increased risk that the cod plan will not deliver its intended objectives, especially in areas that are net receivers of additional effort.

This is the case even if the transferred effort only catches <5% cod in their total catches, because, as STECF has pointed out in its evaluation of the plan, percentages are not appropriate metrics to control fishing mortality rate (5% of a large catch is a lot of cod).

STECF notes that, if the proposed amendment were to be adopted, a transfer of effort from one area to another would not be matched by any increase/decrease in permitted landings of cod. Therefore, the ratio between permitted effort and permitted landings would change in both the donor and recipient areas.

STECF considers that the proposed amendment would add further complexity to an already complex management plan.

Furthermore STECF notes the following consequences of introducing the proposed amendment:

i. The transfer of effort and capacity between areas may result in increased fishing mortality on cod in the recipient area through the cumulative effects of an increase in the number of permitted fishing trips, despite individual fishing trips catching less than 5% cod, in compliance with Article 13.2(b). On the contrary, a reduction of effort in the donor area may result in reduced fishing mortality on cod in that area.

ii. It is not possible to predict the impact on F that might arise from this amendment as it is not clear how much effort would be transferred from one area to another, or which areas might be involved.

iii. It has been highlighted on previous occasions by STECF (STECF-11-07, Kraak et al (2013)) that there are issues which limit the effectiveness of Article 13 which would also limit the effectiveness of Article 16 if the proposal is adopted.

STECF concludes that under the current quota system, where only landings are counted against the quotas, the proposed amendment to Article 16(3) is likely to increase the risk that the catch of cod in areas in receipt of additional effort would exceed the anticipated catch from which the agreed TAC was derived and hence result in increases in fishing mortality over and above the intended rate.

The introduction of the landing obligation where all catches of cod are counted against the cod quotas will, if enforced, most likely eliminate the risk that transfers of fishing effort between areas will result in catches of cod exceeding the agreed TACs.

Reference

Kraak, S. B. M., Bailey, N., Cardinale, M., Darby, C., De Oliveira, J. A. A., Eero, M., Graham, N., Holmes, S., Jakobsen, T., Kempf, A., Kirkegaard, E., Powell, J., Scott, R. D., Simmonds, E. J., Ulrich, C., Vanhee, W., and Vinther, M. 2013. Lessons for fisheries management from the EU cod recovery plan. *Marine Policy*, 37: 200–213. http://dx.doi.org/10.1016/j.marpol.2012.05.002

6.8. Request for advice on cod avoidance and discard reduction measures taken by the Member States in 2013

Background

In December 2012 the Council decided to rollover the North Sea cod quota and effort limits. ICES advice indicated that there is "a need to change cod catchability through aspects such as gear choice, selectivity devices, and changes in the existing temporal or spatial deployment of effort. Denmark, Germany, the Netherlands, Sweden and the United Kingdom agreed that the reduction of fishing mortality for cod stocks has to remain a priority, and committed to address this by developing discard reduction and cod avoidance measures and implementing cod avoidance plans in 2013.

MS' informed the Commission about the state of play with implementation of this commitment in May 2013. The Commission would like STECF's opinion on the degree to which the measures implemented by the MS' are appropriate or whether more should be done in some fisheries and/or by certain Member States.

The Commission is aware of the difficulty in commenting on expected results and that much depends on the implementation of the measures. The Commission is asking for advice now, and will request a further ex-post evaluation once the measures have been implemented. The Commission considers that the requested ex-ante evaluation can build on the evaluation STECF will be carrying out, at the same meeting, of the Article 13 measures taken by the Member States during the 2012 management period and on the information from the STECF EWG 13-06 on effort, catches and partial F for all MS' in the North Sea that will also be available.

Terms of Reference

The STECF is requested to review the national cod avoidance plans in order to establish, in light of the commitment made by the Council in December 2013 and the decision to roll-over the TAC and effort in North Sea cod fisheries; the degree to which the measures implemented by the MS' are appropriate or whether more should be done in some fisheries and/or by certain Member States. If the review reveals that more should be done, STECF is requested to indicate which fisheries and/or Member States this concern and advise which measures could be considered to address the outstanding needs.

STECF Response

STECF notes that the December 2012 Council stated that "the reduction of fishing mortality for cod stocks has to remain a priority" (http://www.consilium.europa.eu/press/council-meetings?lang=en) and that the Council decided that in order to achieve this it would not be useful to decrease the TAC -- because this would lead to higher discards -- nor reduce effort, because that would limit the opportunities to catch other species in the demersal assemblage -- but instead to undertake additional cod avoidance measures aimed at decreasing cod catchability, basing this on ICES advice (ICES, Special request, Advice December 2012, http://www.ices.dk/community/advisory-process/Pages/Latest-advice.aspx). It is not clear whether the Council intends to achieve the F in 2013 prescribed by the cod plan harvest control rule (F_{2013} = 0.22 = 35% of F_{2008}).

STECF notes that if landings in 2013 are in line with the rollover of the 2012 cod TAC and assuming no change in discard rates, F in 2013 will be substantially reduced (25% reduction) compared to 2012. STECF notes that if the realised F in 2013 is the same as that estimated for 2012, as assumed in the ICES forecast, and the agreed TAC for 2013 is not overshot, discards are predicted to increase substantially due to high grading (by approximately 8,000 t). While recognising that the estimated increase in discards is uncertain, the magnitude of this estimate clearly indicates that in order to restrict landings to the level corresponding to the agreed 2013 TAC without increasing discards, cod avoidance measures to reduce catchability or effort will be required in 2013.

STECF notes that some Member States have stated their intention to implement additional measures aiming to reduce cod fishing mortality in 2013. The measures described in the Member States' reports are likely to help towards that aim to varying degrees. However, the information provided does not allow for a quantitative assessment of its likely effect on the fishing mortality on cod.

STECF takes the following approach in reviewing the Member States' national cod avoidance plans. From the dataset in the STECF EWG 2013 report (http://stecf.jrc.ec.europa.eu/reports/effort) STECF selected those area-gear group-Member State combinations that had > 1 tonne discards in 2012 (those with < 1 tonne have discard rates of maximally 3%) to specifically check whether they had implemented appropriate measures intended to reduce cod catchability. STECF also evaluated the partial F reductions of these groups between 2008 and 2012; a reduction by 39% is in line with the observed reduction of overall F in that period. The cod management plan stipulates that F in 2013 should be 65% of the estimated F for 2008 implying that F in 2013 should be 0.223, thereby implying a 43% reduction in F from 2012 to 2013.

Tables 6.8.1-6.8.3 list by area (North Sea, Skagerrak, Eastern Channel), the STECF evaluation of Member States' proposals. The first column in each table lists by Member State, all fleet segments with > 1 tonne discards in 2012; the second column indicates whether there are national plans announcing cod avoidance measures for that fleet segment; third column indicates the partial F reduction that has been achieved by 2012; the fourth column contains the STECF evaluation as to whether the measures are 'appropriate or more should be done'. STECF notes that in some cases where high partial F reductions have already been achieved by 2012, this was because the allowable effort was not fully taken up. In future years, the full effort allocation may be taken up and consequently, partial F may increase.

The text immediately following each of Tables 6.8.1-6.8.3 provides a summary, separately by area, of the STECF evaluation of Member States' proposals.

Table 6.8.1 North Sea (3b2)

> 1 tonne discards in 2012	Measures implemented?	Partial F achieved until 2012	STECF evaluation
BEL BT2 (no discard estimate is present for BEL BT1, and it is also not specified whether the measures are for BT2 and/or BT1)	• Beam trawls are obliged to equip the net with a top panel with meshes of at least 300 mm from June 2013 onwards. • Cod quota allocation is expressed in mean catch per day per trip. • It is not clear from the documentation whether Belgium implements RTCs in 2013.	85%	• The gear adaptation is expected to have only marginal effect. Scientific experiments have shown reductions in cod catches with top panels, but only with very large (1500mm to 3000mm) meshes. • It is not clear whether the different quota allocation will have any effect. • If RTCs are implemented they have the potential to reduce partial F.
BEL TR2	Demersal trawls are obliged to equip the net with a 110mm square mesh panel (see Commission regulation (EU) nr. 737/2012).	81%	The gear adaptation will have a negligible impact on cod selectivity.
DEU TR1	No.	48%	
DEU TR1	No additional measures over and above being under Article 13b.	44%.	
DEU TR2	Germany announces to apply Article 13 and use a sorting grid similar to the Swedish grid that received exemption under Article 11.	77%.	The Swedish grid has been evaluated by STECF for the Swedish exemption through Article 11, and has been judged appropriate.
DEU BT2	No.	20%.	
DEU GN1	No.	32%	
DNK GN1	No.	34%.	
DNK GT1	No.	Partial F has remained around 0.001 since 2008.	
DNK TR1	No.	Partial F has remained around 0.03 since 2008.	
DNK TR2	No.	75%.	
ENG TR1	• Seasonal closures – same as in previous years.	51%.	From the document is does not become clear whether additional

	• RTCs – same as in previous years. • FDF with CQ – 10 vessels; not clear whether this is the same number as in 2012. • Selective gear – not clear whether intended uptake is increased relative to 2012. • 'cod avoidance measures', e.g. by selective gear that lead to <5% cod in each trip.		measures are taken over and above those that were already implemented as part of the derogation through Article 13.
ENG TR2	• Seasonal closures – same as in previous years. • RTCs – same as in previous years. • Selective gear – not clear whether intended uptake is increased relative to 2012. • 'cod avoidance measures', e.g. by selective gear that lead to <5% cod in each trip – not clear whether intended uptake is increased relative to 2012.	60%.	From the document is does not become clear whether additional measures are taken over and above those that were already implemented as part of the derogation through Article 13.
ENG GN1	No.	40%. Its partial F is small, namely 0.002.	
FRA GT1	No.	56%.	
FRA TR2	RTCs.	94%.	RTCs have the potential to reduce partial F.
NLD BT2	No.	75%.	
NLD TR1	• Seasonal closures. • RTCs. • Move-on provision. • Gear requirements: >=130 mm cod end or 120-129 mm cod end and SMPs of 90 mm or 100-119 mm cod end and SMPs of >=100 mm and a catch composition of =< 20% cod. • FDF.	31%.	• Seasonal closures, RTCs, and the move-on provision have the potential to reduce partial F. • The use of >=130 mm cod end could result in moderate improvement in selectivity and reduced catches of cod if the populations are predominately comprised of small fish (<40cm). • The effect of SMPs is negligible for cod. • (The measures may have benefits for a range of other species.)
NLD TR2	• Seasonal closures. • RTCs. • Move-on provision. • Gear requirements: 90 mm	59%.	• Seasonal closures, RTCs, and the move-on provision have the potential to reduce partial F. • The SMPs have negligible effects

	SMP with minimum length 3 meter in the straight extension of the net or a 100 mm SMP in the taper. • Gear requirement: directly behind the head line >=15 meshes of >=150 mm plus 80 mm SMP, and catch composition of =<5% cod and the use of SDN, SSC or SPR. • FDF.		for cod (but may have benefits for a range of other species). • Scientific evidence shows no detectable effect on cod or other species from large meshes directly behind the head line plus SMP.
SCO TR1	• RTCs – same as in previous years. • 2013 Additional spatial avoidance of cod by offering incentives to vessels that undertake more fishing trips that target ground fish (Anglerfish and Megrim). • Selective gear – not clear whether intended uptake is increase relative to 2012. • FDF with CQ – not clear whether intended uptake is increased relative to 2012.	51%.	• From the document it does not become clear whether increased RTCs (or more stringent criteria), selective gear uptake, or FDF-CQ uptake are implemented over and above those that were already implemented as part of the derogation through Article 13 • Additional spatial avoidance through incentives has the potential to reduce partial F.
SCO TR2	• RTCs – same as in previous years. • FDF with CQ – not clear whether intended uptake is increased relative to 2012. • The use of 'highly selective gears' being trialled – not clear whether intended uptake is increased relative to 2012. • Selective gear – not clear whether intended uptake is increased relative to 2012.	48%.	From the document it does not become clear whether increased RTCs (or more stringent criteria), selective gear uptake, or FDF-CQ uptake are implemented over and above those that were already implemented as part of the derogation through Article 13.
SWE TR1	No.	67%.	

STECF notes that although ENG BT1 13b and ENG BT2 13b have < 1 tonne discards their partial F is increasing through increased landings, which is counter the cod plan.

STECF notes that no measures to reduce F on cod have been proposed by Denmark or Sweden and it is unclear whether England intends to take additional measures. STECF considers that the measure proposed by Belgium will have at most marginal effect in terms of reducing F on cod; the measures proposed by Germany are likely to have small effect on F on cod because they only apply to a gear group with relatively small partial F compared to the other German gear groups; the measures proposed by France will potentially reduce F on cod;

the measures proposed by the Netherlands will potentially have a moderate effect in reducing F on cod; the measures proposed by Scotland will potentially reduce F on cod.

Table 6.8.2 Skagerrak (3b1)

> 1 tonne discards in 2012	Measures implemented?	Partial F achieved until 2012	STECF evaluation
DEU GN1	No.	Partial F of this fleet increased tenfold; in 2012 it was 0.001.	
DEU TR1	No additional measures over and above being under Article 13b.	The partial F for the German TR1 fleet has almost tripled since 2008 from 0.00085 to 0.0025	
DNK GN1	No.	38%.	
DNK GT1	No.	Partial F remained around 0.0005 since 2008.	
DNK TR1	No.	Partial F remained around 0.013 since 2008.	
DNK TR2	Until 2012 the minimum mesh size in the mixed demersal trawl fisheries in the Skagerrak were 90 mm diamond mesh. From 1st February 2013 the minimum mesh size is 120 mm diamond mesh. However, vessels may still us 90 mm diamond mesh size in the codend if the trawl is equipped with one of the following sorting	Partial F remained around 0.02 since 2008.	The gear modifications are expected to result in: Gear Reduction in % of cod catches Below MLS Above MLS 120 58 22 270 diamond 44 - 69 39 - 61 or 140 square

	panels: • 270 mm diamond mesh 140 mm square mesh		
SWE TR1	No.	84%.	
SWE TR2	• Mandatory use of sorting grid since the current management year.	29%.	The Swedish grid has been evaluated by STECF for the Swedish exemption through Article 11, and has been judged appropriate.

