



35th PLENARY MEETING REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-10-03)

PLENARY MEETING, 8-12 NOVEMBER 2010, Brussels

Edited by John Casey & Hendrik Dörner

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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.

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

Contact information

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

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

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PLENARY MEETING

8-12 NOVEMBER 2010, BRUSSELS

1. INTRODUCTION

The STECF plenary took place at the MAI – Maison des Associations Internationales, Brussels, from 8 to 12 November 2010. The Chairman of the STECF, Dr John Casey, opened the plenary session at 14:00h. 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 November.

2. LIST OF PARTICIPANTS

Contact details are provided in section 6.

MEMBERS OF THE STECF:

Abella, J. Alvaro (vice-chair, rapporteur)
Andersen, Jesper Levring (vice-chair)
Bailey, Nick (rapporteur)
Bertignac, Michel (rapporteur)
Cardinale, Massimiliano (rapporteur)
Casey, John (chair, rapporteur)
Curtis, Hazel (rapporteur)
Daskalov, Georgi (rapporteur)
Delaney, Alyne
Di Natale, Antonio
Döring, Ralf (rapporteur)
Garcia Rodriguez, Mariano (rapporteur)
Gascuel, Didier (rapporteur)
Graham, Norman (rapporteur)
Gustavsson, Tore
Jennings, Simon (rapporteur)
Kenny, Andrew
Kirkegaard, Eskild (rapporteur)
Kraak, Sarah (rapporteur)
Kuikka, Sakari

Malvarosa, Loretta
Martin, Paloma (rapporteur)
Motova, Arina (rapporteur)
Murua, Hilario
Nowakowski, Piotr
Prellezo, Raul
Sala, Antonello
Somarakis, Stylianos (rapporteur)
Stransky, Christoph (rapporteur)
Theret, Francois (rapporteur)
Ulrich, Clara (rapporteur)
Vanhee, Willy (rapporteur)
VanOostenbrugge, Hans

INVITED EXPERT:

Brodie, Colin
Sabatella, Evelina (rapporteur)

JRC EXPERTS:

Rätz, Hans-Joachim
Sampson, David
Simmonds, John (rapporteur)

EUROPEAN COMMISSION:

DG- Maritime Affairs and Fisheries (MARE)

Goldmanis Edgars
Lindemann, Jan Hening
Patterson, Kenneth
Santos, Rita Maria
Ranner, Herwig
Rodriguez-Alfaro, Sebastian
Schmidt, Stefanie
Tritten, Christian

JRC- STECF secretariat:

Biec, Virginia
Dörner, Hendrik

3. INFORMATION TO THE PLENARY

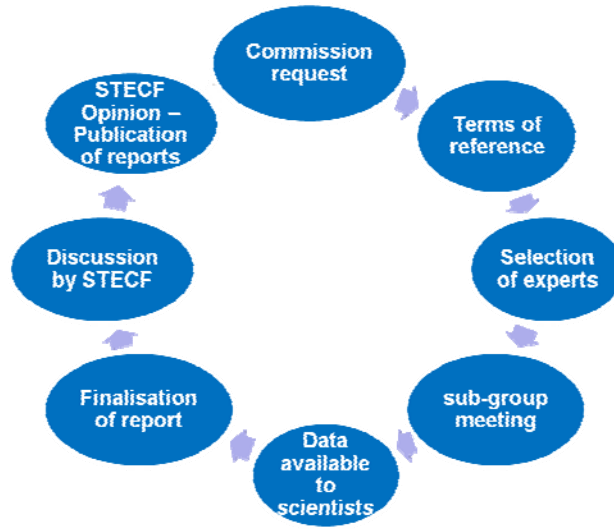
3.1. Renewal of the STECF plenary – Presentation of the whole scientific advisory framework supporting the implementation of the Common Fisheries Policy

The STECF Secretariat (H. Doerner, JRC) gave a presentation on the STECF explaining rules and working procedures and informing on the 2010 work program.

Commission Decision of 26 August 2005 establishing a Scientific, Technical and Economic Committee for Fisheries 2005/630/EC sets the legal framework for the STECF. In there it states that the Scientific, Technical and Economic Committee for Fisheries (STECF) shall be consulted at regular intervals on matters pertaining to the conservation and management of living aquatic resources, including biological, economic, environmental, social and technical considerations. The Commission shall take into account the advice from the STECF when presenting proposals on fisheries management under this Regulation.

The European Commission asks STECF for advice on priority issues. DG MARE provides 'Terms of Reference' (ToRs) in the form of requests to STECF which may be addressed in Plenum or in Working Groups convened under the auspices of one of the six STECF Subgroups. Working Group reports are exclusively the opinion of the Working Group and must not be considered STECF opinion until the STECF has reviewed the report and stated its opinion on the findings in the report. The STECF opinion on the report forms the basis for the Commission to take action (e.g. consideration for proposals to the Council). The conclusions and recommendations of the STECF may differ from those contained in the Working Group Report. The Secretariat also clarified that reports of STECF Working Groups are only to be made public after the STECF has given its opinion and or endorsement on the report.

Fig. 3.1.1 STECF work flow



Each year approximately 25 meetings including 3 plenary sessions, 2 Bureau meetings and 20 Working Groups are convened under the auspices of the STECF. Fig. 3.1.2 provides an overview on issues dealt with by the STECF in 2010.

Fig. 3.1.2 Issues dealt with by STECF in 2010

Ca 25 meetings per year	
STECF Bureau	3 Plenary
SG-RST	Stock review meetings (III)
SG-MED	Mediterranean Assessment (I-III)
SG-ECA	Annual Economic Report Review of economic data collected in relation to DCF Fish processing sector
SG-BRE	Review of National reports
SG-MOS	Fishing effort regimes (I-II) Ecosystem Approach in Fisheries Management Methodologies for Impact Assessments Management options in new multi-annual plans
SG-RN	Evaluation of 2011-2013 National Programmes Evaluation of 2009 technical reports Review of needs related to surveys

The STECF Secretariat is provided by Scientific experts and administrative personnel in the FISHREG Unit of the Joint research Centre (JRC) in Ispra, Italy. However, as for other invited experts, JRC staff are also eligible to participate in the work of the STECF as independent experts and are required to complete declarations of interest, commitment and confidentiality. JRC Experts have made significant contributions to the work of the

Committee through data provision, data analyses, database management and expert reviews. In some instances JRC Experts have been invited to Chair STECF Working Groups (AER 2010, Fisheries Management Plans, Impact Assessments, Review of surveys).

3.2. Renewal of the STECF plenary – Presentation of the role and obligations of STECF members

The members of the STECF are chosen by the Commission. They are chosen based on their individual skills and experience and must declare that they will act in an independent capacity. STECF members also have to provide annual declarations of interest, commitment and confidentiality. The STECF provides its advice in the form of plenary reports and STECF Working Group reports to which is appended the recommendations, comments and observations of the STECF. STECF opinion may also be sought by written procedure. STECF Working Groups should be attended by at least two members of the STECF.

3.3. Renewal of the STECF plenary – Election of the STECF Board

Following the appointment of the new Committee for the three-year term 27 October 2010 – 27 October 2013, elections for the positions of Chair and two Vice Chairs of the STECF were held. Nominations for each of the positions were received by the Secretariat as follows:

Chair – Dr John Casey
Vice Chair Dr Jesper Andersen
Vice Chair Dr Alvaro Abella

Before the election, the candidates presented themselves to the plenary and questions were made to the candidates in order to understand their interests and aims regarding their aims and aspirations in their capacity as STECF officials and their ideas in relation to the future working procedures of the Committee.

Questions raised by the STECF members included:

- 1) What is the most important work of the chair?
- 2) Do you think that the reputation of STECF is good? Do we cover the expectations of the whole society in this respect?
- 3) What does legislation say about the various aims and their relationships, and what does this mean for the work of STECF?

- 4) How can integrated advice be improved by the STECF? – How should we best address the requirement to achieve biological, economic (and social) objectives in the fisheries management decision-making process?
- 5) How to arrange the work in subgroups in contrast to work in plenary?
- 6) How to make the work of the STECF more transparent?
- 7) Would an increased effort to further integrate the advice provided by the STECF really result in added value to the quality of advice?
- 8) Taking into account the ever increasing workload of the STECF would it not probably be an option to work in parallel sessions at the plenaries in order to be able addressing the high number of TORs (with less effort on integration)?

The Committee had a lively discussion on the above points and it was suggested that the STECF Bureau develop a working document especially addressing questions 3 to 8 which can form the basis of further discussions at the next Plenary meeting.

STECF members elected to vote on the nominated candidates via a show of hands and each of the above nominees was unanimously elected by the members present. Elections took place on the morning of November 12 and were chaired by the Secretariat.

3.4. Renewal of the STECF plenary – STECF participation to ACFA

The Commission pointed out the STECF is required to appoint representatives to the Advisory Committee for Fisheries and Aquaculture. (ACFA). The new STECF is asked to appoint two members (biologist, economist) to attend ACFA working groups. STECF members attending meetings of Regional Advisory Councils (RACs) do so in a personal capacity unless directly tasked by the STECF board to represent STECF.

Mr Willy Vanhee and Dr Max Cardinale agreed to act as the primary focal point for issues relating to the ACFA.

3.5. Renewal of the STECF plenary – Discussion on the organisation of the STECF in sub-groups, numbers and "mandate", possible chairpersons for the SG-RN and SG-ECA

This item was not discussed during the plenary meeting. It will be included in the terms of reference of the 1st meeting of the new STECF bureau (STECF chair and vice-chairs, STECF secretariat, DG MARE) scheduled for December 2010.