STECF notes that Germany did not propose any measures to reduce F on cod. STECF considers that the measures implemented for the Danish TR2 gear group in 2013 are likely to result in a reduction in partial F on cod for that gear group. In the absence of any proposed measures for the Danish TR1 fleet, partial F for that fleet is expected to remain at about the recent rate. Sweden has proposed measures that will likely reduce F on cod but the magnitude of the effect is not known.

Eastern Channel (3b3)

> 1 tonne discards in 2012	Measures implemented?	Partial F achieved until 2012	STECF evaluation
BEL BT2	• Beam trawls are obliged to equip the net with a top panel with meshes of at least 300 mm from June 2013 onwards. • Cod quota allocation is expressed in mean catch per day per trip. • It is not clear from the documentation whether Belgium implements RTCs in 2013.	89%.	• The gear adaptation is expected to have only marginal effect. Scientific experiments have shown reductions in cod catches with top panels, but only with very large (1500mm to 3000mm) meshes. • It is not clear whether the different quota allocation will have any effect. • If RTCs are implemented they have the potential to reduce partial F.
FRA GT1	No.	26%.	

STECF considers that the proposed measures by Belgium have at most a marginal effect in reducing F on cod and notes that France has not announced any such measures.

6.9. Request for an STECF opinion on the implementation of Article 13.2 of the Regulation (EC) No 1342/2008

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 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).. STECF made ex-ante evaluation of some of these proposals in November 2012 (Plen 12-03). 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, UK, IE , DE and DK

Background documentation can be found on:

https://stecf.jrc.ec.europa.eu/web/stecf/plen1302

Terms of Reference

Based on information provided by the United Kingdom, France, Ireland, Germany and Denmark justifying fishing effort increases for 2012 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, the 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 in 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 are 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 13-06 and in conjunction with the information provided by Member States justifying fishing effort increases for 2012 pursuant to Article 13.2 of the cod plan Council Regulation (EC) No 1342/2008) under conditions other than paragraph 13.2 (c), the 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 are requested to identify instances were 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 on fishing mortality as a result of the actions undertaken under Article 13 (2).

STECF response

Information on applications of Article 13 provisions was available from 5 member states. The material supplied was very variable in information content and extent and included i) a Commission note to the effect that one member state (Germany) had made use of Article 13b but was not required to supply a report ii) tabular summaries of vessels utilising Article 13 provisions (France and Ireland) and iii) more substantive submissions including data, analysis and descriptive narrative (Denmark, and UK(Scotland)).

Previous STECF comments regarding the difficulties associated with the evaluation of the effects of the Article 13c provisions remain relevant. The requirement to compare reductions in fishing mortality (F) achieved through the use of Article 13c provisions with expected reductions arising from the effort reductions prescribed by the cod plan is confounded by a number of factors. For example, in the Kattegat there is no estimate of F on which to base any comparison and in the Irish Sea the stock assessment is based on landings only so that the true F (related to catch) is unknown. Furthermore, the wording of the regulation implies an underlying assumption that there is a direct (1:1) relationship between effort and fishing mortality whereas in practice this is not always clear-cut – this clearly affects the understanding of what is meant by 'would be expected'. The Commission request to assist in developing an alternative implementation (dealing more directly with catch information) is dealt with in TOR 6.12.

Notwithstanding the difficulties described above, STECF has attempted to carry out an evaluation making use of the summaries provided by MS and also with reference to the partial F values for the affected fleets as computed by EWG 13_06 (information available in Appendix 07). In the case of 13.2c, where possible, any observed trend in partial F (2008 to 2012) was compared with i) the required reduction under the cod plan and ii) the observed change in overall F for the stock concerned.

In situations where countries used Article 13 provisions other than the conditions of 13.2.c, the STECF evaluations and comments were mainly based on outputs from EWG 13_06

France

France utilised Article 13.2b in several areas covered by the cod plan. No other conditions under Article 13 were used. A short narrative was provided by France which described the application for additional effort in 2012 and the reasons why not all of this effort was in the end used in 2012. The report provided a table summarising the effort quantities and listed the vessels benefitting from the provision. The report did not, however, provide any information with which it was possible to evaluate whether the <5% cod condition had been met. STECF used information taken from the Appendices produced by EWG13_06 to evaluate performance against Article 13. STECF notes that the amounts of effort cited in the submitted report do not seem to match those included in the EWG database.

In the North Sea (3b2), France utilised Article 13.2b for part of its TR1 fleet. The available information (EWG13_06 App 07) suggests there is no measurable fishing mortality on cod associated with this TR1 group of Article 13 vessels. Only a very small amount of effort was, in the end, attributed to this group and this was not incompatible with achieving objectives of the cod plan. Overall, French TR1 effort showed a marked reduction between 2011 and 2012.

In the eastern Channel (3b3), France utilised Article 13.2b for part of its TR2 fleet. The available information (EWG13_06 App 07) suggests there is no measurable fishing mortality on cod associated with this TR2 group of Article 13 vessels. The effort recorded for this group in 2012 was very small (<5% of the effort of the vessels not operating under Article 13.2b). This is not considered incompatible with achieving objectives of the cod plan.

In the West of Scotland (3d), France utilised Article 13.2b for part of its TR1 fleet. The available information (EWG13_06 App 07) suggests that the amount of effort attributed to this group was relatively high (99% of the total French TR1 effort and 23% of the overall effort for the area). The estimate of partial F for this group, however, suggests it only contributed 0.2% to the total mortality for the area which suggests that the additional effort is not incompatible with the cod plan.

The overall conclusion based on information available in the EWG13-06 appendices is that additional effort used by France in various areas has not been incompatible with the objectives of the cod plan. STECF notes, however, that in the report from France, there was no indication of the extent of observer sampling covering vessels operating under the Article 13.2b (<5% cod in catches), only a statement to say that vessels which did not comply with the condition were removed from the provision. In order to provide some assurance that the available figures truly represent catches made, relevant observer information should be provided by France.

UK

During 2012 the 3 UK national administrations made use of the provisions under Article 13 in a number of the cod plan areas. Scotland provided a report giving details of observer sampling in 2012 and including attempts to evaluate the effectiveness of real time closures and the combined effects of Article 13.2c measures. Information supplied by the Commission for England and Wales and Northern Ireland was in fact proposals for effort use and cod avoidance measures *for 2013-2014* and does not constitute a report of 2012 activity under Article 13.

In order to complete its evaluation of the effects of UK vessels operating under Article 13, STECF has used information from the Scottish report and information on effort, catches and partial Fs taken from the Appendices produced by EWG13_06 – particularly Appendix 07 detailing partial Fs.

In the North Sea (3b2), England and Wales utilised 13.2b for TR1, TR2, BT1 and BT2. Effort used by these groups was generally fairly low (the maximum was BT2 at 4% of total international effort). In all cases the partial F was recorded as zero (3 decimal places) suggesting that the allocation of additional effort to these vessels was not incompatible with the objectives of the cod plan. England and Wales also utilised 13.2c for its TR1 and TR2 fleets. In the case of the TR1 vessels, use of article 13.2.c has allowed effort to be maintained, while partial F has reduced by 56% in the period from 2008 to 2012. For the TR2 group of vessels using Article 13.2c, the effort used dropped markedly and here the decline in partial F was 66%. These reductions are in line with the expectations of the cod plan (55% reduction by 2012) and are well in excess of the reduction achieved for total F (39% from 2008 to 2012).

Northern Ireland utilised 13.2 a, b and c for both TR1and TR2 vessels in the North Sea, however, the amounts of effort recorded were very small and the partial Fs were, in all cases estimated to be zero. This activity is not considered incompatible with the objectives of the cod plan.

Scotland utilised 13.2c in 2012 for most of its TR1 and TR2 fleets (effort reported for vessels not in the scheme was relatively low). In the period 2009 to 2011 13.2b was also utilised but this provision was discontinued in 2012 and only very small amounts of effort were recorded against 13.2b. The report from Scotland for North Sea measures in 2012 includes:

- information on Real Time Closures (173) showing a significant movement away from RTCs by vessels and a reduced cod catch.
- A summary of selective gears in use (used by 25% of TR1 vessels and all of TR2 – the latter using highly selective gear that reduce cod catch by 60%)
- Catch rate information from observer sampling on vessels employing different types of selective gear and also FDF vessels. The overall result for all vessels showed a declining catch rate at a time of increasing stock size.
- Reduced discard rates, particularly in the TR1
- Catch tracking plots indicating that overall catch was in line with ICES predictions.

In the case of the TR1 vessels, use of article 13.2.c has allowed effort reductions to be limited to 23% while partial F has reduced by 51% in the period from 2008 to 2012. For the TR2 group of vessels using Article 13.2c, the effort reduced by about 42% and here the decline in partial F was 50%. These reductions are slightly less than the expectations of the cod plan (55% reduction by 2012) but nevertheless represent substantial declines which are well in excess of the reduction achieved for total F (39% from 2008 to 2012.

In the Eastern Channel (3b3), England and Wales utilised 13.2.b for three gear groups, BT2, LL1 and TR2. Effort used by these groups was generally fairly low (maximum was TR2 at 3% of total international effort). In all cases the partial F was recorded as zero (3 decimal places) suggesting that the allocation of additional effort to vessels using the <5% cod was not incompatible with the objectives of the cod plan. England and Wales also utilised Article 13.2c for its TR1 and TR2 fleets. In the case of the TR1 vessels, effort recorded as article 13.2.c is negligible and partial F is zero. For the TR2 group of vessels using Article 13.2c, the effort is also very small (<1% of total international effort) and has anyway declined by 50% from 2008 to 2012. Again, partial F is zero (3 decimal places in EWG13_06 Appendix 7). Scotland also records effort in the channel against the Article 13 provisions (namely 13.2b and 13.2c). In both cases the quantity is small (less than 1% of total international) and the TR2 effort only occurs sporadically. In both cases partial F is zero and as a consequence STECF considers that provision of additional effort is not incompatible with the cod plan.

In the Irish Sea (3c), England and Wales utilised 13.2b and 13.2c for TR1 and TR2. Effort recorded against these provisions was relatively low (in all cases less than 2%) and very variable suggesting intermittent activity. Estimates of partial Fs of landings also suggest a limited impact but this does not take into account mortality associated with discards. Reference to the catch information in Appendix 02_2 of EWG13_6 suggests the catches in this case are quite low, (in 2012 around 1% of the catch was associated with this group operating under Article 13).

Northern Ireland utilised 13.2 a, b and c for TR2 vessels in the Irish Sea and 13.2b and c for TR1. TR1 effort recorded against 13.2b has remained relatively stable at a low level (<1% of total international effort) while the effort for 13.2c was high in 2009 but dropped by almost 97% by 2012. The partial Fs associated with landings only are difficult to interpret however, catch quantities in both cases amount to about 3% of the international catch. TR2 effort recorded against 13.2a was about 5% of total effort while catch associated with this was very low (0.2% of total catch) – this suggests the effort allocated to Article 13.2a is not incompatible with the cod plan. In marked contrast, the effort recorded against the 13.2b category has increased in the last 4 years and in 2012 represented 44% of the international effort. The associated catch (387 tonnes, most of which was discarded) amounted to 54% of the total international catch. This quantity of catch, taken under Article 13.2b (<5% cod in catches) which is intended to reflect low cod catching operations, is not compatible with the objectives of the cod plan. Northern Ireland effort under TR2 Article 13.2c has dropped markedly since 2009 amounting to around 4% of the international total in 2012. Catches by this category have fallen in line with the effort reduction and were around 5% of the international catch.

In the West of Scotland (3d), Scotland made use of Articles 13.2b, c and d in its TR1 and fleet and 13.2b and 13.2c in its TR2 fleet. No other countries made use of Article 13 provisions. Effort associated with TR1 13.2b (<5% cod) has generally been low (below 1% of international effort) and the associated partial F neglibible. The exception was 2011 when recorded effort increased (to 5% of the total) with a marked rise in partial F. Based on the 2011 observation, this could not be considered compatible with the objectives of the cod plan, however in 2012 effort and partial F was very low. If this situation continues the Article 13.2b provision is not incompatible with the cod plan. The TR1 vessels operating under 13.2c, cod avoidance measures, have in the past been subject to west coast Real Time Closures. These closures were discontinued in 2012 on the west coast owing to concerns over their effectiveness in that area. The report from Scotland includes some observations of vessels using North Sea selective gears on the west coast although the scale of uptake is limited. Effort recorded for this group is variable (1-4% of the international total) with the highest value in 2012. The general level of partial F estimates is relatively low compared with the high value of overall F in the area, however, there is no indication of a downward trend for this group. STECF concludes that the limited Article 13.2c measures in this area have not been sufficient to reduce fishing mortality. The effort recorded against the third category of TR1 activity (this time under Article 13d was between 12 and 18% of the international total. This provision allows for effort outside the cod plan zone – in this case to the west of the zone. Partial F results indicate that the 13.2d provision accounted for a very large proportion of the total mortality on the stock (between 43% and 89% in the years 2009 to 2012) with the highest partial Fs occurring in the last two years. STECF concludes that this is not compatible with the objectives of the cod plan and again draws attention to the fact that the area occupied by the stock is not fully covered by spatial definition of the cod plan zone.