3.6. Renewal of the STECF plenary – Discussion and possible agreement on STECF internal rules

STECF discussed the STECF internal rules and protocol for observers drafted and agreed by the previous committee, noting that the newly appointed Committee should formally adopt the rules of procedure. It was suggested that the currently agreed protocol for observers at STECF meetings may need to be reviewed in the light of experiences to date. It was agreed that the matter should be reviewed by the STECF bureau with a view to presenting a revised draft to the spring 2011 plenary meeting of the STECF.

4. ASSESSMENT OF WORKING GROUP REPORTS

4.1. SG-MOS 10-03: Development of the Ecosystem Approach to Fisheries Management (EAFM) in European waters

Background

The STECF-SGMOS 10-03 Working Group was set up in line with the recommendations of the STECF 30th plenary meeting regarding the improvement of the ecosystem approach to fisheries management and the development of bio-economic modelling (PLEN-09-01). In that report STECF noted: “One of the main and explicit objectives of the ecosystem based approach to fisheries management, as defined under Council Regulation (2371/2002), is to optimise economic activity while seeking to minimize the impact on the relevant ecosystem (i.e. damages on habitats or reduction in stock abundance, etc). [...] The scale taken into account is crucial and should be relevant for management purposes. Currently, biological and economic data are available at different scales. STECF suggests that the principle scale of analysis should be the ecosystem and data should be (dis)aggregated accordingly. [...] STECF considers it to be an urgent and prior task to setup the organizational structure for addressing future ecosystem analyses. An initial step should be to convene a working group under the auspices of STECF-SGMOS to define a general analytical framework, data availability and illustrate this on some case studies”.

Request to STECF

STECF is requested to review the report of the **SGMOS-10-03 Working Group** of September 6 - 10, 2010 (Rennes) meeting, evaluate the findings and make any appropriate comments and recommendations.

The detailed terms of reference for the SGMOS-10-03 Working Group are to be found in Annex I.

Overview of the SGMOS-10-03 Working Group Report

The overall aim of the SGMOS 10-03 working group was to provide a pragmatic example of a first attempt at assessment and advice in support of EAFM. It addressed this through:

- i. utilising long time-series of catch and various stock assessment metrics, including the analysis of ecosystem indicators;
- ii. an analysis of the characterisation of fleet impacts;
- iii. an analysis of economic performance;
- iv. an assessment of operational status of ecosystem models to support an EAFM.

Based on this first attempt, the STECF-SGMOS 10-03 WG was also requested to provide comments and suggestions regarding the best way to improve EAFM in European waters. In addressing this issue, the WG responded by

- i. suggesting a reference list of ecosystems submitted for consultation with various bodies;
- ii. recommending a two steps procedure to implement operational advice-oriented ecosystem and bio-economic models in European marine ecosystems;
- iii. suggesting to engage in discussion with other STECF groups and with ICES in order to promote an advice-oriented ecosystem approach in various existing committees.

STECF comments and conclusions

Comments on the approach developed by the SGMOS 10-03 working group

It is clear that considerable effort has been applied in preparing the STECF-SGMOS 10-03 WG report and the WG is to be commended on the quality and quantity of analyses undertaken. Overall, the conclusions reached by the Working Group are supported by the STECF. Additional specific STECF comments are given below:

In relation to the methods used, the working group itself acknowledges that its work was a very first step, notably limited by the availability of data. The WG made some useful suggestions to improve the methodology (see section 5.1 of the report). STECF agrees with these suggestions and adds the following comments:

- Graphs related to the synthesis on stocks status, stocks mean trajectories or sustainability index of fleet segments are very useful but should be interpreted with great care. On one hand, using $F_{0.1}$ as a proxy for F_{msy} should be considered as a transitory step until reliable estimates of F_{msy} are available. On the other hand, “painting in green” the most precautionary part of such graphs may induce the idea that the green area ($F < F_{0.1}$ and $B > B_{0.1}$) is recognized as the common target of fisheries management for all stocks. This is currently not the case. F_{msy} forms a target not a lower bound on exploitation. Where biomass targets are used they are often PA values such as B_{pa} , not the much higher value of $B_{0.1}$. Some thought needs to be given to the representation of targets in such diagrams.
- To supplement the above approach, there is a need to integrate a much wider range of

information into a qualitative model (integrating environment, economic and biological variables) to assess the ecosystem risks associated with increasing or maintaining present fishing effort. One such approach has been described by Caddy (1998).

- STECF notes that the fleet-based approach developed by the working group is workable and a useful way to show the dependency of the fishing fleet on certain stocks and ecosystems. Further elaboration of the adopted approach in the future, may allow STECF to add fleet economic performance to the stock advice.

In general, the analyses performed by the SGMOS 10-03 WG were somewhat constrained by the TORs of the WG, which did not relate to aspects of the Marine Strategy Directive Framework (MSFD). This is especially the case regarding ecosystem indicators. The working group was only requested to calculate (or to gather results for) indicators from the reference list defined under the umbrella of SGECA and endorse at the 09-01 plenary meeting of STECF. With the benefit of hindsight, it may have proven useful if STECF had included reference to indicators in relation to the MSFD and the overall assessment of the Good Environmental Status (GES).

Then, STECF considers that the methodology utilised by the working group is limited by the specification of data in the DCF. In particular, the list of ecosystem indicators required to assess the ecosystem impact of fishing should not be limited by the availability of data coming from the DCF (further elaboration is given below under “*a reference list of European marine ecosystem*” in relation to the MSFD). This also relates to economic indicators and cost/benefits analyses which also should not be restricted to what is recorded by DCF. STECF notes that in order to achieve such an ecosystem-based approach a further improvement in the data collection is necessary. In particular, the fishing fleet data must be collected on a more disaggregated level between areas (see below). As for ecosystem indicators, appropriateness of data collected within the DCF should probably be revisited in the light of the MSFD.

It is notable that the list of ecosystem indicators developed by the STECF outlined by the Commission in 2008¹ and used by the SGMOS working group does not include any abiotic components such as temperature (SST) and nutrients and the biotic variables are limited to the fish stocks alone. The inclusion of a wider range of abiotic and biotic variables would allow the effects of a changing environment to be taken into account, particularly in relation to assessing likely favourable/unfavourable conditions for recruitment. Most (if not all) of the present ecosystem indicators are reactive. In addition, “*STECF notes that the DG-Mare interpretation of the Ecosystem Approach to Fisheries Management (EAFM) is as follows: “the approach that strives to balance diverse social objectives, by taking into account knowledge and uncertainty about biotic, abiotic, and human components of ecosystems and their interactions and applying an integrated*

¹ Communication from the Commission to the Council and the European Parliament - The role of the CFP in implementing an ecosystem approach to marine management [COM(2008) 187 final] /* SEC/2008/0449 final */

approach to fisheries within ecologically meaningful boundaries” (EC, 2008 SEC(2008) 449)”.

It is also important to recognise that there are other approaches being developed to deliver an EAFM, notably those by NOAA (USA) & DFO (Canada), which may ultimately have greater utility in delivering an EAFM.

STECF comments on the recommendation from the SGMOS 10-03 working group

. Defining a reference list of European marine ecosystem

The SGMOS 10-03 working group advises that defining a reference list of European marine ecosystem is a top priority. These ecosystems would be considered as the functional units used in EAFM, especially to calculate ecosystem indicators, to conduct stocks synthesis or fleet based analyses, to develop advice-oriented ecosystem and bio-economic models, and more generally to analyse tradeoffs between ecology and economy.

In its 2009 report, STECF already noted that: “a first step for improving EAFM and bio-economic modelling is to define an agreed list of "reference ecosystems" (or "marinographic areas"). This scaling should take into account the limits of the RACs, and probably define sub-areas within RACs”. STECF also considers that such ecosystems should be as close as possible (if not similar) to those defined by the MSFD. Some strong relationships have to be developed between EAFM and the assessment of GES, especially regarding the definition of the ecosystem indicators of GES (and the related methods).

An objective of the Marine Strategy Framework Directive (MSFD) is to achieve Good Environmental Status (GES) for descriptors (food webs, biodiversity, commercial fish and shellfish, seabed integrity) that are impacted by human activities. The role of the CFP in contributing to the achievement of GES is clear in the text of the MSFD. First, fisheries regulatory measures needed to achieve GES were to use the CFP to the fullest extent possible, and second, the CFP and future revisions of the CFP should take into account the environmental impacts of fishing and the objectives of the MSFD. The MSFD provides a clear context for the 2012 revision of the CFP, since the CFP is required to be used to manage the environmental impacts of fishing to the extent necessary to achieve GES.

At the same time, implementing EAFM is a specific task, that has to be conducted in respect to -and in close collaboration with- the MSFD, but whose purpose is not (or not only) to ensure GES. On the other hand, EAFM aims to take into account not only ecological sustainability (and GES), but also economic profitability and social fairness. Its major objective (its specific value-added) is to analyse tradeoffs between ecology, economy and social aspects, the tree pillars of the sustainable development of fisheries.

Therefore, and even if flexibility is required, STECF is still of the opinion that defining reference ecosystems is a good idea to facilitate an EAFM. STECF considers that the

candidate list suggested by the SGMOS 10-03 working group as a first proposal submitted for discussions meets three important requirements:

- i. it is very close to the MSFD Marine Eco-regions (except that boundaries are defined by ICES divisions or subdivisions limits in place of EEZ boundaries);
- ii. it matches to RACs areas;
- iii. it relates, at least for a large majority of suggested ecosystems, to entities commonly used in many research programs, management rules or committees (e.g. Baltic sea, North Sea).

STECF also note this list is very close to the one proposed by ICES (2004) in response to EC request about appropriate Ecoregions for the implementation of an ecosystem approach in European waters. The main differences are as follows:

- . ICES list included four northern Ecoregions which are not considered in the SGMOS 10-03 report: Greenland and Iceland Seas, Barents Sea, Faroes and Norwegian Sea. Inclusion of these ecoregions in the candidate list seems to be appropriate.
- . SGMOS 10-03 suggest to divide the Celtic Sea Ecoregion of ICES within three ecosystems (the West of Scotland/Ireland, the Irish Sea and the Celtic Sea restricted to divisions VIIe-k), and to divide the South European Atlantic Shelf Ecoregion within two ecosystems (the Bay of Biscay including VIIIabd, and the Iberian coast). STECF note these subdivisions are commonly used in many studies performed by ICES and STECF and are not incompatible with a more aggregated approach when needed.
- . SGMOS also suggest dividing the Adriatic-Ionian Seas Ecoregion in two parts (Adriatic sea and Ionian sea) which conforms to many studies and published works.
- . Finally, SGMOS list include two ecosystems for the Açores and Canarias/Madeira, while these areas were not explicitly considered in the ICES consultation and were partly included within a larger Oceanic northeast Atlantic Ecoregion.

It is therefore necessary to be confident that the ability to deliver the EAFM will not be compromised by the present set of defined eco-regions. In order to achieve this STECF **recommends** a Working Group (see below) should undertake a comparative analysis of results obtained using the present eco-regions with results obtained using the proposed list of eco-regions (above) to assess if changing the regional boundaries actually makes a significant difference in the results obtained.

. Implementing advice-oriented models

The SGMOS 10-03 working group suggests a two steps procedure to implement ecosystem and bio-economic models in each reference ecosystem, in an advice-oriented perspective. The first step would be to build some references models for each reference ecosystem. A possible way to achieve this may be through a specific call for project managed by DGMARE. STECF notes that the Current FP7 call KBBE.2011.1.2-09 “Beyond MSY” , may be an appropriate framework to develop such models The second step would be to set up one or more working groups charged to apply such reference models on a regular basis, updating the diagnosis on ecosystem health and investigating compromises between ecological and economical objectives.

STECF considers that developing and implementing such models would be very useful and should be encouraged in a flexible way. STECF suggest that one possible and initial way forward could be to convene a working group on this matter, under the auspices of SGMOS. Such a working group could undertake a case study of a single ecosystem by adapting existing ecosystem and bioeconomic models. The WG objective would be to test the models' ability to provide an assessment of the fishing impact on ecosystem functioning, to analyse various management scenarios (possibly defined by a specific request of the Commission), and to try to develop a fleet-based feasibility modelling approach in order to assess or optimise the tradeoffs between ecological impacts and economical performances. More generally, the objective should be to test the models' ability to provide informative advice in the framework of EAFM.

The WG may also be asked to give further thought to the potential utility of the project suggested by the STECF-SGMOS 10-03 WG for the further development of ecosystem and bioeconomic models in European ecosystems and to specify what such a proposal should aim to deliver. Another way forward would be to ensure that the outcomes from current and future relevant research programmes are used to inform on the EAFM.

. Promoting an advice-oriented ecosystem approach in various existing committees

The SGMOS 10-03 report makes several recommendations in relation to improving process, in particular the establishment of permanent expert groups to deliver operational ecosystem advice, e.g. by up-dating assessments annually. STECF agrees that this is a good idea and recognises the good progress made by the ICES Expert Groups established under the Regional Seas Programme, notably; the North Sea and Baltic Sea groups.

STECF was unable to fully discuss all of the recommendations made by the WG on improving process. Further consideration on improving process and the WGs recommendation to further improve the DCF by taking into account proposed ecosystems instead of the larger ecoregions currently specified, could be taken up by STECF should the Commission give these issues sufficiently high priority.

As a conservative initial step, STECF **recommends** that a WG be convened under the auspices of STECF-SGMOS, and scheduled for 2011 with the following Terms of Reference:

1. to update and improve the assessment related the North Sea and the Celtic Sea ecosystems,
2. to aggregate new results from various committees or programs (especially those potentially issued from the experimental group on modelling, mentioned above),
3. to discuss new developments of EAFM and on the best way to develop synergies between EAFM and GES.
4. To assess the sensitivity of such assessments to changes in the boundaries of eco-regions.

Additional STECF comments on data needs

ICES provides stock assessments and has the potential to provide a range of ecosystem indicators by stock. The JRC collects and maintains two major sources of data, the SGMOS catch and effort database and the Economic data for the AER. However, these three sources of information are aggregated in different ways. For example the ICES data is stock based, the economic data has information on costs and investment at fleet segment level and landing value and volume data with a level of spatial information which in some cases (but not all) allows this to be matched to stock. The Effort data is assembled with a high degree of spatial resolution and catches can in most cases be allocated to stock.

These data sets support a number of evaluations: economic evaluated by fleet segment, evaluations of management plans by stocks of groups of stocks, and advice on fishing targets and fishing mortality rates. They are also potentially useful for ecosystem status evaluation.

In order to provide an ecosystem status evaluation it is necessary to divide the whole EU area into a regions that have coherence as an ecosystem such as the one proposed by the STECF-SGMOS 10-03 WG. However, there are other area based management requirements such as ICES Eco-regions, the Member States regional responsibilities, and the description of marine regions and subdivisions relevant to implementation of MSFD (Article 5(2) of 2008/56/EC Marine Strategy Framework Directive). Under MSFD Member States sharing a marine region or subregion shall cooperate to ensure that, within each marine region or subregion, the measures required to achieve the objectives of the Directive are co-ordinated. This includes the programme of measures to achieve Good Environmental Status (GES). Four of the eleven measures of GES (Food Webs, Biodiversity, Seabed integrity, Commercial Exploited Fish and Shellfish) can be impacted by fisheries and fisheries will need to be managed to ensure GES is achieved. The region or sub-region is in effect, therefore, the management region for the MSFD.

In section 4.3 on the review of the SGECA 10-03 report STECF developed possible TOR for a workshop on possibilities to collect disaggregated economic data with an additional area code. Furthermore, it is intended that possibilities for collection of disaggregated costs data will also be assessed by that workshop. If such a disaggregated data collection is possible it will allow STECF to assign costs and earnings data to the different eco-regions.

Thus we have competing requirements these different sources. To answer these diverse requirements, it is important to ensure that data can be used to support the different spatial and fishery based units. If we were to add to the existing databases, sufficient metadata to link the information available to the different spatial and fishery aspects and define and develop appropriate data queries, we should be able to calculate and deliver the different indicators required. It may be that it will not be possible to directly assign all data uniquely to regions, but where stocks or fleets overlap well defined ecoregions, these

should be in a minority. In this case metadata can be used to make multiple or fractional allocations of the indicators to region.

References

Caddy, J. F., 1998. Deciding on precautionary management measures for a stock and appropriate limit reference points as a basis for a multi-LRP harvest law. NAFO SCR Doc. 8, SN 2983, 13pp.

ICES 2004. ICES response to EC request for information and advice about appropriate ecoregions for the implementation of an ecosystem approach in European waters, 27 pp.

4.2. SGBRE 10-01: Review of national reports on balance between fishing capacities and fishing opportunities

Request to STECF

STECF is requested to review the report of the **SGBRE-10-01** Working Group of September 13 - 17, 2010 (Edinburgh) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the SGBRE-10-01 Working Group are to be found in Annex II.

STECF comments and conclusions

STECF **endorses** the methods and working group report of SGBRE 10-01.

STECF notes the overall improvements made by MS in fulfilling their obligations under Article 14 of Council Regulation No 2371/2002 and Article 12 of Commission Regulation no 1438/2003 (see table 5.4 in working group report). STECF also notes that only six (compared to ten in the previous year) out of 22 MS did not estimate any of the balance indicators recommended in the Commission's guidelines to MS. Completion of balance indicators is not mandatory under current regulations however.

In particular, STECF notes that 13 of the 22 MS gave an overall opinion of whether the capacity of their fishing fleet was in balance with their fishing opportunities which is a big improvement on the previous year's reports. However, STECF notes that the benefits of MS completing these reports may not be realised unless MS make a clear statement about the degree of balance between their fleets and their fishing opportunities.

STECF notes the useful example of a suggested Commission summary of the Belgian MS report. If Commission summaries were all prepared according to this template the report to parliament would enable members to make easier comparisons between MS.

STECF questions once again the need for MS reports to be evaluated in an STECF working group. Since the STECF-SGBRE WG has devised a useful and straightforward scoring system for the legally required elements in MS reports, STECF suggests that at least the required elements of MS could be evaluated by staff at either JRC or DG Mare.

STECF suggests that the use of SGBRE experts' time could be better spent evaluating the application of the balance indicators, improving the balance indicators, the guidelines for the indicators and evaluating the overall situation or establishing a comprehensive overview with regard to balance or imbalance of EU fleets and opportunities. There is also then potential for experts to address specific questions about key areas where improvement in balance is a key requirement for improvements in fleet profitability and stock sustainability.