Effort expended by TR2 vessels operating under 13.2b provision was relatively high (accounting for 22-29% of total international). In absolute terms the effort has declined by 49% over the period 2008-2012. Partial F for this group (EWG13_06 Appendix 7) is very low and has declined sharply in the last couple of years amounting to only 0.1% of total F in 2012. STECF concludes that effort attributed to this provision for TR2 vessels is not incompatible with the cod plan. For other TR2 vessels operating under 13.2c, measures in the west of Scotland have included the introduction of a 200mm square meshed panel. Effort recorded for this group was generally low (2-6% of total international) but increased to over

20% in 2012 owing to a large-scale shift of TR2 activity by boats from the North Sea. Partial F is very low for this group (below 2% of total F) and has declined since 2008 – in 2012 it accounted for less than 0.5% of total F, despite the reported major rise in effort. Taken together, the TR2 partial F under Article 13 provision has dropped by 74% since 2008.

STECF notes that in the absence of a report from England and Wales and Northern Ireland, there was no indication of the extent of observer sampling covering vessels operating under the various Article 13 provisions. In order to provide some assurance that the available figures truly represent catches made by vessels operating under 13.2b (<5% cod in catches) and to judge the effectiveness of the different Article 13.2c measures, relevant observer information at the vessel level should be provided by England and Wales and Northern Ireland.

Ireland

During 2012, Ireland utilised several parts of the Article 13 provision in two areas of operation, the Irish Sea and West of Scotland. Two data tables were provided, one showing calculations of the effort buybacks and the other summarising vessels using two types of selective gears and describing spatial aspects of management utilised by Ireland. There was no report provided by Ireland of out-turn results for 2012.

In the Irish Sea (3c), Ireland utilised two selective TR2 gears under Article 13.2a intended to deliver very low catches of cod (the grid and the inclined separator panel) The available information on out-turn results for this group of vessels (EWG13_06) includes partial F information for landings only, landings and discard quantities and amounts of effort. Since 2009, effort attributed to this group has increased by over 10 times contributing 20% to the overall Irish Sea effort in 2012. In terms of the partial F associated with landings only, this increased to begin with but has stabilised recently despite the continuing rise in effort and around 16% of the overall F associated with landings was attributable to this group in 2012. Partial F of the catch was not available, however, landings and discard quantities in 2012 amounted to about 65 tonnes compared with 714 tonnes of total international catch (ie under 10%) and catches made by the combined Irish TR2 vessels has declined by 40% since 2008. The results of the last couple of years suggest that mortality by this group has not increased despite the significant rise in effort. On the other hand, the Article 13.2a text specifically requires technical attributes which catch less than 1 % cod (highly selective gear) implying very low cod catches indeed. Results suggest that despite the considerable achievements, further reductions in cod catch are required before the activities of this Article 13.2a group could be considered compatible with the objectives of the cod plan.

In the west of Scotland (3d), Ireland utilised two other provisions under Article 13 for parts of its TR1 fleet. In the south of the ICES VIa area, a cod closure was in place as a cod avoidance measure operated under Article 13.2c. Effort attributabed to vessels utilising this article was low (<2% of the total west of Scotland effort) and the associated partial F of catches was also extremely low. Data available in EWG13_06 App 07 suggest the partial F has declined to zero in the last couple of years and the very low values in the previous years render the difference almost unmeasurable. STECF has evaluated the benefits of this closure in previous years and concluded it was unlikely to contribute greatly to reducing F on cod in VIa.

Ireland also records effort and catches in the west of Scotland (3d) under Article 13.2d which relates to fishing operations outside (to the west of) the cod plan area. The effort recorded by the Irish Article 13.2d vessels has generally been low (under 3% of the total west of Scotland international effort) and in 2012 dropped to below 0.5%. The partial F estimates for this group are also extremely low and in 2012 amounted to about 0.1% of the total F. The level of effort and partial F by this group does not appear to be incompatible with the objectives of the cod plan.

STECF notes, however, that in the absence of a report from Ireland, there was no indication of the extent of observer sampling covering vessels operating under the various Article 13 provisions. In order to provide some assurance that the available figures truly represent catches made and to judge the effectiveness of the different measures, relevant observer information should be provided by Ireland.

Germany

Germany utilised Article 13.2b in several areas covered by the cod plan. No other conditions under Article 13 were used. No report was available from Germany and so information was taken from the Appendices produced by EWG13_06.

For Kattegat (Cod area 3a), no stock assessment (and therefore no partial F values) was available. Information provided in Appendix 02 2 of EWG13_06 suggests that total catches of cod by German TR2 vessels using 13.2b have been small (10-100kg) or zero in recent years and would not have contributed significantly to mortality. The extra effort has not led to increased catches and does not therefore appear to be incompatible with the objectives of the plan.

In the Skagerrak (3b1), Germany utilised Article 13.2b for part of its TR1 fleet. The available information (EWG13_06 App 07) suggests there is no fishing mortality on cod associated with this group of vessels.

In the North Sea (3b2), Germany utilised Article 13.2b for part of its TR1 fleet and part of its TR2 fleet. The available information (EWG13_06 App 07) suggests there is no fishing mortality on cod associated with the TR2 group of Article 13 vessels. In the case of the TR1 Article 13 vessels, partial F is very low (0.001) and is only about 6% of that of the TR1 boats not on Article 13; furthermore the partial F declined in 2012. In contrast the effort associated with the Article 13 boats is presently about 1.5 times bigger than that of the boats not on Article 13). The partial F results suggest that the extra effort has not impaired the objectives of the plan.

In the West of Scotland (3d) Germany recorded a very small amount of effort in 2010 and 2012 associated with the segment of is TR1 fleet utilising Article 13.2b . The available information (EWG13_06 App 07) suggests there is no fishing mortality on cod associated with this group of vessels.

The overall conclusion based on information available in the EWG13-06 appendices is that additional effort used by Germany in various areas has not been incompatible with the objectives of the cod plan. STECF notes, however, that in the absence of a report from Germany, there was no indication of the extent of observer sampling covering vessels

operating under the Article 13.2b (<5% cod in catches). In order to provide some assurance that the available figures truly represent catches made, relevant observer information should be provided by Germany.

Denmark

Denmark utilised Article 13.2c in the Kattegat (3a) TR2 fleet. Several reports were provided including peer reviewed papers describing the spatial approach and gear measures in place to reduce cod mortality by 69% (from 2009 to 2012). Explanatory communications were also provided and included a summary of control measures, and a summary the overall cod reduction activities ie a 25% cut in effort for the first year followed by Article 13.2c measures as follows:

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 size structured modelling approach which includes spatial distribution information, the Danish reports give rise to an *expected* reduction in mortality of the combined measures of 76%, however, no attempt was made to estimate the actual, observed reduction and data from the vessels involved was not provided. In order to consider outturn observed data, STECF used information from the Appendices produced by EWG13_06 in its evaluation of the effectiveness of the Danish Article 13.2c measures.

Information in Appendix 01_2 of EWG13_06 shows that all the Danish TR2 effort was assigned to Article 13.2c. In 2012, this amounted to just under 77% of the total effort expended in the Kattegat. The effort amount used has stayed fairly constant since 2008 (average 2008 to 2012 = 2193760 KWdays). For Kattegat (Cod area 3a), no stock assessment (and therefore no partial F values) was available. Information provided in Appendix 02 2 of EWG13_06 suggests that in 2012, total catches of cod under Article 13.2c account for just under 93% of the total catches in the area. The data also suggest that since the introduction of the measures in 2010, the catches of cod first of all rose and have since declined, most noticeably in 2012. The 2012 value represents a 45% drop from the 2008 estimated Danish TR2 catch. STECF concludes that the absence of a stock assessment frustrates the evaluation process and that it is difficult to comment on the actual effectiveness of the TR2 measures. In view of observed catches, however, STECF considers that the optimistic *predictions* of reduction in mortality may be premature.

STECF notes that there was no indication of the extent of observer sampling covering vessels operating the various measures employed under Article 13.2c. In order to provide an indication of the day to day effectiveness of the gears in use and the extent to which the spatial modelling is actually reflected by fishing vessel activity and experiences of encountering cod, relevant observer information should be provided by Denmark.

6.10. Request to the STECF to rank the effort groups under the cod plan fishing effort regime according to their contribution to cod catches in 2012

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 References

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 2012.

STECF response

The basis for the STECF response is data from log books and associated biological discard sampling received from Member States in response to the 2013 DCF data call to support fishing effort regime evaluations.0

Tables 6.10.1 and 6.10.2 present the annual cod catches, cumulative cod catches, relative contribution and cumulative relative contribution by management area and regulated gear groupings 2003-2007 and 2008-2012, ranked in ascending order. Orange rows indicate gears in excess of cumulative 20% contribution to cod catches. The same information is given for cod landings in Tables 6.10.3 and 6.10.4.

Based on ranked catch estimates, STECF concludes that in the Kattegat (area 3a) only the dominating TR2 gear exceeded the 20% limit in 2012. In area 3b, the Skagerrak, North Sea including 2EU and the Eastern Channel, both TR1 and TR2 gear groups exceeded the 20% limit in 2012. STECF notes that the report of STECF EWG 13-06 also provides separate gear rankings for the Skagerrak (area 3b1, the North Sea and 2 EU (area 3b2) and the Eastern Channel (area 3b3). In the Irish Sea (area 3c), where the discard information is poor, the gears in excess of 20% cumulative catch contribution are TR1 and TR2. The TR1 gear group is identified as the only gear which exceeds the 20% limit in area 3d, the area to the West of Scotland. STECF emphasizes that the information provided for cod catches to the West of Scotland corresponds to the entire ICES Div. VIa. Based on the data submissions in 2013 STECF estimated the majority of cod catches taken by regulated gears in ICES Div. in 2011 and 2012 to be taken outside the cod recovery zone which is delimited by the West of Scotland management line.

Table 6.10.1 Annual cod catches (C, t), cumulative cod catches (C cum, t), relative contribution (Rel) and cumulative relative contribution (Rel cum) by management area and regulated gears 2003-2007, ranked in ascending order according to the relative contribution in 2012. Orange rows are in excess of cumulative 20%.

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 C	2003 C cum	2003 Rel	2003 Rel cum	2004 C	2004 C cum	2004 Rel	2004 Rel cum	2005 C	2005 C cum	2005 Rel	2005 Rel cum	2006 C	2006 C cum	2006 Rel	2006 Rel cum	2007 C	2007 C cum	2007 Rel	2007 Rel cum
IIa	3a	COD	LL1	20	20	0.00438	0.00438	2	2	0.00076	0.00076	1	1	0.00076	0.00076	3	3	0.00191	0.00191	0	0	0.00000	0.00000
IIa	3a	COD	GT1	57	77	0.01248	0.01686	16	18	0.00612	0.00688	7	8	0.00531	0.00607	3	6	0.00191	0.00382	4	4	0.00372	0.00372
IIa	3a	COD	TR3	106	183	0.02320	0.04006	66	84	0.02524	0.03212	7	15	0.00531	0.01138	3	9	0.00191	0.00573	1	5	0.00093	0.00465
IIa	3a	COD	GN1	1448	1631	0.31692	0.35698	232	316	0.08872	0.12084	27	42	0.02047	0.03185	26	35	0.01659	0.02232	29	34	0.02695	0.03160
IIa	3a	COD	TR1	292	1923	0.06391	0.42089	167	483	0.06386	0.18470	149	191	0.11296	0.14481	71	106	0.04531	0.06763	140	174	0.13011	0.16171
IIa	3a	COD	TR2	2646	4569	0.57912	1.00001	2132	2615	0.81530	1.00000	1128	1319	0.85519	1.00000	1461	1567	0.93235	0.99998	902	1076	0.83829	1.00000
IIa	3b	COD	TR3	37	37	0.00130	0.00130	17	17	0.00060	0.00060	17	17	0.00054	0.00054	8	8	0.00026	0.00026	4	4	0.00012	0.00012
IIa	3b	COD	LL1	219	256	0.00768	0.00898	131	148	0.00465	0.00525	136	153	0.00431	0.00485	231	239	0.00746	0.00772	184	188	0.00538	0.00550
IIa	3b	COD	GT1	502	758	0.01761	0.02659	346	494	0.01228	0.01753	347	500	0.01099	0.01584	352	591	0.01136	0.01908	345	533	0.01009	0.01559
IIa	3b	COD	BT1	731	1489	0.02564	0.05223	1188	1682	0.04217	0.05970	1128	1628	0.03574	0.05158	1355	1946	0.04374	0.06282	690	1223	0.02018	0.03577
IIa	3b	COD	BT2	3562	5051	0.12496	0.17719	3882	5564	0.13779	0.19749	3023	4651	0.09578	0.14736	2696	4642	0.08704	0.14986	2306	3529	0.06745	0.10322
IIa	3b	COD	GN1	3535	8586	0.12401	0.30120	4181	9745	0.14840	0.34589	3989	8640	0.12638	0.27374	3416	8058	0.11028	0.26014	2504	6033	0.07324	0.17646
IIa	3b	COD	TR2	6706	15292	0.23525	0.53645	6041	15786	0.21443	0.56032	6353	14993	0.20128	0.47502	7022	15080	0.22669	0.48683	8967	15000	0.26228	0.43874
IIa	3b	COD	TR1	13214	28506	0.46355	1.00000	12387	28173	0.43968	1.00000	16570	31563	0.52498	1.00000	15896	30976	0.51317	1.00000	19189	34189	0.56126	1.00000
IIa	3c	COD	GT1		0		0.00000		0		0.00000		0		0.00000		0		0.00000	1	1	0.00081	0.00081
IIa	3c	COD	LL1	1	1	0.00075	0.00075	1	1	0.00085	0.00085	2	2	0.00201	0.00201	3	3	0.00318	0.00318	1	2	0.00081	0.00162
IIa	3c	COD	TR3		1		0.00075		1		0.00085	0	2	0.00000	0.00201		3		0.00318		2		0.00162
IIa	3c	COD	GN1	93	94	0.07008	0.07083	117	118	0.09907	0.09992	55	57	0.05517	0.05718	131	134	0.13892	0.14210	329	331	0.26575	0.26737
IIa	3c	COD	BT2	247	341	0.18613	0.25696	125	243	0.10584	0.20576	156	213	0.15647	0.21365	78	212	0.08271	0.22481	128	459	0.10339	0.37076
IIa	3c	COD	TR1	568	909	0.42803	0.68499	456	699	0.38611	0.59187	375	588	0.37613	0.58978	416	628	0.44115	0.66596	339	798	0.27383	0.64459
IIa	3c	COD	TR2	418	1327	0.31500	0.99999	482	1181	0.40813	1.00000	409	997	0.41023	1.00001	315	943	0.33404	1.00000	440	1238	0.35541	1.00000
IIa	3d	COD	BT1	2	2	0.00154	0.00154	6	6	0.00955	0.00955	1	1	0.00188	0.00188	0	0	0.00000	0.00000		0		0.00000
IIa	3d	COD	BT2	0	2	0.00000	0.00154		6		0.00955		1		0.00188		0		0.00000		0		0.00000
IIa	3d	COD	GN1	6	8	0.00462	0.00616	1	7	0.00159	0.01114	6	7	0.01130	0.01318	9	9	0.00853	0.00853	14	14	0.01029	0.01029
IIa	3d	COD	LL1	8	16	0.00615	0.01231	5	12	0.00796	0.01910	5	12	0.00942	0.02260	14	23	0.01327	0.02180	8	22	0.00588	0.01617
IIa	3d	COD	TR3	0	16	0.00000	0.01231		12		0.01910	0	12	0.00000	0.02260		23		0.02180	0	22	0.00000	0.01617
IIa	3d	COD	TR2	283	299	0.21769	0.23000	128	140	0.20382	0.22292	79	91	0.14878	0.17138	266	289	0.25213	0.27393	219	241	0.16103	0.17720
IIa	3d	COD	TR1	1001	1300	0.77000	1.00000	488	628	0.77707	0.99999	440	531	0.82863	1.00001	766	1055	0.72607	1.00000	1119	1360	0.82279	0.99999

Table 6.10.2 Annual cod catches (C, t), cumulative cod catches (C cum, t), relative contribution (Rel) and cumulative relative contribution (Rel cum) by management area and regulated gears 2008-2012, ranked in ascending order according to the relative contribution in 2012. Orange rows are in excess of cumulative 20%.

ANNEX	REG_AREA	SPECIES	REG_GEAR	2008 C	2008 C cur	2008 Rel	2008 Rel c	2009 C	2009 C cur	2009 Rel	2009 Rel c	2010 C	2010 C cur	2010 Rel	2010 Rel c	2011 C	2011 C cur	2011 Rel	2011 Rel c	2012 C	2012 C cur	2012 Rel	2012 Rel cu
IIa	3a	COD	LL1	14	14	0.02559	0.02559		0		0.00000		0		0.00000		0		0.00000		0		0.00000
IIa	3a	COD	GT1	3	17	0.00548	0.03107	2	2	0.00649	0.00649	1	1	0.00312	0.00312	0	0	0.00000	0.00000	0	0	0.00000	0.00000
IIa	3a	COD	TR3	0	17	0.00000	0.03107	0	2	0.00000	0.00649		1		0.00312	0	0	0.00000	0.00000	1	1	0.00490	0.00490
IIa	3a	COD	GN1	47	64	0.08592	0.11699	109	111	0.35390	0.36039	14	15	0.04361	0.04673	36	36	0.10714	0.10714	1	2	0.00490	0.00980
IIa	3a	COD	TR1	42	106	0.07678	0.19377	18	129	0.05844	0.41883	6	21	0.01869	0.06542	5	41	0.01488	0.12202	6	8	0.02941	0.03921
IIa	3a	COD	TR2	441	547	0.80622	0.99999	179	308	0.58117	1.00000	300	321	0.93458	1.00000	295	336	0.87798	1.00000	196	204	0.96078	0.99999
IIa	3b	COD	TR3	1	1	0.00002	0.00002	3	3	0.00008	0.00008	19	19	0.00052	0.00052	4	4	0.00012	0.00012	3	3	0.00009	0.00009
IIa	3b	COD	LL1	209	210	0.00508	0.00510	129	132	0.00332	0.00340	292	311	0.00793	0.00845	186	190	0.00581	0.00593	169	172	0.00529	0.00538
IIa	3b	COD	GT1	377	587	0.00916	0.01426	480	612	0.01237	0.01577	420	731	0.01141	0.01986	759	949	0.02370	0.02963	450	622	0.01408	0.01946
IIa	3b	COD	BT1	548	1135	0.01331	0.02757	231	843	0.00595	0.02172	325	1056	0.00883	0.02869	412	1361	0.01287	0.04250	699	1321	0.02186	0.04132
IIa	3b	COD	BT2	3560	4695	0.08649	0.11406	2773	3616	0.07146	0.09318	2119	3175	0.05758	0.08627	1456	2817	0.04547	0.08797	1190	2511	0.03722	0.07854
IIa	3b	COD	GN1	2602	7297	0.06322	0.17728	2982	6598	0.07685	0.17003	3432	6607	0.09326	0.17953	3033	5850	0.09472	0.18269	2520	5031	0.07882	0.15736
IIa	3b	COD	TR2	6085	13382	0.14783	0.32511	6198	12796	0.15973	0.32976	5509	12116	0.14970	0.32923	5924	11774	0.18500	0.36769	4912	9943	0.15364	0.31100
IIa	3b	COD	TR1	27779	41161	0.67489	1.00000	26008	38804	0.67024	1.00000	24684	36800	0.67076	0.99999	20247	32021	0.63230	0.99999	22027	31970	0.68899	0.99999
IIa	3c	COD	GT1	1	1	0.00066	0.00066	1	1	0.00141	0.00141	2	2	0.00327	0.00327	1	1	0.00192	0.00192		0		0.00000
IIa	3c	COD	LL1	12	13	0.00788	0.00854		1		0.00141		2		0.00327	0	1	0.00000	0.00192	0	0	0.00000	0.00000
IIa	3c	COD	TR3		13		0.00854		1		0.00141		2		0.00327	0	1	0.00000	0.00192	0	0	0.00000	0.00000
IIa	3c	COD	GN1	392	405	0.25739	0.26593	78	79	0.11017	0.11158	78	80	0.12766	0.13093	70	71	0.13410	0.13602	44	44	0.06197	0.06197
IIa	3c	COD	BT2	32	437	0.02101	0.28694	26	105	0.03672	0.14830	62	142	0.10147	0.23240	114	185	0.21839	0.35441	62	106	0.08732	0.14929
IIa	3c	COD	TR1	468	905	0.30729	0.59423	373	478	0.52684	0.67514	245	387	0.40098	0.63338	162	347	0.31034	0.66475	90	196	0.12676	0.27605
IIa	3c	COD	TR2	618	1523	0.40578	1.00001	230	708	0.32486	1.00000	224	611	0.36661	0.99999	175	522	0.33525	1.00000	514	710	0.72394	0.99999
IIa	3d	COD	BT1		0		0.00000		0		0.00000		0		0.00000		0		0.00000		0		0.00000
IIa	3d	COD	BT2		0		0.00000		0		0.00000		0		0.00000		0		0.00000		0		0.00000
IIa	3d	COD	GN1	10	10	0.00814	0.00814	6	6	0.00678	0.00678	3	3	0.00254	0.00254	3	3	0.00188	0.00188		0		0.00000
IIa	3d	COD	LL1	0	10	0.00000	0.00814	0	6	0.00000	0.00678	0	3	0.00000	0.00254		3		0.00188		0		0.00000
IIa	3d	COD	TR3	0	10	0.00000	0.00814	0	6	0.00000	0.00678		3		0.00254	0	3	0.00000	0.00188	0	0	0.00000	0.00000
IIa	3d	COD	TR2	65	75	0.05289	0.06103	58	64	0.06554	0.07232	6	9	0.00508	0.00762	9	12	0.00564	0.00752	15	15	0.01360	0.01360
IIa	3d	COD	TR1	1154	1229	0.93897	1.00000	821	885	0.92768	1.00000	1172	1181	0.99238	1.00000	1584	1596	0.99248	1.00000	1088	1103	0.98640	1.00000

Table 6.10.3 Annual cod landings (L, t), cumulative cod landings (L cum, t), relative contribution (Rel) and cumulative relative contribution (Rel cum) by management area and regulated gears 2003-2007, ranked in ascending order according to the relative contribution in 2012. Orange rows are in excess of cumulative 20%.

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 L	2003 L cum	2003 Rel	2003 Rel cum	2004 L	2004 L cum	2004 Rel	2004 Rel cum	2005 L	2005 L cum	2005 Rel	2005 Rel cum	2006 L	2006 L cum	2006 Rel	2006 Rel cum	2007 L	2007 L cum	2007 Rel	2007 Rel cum
IIa	3a	COD	LL1	20	20	0.00996	0.00996	2	2	0.00173	0.00173	1	1	0.00124	0.00124	3	3	0.00412	0.00412	0	0	0.00000	0.00000
IIa	3a	COD	GT1	21	41	0.01045	0.02041	15	17	0.01299	0.01472	7	8	0.00870	0.00994	3	6	0.00412	0.00824	4	4	0.00688	0.00688
IIa	3a	COD	TR3	51	92	0.02539	0.04580	8	25	0.00693	0.02165	7	15	0.00870	0.01864	3	9	0.00412	0.01236	1	5	0.00172	0.00860
IIa	3a	COD	GN1	91	183	0.04530	0.09110	36	61	0.03117	0.05282	27	42	0.03354	0.05218	26	35	0.03571	0.04807	29	34	0.04991	0.05851
IIa	3a	COD	TR1	207	390	0.10304	0.19414	111	172	0.09610	0.14892	120	162	0.14907	0.20125	51	86	0.07005	0.11812	85	119	0.14630	0.20481
IIa	3a	COD	TR2	1619	2009	0.80587	1.00001	983	1155	0.85108	1.00000	643	805	0.79876	1.00001	642	728	0.88187	0.99999	462	581	0.79518	0.99999
IIa	3b	COD	TR3	31	31	0.00125	0.00125	17	17	0.00074	0.00074	16	16	0.00068	0.00068	7	7	0.00031	0.00031	4	4	0.00020	0.00020
IIa	3b	COD	LL1	219	250	0.00886	0.01011	131	148	0.00572	0.00646	136	152	0.00580	0.00648	231	238	0.01039	0.01070	184	188	0.00920	0.00940
IIa	3b	COD	GT1	502	752	0.02031	0.03042	346	494	0.01510	0.02156	347	499	0.01481	0.02129	349	587	0.01569	0.02639	345	533	0.01725	0.02665
IIa	3b	COD	BT1	680	1432	0.02751	0.05793	1188	1682	0.05185	0.07341	1128	1627	0.04813	0.06942	1004	1591	0.04515	0.07154	690	1223	0.03451	0.06116
IIa	3b	COD	BT2	3394	4826	0.13730	0.19523	2416	4098	0.10544	0.17885	2198	3825	0.09378	0.16320	2259	3850	0.10159	0.17313	2085	3308	0.10428	0.16544
IIa	3b	COD	GN1	3526	8352	0.14264	0.33787	4178	8276	0.18233	0.36118	3870	7695	0.16512	0.32832	3331	7181	0.14980	0.32293	2504	5812	0.12523	0.29067
IIa	3b	COD	TR2	4529	12881	0.18322	0.52109	3835	12111	0.16736	0.52854	3486	11181	0.14873	0.47705	3110	10291	0.13986	0.46279	3140	8952	0.15704	0.44771
IIa	3b	COD	TR1	11838	24719	0.47890	0.99999	10803	22914	0.47146	1.00000	12257	23438	0.52295	1.00000	11946	22237	0.53721	1.00000	11043	19995	0.55229	1.00000
IIa	3c	COD	GT1		0		0.00000		0		0.00000		0		0.00000		0		0.00000	1	1	0.00083	0.00083
IIa	3c	COD	LL1	1	1	0.00075	0.00075	1	1	0.00092	0.00092	2	2	0.00209	0.00209	3	3	0.00320	0.00320	1	2	0.00083	0.00166
IIa	3c	COD	TR3		1		0.00075		1		0.00092	0	2	0.00000	0.00209		3		0.00320		2		0.00166
IIa	3c	COD	BT2	247	248	0.18642	0.18717	125	126	0.11521	0.11613	156	158	0.16284	0.16493	78	81	0.08324	0.08644	107	109	0.08887	0.09053
IIa	3c	COD	GN1	93	341	0.07019	0.25736	117	243	0.10783	0.22396	55	213	0.05741	0.22234	131	212	0.13981	0.22625	329	438	0.27326	0.36379
IIa	3c	COD	TR1	568	909	0.42868	0.68604	445	688	0.41014	0.63410	374	587	0.39040	0.61274	416	628	0.44397	0.67022	339	777	0.28156	0.64535
IIa	3c	COD	TR2	416	1325	0.31396	1.00000	397	1085	0.36590	1.00000	371	958	0.38727	1.00001	309	937	0.32978	1.00000	427	1204	0.35465	1.00000
IIa	3d	COD	BT1	2	2	0.00160	0.00160	6	6	0.01034	0.01034	1	1	0.00202	0.00202	0	0	0.00000	0.00000		0		0.00000
IIa	3d	COD	BT2	0	2	0.00000	0.00160		6		0.01034		1		0.00202		0		0.00000		0		0.00000
IIa	3d	COD	GN1	6	8	0.00480	0.00640	1	7	0.00172	0.01206	6	7	0.01215	0.01417	9	9	0.02022	0.02022	14	14	0.03146	0.03146
IIa	3d	COD	LL1	8	16	0.00641	0.01281	5	12	0.00862	0.02068	5	12	0.01012	0.02429	14	23	0.03146	0.05168	8	22	0.01798	0.04944
IIa	3d	COD	TR3	0	16	0.00000	0.01281		12		0.02068	0	12	0.00000	0.02429		23		0.05168	0	22	0.00000	0.04944
IIa	3d	COD	TR2	245	261	0.19616	0.20897	89	101	0.15345	0.17413	46	58	0.09312	0.11741	35	58	0.07865	0.13033	65	87	0.14607	0.19551
IIa	3d	COD	TR1	988	1249	0.79103	1.00000	479	580	0.82586	0.99999	436	494	0.88259	1.00000	387	445	0.86966	0.99999	358	445	0.80449	1.00000

Table 6.10.4 Annual cod landings (L, t), cumulative cod landings (L cum, t), relative contribution (Rel) and cumulative relative contribution (Rel cum) by management area and regulated gears 2008-2012, ranked in ascending order according to the relative contribution in 2012. Red rows are in excess of cumulative 20%.