STECF supports the suggestion of the SGBRE working group that MS could choose from a range of suggested or alternative statements regarding the degree of balance in their own fleets and segments, and suggests that this suggestion is communicated to MS. The idea could be further developed by linking these statements to values of indicators. The statements suggested are as follows:

1. Capacity is substantially in excess of opportunity – means that the fleet is capable of catching (at reference year catch rates) far in excess of the permitted opportunity, or that the level of production could have been achieved with substantially less physical capacity.
2. Capacity is somewhat in excess of opportunity – means that the fleet is capable of catching more than the permitted opportunity.
3. Capacity is approximately in balance with the fishing opportunity. There is either little unused capacity or little unused opportunity.
4. Capacity is somewhat below the fishing opportunity – means that there is some unused opportunity due to lack of catching capacity, which is therefore not delivering possible economic and social benefits to the MS.
5. Capacity is substantially below the fishing opportunity – means that there is a substantial amount of the fishing opportunity that is not taken up due to lack of fleet capacity, and there are substantial social and economic benefits that are not being realised by the MS.

STECF is concerned to note the issue of incorrect translation of MS reports raised by the STECF-SGBRE 10-01WG and asks the Commission to consider appropriate solutions to this difficulty.

STECF endorses the suggestions and recommendations of the working group report, summarised in section 6 of the report. STECF makes the following **recommendations** arising from the findings and recommendations of the STECF-SGBRE 10-01 WG:

1. STECF **recommends** that the Commission once again urges MS to submit their reports and to do so by the deadline.
2. STECF **recommends** that Commission summaries of MS reports follow the new, shorter, template format as suggested in the report of SGBRE 10-01. Summaries will then contain the same information in the same order while remaining within the word limit required by the translation service. This would greatly assist STECF to evaluate the Commission summaries should STECF continue to be required to do so.
3. STECF **recommends** that the Commission again asks MS which have not already done so, to structure their annual reports as suggested in the report of SGBRE 10-01.
4. STECF **recommends** that the Commission asks MS to include at the front of their reports the suggested summary template contained in the report of SGBRE 09-01.
5. STECF **recommends** that in its summary report, the Commission names the MS whose reports indicate a considerable degree of fleet over-capacity.
6. STECF identifies the need for better technical indicator(s) for passive gear fleet segments and **recommends** that the Commission finds a way to develop them.
7. When the relevant regulations (Council Regulation No 2371/2002 and Regulation no 1438/2003) are updated, STECF **recommends** that the Commission consider explicitly requiring MS to report not only on their efforts to achieve balance, but to state clearly what they believe is the degree of balance between fleet capacity and fishing opportunity in their MS, and whether balance has been improving or worsening over the last few years.
9. STECF **recommends** that MS are again asked to state, where appropriate, why balance indicators have not been reported, as this may help to resolve any underlying problems and make it possible to report indicators in subsequent years.
10. When preparing updated Guidelines to MS on estimating balance indicators, STECF **recommends** that the Commission take into account suggestions for text included in the report of SGBRE 10-01.
11. STECF **recommends** that updated Guidelines are prepared and distributed to MS in time for MS to use them in preparation of their reports relating to 2010, to be submitted by 30 April 2011.
12. STECF **recommends** that MS be asked to describe their fleets using the fleet segmentation required under the DCF.

4.3. SGECA 10-03: Review of economic data collected in relation to the DCF, harmonisation of sampling strategies

Request to STECF

STECF is requested to review the report of the STECF-SGECA-10-03 Working Groups of September 20 - 24, 2010 (Salerno) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the STECF-SGECA-10-03 Working Group are to be found in Annex III.

Background

NP proposals 2011-2013 were submitted by MS under the new guidelines proposed by the STECF-SGRN 09-03 WG and endorsed by STECF. The guidelines take into account the recommendations from the STECF-SGECA-09-02 WG. In particular, the STECF-SGECA-09-02 WG suggested that in order to obtain methodology descriptions of a comparable standard among MS, a methodological report should be included in the national programme proposals. The aim of the methodological report is to provide a clear and detailed description of the data collection methods.

The STECF-SGECA 10-03 WG was asked to evaluate these methods with the specific objectives to compare different approaches and to discuss possible harmonisation of sampling strategies among MS.

In addition, the DCF requires STECF to evaluate the quality of the data collected by Member States (article 7, Council Regulation (EC) 199/2008). The STECF-SGECA 10-03 WG was asked to suggest proper procedures to facilitate STECF's task.

STECF comments and recommendations

STECF notes that the STECF-SGECA 10-03 WG interpreted ToR 2. to refer to “proposed” indicators in National Programmes rather than “achieved” indicators in Annual Reports.

STECF recognises that SGECA 10-03 addressed all their terms of reference and, in addition, provided useful guidelines to assess the quality of methodologies and of estimates.

STECF interprets the phrase “harmonisation of sampling strategies” to mean: making the sampling strategies such that the results of the surveys are comparable.

STECF notes that STECF-SGRN WGs have provided Guidelines to MS on the preparation of National Programmes and Guidelines on the preparation of Annual Reports. STECF agrees with the additional guidelines on statistical techniques for simple and stratified random sampling reported in Annex III of the report of the STECF-SGECA 10-03 WG. The Commission is asked to circulate these guidelines to National Correspondents.

STECF reminds the Commission that the STECF-SGECA 09-02 WG recommended a study to standardise quality reporting and propose methods in the case of non probability sampling survey. Terms of Reference for this study are in the report of the STECF-SGECA 09-02 WG and have already been endorsed by STECF (July 2009). STECF reiterates its recommendation to conduct the study as soon as possible so that MS can consider the results of the study when presenting quality indicators in the 2011 technical report on activities performed in 2010 (to be delivered by May 2011). STECF proposes

that the TOR of this study should also include options to deal with possible bias by non-probability sampling.

STECF proposes to evaluate proposed methods in National Programmes in addition to evaluating compliance with DCF regulations in forthcoming STECF-SGRN WGs. To enable this additional evaluation, it is intended that appropriate criteria will be developed in a Workshop on Statistical issues in 2011. Future STECF-SGRN WGs could also evaluate the quality of elements included in National Annual Reports, as well as whether the required elements have been provided.

STECF notes that the STECF-SGECA 10-03 WG did not provide revised methods for the collecting aquaculture data because of time constraints and lack of appropriate expertise. STECF considers that a review of proposed methods in National Programmes for collecting aquaculture data would be useful and could generate valuable advice to MS.

STECF reviewed the guidelines proposed by the STECF-SGECA 10-03 WG on how MS should collect and present information on quality of the data collected, which include definitions of accuracy indicators to be presented by MS in the Annual Report and the type of presentation for each indicator. STECF notes that, in the proposed guidelines, the use of the term census is not consistent. STECF proposes to use the following definition for census: Census is a type data collection in which every unit in the frame population is approached for data. If there are non-responses when the census is carried out, then the response rate will be below 100%.

STECF notes that there is a table of definitions and guidelines to present accuracy indicators included in the report of the STECF-SGECA 10-03 WG. STECF considers that this table should be revised as suggested below to improve clarity of explanation and then included in Guidelines to be distributed to MS.

Table 1: Definition and presentation of accuracy indicators to be presented by MS in the AR

Type of data collection	Accuracy indicators	Definition and <i>presentation</i>
A: Census	Response rate	achieved no. ⁽¹⁾ / frame population no. <i>Present as %</i>
	Coefficient of Variation (CV) only if response rate <70% ⁽²⁾	$cv(\hat{Y}) = \frac{\hat{\sigma}(\hat{Y})}{\hat{Y}}$ where: $\hat{\sigma}(\hat{Y})$ is the estimated standard deviation of \hat{Y} \hat{Y} is the estimated total value per fleet segment of the variable e.g. total energy costs ⁽³⁾ <i>Present as absolute term (e.g. 0.2 rather than 20%)</i>
B: Probability Sample survey	Achieved sampling rate	achieved sample no. ⁽⁴⁾ / frame population no. <i>Present as %</i>
	Response rate	achieved sample no. ⁽⁴⁾ / planned sample no. ⁽⁵⁾ <i>Present as %</i>
C: Non-Probability Sample survey	Coefficient of Variation (CV)	$cv(\hat{Y}) = \frac{\hat{\sigma}(\hat{Y})}{\hat{Y}}$ where: $\hat{\sigma}(\hat{Y})$ is the estimated standard deviation of \hat{Y} \hat{Y} is the estimate of the total ⁽³⁾ <i>Present as absolute term (e.g. 0.2 rather than 20%)</i>

- (1) **Achieved no.** is the number of respondents who supplied data in response to the census
- (2) **CV** is also required for census which achieves a low response rate (<70%) as this must be treated as if it were a Non-Probability Sample survey
- (3) The **estimated total** is the final estimate for each variable and each fleet segment, according to appendix VI of DCF. E.g. estimated total energy costs, estimated total crew costs, per fleet segment
- (4) **Achieved sample no.** is the number of respondents that supply data (and not, for instance, the number of questionnaires sent out, or number of companies contacted)
- (5) **Planned sample no.** is the number of units to be contacted for the survey (even though you may not expect all of them to respond and supply data)

STECF proposes that Guidelines to MS for presentation of Annual Reports are revised at the next relevant STECF-SGRN WG meeting, taking into account the recommendations in annex IV of the STECF-SGECA 10-03 WG report. Guidelines for the processing and aquaculture sectors should also be revised following the same approach.

STECF notes that, in order to evaluate the quality of data collected in Annual Reports, there should be specific targets for CV, acceptable response rates, etc. STECF agrees with the method suggested by the STECF-SGECA 10-03 WG to apply a step by step procedure in order to define targets for quality evaluation. In the first step (for 2011 Annual Reports), targets for quality assessment will be qualitative, e.g. MS should provide transparent and complete descriptions of methods and analysis of accuracy

indicators. The second step is to analyse and evaluate quality indicators in order to help define targets for data quality. This step should ideally be carried out in an *ad hoc* workshop convened by the Commission, rather than an STECF WG, and should include appropriate experts appointed by MS.

STECF notes that the Perpetual Inventory Method (PIM) to estimate fleet capital values, as required by the DCF, creates comparable results on the capital values of fishing fleets among MS. STECF notes that the DCF requires MS to estimate both replacement and historical values, which could create ambiguity when one value has to be chosen for economic analysis. STECF notes that, although valuation at historical prices is usual in company accounts, it cannot be compared with national accounting or other economic statistics that are expressed at prices of a single period. Therefore, STECF **recommends** use of replacement value in macroeconomic analyses (as in the case of AER).

STECF recognizes that there is a wide range of possible input data (price per capacity unit, interest rates, depreciation times and methods) for the Perpetual Inventory Method and **recommends** that further more detailed guidelines be developed to specify which input data is preferred.

STECF agrees with the STECF-SGECA 10-03 WG's recommendation to use the geometric approach to estimating depreciation, as recommended by OECD (OECD manual on measuring capital stocks, 2009).

With regard to the processing sector, STECF **recommends** that MS avoid duplication of sampling effort, according to statistical best practices. Therefore, in cases where official statistics on economic data on the processing sector cannot be used to meet the requirements of the DCF, MS should clearly explain the reason and justify the use of additional surveys.

STECF **recommends** that MS describe definitions and methods used to collect economic data regardless the source used in order to ensure transparency.

STECF **recommends** use of the IVth Council Directive 78/660/EEC as reference in order to standardise definition adopted by MS. In particular, net financial costs are defined in Article 23, item C.13 of the IVth Council Directive 78/660/EEC, (“Interest payable and similar charges, with a separate indication of those concerning affiliated undertakings”), while net extraordinary costs are defined in Article 23, item 17, (“Extraordinary charges”).

Noting the Commission request to provide a definition of processing industry and activities, STECF notes that the Statistical classification of economic activities in the European Community (NACE Rev. 2) includes a detailed description of activity 10.20 “Processing and preserving of fish, crustaceans and molluscs” and **recommends** MS use this description when identifying the population that should be surveyed. However, STECF also notes that the current DCF states that the population shall refer to enterprises whose main activity is defined according to the EUROSTAT definition under NACE

Code 10.20. This rule implies the exclusion of enterprises involved principally in other activities and has major implications for time trends in the size of the processing sector. For example, annual variations in income from processing in enterprises that conduct both processing and trade might lead to alternative annual inclusion and exclusion of these enterprises from the DCF estimates of total processing activity. STECF **recommends** that a study be conducted to evaluate the effect of this selection rule and to assess other possibilities to collect more accurate data on the processing sector.

STECF reviewed comments made in the report of the STECF-SGECA 10-03 WG on the results of the call for economic data launched to produce the draft report on the "Economic Performance of the fish processing: Annual Report 2009". STECF notes that several MS failed to comply with the data upload deadline and did not send all the required data. STECF **recommends** all MS submit data by the deadline and thoroughly check the data first. In particular, MS should compare the data with available EUROSTAT data, to ensure quality and homogeneity in official sources. In case of discrepancies, STECF **recommends** MS should explain in the National Annual Reports, the reasons for such discrepancies.

STECF observes that excluding the variable "raw materials per species" from the DCF affects the general usefulness of including the processing sector in the DCF because the link with the catching sector cannot be evaluated. For the STECF opinion, see section 4.8 of this plenary report, reviewing the report of the STECF-SGECA 10-04 WG which produced the processing sector AER.

STECF, taking into account proposals from Regional Coordination Meetings (RCM) and the report of SGECA 10-03, agrees with the need to hold the following three workshops and understands that they are already planned by the Commission:

- Workshop on **calculation of capital value** in accordance to PIM methodology and definition of variables not clearly defined in the DCF
- Workshop on **statistical issues** related to the collection of economic data within the DCF
- Workshop on **allocation of Economic Data at disaggregated level** (e.g. metiér)

STECF suggests the following terms of reference for the three workshops.

*Workshop on **calculating capital value** using PIM and definition of DCF variables*

1. Present and discuss MS experiences in approaches and results estimating fleet capital value.
2. Hold a training session on the application of the Perpetual Inventory Method
3. Compare price per capacity unit applied by different MS and assumptions made on the PIM method (age schedules, depreciation schemes, depreciation rates, etc.)
4. Discuss method problems faced by MS with respect to estimating unpaid labour and financial position, and propose solutions to the problems.
5. Propose clear definitions of those variables not clearly defined in the DCF.
6. Propose best practices to be followed by MS in estimating capital value using PIM.

*Workshop on **statistical issues** related to the collection of economic data within the DCF*

1. Present national methods to define sample size, accuracy indicators and estimate results.
2. Identify best practices regarding estimation procedures, assessing quality of data collected and define minimum targets for quality of economic data.
3. Evaluate methods, advantages and disadvantages of collecting data using non probability sampling surveys. Consider the results of the proposed Study to Standardise Quality Reporting and Propose Methods in the case of Non-probability Sample Survey.
4. Address Non-Response issues, including how Non Response can influence quality. Propose methods to deal with high level of non response.
5. Prepare Guidelines to MS for best practices in statistical analysis and on how to define and select the appropriate sample sizes to be proposed in National Programmes.

*Workshop on **allocation of Economic Data at disaggregated level** (e.g. metiér)*

1. Identify needs of applications, e.g. Long Term Management Plans, Regional Analyses for funding purposes and Ecosystem Approach to Fisheries Management.
2. Identify methods to allocate earnings and costs (operating costs, labour costs, capital costs) at different aggregation levels. Consider the identification of cost drivers. Transversal variables could serve for this purpose. Consider vessels that may be active in more than one fishing metiér during the same year.
3. Propose a method to split economic variables among different areas when appropriate.
4. Assess data quality requirements of allocation methods with regard to particular characteristics of DCF data sources at each MS (e.g. logbooks).

4.4. SGMOS 10-05: Evaluation of fishing effort regimes in European waters – part 2

Terms of Reference

STECF is requested to review the reports of the STECF-SGMOS-10-05 WG of September 27 to October 1, 2010 (Edinburgh) meeting, evaluate the findings and make any appropriate comments and recommendations. A preliminary review of progress following the STECF-SGMOS-10-04 WG meeting was provided at the STECF summer meeting 2010².

²Scientific, Technical and Economic Committee for Fisheries (STECF) – 34th Plenary Meeting Report. (eds. Casey J. & Doerner H.). 2010. Publications Office of the European Union, Luxembourg, ISBN 978-92-79-15628-1, JRC 59822, 176 pp.

The detailed terms of reference for the SGMOS-10-05 Working Group are to be found in Annex IV.

The working group was requested to provide:

- 1 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Baltic Sea cod management plan R(EC) No 1098/2007*
- 2 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Kattegat (Annex IIA to Regulation (EC) No 43/2009)*
- 3 – an assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Skagerrak, the North Sea and the Eastern Channel (Annex IIA to Regulation (EC) No 43/2009)*
- 4 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the West of Scotland (Annex II A to Regulation (EC) No 43/2009)*
- 5 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Irish Sea (Annex IIA to Regulation (EC) No 43/2009)*
- 6 – An assessment of fishing effort deployed by fisheries and métiers which will be affected by the extension of the cod recovery plan to the Celtic Sea*
- 7 – Assessment of fishing effort deployed by vessels under the Southern hake and Norway lobster plan (Council Regulation (EC) No 2166/2005) operating in the Atlantic waters of the Iberian Peninsula as specified in Annex IIB of Council Regulation (EC) No 43/2009*
- 8 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Western Channel (Annex IIC to Regulation (EC) No 43/2009)*
- 9 - Assessment of fishing effort and evaluation of management measures to be assessed in 2009 (Deep sea and Western Waters effort regime)*
- 10 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by the multiannual plan for the sustainable exploitation of the stock of common sole in the Bay of Biscay (R(EC) No 388/2006)*

The STECF subgroup STECF-SGMOS Effort Management WGs (previously STECF-SGRST WGs) has since 2006 performed the task of collating and evaluating effort and catch data for fisheries operating under the Annex II A-C regimes. In 2010 SGMOS was asked to provide analysis according to the revised cod plan with its simplified gear categories. A significant management development in the new cod plan was the direct linking of effort management to achievement of fishing mortality targets. Crucial to this process was the establishment of effort baselines and an annual evaluation and adjustment of effort. The latter has brought the work of the STECF-SGMOS WG into sharp focus and the effort material continues to be the subject of close scrutiny and debate. During 2010, ongoing discussions about a cod plan for the Celtic Sea led to a request for STECF to update the effort information first provided for this area in 2008. The 2010 STECF-SGMOS WG meetings on effort management, also evaluated effort and catches in the Baltic Sea and two other existing management regimes, namely the

Western Waters Regulation and Deep Sea Regulation. In view of the requirement once again for evaluation of effort data, the group was well placed to deal with these. However, the deep sea TORs required specialist input and suitable experts attended the STECF-SGMOS WG 10-05 meeting. Two new areas of work were requested and developed by the STECF-SGMOS WGs on effort management in 2010, namely a review of the Bay of Biscay effort development and also a first look at the relationships between fishing mortality and effort.