ANNEX	REG_AREA	SPECIES	REG_GEAR	2008 L	2008 L cum	2008 Rel	2008 Rel cum	2009 L	2009 L cum	2009 Rel	2009 Rel cum	2010 L	2010 L cum	2010 Rel	2010 Rel cum	2011 L	2011 L cum	2011 Rel	2011 Rel cum	2012 L	2012 L cum	2012 Rel	2012 Rel cum
IIa	3a	COD	LL1	14	14	0.03483	0.03483		0		0.00000		0		0.00000		0		0.00000		0		0.00000
IIa	3a	COD	GT1	3	17	0.00746	0.04229	1	1	0.00641	0.00641	1	1	0.00781	0.00781	0	0	0.00000	0.00000	0	0	0.00000	0.00000
IIa	3a	COD	TR3	0	17	0.00000	0.04229	0	1	0.00000	0.00641		1		0.00781	0	0	0.00000	0.00000	1	1	0.01299	0.01299
IIa	3a	COD	GN1	47	64	0.11692	0.15921	14	15	0.08974	0.09615	10	11	0.07812	0.08593	3	3	0.02419	0.02419	1	2	0.01299	0.02598
IIa	3a	COD	TR1	33	97	0.08209	0.24130	17	32	0.10897	0.20512	4	15	0.03125	0.11718	2	5	0.01613	0.04032	2	4	0.02597	0.05195
IIa	3a	COD	TR2	305	402	0.75871	1.00001	124	156	0.79487	0.99999	113	128	0.88281	0.99999	119	124	0.95968	1.00000	73	77	0.94805	1.00000
IIa	3b	COD	TR3	1	1	0.00005	0.00005	3	3	0.00011	0.00011	19	19	0.00063	0.00063	4	4	0.00015	0.00015	3	3	0.00011	0.00011
IIa	3b	COD	LL1	209	210	0.00944	0.00949	129	132	0.00470	0.00481	292	311	0.00972	0.01035	184	188	0.00697	0.00712	169	172	0.00645	0.00656
IIa	3b	COD	GT1	377	587	0.01703	0.02652	476	608	0.01733	0.02214	415	726	0.01381	0.02416	348	536	0.01317	0.02029	421	593	0.01607	0.02263
IIa	3b	COD	BT1	337	924	0.01522	0.04174	231	839	0.00841	0.03055	325	1051	0.01082	0.03498	412	948	0.01560	0.03589	699	1292	0.02668	0.04931
IIa	3b	COD	BT2	2621	3545	0.11839	0.16013	2333	3172	0.08492	0.11547	1849	2900	0.06155	0.09653	1357	2305	0.05137	0.08726	1050	2342	0.04008	0.08939
IIa	3b	COD	GN1	2601	6146	0.11748	0.27761	2958	6130	0.10767	0.22314	3402	6302	0.11324	0.20977	2912	5217	0.11024	0.19750	2452	4794	0.09359	0.18298
IIa	3b	COD	TR2	2952	9098	0.13334	0.41095	3364	9494	0.12244	0.34558	3183	9485	0.10595	0.31572	3033	8250	0.11483	0.31233	2462	7256	0.09398	0.27696
IIa	3b	COD	TR1	13041	22139	0.58905	1.00000	17980	27474	0.65444	1.00002	20557	30042	0.68428	1.00000	18164	26414	0.68767	1.00000	18942	26198	0.72303	0.99999
IIa	3c	COD	GT1	1	1	0.00082	0.00082	1	1	0.00153	0.00153	2	2	0.00348	0.00348	1	1	0.00212	0.00212		0		0.00000
IIa	3c	COD	LL1	12	13	0.00988	0.01070		1		0.00153		2		0.00348	0	1	0.00000	0.00212	0	0	0.00000	0.00000
IIa	3c	COD	TR3		13		0.01070		1		0.00153		2		0.00348	0	1	0.00000	0.00212	0	0	0.00000	0.00000
IIa	3c	COD	BT2	31	44	0.02551	0.03621	18	19	0.02748	0.02901	40	42	0.06957	0.07305	71	72	0.15074	0.15286	42	42	0.15054	0.15054
IIa	3c	COD	GN1	392	436	0.32263	0.35884	78	97	0.11908	0.14809	78	120	0.13565	0.20870	70	142	0.14862	0.30148	44	86	0.15771	0.30825
IIa	3c	COD	TR1	468	904	0.38519	0.74403	372	469	0.56794	0.71603	244	364	0.42435	0.63305	161	303	0.34183	0.64331	81	167	0.29032	0.59857
IIa	3c	COD	TR2	311	1215	0.25597	1.00000	186	655	0.28397	1.00000	211	575	0.36696	1.00001	168	471	0.35669	1.00000	112	279	0.40143	1.00000
IIa	3d	COD	BT1		0		0.00000		0		0.00000		0		0.00000		0		0.00000		0		0.00000
IIa	3d	COD	BT2		0		0.00000		0		0.00000		0		0.00000		0		0.00000		0		0.00000
IIa	3d	COD	GN1	10	10	0.02577	0.02577	6	6	0.02632	0.02632	3	3	0.01382	0.01382	3	3	0.01639	0.01639		0		0.00000
IIa	3d	COD	LL1	0	10	0.00000	0.02577	0	6	0.00000	0.02632	0	3	0.00000	0.01382		3		0.01639		0		0.00000
IIa	3d	COD	TR3	0	10	0.00000	0.02577	0	6	0.00000	0.02632		3		0.01382	0	3	0.00000	0.01639	0	0	0.00000	0.00000
IIa	3d	COD	TR2	47	57	0.12113	0.14690	11	17	0.04825	0.07457	6	9	0.02765	0.04147	9	12	0.04918	0.06557	10	10	0.07042	0.07042
IIa	3d	COD	TR1	331	388	0.85309	0.99999	211	228	0.92544	1.00001	208	217	0.95853	1.00000	171	183	0.93443	1.00000	132	142	0.92958	1.00000

6.11. Request for a STECF opinion on the 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 multiannual 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, the Consultation on Fishing Opportunities for 2014 and follow the regulation [R (EC) No 676/2007]. Similar advice was requested from STECF in the previous years.

Background documentation can be found on: https://stecf.jrc.ec.europa.eu/web/stecf/plen1302

Terms of References

STECF is requested:

1. 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 multiannual plan for plaice and sole in the North Sea [R (EC) No 676/2007];
2. 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;
3. 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 2012.

STECF response

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

STECF notes that for sole, the management plan [R (EC) No 676/2007] would imply a 10% reduction of F to 0.21, which results in a TAC (landings) reduction of more than 15%. Therefore, the maximum TAC reduction of 15% has to be applied and this results in no change in F in 2014 compared to that assumed for 2013. For plaice, the management plan [R (EC) No 676/2007] requires fishing at the target rate of F=0.3 in 2014, which results in a TAC (landings) increase of more than 15%. Therefore, the maximum TAC increase of 15% is applied, which is consistent with an increase of 13% in fishing mortality.

Assuming (as before [STECF review of scientific advice 2007, 2008, 2009, 2010, 2011 and 2012]) 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 no change in effort in 2014 relative to 2013 when considering sole in isolation and a 13% increase when considering plaice in isolation.

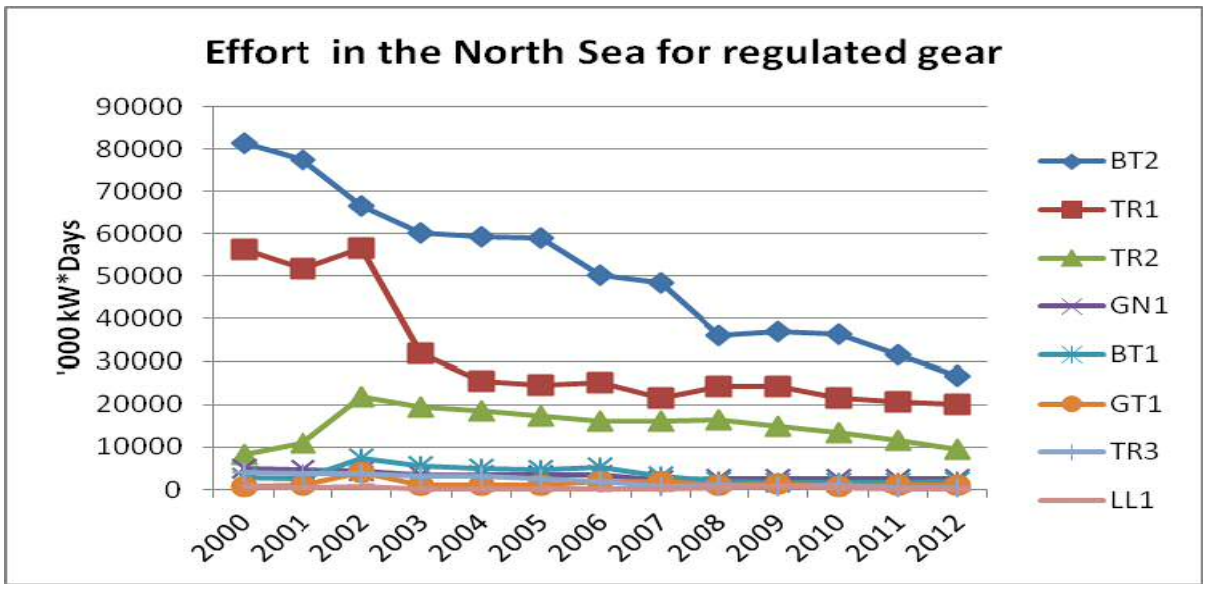
More than half of the plaice is caught together with sole in a mixed beam trawl fishery. Therefore, the **maximum** level of fishing effort necessary to take catches of **both species** equal to the respective EU shares of their TACs, would be equivalent to an increase in effort in 2014 relative to 2013 of 13%. STECF notes that this amount of effort would likely lead to a mismatch between effort and the TAC for sole prescribed by 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 1,400 t, or around 12%) and an increase in discarding of sole.

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 any remaining plaice quota can be fished without any undesirable sole bycatch, when the sole quota has been exhausted. However, 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 gill nets (GN1); beam trawls with mesh size equal to or larger than 120 mm (BT1); trammel nets (GT1); bottom trawls with mesh size equal to or larger than 160 mm and less than 32 mm (TR3) and long lines (LL1). The deployed level of effort (kW*days) in the North Sea for these gears over the period 2000-2012 is presented in table and figure below.

ANNEX	REG AREA (	REG GEAR	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
IIa	IV	BT2	81454292	77585757	66602181	60346284	59372980	58960079	50361801	48376597	36065423	36874045	36225468	31532173	26599601
IIa	IV	TR1	56353924	51893348	56642411	31731681	25414055	24713620	25177922	21604077	24340696	24208350	21511514	20599741	20171161
IIa	IV	TR2	8149650	10976862	21837268	19369046	18608541	17247611	16130851	16233406	16433136	14847445	13530241	11631668	9363322
IIa	IV	GN1	4969794	4547878	4321132	3434369	3517787	3359430	3303982	2308528	2483556	2463179	2642832	2615203	2418835
IIa	IV	BT1	2781127	2675692	7238757	5675040	4967391	4613201	5347148	3253567	2039300	1673392	1582101	1498589	1933675
IIa	IV	GT1	809347	898460	4010446	969869	1039243	1056332	1973787	1821196	1142813	1228487	841565	925782	1013379
IIa	IV	TR3	4161277	3626044	3725372	3153307	3084583	2429355	1790416	834392	928345	613896	1140585	364603	526397
IIa	IV	LL1	684811	541698	664806	264947	168316	188467	119701	44183	420707	765298	417658	234949	125650



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 2012 are tabulated below:

Ranking plaice catches			Ranking plaice landings			Ranking sole catches			Ranking sole landings	
Gear	**%**		**Gear**	**%**		**Gear**	**%**		**Gear**	**%**
BT2	61		BT2	49		BT2	88		BT2	86
TR1	22		TR1	28		GN1	6		GN1	7
BT1	7		BT1	11		GT1	4		GT1	5
TR2	7		TR2	7		TR2	1		TR2	1
GT1	2		GT1	3						
GN1	1		GN1	1						

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6.12. Request to develop guidelines for the improved implementation of Article 13, including the methodology and information requirements for the Member State annual reports and methodology for STECF to determine and quantify an excess effort.

Background

This request is related to the TOR 6.6 of the STECF plenary report (PLEN-13-01). During the April plenary the STECF could not fully respond on that TOR. In the conclusions STECF indicated that the development is on-going and STECF will work inter-sessionally before the 2013 summer plenary to put in place a gear-group catch-forecasting tool and a format for MS to submit their future out-turn results as required for STECF evaluation.

Terms of Reference

STECF is requested to:

- Develop guidelines for Members States reporting on Article 13, which should include the standardised requirements for MS reports, assessment methods and minimum information requirements.

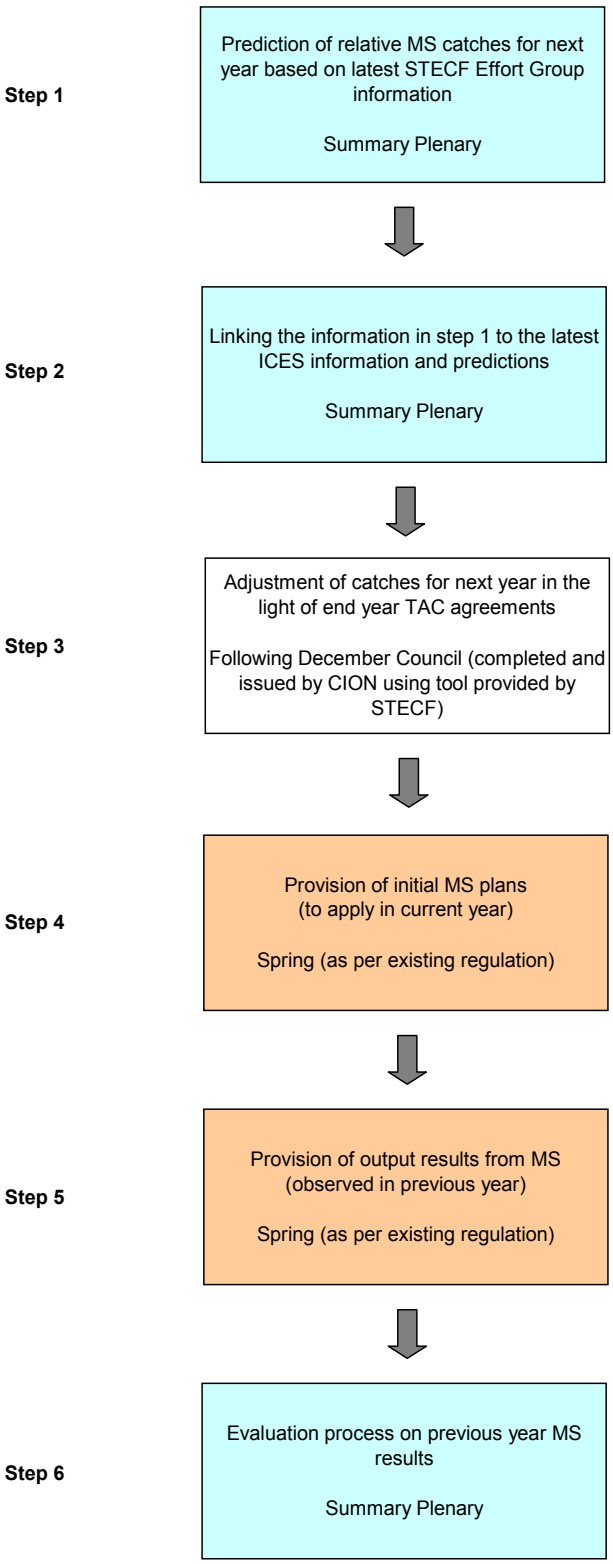
- Establish an STECF standardised evaluation method of MS reports that would it to quantify any excess effort used by the Member States.

STECF response

STECF pursued the work initiated in earlier plenaries and formalized during PLEN 13-01, with the aim of building up and testing a suite of calculations providing quantitative guidance for the forthcoming application of article 13.

Until now, STECF has only evaluated *ex-post* the application of article 13, measuring if the reductions in fishing mortality from the exempted fleets were in line with the overall reductions for the stock. However, little guidance were available for the *ex-ante* evaluation that could help Member States in planning their future effort associated with proposed cod avoidance measures.

STECF PLEN 13-01 suggested a 6-step catch-based approach summarized as follows (for detailed text explanation see PLEN 13-01 report), concerning Article 13 application in year Y+1 (Figure 6.12.1):



Steps 1 and 2. July Plenary of year Y – Using the catches predicted by ICES for year Y+1, project catches divided up by member state and gear using data up to Y-1 from STECF data base.

Step 3 Adjustment of projected catches in the light of end year TAC agreements and quota swaps, at start of year Y+1 (process and timing to be decided by the Commission).

Step 4 Spring Plenary of year Y+1- STECF review of initial MS plans for year Y+1.

Step 5 Spring Plenary of year Y+2 - Provision of output results from MS for year Y+1.

Step 6 July Plenary of year Y+2. Evaluation of achievements in year Y+1.

STECF has now developed a pilot spreadsheet for the steps 1 to 3, which can inform Member States for preparing for Step 4 and help evaluating steps 5 and 6 (See figure 6.12.1 and 6.12.2 for example). The spreadsheet builds on three similar columns, one computing the relevant observed variables for the latest data year (e.g. 2012, step 1 in pale red), one projecting these variables for the forthcoming TAC year (e.g. 2014) at the time of the publication of ICES advice (step 2, in pale blue) and one adjusting these same projected variables for final TAC agreements and potential quota swaps (step 3, in orange). The first two columns are to be prepared by STECF, while the third column requires some input from Member States and/or the Commission.

The spreadsheet also consists of four calculation blocks of rows, which are sequentially related to each other. The four blocks deal with the following:

- Overall stock level
- Member State level
- Fleet level
- Article 13 segment level

Two examples are given, based either on a F-based forecast (as for North Sea cod) or on a catch-based limit (as for Kattegat cod).

FORECAST OF POSSIBLE ARTICLE 13 IMPLEMENTATION FOR THE FORTHCOMING YEAR		LAST DATA YEAR 2012	FORECAST 2014	TARGET AFTER SWAPS/TAC ADJUSTMENTS 2014	
Prepared by STECF PLEN 13-02		*Column to be filled bySTECF throughout*	*Column to be filled by STECF throughout*	*Column needs Member State input*	
Last updated 12 July 2013					
CURRENT YEAR	**2013**				
OVERALL INFORMATION (TO BE FILLED IN BY STECF)		**LAST DATA YEAR 2012**	**FORECAST 2014**	**TARGET AFTER SWAPS/TAC ADJUSTMENTS 2014**	
stock	NS Cod				
stock area	IIIA, IV, VIId				
TAC overall (all areas)		31801	28809	31800	**Example of a TAC adjustment where the final TAC differs from the ICES advice**
mean F (ICES)		0.391	0.21	0.23	
F reduction implied			-46%	**-41%**	
Catch (ICES)		43608	37496	41400	
Landings (ICES)		33200	28809	31800	
Discards rate (ICES)		23%	23%	23%	
COUNTRY*AREA INFORMATION (Black cell to be filled in by MS)		**LAST DATA YEAR 2012**	**FORECAST 2014**	**TARGET AFTER SWAPS/TAC ADJUSTMENTS 2014**	
area	North Sea (IV)				
TAC for that area		26475	23984	26474	
Country	DK				
Initial quota (TAC quota poster)		4495			**MS to provide indication on quota swaps**
initial realtive stability (area)	17%				
new quota share after swap for that area		17%	17%	***20%***	
Country Landings Quota		4495	4072	5295	
Overall landings quota share for the entire stock area (if several management areas involved)		14%	14%	17%	**Here calculated by applying the overall F reduction to the oberved partial F of the member state**
**** STECF ESTIMATES BELOW THAT LINE ****					
partial F for the country (STECF estimate, L+D)		**0.04784**	0.02569	0.03830	**here calculated by applying the relative stability key to the overall F target**
observed partial F share for the country to total F		12%	12%	17%	
Discard rate country* area (STECF)		6.8%			
Overall catch for that country		5335	4588	6893	

Figure 6.12.1.a – example of article 13 fleet projection for a stock with reliable F-based assessment, blocks A (stock level) and B (Member state*area level)

FLEET INFORMATION (Black cell to be filled in by MS)	LAST DATA YEAR	FORECAST	TARGET AFTER SWAPS/TAC ADJUSTMENTS
Fleet TR1	2012	2014	2014
Observed landings for that fleet, area and country (STECF)	3379		
Observed discards for that fleet,area and country (STECF)	304		
Observed catch for that fleet,area and country (STECF)	3683		
Observed discards rate for that fleet and country (STECF)	8%	8%	8%
Overall discards rate for that fleet and area, all countries	13%		
partial F for the entire fleet (art13 + none)	0.03302	0.01773	0.02643
share of that fleet F to country F	69%	69%	*69%*
landings for that fleet	3379	2905	4365
catches for that fleet	3683	3167	4758

is there any swaps across ITQs or POs quota for that fleet?

Article 13 Exemption for that fleet (Black cell to be filled in by MS)	LAST DATA YEAR	FORECAST	TARGET AFTER SWAPS/TAC ADJUSTMENTS
	2012	2014	2014
proportion of the fleet in Article 13	0	50%	*50%*
Intented catchability reduction by cod avoidance		20%	*20%*
intended discard rate reduction by cod avoidance		10%	*10%*
effort for that fleet*area*country without art13	3593770	965079	**1438408**
effort within Art13	0	1206349	**1798010**
partial F for the fleet*area*country without art13	0.03302	0.00887	0.01322
partial F within article 13	0	0.00887	0.01322
catchability fleet without art13	9.18812E-09	9.18812E-09	9.18812E-09
catchability article 13 fleet	#DIV/0!	7.3505E-09	7.3505E-09
catches fleet without art13		1583	**2379**
catches article 13 fleet		1583	**2379**
landings fleet without art13		1453	**2183**
landings article 13 fleet		1466	**2202**

Expected share of the fleet that would be in art 13 (in terms of catches)

Provide indications of actions undertaken and possibly with quantitative support

Provide indications of actions undertaken and possibly with quantitative support

FINAL OUTCOMES

Figure 6.12.1.b – example of article 13 fleet projection for a stock with reliable F-based assessment, blocks C (fleet level) and D (article 13 component level)

FORECAST OF POSSIBLE ARTICLE 13 IMPLEMENTATION FOR THE FORTHCOMING YEAR Prepared by STECF PLEN 13-02 Last updated 12 July 2013		LAST DATA YEAR 2012 *Column to be filled bySTECF throughout*	FORECAST 2014 *Column to be filled by STECF throughout*	TARGET AFTER SWAPS/TAC ADJUSTMENTS 2014 *Column needs Member State input*	
CURRENT YEAR	**2013**				
OVERALL INFORMATION (TO BE FILLED IN BY STECF)		**LAST DATA YEAR 2012**	**FORECAST 2014**	**TARGET AFTER SWAPS/TAC ADJUSTMENTS 2014**	
stock	Kattegat cod				
stock area	IIIa				
TAC overall (all areas)		100	100	100	**if no advice then enter final TAC only**
mean F (ICES)					
F reduction implied					
Catch (ICES)		236	251	251	
Landings (ICES)		94	100	100	
Discards rate (ICES)		60%	60%	60%	
COUNTRY*AREA INFORMATION (Black cell to be filled in by MS)		**LAST DATA YEAR 2012**	**FORECAST 2014**	**TARGET AFTER SWAPS/TAC ADJUSTMENTS 2014**	
area	Kattegat				
TAC for that area		100	100	100	**MS to provide indication on quota swaps**
Country	DK				
Initial quota (TAC quota poster)		62			
initial realtive stability (area)	62%				
new quota share after swap (area)		62%	62%	***62%***	**here calculated by applying the relative stability key to the overall catch target**
Country Landings Quota		62	62	62	
Overall landings quota share for the entire stock area (if several management areas involved)		62%	62%	62%	
catches for the country (STECF estimate, L+D)		**165.18**	175.72	155.66	**Here calculated by applying the overall catch changes to the observed catch of the member state**
catch share for the country to total catch		70%	70%	62%	
Discard rate for the country* area (STECF)		66%			
Overall catch for that country			175.72	155.66	

Figure 6.12.2.a – example of article 13 fleet projection for a stock without reliable F-based assessment, blocks A (stock level) and B (Member state*area level)

FLEET INFORMATION (Black cell to be filled in by MS)	LAST DATA YEAR	FORECAST	TARGET AFTER SWAPS/TAC ADJUSTMENTS
Fleet TR2	2012	2014	2014
Observed landings for that fleet, area and country (STECF)	49		
Observed discards for that fleet,area and country (STECF)	104		
Observed discards rate for that fleet and country (STECF)	68%	68%	68%
Overall discards rate for that fleet and area, all countries	65%		
catch for the entire fleet of the country (art13 + none)	153	163	144
share of that fleet catch to country catch	93%	93%	*93%*
landings for that fleet		52	46

is there any swaps across ITQs or POs quota for that fleet?