TORs addressed by the STECF-SGMOS WGs on effort management

The TORS given to SGMOS are listed in Annex IV. Overall, the TOR list was extensive and demanding although STECF notes that the Commission has acknowledged the workload of the group and refined the TORs for some areas (for example the Western waters and Deep Sea work). While some of the effort and catch assessments have been ongoing for a number of years and have established routines associated with them, some areas of work are more developmental and not all the TORs could be tackled comprehensively.

Approach adopted by the STECF-SGMOS effort management WGs

The data call was issued on 27th April 2010 (corrigendum 12th May 2010). The Group met on two occasions in 2010. Inter-session work was carried out prior to the final meeting. This proved particularly important with respect to the complete revision of the French data series and for seeking clarification over the submissions provided by Spain for Atlantic waters of the Iberian Peninsula. STECF notes that in 2010, data shortfalls and data revisions were largely dealt with prior to the second meeting and the group's progress was not as impaired as previous years. One data revision, involving Belgian effort data, was received and incorporated into the STECF-SGMOS effort databases shortly after the final meeting. The changes arising from the Belgian revision imply that numerous figures and tables in the 'STECF –SGMOS 10-05 Effort Report part 2' also need adjustment. However, the written report is in an advanced draft stage and STECF concluded that given the relatively minor effects the adjustments would have on the overall picture, changes at this late stage were not justified.

The group agreed that the extensive and diverse data and issues addressed would benefit from presentation in three reports covering respectively Baltic Sea (part 1) Annex II and the Celtic Sea (part 2) Deep Sea and Western Waters and (part 3). STECF notes that a decision was taken to continue to provide some of the material on the JRC website in order to produce manageable reports.

Progress and Status of Reports

The report covering the Baltic Area (STECF SGMOS 09-05 Report part 1) was completed in October 2010 and was reviewed during the present STECF meeting. The report covering the Annex II effort management regime (part 2) is almost complete and the substantive sections have been reviewed during the present meeting.

The report covering Deep Sea and western Waters Report (part 3) is incomplete and has not been reviewed during the present Plenary meeting. Summary figures and tables have been produced but these require further scrutiny before text can be finalised. STECF suggests this part is reviewed by correspondence.

Data underpinning the above reports are considered final for 2010 and summary material from the JRC database has been made available on the STECF-ftp (password-protected) site for use by the Commission and STECF members only.

Summary of the STECF-SGMOS 10-05 WG (effort management) findings

The summary below was provided by the STECF SGMOS Effort Management Group. SGMOS highlights a number of general observations and issues affecting the overall process of collating and evaluating effort data before providing some area specific observations covering the Baltic Sea and Annex II, Celtic Sea and Bay of Biscay. A summary for the Deep

STECF-SGMOS 10-04 AND 10-05 WGs: EFFORT MANAGEMENT REPORT SUMMARY

GENERAL REMARKS

- The STECF-SGMOS 11-04 and 10-05 WGs were given an extensive list of TORs organised mostly on a regional basis. Most of the TORs were similar to previous years and covered the Baltic Sea, Annex II and Deep Sea and Western waters. A new request was included to review effort and catch development in the Bay of Biscay and for all areas there was a request to examine the relationship between fishing mortality and effort. Most TORs were addressed although progress on addressing catch data quality was limited and the Group considers that outcomes from SGRN should inform this process.
- During its two WG meetings, STECF-SGMOS updated fleet specific effort and catch data (including discard estimates where available) up to and including 2009. Results were presented according to the gears definitions in the Baltic cod management plan and Annexes IIA, IIB and IIC to Council Reg. 40/2009. For areas under Annex IIA only the new cod recovery plan gear definitions were presented. A number of countries elected to only supply 2009 data, leaving material for earlier years the same as was submitted in 2008. Several countries supplied detailed material for the first time covering a range of years. Some countries revised and improved their entire data series. The most notable revision was by France who modified their method for calculating effort. Belgium discovered that their first submission in 2010 had not been completed according to the method adopted by them and agreed by STECF in 2009 and so data were revised accordingly after the meeting. Data were again summarised on a wider range of metrics including catch by country and CPUE by country.
- Despite major improvements, the STECF-SGMOS WG noted that there are still shortfalls in data provision from some Member States and this was manifest in a

number of ways (limited time periods, limited area coverage and incomplete lists of species for landings and biological data). While Spain improved its inputs regarding the hake and *Nephrops* management area, it did not supply material for most of the other areas and the shortfalls seriously affect evaluations of the Celtic Sea. Following review of revised French data, a data problem affecting 2002 and 2009 was identified and will require further examination. Further revisions are expected in 2011.

- STECF-SGMOS notes that assignment of derogations is based on best expert knowledge, data availability, and methods used which also reflects cooperation with the national control and enforcement institutions. In a number of cases improved communication and submission has taken place but there is some way to go. Presentation of data according to the effort categories in the Annex IIA cod plan has simplified checking although the derogations under Articles 11 and 13 have presented new challenges. A presentation was given by Nikolaos Mitrakis (JRC) on a new tool available to those supplying data to the databases which provides an efficient way of screening data prior to submission and should improve quality.
- The STECF-SGMOS (effort management) WGs continue to express concern over the fleet specific estimates of total catches in some areas and for some fleets. Even where discard data are ostensibly available, the origin and quality of the discard estimates is not always clear and the precision is often unknown. Specific examples identified by the group are highlighted in the area summaries below. The group considers that estimates of catch and CPUE should be treated as preliminary and used with caution.
- It is recognised that CPUE estimates provide an important mechanism for transferring effort from one gear group to another and the STECF-SGMOS WG suggests that for specific member state requests of this type, the Commission may wish to seek specific guidance on the quality of the underpinning data.
- The STECF-SGMOS WG successfully completed a new section in the Annex II report addressing questions on the Bay of Biscay sole management regime but considers that the capacity of the group has been reached and that it would be unable to deliver any additional summaries.
- The STECF-SGMOS WG welcomed the request to explore the relationships between fishing mortality and effort although regards the first attempts as preliminary. A number of issues were highlighted by the group which merit further investigation, these include statistical considerations, sources and treatment of the F estimates. A separate section is devoted to this topic but the group regards the outputs as presently unsuitable for use in a management context.
- Given the improvements in data reports received from an increasing number of Member States, STECF considers that the continuing efforts by the Commission to inform and educate national administrations on the required procedures, timescales and quality of data submissions is worthwhile. To this end, STECF **recommends** that

there is i) a repeat of the 2010 effort workshop early in 2011 ii) early **notification** and subsequent release of the 2011 data call.

- Given the continuing failure by some member states to supply discard information, STECF suggests a) that some pressure could be put on member States to rectify this and b) instruction on this could be provided at the abovementioned effort workshop. Expert participants in previous STECF-SGMOS and STECF-SGRN WGs are in discussion on the design of suitable tables showing data provision from MS to the relevant expert groups but notwithstanding this, there are already clear cases of shortfalls that could be tackled.

SUMMARY OF FINDINGS FOR THE BALTIC

- STECF notes that the STECF-SGMOS WGs made good progress with the available data and a major improvement in data availability was the provision of data from Poland.
- The group was nevertheless hampered by the lack of adequate fishing effort information from some nations, and incomplete information from a number of nations.
- The limited availability of discard data for some gear categories and concerns over the extent to which it is representative means that estimates of catch and CPUE require to be used cautiously.
- On the basis of the partial effort data supplied, the overall effort (kW days) in the Baltic has reduced by about 42% since 2004. Given that there were marked reductions in Area A and B (the regions particularly important for cod) it seems likely that effort on cod has decreased.
- Owing to incomplete information on special conditions, it is not possible to quantify the extent to which the BACOMA codend has been adopted for trawls in the Baltic.
- Landings and discards of cod are estimated to have declined markedly since 2003. Information on other species were not fully provided or analysed.
- There are regional differences in the importance of different gears for the capture of cod. In areas A and B otter trawls are ranked highest whereas in area C gillnets are important.
- Under 8m vessels account for about 3-4% of landings of cod but this is an underestimate since only a few countries supplied data.
- The restricted number of countries supplying material confounds interpretation of spatial information on effort. Existing evidence suggests there has been a westward shift in effort since 2003.

SUMMARY OF FINDINGS FOR ANNEX II, CELTIC SEA AND BAY OF BISCAY

Review of Annex IIA of Council Reg.s 40/2009 in the context of the cod recovery plan (Regulation 1342/2008):

- The STECF-SGMOS WG together with expert input from JRC have prepared a series of spreadsheets containing the effort and catch material which is believed to cover the basic requirements of the Commission in answer to most of the TORs. Based on 2010 experiences, the group considers that the effort data and landings information are robust and suitable for use in a management context. There are still concerns over the quality and coverage of discard data and the group considers that this should be treated as incomplete and used with caution.
- The STECF-SGMOS WG report notes consistency between the updated fleet specific effort and catch data provided in 2010 and the historic information provided in previous years for an increasing number of Member States. In 2010 the most significant data revision was carried out by France; this led to some very large proportional changes. For some areas (e.g. West of Scotland) this has produced effort series which the experts considered to be more representative of actual deployed effort compared to previous reports from the WG.
- The STECF-SGMOS WG report notes that the shift away from the derogation based approach in 40/2008 to the reduced gear categories in 40/2009 has simplified the task and has to lead to more reliable categorisation and reporting.
- The STECF-SGMOS WGs estimated further effort reductions from 2008 to 2009 in some areas regarding most of the cod-, plaice- and sole-sensitive derogations, particularly trawl gears and gill netters. In some areas, however, the aggregate change was rather small and in most areas the reductions fell short of those implied by the cod recovery plan schedule of effort cuts for 2009.
- The STECF-SGMOS WG has continued to observe a high constancy in the catch compositions of the fleets defined in Annex IIA.
- A particular issue arose in the Irish data concerning TR2 discard quantities. Estimates of discards for this gear were earlier considered to be reasonable but observations for 2008 and 2009 have been shown to be spurious and bear no relation to ICES estimates. These figures were removed from the database in order to avoid confusion and incorrect inferences being drawn. As a consequence, data on fish quantities concerning the TR2 gear category refer only to landings.
- During the STECF-SGMOS 10-05 meeting, the group benefited from input from two participating stakeholders who identified mistakes in the spatial effort plots for the Kattegat. These have been corrected.

- The STECF-SGMOS WG addressed a series of short TORs related to the West of Scotland and was able to provide some answers to the requests but was hampered because the data-call had not specified codes which allowed areas and gears identified in the TOR to be identified.

Review of Annex IIB of Council Reg. 40/2009 in the context of the recovery plan for Southern hake and *Nephrops* (Regulation 2166/2005)

- The STECF-SGMOS report notes that there were major improvements in the effort data provided by Spain and Portugal and that there were fewer inconsistencies and errors in the effort submissions.
- Estimates of discards provided by Spain were considered to be unrealistic and the STECF-SGMOS WG instead used discard rates submitted to ICES in order to proceed with catch estimates.
- The STECF-SGMOS WG considers that notwithstanding the absence of information for under 10m vessels, the improvements in data provide the most comprehensive picture of the fisheries covered by this Annex and permit a substantive review which has not previously been possible.

Review of Annex IIC of Council Reg. 40/2009 in the context of the recovery of Western Channel sole (proposal COM (2003) 819 final)

- The STECF-SGMOS report notes that with the exception of discard data there have been significant improvements in the provision of data from Member States and the requested fleet specific effort data is now regarded as complete. The lack of discard data continues to impair the estimation of catches and some inconsistent data aggregations prevents a precise review of the effects of the defined derogations.
- The STECF-SGMOS report notes that there are no indications of effort reductions in terms of kW*days, GT*days or number of vessels regarding the sole sensitive derogations. The data suggest, however, that effort by unregulated gears, while still relatively high, has declined in the last couple of years.
- The STECF-SGMOS report notes that the non-regulated (effort in days at sea) otter trawl fleet accounts for about 85% of the effort and contributes significantly to the estimates of landings in weight of cod (91% in 2009), plaice (32%) and sole (about 36%). In the case of cod, unregulated otter trawl take about 88% of the total

Review of Celtic Sea effort and catches in the context of proposals to extend the cod recovery zone to include cod stocks in this area

- Revised data was provided by one of the key players, France, operating in the fisheries of the Celtic Sea region. Unfortunately, Spain did not provide any data in 2010 so it is difficult to fully evaluate the effects of the effort update by France. The coverage was nevertheless considered adequate to provide a basic description

of activities and catches using the framework of the Annex IIA as applied in other areas.

- Most of the findings and conclusions remain broadly similar to previous years. Overall there has been a reduction in effort in the area.
- The STECF-SGMOS WG was able to provide summaries for two different spatial descriptions. One for the Celtic Sea as a whole and one for ICES areas VIIIfg only.
- Trawl effort predominated in both areas and has declined in both areas recently.
- Results suggested that the VIIIfg definition of the Celtic Sea accounted for a large part of the cod landings of the area as a whole and that the CPUE of cod in this area is higher than the area as a whole.
- The STECF-SGMOS WG discussed whether any future extension of the cod recovery plan to apply to the Celtic Sea cod stock should apply to the whole area or would be effective if restricted to the smaller subset area. It was considered that additional information (such information on spawning area or nursery ground) in areas outside VIIIfg would be needed to make such a judgement.

Review of Bay of Biscay Sea effort and catches

- A new review was conducted of the Bay of Biscay.
- Owing to the nature of the sole management plan and the fact that the data call did not take this into account, the material available for this area did not permit a subdivision into regulated and unregulated effort and catches. It is possible this could be addressed in future but would require careful instruction to MS administrations.
- The STECF-SGMOS report notes that the most noticeable feature in the area is the general rise in fishing effort in recent years, particularly by trawlers. This is unlike almost all other regions.

STECF Comments and Conclusions

General comments and conclusions on data availability are followed by ones specific to the Baltic Sea and Annex II, Celtic Sea and Bay of Biscay. Some general comments are made regarding Deep Sea and Western Waters although following review of a completed report these may be further developed.

General

- STECF notes that the work of the STECF-SGMOS effort management WGs is to collate and summarise data provided by member states. In this respect the output is dependent on timely submission of accurate material and the WGs are only able to provide an output which reflects the quality of these data. While every effort is made to accommodate updates and revisions from member states, it is not possible to capture all of these in the finalised reports and the 2010 reports do not reflect changes made to the Belgian data. STECF considers that this is unlikely to alter the broad trends observed in the aggregate data.

- STECF notes that comprehensive deep sea data has been provided by a number of countries representing a significant new development in the work of the STECF-SGMOS effort management WGs. STECF also notes, however, that deep sea and western waters effort data from some countries was either not supplied or was incomplete or inaccurate. Shortfalls were most evident in the data from Spain.
- STECF notes that, so far, the data available on deep sea species is mainly restricted to landings information. To gain a true perception of removals from these fisheries, catch data are required.
- STECF notes that it was not possible fully to address some of the TORs because the data call did not request data in a suitable form. Notable examples were i) the Bay of Biscay TORs where the aggregation of effort for regulated gear would depend on a coding by the member state which was not requested in the call; ii) the West of Scotland special requests where information on activity inside and outside the cod recovery zone, and the use of various technical measures is not covered by the call and iii) the Baltic, where an evaluation of the balance between effort allowed and effort used could not be undertaken because information on effort by individual vessels were not available. Furthermore, STECF notes that adjustments to the database would have to be made in order to accommodate these additional codes. STECF **recommends** that prior to making future requests of this type the Commission consults with SGMOS and JRC to ensure that the necessary technical issues can be considered in advance of a call.
- STECF considers that the request to explore the relationships between fishing mortality and effort represents a progressive step inviting some investigative science rather than simply collating data. STECF notes that work is at a preliminary stage and considers that a cautious and thorough evaluation is prudent. The range of issues highlighted by the group (including statistical considerations, sources and treatment of the F estimates) merit further investigation and STECF **recommends** that a future meeting of the STECF-SGMOS effort management WG should contain some participants with particular expertise in this area.
- In view of the improvements in submission of data reports from Member States during 2010, STECF considers that efforts by the Commission Services, STECF-SGMOS WG participants and JRC experts to inform and educate national administrations on the required procedures, timescales and quality of data submissions has been beneficial. STECF **recommends** that this effort continues, for example with a workshop in early spring as per 2010. STECF further **recommends** that there is particular focus on the requirement to submit discard data since uncertainty over catch estimates in some areas and gears is the most pressing problem.
- Given the difficulties created, STECF particularly acknowledges the major contribution made by Hans-Joachim Raetz of the JRC in developing, maintaining

and uploading data to the various databases. The incorporation of new French data, revisions of Belgian data and ongoing data checking and communication with Member States is a demanding task carried out efficiently and in good time for the various SGMOS meetings.

- STECF would like to draw attention to the question of resources being applied to the exercise of compiling and analysing effort and catch data. This involves considerably more work for JRC and Member States' scientists than implied by the time formally scheduled for the meetings. STECF notes that some efforts have been directed towards this and an additional JRC staff member attended the SGMOS 10-5 meeting to present a new data checking tool. Notwithstanding this development, STECF reiterates its view expressed in the summer plenary that a review would be worthwhile of i) time allocated to this work and ii) extent to which some of the detailed material is actually used and iii) scope for improved procedures.
- STECF again **recommends** that the Commission establish a more permanent basis for the future resourcing and support of the databases holding the effort and catch information and continues to give priority to successional planning. STECF also considers that more transparent arrangements for the use of material derived from the databases should be discussed, formally agreed and publicised.

Specific comments on the Baltic Sea

- STECF acknowledges the further progress with the Baltic Sea assessment made by the STECF-SGMOS 10-05 WG and welcomes the important new data contributions, most notably from Poland. The group was, however, hampered by incomplete fishing effort and catch information from some nations and the incorporation of Polish data (covering only 2004 onwards) implied a shorter time series for the overall analysis. STECF suggests that every attempt should be made by the Commission and Member State authorities to provide a more complete submission in 2011 and future years and **recommends** that countries providing Baltic Sea data be encouraged to attend any future effort management workshops referred to above.
- STECF notes that there is a particular shortage of catch data (limited range of species and limited estimates of discards) and suggests that particular focus should be placed on the provision of these data.
- STECF notes that on the basis of the effort data supplied, the overall effort in the Baltic has reduced by about 42% (from 2004). Given that there were i) marked reductions in effort in Areas A and B (the regions particularly important for cod) ii) reductions in landings and discards of cod since 2003 and iii) in view of the shift from regulated gears to unregulated pelagic gears, it seems likely that effort and mortality on cod has decreased.