Article 13 Exemption for that fleet (Black cell to be filled in by MS)	LAST DATA YEAR	FORECAST	TARGET AFTER SWAPS/TAC ADJUSTMENTS
	2012	2014	2014
proportion of the fleet in Article 13	100%	100%	*100%*
Intented catchability reduction by cod avoidance		0%	*0%*
intended discard rate reduction by cod avoidance		10%	*10%*
effort for that fleet*area*country without art13	0	0	**0**
overall effort within Art13	2233489	2376052	**2104758**
catch for the fleet without art13	0	0	0
catch within article 13	153	163	144
CPUE fleet without art13	6.85027E-05	6.85027E-05	6.85027E-05
CPUE article 13 fleet	6.85027E-05	6.85027E-05	6.85027E-05
catches fleet without art13		0	**0**
catches article 13 fleet		163	**144**
landings fleet without art13		0	**0**
landings article 13 fleet		63	**56**

Expected share of the fleet that would be in art 13 (in terms of catches)

Provide indications of actions undertaken and with quantitative support

Provide indications of actions undertaken and with quantitative support

FINAL OUTCOMES

Figure 6.12.2.b – example of article 13 fleet projection for a stock without reliable F-based assessment, blocks C (fleet level) and D (article 13 component level)

STECF underlines that the computations presented below have no legal or binding basis; and are neither absolute target values that can ascertain compliance to the plan. As is already the case now (see section 6.9 of the present report), compliance to article 13 condition can only be fully evaluated *a posteriori,* especially for the stocks for which an F estimate is available. The forecast values resulting from the STECF spreadsheet are therefore only indicative and should be used as guidelines on the limits to the type and scale of fishing activity that would potentially be in compliance with article 13, based on the best available information at the time. The forecast builds on the same information and approach as the ex-post evaluation, which strengthens the internal consistency of the full process loop. Also, the overall approach is very close to the one used in the mixed-fisheries forecasts produced by ICES.

It can nevertheless be expected that new questions or requirements might arise when Member States start using that tool, which would need extension and modification to the spreadsheet. A short testing workshop dedicated to the application and adjustment of the spreadsheet together with MS might be beneficial.

Also, STECF notes that the current tool is only based on the latest information (e.g. now 2012) and the reductions needed for the forthcoming year, and does not take into account any changes arising in the fisheries through the use of Article 13 provisions in earlier years.

A number of questions aroused during the building of the calculations, regarding which basis to use when sharing the overall target across Member States and fleets and estimate discards rate, as these could be done in several ways. For example, STECF suggested several potential alternatives for projecting future discards rate by fleet, for example:

- Applying the existing relative stability keys, which are currently used on landings, to the overall catches by country;
- Using the most recent observation (e.g. 2012 here), disregarding the potential differences in current under- or overshoot of management targets (see section 6.8 of the present report)
- Using an initial baseline from the past, e.g. 2008 at the start of the management plan

Similarly, the assumption for the future share of partial fishing mortality target for the next year has some impact. The cod plan sets an overall fishing mortality target, and the article 13 fleets must achieve the same annual reduction of their partial mortality as stated by the plan. However, if the fleet or the country has increased its quota share through international quotas swaps and/or national quota allocation, this would imply a change in the overall partial mortality share of that fleet. Therefore, STECF notes that its basic calculation currently relies on applying the overall F reduction to the partial F of the fleet considered, but that this could be overruled by applying e.g. the relative stability percentage of the overall F instead.

The issue of quota swapping can be non-negligible, as already noted by STECF in its plenary 13-01 report and therefore Member States should report on expected outcomes for both the Article 13 and non-Article 13 components of their fleets. STECF noted that when the proposed procedure is used in combination with quota swapping between Article 13 users and non-users, it may not be able to constrain catches and therefore not constrain F as intended. This situation is analogous to the previous observation made by STECF concerning situations where vessels in CCTV pilot schemes operate alongside non- CCTV vessels.

STECF considers that all these issues are not really scientific questions that can be fully resolved, but represent rather some management decisions. Some a-priori choices have been made in the current pilot spreadsheet, but STECF is of the opinion that these choices might trigger some discussion with the Commission and Member States. Therefore further feedback might be necessary.

STECF Conclusions

STECF has developed an integrated spreadsheet tool that may help to define catch-based boundaries for the application of Article 13 in the forthcoming year. STECF stresses the forecast values resulting from the spreadsheet tool are indicative only and should be used as guidelines on the limits to the type and scale of fishing activity that would potentially be in compliance with article 13. This is linked to both the absence of any legal basis for ceiling partial fishing mortality or discards rate, but also to uncertainty linked to this general approach. There is major uncertainty attached to the various metrics and, as in any forecast, the subjective choices required for parameterizing the projected key estimate such as future discards rate, catchability or quota uptake by fleet can have an impact on the results. STECF suggests that the Commission consider presenting the tool to interested parties.

With regards to developing guidelines for Members States reporting on Article 13, STECF proposes to apply the 6 steps workflow explained by PLEN 13-01. A detailed account of the requirements for such guidelines is given in the PLEN 13-01 Report and are summarized below:

- standardised requirements for initial MS reports: STECF proposes that Member States either submit the spreadsheet fully filled-in, or provide at least the following summary information for each fleet segment – *and for both the article 13 component and the non derogated component of each of these* – : national quota with/without swaps, expected landings, expected discards and discard rate, expected effort buyback. Member states need to provide documentation for the basis for the assumed discard rate and for the cod avoidance actions undertaken under article 13. This should be accompanied by some quantitative indications of expected impact, and clarifying whether these actions are the continuation of existing measures already in place or are new measures being implemented. For example, if real-time closures are to be implemented, an indication of the expected amount and size of these closures compared to previous year would be necessary. Or if selective gears are implemented, some scientific estimates of the expected selectivity changes would facilitate the evaluation.
- standardised evaluation method of MS reports. The ex-post evaluation of article 13 (by STECF will consider the following elements:
    - Did the Member States provide the necessary initial information as stipulated in step 4, including qualitative description and, quantitative information on the management measures undertaken?
    - Did the Member States provided results at the end of the year (Step 5)?
    - Is this information consistent with the information provided to STECF effort database (notwithstanding some potential differences in calculation procedures)?
    - Did the realized catches conform to the initial submission?
    - Did the discards rate increase compared to the initial submission, and if yes, is the realized discards rate higher than the average across all nations within this gear?
    - Did the overall F for the stock deviate from the prediction, implying deviations from the assumed partial F for all fleets? And if yes, what are the main reasons for this (changes in overall catches or significant departures from the biological assumptions)? And do the realized catches for the article 13 fleets still imply that the realized changes in fishing mortality follow the same trends as for the overall fishing mortality for the stock?

STECF notes that this evaluation method has to a large extent been used by STECF also in sections 6.8 and 6.9 of the present report.

6.13. Request to for advice on Baltic discards

Terms of Reference

STECF are asked to address the following questions at or before their plenary meeting in July 2013. Additional background information in relation to each request is given below.

a) Survival of Baltic fish species

For the species listed below, STECF are requested to review available information on survival of discards and identify fisheries (gear, area, season etc.) in the Baltic Sea where discarded fish would have the highest probability of survival. Where possible give estimated probabilities of survival.

Salmon
Sea Trout
Cod
Plaice
Flounder
Turbot
Brill

b) Salmon longline season
STECF are requested to evaluate the possible impacts of revising the open season for long-lining for Baltic salmon on the capture of undersized salmon and sea trout.

c) Minimum landing size for cod
STECF are requested to evaluate the possible impacts of replacing the existing minimum landing size for cod in the Baltic of 38cm with a conservation reference size of 35cm. If possible, the impacts should be assessed in terms of the contribution such a change could make to the reduction of catches of undersized cod; the sustainability if exploitation, and the economics of the fishery.

Additional information

It is likely that the reformed Common Fisheries Policy will include, among other elements, an obligation to land all catches, i.e. a discard ban. At present it is anticipated that in the Baltic Sea this will apply to herring, sprat and salmon from 1 January 2014, and to cod and plaice from 1 January 2015. Sea trout, flounder, turbot and brill are also under consideration for inclusion in the ban. Some additional measures will need to be included to support the discard ban hence these requests for advice. Further background to the specific requests is given below.

a) Survival of Baltic fish species
There is scope within the anticipated discard ban for exemption of specific fisheries where fish have a high probability of survival if they are returned to the sea after capture. Any such exemption will need to be supported by scientific evidence. Member States and BSRAC will be asked to identify candidate fisheries for exemption and to provide evidence for consideration by STECF.

b) Salmon longline season
Currently, closed seasons for salmon are in force which apply to all gears except trap-nets. In effect this means that long-lining for salmon is not permitted from 1 June to 15 September in SD22-31, and from 15 June to 30 September in SD32. It is possible that changing the dates of the open season for long-lining could reduce the capture of undersized salmon that would, under current regulations, have to be discarded. A possible open period that has been proposed for consideration is 16 November - 31 March in subdivisions 22-28 and 29S (south of 59°30´N); and 16 November - 31 December and 1 April - 14 June in subdivisions 30-32 and 29N (north of 59°30´N). STECF are asked to consider this option and also to identify other options which might contribute to the reduction of the capture of under-sized salmon.

c) Minimum landing size for cod
Under a discard ban, existing minimum landing sizes would be replaced by minimum conservation reference sizes. Any fish of that size or less that were caught would have to be landed and would count against the quota, but could not be sold. In this context, it has been suggested that the current minimum landing size for cod in the Baltic (38cm) could be replaced with a minimum conservation reference size of 35cm.

STECF Response

TOR a) Survival of Baltic fish species

STECF PLEN 12-01 reviewed all available results of studies on the survivability of discarded fish. The general observation emerged from this review was that the results are highly variable between studies as well as within individual studies. The review furthermore confirmed that many factors can affect the survival rates of discards (for example: exposure on deck, seasonality, surface sea temperature, air temperature, body size, age of fish, depth caught, catch composition, haul duration, breeding and health status of fish, etc). As a consequence STECF considered it to be misleading to make any extrapolations on discard survival rates beyond the scope of the individual studies themselves, and the Committee concluded that it is not possible to provide a reliable list specifying the survival rate of discards by species and by fishing gear.

In addition, none of the studies reviewed covered the Baltic fish species listed in this request and STECF is not aware of studies providing information on survival of these species and has no basis for providing estimates of probabilities of survival of the species concerned.

STECF notes that ICES in its assessment of Baltic salmon apply the following mortality rates to undersized salmon discarded: 77% in longline fisheries; 65% in driftnet fisheries and 38% in trap net fisheries (tables 6.13.1 and 6.13.2). The mortality rates are mainly based on subjective expert judgment and not on target studies.

TOR b) Salmon longline season

STECF was not able, during the July 2013 plenum meeting, to evaluate the impact on the catch of undersized salmon by changing the periods during which longline fisheries for salmon is allowed. Such an evaluation requires detailed information on size composition of salmon caught in the longline fisheries. Such data were not available to STECF. However, STECF notes that the main season for longline fisheries for salmon in the central Baltic is from November to March and that closure outside the main season is unlikely to have significant impact on the salmon catches and the value of landings (ICES. 2013. Report of the Baltic Salmon and Trout Assessment Working Group (WGBAST), 3–12 April 2013, Tallinn, Estonia. ICES CM 2013/ACOM:08. 334 pp).

STECF notes that ICES in its assessment of Baltic salmon applies a discard rate of undersized salmon caught in longline fisheries of 4% of the reported landings (period 2008 to 2012). ICES furthermore assumes a mortality rate of the discarded undersized salmon of 77%. This means that the estimated mortality generated by the discard of undersized salmon in the driftnet fisheries is in the order of 2.2% of the total mortality generated by fisheries.

The low share of the fishing mortality generated by discarding of undersized salmon in the driftnet fishery indicates that the proposed change in the period for which longline fisheries is allowed in terms of reduced catches of undersized salmon will have little impact on the total fishing mortality.

STECF considers that a more efficient way of reducing discards of undersized salmon would be to reduce the minimum landing size in subdivisions 22 to 31 in the commercial fisheries. The minimum landing size is 60 cm in subdivision 22 – 31 and 50 cm in subdivision 32. The TAC for salmon in the Baltic is expressed in number of salmon. This means that the quota outtake is

independent of the size of salmon caught. With no change in minimum landing size salmon currently being discarded because of their size would under a discard ban be landed, counted against the quota and used for other purposes than human consumption. A reduction in minimum landing size would likely result in some of these salmon being used for human consumption. This will however depend on the landings price by size of the landed catch.

Table 6.13.1 Summary of the uncertainty associated to fisheries data series according to the expert opinions from different countries backed by data (D) or based on subjective expert estimation (EE). The conversion factors (mean) are proportions and can be multiplied with the nominal catch data in order to obtain estimates for unreported catches and discards, which altogether sum up to the total catches. (ICES. 2013. Report of the Baltic Salmon and Trout Assessment Working Group (WGBAST), 3–12 April 2013, Tallinn, Estonia. ICES CM 2013/ACOM:08. 334 pp.)

Parameter	Country	Years	Source	min	mode	max	mean	SD
Share of unreported catch in offshore fishery	DK	2001-2012	EE	0.00	0.01	0.10	0.04	0.02
	FI	2001-2012	EE	0.00	0.01	0.10	0.04	0.02
	PL	2001-2012	EE	0.00	0.25	0.40	0.22	0.08
	SE	2001-2012	EE	0.05	0.15	0.25	0.15	0.04
Average share of unreported catch in offshore fishery		2001-2007					0.15	0.15
		2008-2012					0.16	0.16
Share of unreported catch in coastal fishery	FI	2001-2012	EE	0.00	0.10	0.15	0.08	0.03
	PL	2001-2012	EE	0.00	0.10	0.20	0.10	0.04
	SE	2001-2012	EE	0.10	0.30	0.50	0.30	0.08
Average share of unreported catch in coastal fishery		2001-2007					0.21	0.18
		2008-2012					0.20	0.17
Share of unreported catch in river fishery	FI	2001-2012		0.05	0.20	0.35	0.20	0.06
	PL	2001-2009	EE	0.01	0.10	0.15	0.09	0.03
	PL	2010-2012	EE	0.50	0.80	1.00	0.77	0.10
	SE	2001-2012	EE	0.10	0.20	0.40	0.23	0.06
Average share of unreported catch in river fishery		2001-2007					0.22	0.19
		2008-2012					0.22	0.19
Share of discarded undersized salmon in longline fishery	DK	2001-2012	D, EE	0.10	0.15	0.20	0.15	0.02
	FI	2001-2012	D, EE	0.01	0.03	0.05	0.03	0.01
	PL	2001-2012	D	0.01	0.03	0.04	0.02	0.01
	SE	2001-2012	D, EE	0.01	0.02	0.03	0.02	0.00
Average share of discarded undersized salmon in longline fisher		2001-2007					0.06	0.06
		2008-2012					0.04	0.04
Mortality of discarded undersized salmon in longline fishery	DK	2001-2012	EE	0.75	0.80	0.85	0.80	0.02
	FI	2001-2012	EE	0.50	0.67	0.90	0.69	0.08
	SE	2001-2012	EE	0.75	0.85	0.95	0.85	0.04
Average mortality of discarded undersized salmon in longline fishery		2001-2012					0.77	0.12
Share of discarded undersized salmon in driftnet fishery	DK	2001-2007	EE, D	0.00	0.03	0.05	0.03	0.01
	FI	2001-2007	D	0.00	0.02	0.03	0.02	0.01
Average share of discarded undersized salmon in driftnet fishery		2001-2007					0.03	0.08
Mortality of discarded undersized salmon in driftnet fishery	DK	2001-2007	EE, D	0.60	0.65	0.70	0.65	0.02
	FI	2001-2007	EE	0.50	0.67	0.80	0.66	0.06
Average mortality of discarded undersized salmon in driftnet fishery		2001-2007					0.65	0.14
Share of discarded undersized salmon in trapnet fishery	FI	2001-2012	EE	0.01	0.03	0.05	0.03	0.01
	SE	2001-2012	EE, D	0.01	0.03	0.05	0.03	0.01
Average share of discarded undersized salmon in trapnet fishery		2001-2012					0.03	0.07
Mortality of discarded undersized salmon in trapnet fishery	FI	2001-2012	EE, D	0.10	0.20	0.50	0.27	0.08
	SE	2001-2012	EE, D	0.30	0.50	0.70	0.50	0.08
Average mortality of discarded undersized salmon in trapnet fishery		2001-2012					0.38	0.21
Share of discarded sealdamaged salmon in longline fishery	FI	2001-2007	D	0.00	0.00	0.02	0.01	0.00
	SE	2001-2012	EE, D	0.02	0.05	0.08	0.05	0.01
	DK	2011-2012	EE, D	0.00	0.05	0.10	0.05	0.02
	FI	2008-2012	D	0.00	0.03	0.06	0.03	0.01
Average share of discarded sealdamaged salmon in longline fish		2001-2007					0.02	0.05
		2008-2012					0.03	0.06
Share of discarded sealdamaged salmon in driftnet fishery	DK	2001-2007	EE, D	0.00	0.03	0.05	0.03	0.01
	FI	2001-2007	D	0.01	0.02	0.04	0.02	0.01
Average share of discarded sealdamaged salmon in driftnet fishery		2001-2007					0.02	0.06
Share of discarded sealdamaged salmon in trapnet fishery	FI	2001-2012	D	0.05	0.08	0.14	0.09	0.02
	SE	2004-2012	EE, D	0.01	0.02	0.04	0.02	0.01
Average share of discarded sealdamaged salmon in trapnet fishe		2001-2007					0.05	0.08
		2008-2012					0.06	0.08

Table 6.13.2. Estimated number of discarded undersized salmon and discarded seal damaged salmon by management unit in 2001–2012. Estimates of discarded undersized salmon are based on the conversion factors (see Table 2.3.1). Estimates of seal damages age based partly on the logbook records (Finland and Sweden) and partly to the estimated conversion factors and there-fore should be considered as a magnitude of discards (ICES. 2013. Report of the Baltic Salmon and Trout Assessment Working Group (WGBAST), 3–12 April 2013, Tallinn, Estonia. ICES CM 2013/ACOM:08. 334 pp.).

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Management unit	Year	Discard undersized				Discard seal damaged				Total
		Driftnet	Longline	Trapnet	Other gears	Driftnet	Longline	Trapnet	Other gears	
SD22-31	2001	1279	6810	559	355	6726	1233	7971	1339	26272
	2002	817	7264	794	374	5791	2171	8358	633	26202
	2003	843	9465	697	154	5490	1453	8503	1597	28202
	2004	1042	7033	944	314	6076	2201	8860	1399	27869
	2005	613	4490	449	172	6682	2515	6409	731	22060
	2006	354	3386	349	266	3564	2111	3372	1580	14983
	2007	386	1887	462	161	3161	1506	5419	534	13516
	2008	0	880	466	141	4	1372	5495	852	9210
	2009	0	2320	898	161	1	2661	5707	616	12363
	2010	0	3743	563	63	3	3097	3842	373	11684
	2011	0	2690	331	97	0	5187	3767	363	12434
	2012	0	2297	499	78	0	2406	5289	522	11091
SD32	2001	1	26	31	22	5	58	3160	714	4016
	2002	31	18	17	23	77	173	2884	354	3577
	2003	0	2	19	16	20	29	3536	240	3864
	2004	1	9	24	14	42	7	3761	264	4122
	2005	1	2	27	20	26	36	1932	226	2270
	2006	1	1	35	20	92	4	2088	970	3210
	2007	1	2	28	7	43	5	2113	54	2253
	2008	0	2	38	13	0	26	2552	299	2930
	2009	0	1	35	21	0	3	2066	296	2423
	2010	0	1	17	8	0	4	1096	82	1207
	2011	0	1	53	5	0	1	1153	77	1288
	2012	0	0	125	10	0	0	1367	206	1708

TOR c) Minimum landing size for cod

The discard rate of cod in the Baltic Sea is estimated by ICES to be in the order of 10% by weight. By far the majority of the discarded cod are below minimum landing size. The survival of discarded cod is very low and ICES in its assessment of the Baltic cod stocks assumes that all discarded cod are dead. The introduction of a ban on discards is therefore likely to have very little if any impact on fishing mortality of cod if the fishing pattern remains unchanged.

A recent study has evaluated the economic impact of reducing the minimum landing size for cod from 38 cm to 35 cm under a discard ban (Collaboration between the scientific community and the fishing sector to minimize discards in the Baltic cod fisheries. Submitted by The National Institute for Aquatic Resources, Technical University of Denmark; Department of Aquatic Resources, Swedish University of Agricultural Sciences; Thünen-Institut für Seefischerei, Hamburg; and National Marine Fisheries Research Institute, Gdynia).

The economic analysis was based on a model calculating the revenues and costs for a vessel fishing its yearly quota in a number of scenarios, including one assuming status quo (baseline), one

assuming status quo except for the introduction of a discard ban and one assuming a reduction in minimum landing size from 38 to 35 cm. Revenues were calculated as the landings of cod times the price per size category. Total costs as the days at sea necessary to catch the vessels quota times the costs of operating the vessel per day. The results are expressed relative to the baseline.

The results of the scenarios mentioned above are an increase in economic performance of 11% by changing the minimum landing size. The performance under the scenario with no changes except for the introduction of a ban on discards shows a decline of 8%. However, the quota allocated to the vessels has been kept constant in all scenarios assuming that the introduction of a discard ban will have no implications on the quota. This is unlikely to be the case. Under a discard ban that is fully documented and properly enforced the TAC is expected to increase by the amount that previously was discarded but now has to be landed.

Based on the analyses presented in the report it can be concluded that it is likely that a reduction of the minimum landing size will have a positive impact on the economic performance of the fisheries. With an unchanged exploitation pattern, a reduction in minimum landing size from 38 cm to 35 cm would not give rise to the mortality generated on cod.

6.14. Request to review the ICES Workshop on Evaluating Progress with Eel Management Plans (WKEPEMP)

Background

In December 2012, EU DGMARE sent ICES a Special Request for: "*Technical evaluation of the progress reports submitted by the EU Member States to the European Commission in line with Article 9 of the Eel Regulation (1100/2007).* ICES was asked to carry out an assessment of the progress achieved via the measures implemented by each member state (MS) for all Eel management unit (EMU).

The Workshop on Evaluating Progress with Eel Management Plans (WKEPEMP), chaired by Alan Walker, UK, took place on 13 to 15 May 2013 at ICES HQ, to review the Eel Management Plan progress reports submitted to the Commission in 2012 in order to determine and report to the EU Commission on:

a) Report on the status of the local stock (3Bs) and mortality rates (F & H) for each EMU and how they relate to the overall stock;

b) Report on the implementation of the management actions committed to in the EMPs for each EMU;

c) Which management measures implemented in EMPs can be reasonably judged to be already increasing silver eel escapement towards achieving the 40% target, or maintaining escapement above target?

d) Which management measures implemented in EMPs can be reasonably expected to increase silver eel escapement towards achieving the 40% tar-get, or maintaining escapement above target, within 2–3 eel generations (based on local average generation time)?

e) Which management measures implemented in EMPs can be reasonably expected to neither increase nor maintain silver eel escapement relative to the target, nor are likely to do so within 2–3 generations based on local av-erage generation time?

f) Which management measures implemented in EMPs could be made more effective in increasing or maintaining silver eel escapement, and by what means could this be achieved?

g) Are there other management measures not implemented in EMPs that could be effective?

The full report of WKEPEMP can be accessed here:
http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2013/WKEPEMP/wkepemp_2013.pdf

There is also the Advice delivered in response to the special request:
http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2013/Special%20requests/EU_eel%20management%20plan.pdf

Based on the workshop (WKEPEMP) ICES drew the following conclusions from the assessment of the progress reports submitted by the different MS:

- Most management actions were directed at commercial and recreational fisheries while the remaining management measures concerned hydropower, pumping stations, obstacles, habitat, restocking and predator control. Other actions expected to have indirect effects, such as implementing monitoring programmes and scientific studies, were almost as common as controls on fisheries. These measures are not expected to contribute directly to increasing silver eel escapement, but are intended to gather or increase knowledge which might improve the achievement of the management targets in the future.

- Management measures targeting eel stages prior to the silver eel stage are not expected to show an immediate increase in silver eel escapement. It will take one generation (between three and twenty years, depending on the EMU) before management measures on glass eel will affect silver eel escapement. Management measures targeting yellow eel will take less time.

- Restocking is not expected to have contributed to increased silver eel escapement yet because of the generational lag time. Nevertheless the efficacy of restocking for recovering the stock remains uncertain while evidence of net benefit is lacking.

- Extending actions that have proven successful, rather than pursuing untried actions or those difficult to implement, will reduce the risk of continued underachievement.

Some EMUs did not report all required stock indicators. This made it impossible to evaluate their contribution to stock protection and recovery. All the required data should be reported for each EMU individually, to allow a full assessment of their individual contribution to stock protection and recovery. In the absence of information to determine the relative importance of EMUs to the protection and recovery of the stock, all indicators should be reported from all EMUs. Moreover, ICES was not able to fully understand the basis for the stock indicators in some EMP progress reports as they were written in languages not understood by ICES experts at the meeting.

The post-evaluation of the 2012 EMP progress reports was hampered by the extensive variety of methods used to determine indicators, some of which were not comparable, and the confusing ways in which some data were reported. The data collection, analysis, and reporting should be standardized and coordinated. This would facilitate unequivocal post-evaluation of the EMUs, and will provide for more cost-effective data collection and analysis.

Comparing local stock indicators provided in the 81 EMP progress reports examined and/or those provided in response to the ICES Data Call for EMU targets, 17 EMUs are reported as achieving their biomass targets, 42 as not achieving biomass targets, and 22 did not report. Of the 42 EMUs not at the target, 20 are in an upward trend towards achieving the target in the future; of the 17 currently at the target, 11 are in a downward trend and will be below the target in the future. ICES did not evaluate the reliability of the methods used to derive the stock indicators and assumed they were reliable.
The biomass targets correspond to total anthropogenic mortality targets, of which 24 EMUs have reached their targets, 19 have not, and 38 have not reported all the stock indicators necessary to make this evaluation. Of the 19 not at the target, 11 are in a downward trend towards achieving their target in the future; of the 24 currently at the target, 7 show an increasing trend, which means they will no longer meet their targets in the future.

Request to the STECF

STECF is requested to review the ICES advice, evaluate the findings and make any appropriate comments and recommendations.

STECF comments and conclusions

STECF has reviewed the ICES WKEPEMP report and the ICES technical evaluation of the Eel Management Plans. STECF agrees on the main conclusions of the reports and the ICES recommendations on how to improve the future presentation to aid interpretation and comparability of the National reports.

STECF also notes that a reduction of mortality on eels is assumed to have a direct effect on the silver eel escapement. However, any increased silver eel escapement arising through restocking with glass or farm eels will not be detectable for several more years due to the generational time lag. In addition, STECF notes that there is no evidence of any net benefits to eel populations through restocking, and it is not clear whether restocking mainly contributes to sustaining fisheries for eel in certain EMUs or whether it results in increased the silver eel escapement at the stock level.

According to the information provided in the EMP progress reports, ICES notes that fisheries measures have mostly been fully implemented while other measures have often been postponed or only partially implemented. ICES considers that extending actions that have proven successful, rather than pursuing untried actions or those difficult to implement, will reduce the risk of continued underachievement. While, agreeing that successful actions should be continued, STECF considers that assessments to establish which additional measures are most likely to contribute to achieving management targets would be worth pursuing.

7. STECF RECOMMENDATIONS FROM STECF-PLEN-13-02

No recommendations arose during discussions at the 43rd plenary meeting of the STECF.

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Abstract

The Scientific, Technical and Economic Committee for Fisheries hold its 43rd plenary on 8-12 July 2013 in Brussels (Belgium). 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 were *inter alia* assessments of the economic performance of the EU fishing fleet, fishing effort regime evaluations, future EU data collection, and review of stock advice.

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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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