Specific comments on Annex II, the Celtic Sea and the Bay of Biscay

- STECF notes that the STECF SGMOS WGs during their two meetings in 2010, have updated fleet specific effort and catch (including discard estimates where available) data up to 2009 and provides results based on an aggregation which is consistent with the fleet/gear defined in Annexes IIA, IIB and IIC to Council Reg. 40/2008 and Annex IIA 40/2009. This year a major revision of French data occurred which (with the exception of data for 2002 and 2009) is believed to have improved data quality. STECF also notes that with the exception of data supplied in respect of Annex IIB, the limited data supplied by Spain has reduced the quality of the assessments for a number of areas, especially west of Scotland and Celtic Sea.
- STECF considers that the simplification of the gear categories in the revised cod plan of Annex IIA has generally facilitated a more straightforward data compilation and evaluation. STECF notes, however, that the new derogations under Articles 11 and 13 of the cod recovery plan complicate the interpretation of effort series in Annex IIA.
- STECF agrees with the decision of STECF-SGMOS WG, that in view of incorrect estimates of discards for the most significant gears in the Irish Sea in 2008 and 2009, that these should be removed from the database. This implies that considerations of the Irish Sea need to be conducted using landings data. STECF **recommends** that the available discard data for Northern Ireland is reviewed and examined by the STECF-SGMOS WG and incorporated in the database in 2011.
- STECF notes that some of the specific TORs for the West of Scotland could not be addressed (see general points above). Requests for catch information by small meshed gears using square meshed panels were answered and data summaries provided.
- The STECF-SGMOS report notes that in respect of Review of Annex IIB of Council Reg. 40/2008 in the context of the recovery plan for Southern hake and *Nephrops* (Regulation 2166/2005) there have been significant improvements in the effort and catch data provided by Spain and Portugal. STECF considers the more comprehensive review made possible by the data improvements provides a reliable description of the fisheries covered by this regulation
- STECF notes that in Annex IIC there is a high proportion of effort attributable to unregulated gears.
- STECF notes that the review of the Celtic Sea was enhanced by improved French data but hampered by the lack of Spanish data. Despite the data shortfall, overarching conclusions drawn about the Celtic Sea are broadly the same as in previous years and STECF considers that a fairly consistent picture is emerging from year to year. STECF further notes that the specific questions on catch composition were addressed by the STECF-SGMOS WG.

Specific comments Part 3 Deep Sea and Western Waters

- STECF notes that part 3 of the STECF-SGMOS report, covering Deep Sea and Western Waters of SGMOS has not yet been finalised and that the text requires to be completed. STECF considers that the proposed layout for the report will provide a good basis to begin reviewing these effort regimes. Figures and tables have been completed.
- This is the first time an evaluation has been carried out of effort development under the Deep Sea and Western Waters regimes. A considerable amount of information has been collated covering the Deep Sea Regulation and the Western Waters Regulation but this remains to be fully analysed. STECF notes the preliminary nature of this work and the limited time available so far for deep sea experts to consider these data and suggests that care should be exercised in interpreting and using the outputs.

4.5. SGRN 10-03: Review of needs related to surveys

Request to STECF

STECF is requested to review the report of the STECF-SGRN-10-03 Working Group of October 4 – 8, 2010 (Brussels) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the STECF-SGRN-10-03 Working Group are to be found in Annex V.

STECF response

STECF acknowledges the progress in survey evaluation procedures made by SGRN 10-03 (Brussels, 4-8 Oct 2010) and endorses their findings and recommendations for further improvement.

STECF notes that the down-weighting by the SGRN survey review of the evaluation criterion "ecosystem management needs" has created some debate on the limited scope of the DCF ecosystem indicators (Appendix XIII of COM Decision 2010/93/EU). These indicators were developed by three SGRN working groups in 2005-2007 within the frame of the Data Collection Regulation (DCR), which was operating at that time. The indicators were designed to make use of existing surveys and fisheries information. Consequently, the inclusion of further ecosystem aspects, such as the collection of data on environmental conditions and other ecosystem elements such as plankton and benthos, was not in the scope of STECF-SGRN 10-03 WG and has to be discussed in relation to the revision of the DCF.

STECF discussed the possibility of a cost-benefit analysis, contrasting survey costs with the (financial) value of the investigated resource. In the light of the multi-stock and multi-purpose use of survey data, however, the interpretation of such analysis might become very complex and potentially misleading. Moreover, the 'added value' of surveys, delivering information and sampling material for ecosystem studies and aspects of the Marine Strategy Framework Directive, cannot be estimated on any reliable basis at present.

STECF further discussed if a more regular review of surveys with regard to their use in stock assessment on a more analytical basis could be envisaged. This would allow for consideration of relatively short survey series that could fulfil the evaluation criteria sooner and would provide an objective basis for the importance of surveys with regard to informing the stock assessment process. STECF considers that this analytical approach could be conducted in a research study, rather than tasking a STECF working group with this issue.

4.6. SGRST 10-03a: Review of scientific advice on widely distributed stocks, stocks and fisheries located in Outermost regions – part 3

Request to STECF

STECF is requested to review the report of the **SGST-10-03a** Working Group of October 11 – 15, 2010 (Cadiz) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the SGRST-10-03a Working Group are to be found in Annex VI.

STECF response

STECF reviewed the draft report of the review of advice for stocks of interest to the European Community in areas under the jurisdiction of CCAMLR, CECAF, WECAF, ICCAT, IOTC, IAATC, GFCM, NAFO, and stocks in the North East Atlantic assessed by ICES which was prepared by the SGRST 10-02 WG held in Cadiz, Spain from 11-15 October 2010. The draft report was amended in the light of the latest information available to the STECF from ICES and relevant Regional Fisheries organisation.

The report was adopted during the 35th Plenary meeting and is published as the STECF Review of advice for 2011 Part 3 in November 2010.

The STECF review of advice for 2011 Part 1 included the latest assessments and advice for stocks in the Baltic Sea and was published in June 2010. Part 2 contained the review of assessments and advice released by ICES up to 28 June 2010. Parts 1, 2 and 3 will be combined and published in the STECF Consolidated review of advice for 2011, which will be available in late November 2010.

Format of the STECF Review of advice

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

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





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

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

MANAGEMENT AGREEMENT: where these exist.

REFERENCE POINTS: where these have been proposed.

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

-  - indicates an undesirable situation e.g. F is above the relevant reference point or SSB is below the relevant reference point
-  - indicates a desirable situation e.g. F is below the relevant reference point or SSB is above the relevant reference point
-  - indicates that the status is unknown e.g. the reference point is undefined or unknown, or F or SSB is unknown relative to a defined reference point
-  - indicates that status lies between the precautionary (pa) and limit (lim) reference points

RECENT MANAGEMENT ADVICE: summary of most recent advice.

STECF COMMENTS: The classification and associated TAC derived using the rules prescribed in the European Commission's Policy Statement on Fishing Opportunities for 2011 (COM(2010) 241 FINAL). Any comments STECF thinks worthy of mention, including errors, omissions or disagreement with assessments or advice.

4.7. SGRST 10-03b: Review of scientific advice on Black Sea stocks and fisheries

Request to STECF

STECF is requested to review the report of the **SGST-10-03b** Working Group (Black Sea assessment subgroup) of October 11 – 15, 2010 (Cadiz) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the SGRST-10-03b Working Group are to be found in Annex VI.

STECF Observations on the assessments undertaken by the STECF-SGRST 10-03b (Black Sea assessment WG) report.

The SGRST-10-03b Working Group (Black Sea assessment subgroup) performed the regular annual stock assessments of sprat and turbot using age structured methods. It also reviewed the state of data and assessments of anchovy, horse mackerel, whiting, dogfish and Rapa whelk and evaluated the potential to perform quantitative stock assessment of these stocks in future.

Sprat in the Black Sea

Stock assessment of sprat was performed using ICA on catch-at-age data tuned by multiple age structured indices of relative abundance. New data from Ukrainian and Turkish sprat fisheries were added to the input catch-at-age matrix that improved the data quality and consistency of the analyses.

In recent years, recruitment and SSB of sprat are at medium levels of about 100 billions and 250 000 t (207 827 t in 2009), respectively. Short term projections with status quo fishing of around 50 000t annual catch predict that in 2010-2012 SSB will increase from 172 422 to 225 385 t. The estimated MSY of 47 997t is about the same order of magnitude as catch predicted by the short time projections (~50 000t) but less than the actual catch in 2009 of 91 376 t. The sprat fishery is quickly expanding in Turkey which implies that the stock may have some additional (albeit unknown) potential along the Turkish shelf area in the southern Black Sea. Given the high variability of the stock, short life-span and largely uncontrolled fishery (in Turkey) the WG recommend to use a limit reference point of exploitation rate of 0.4 ($F = 0.63$), which very close to the current value (2009) of average $F_{1-3} = 0.62$.

STECF advice on sprat in the Black Sea

In order to safeguard the recovery potential of the stock, STECF agrees with the WG suggestion that the total landings of sprat from the Black Sea are kept at or below the 2010 status quo level i.e. at or below 50 000 t.

Turbot in the Black Sea

XSA was applied to assess the stock of turbot. The WG made qualitative assumptions about the IUU (Illegal, Unregulated and Unreported) fishing of turbot and estimated the Potential Unreported Catch in 2002-2009. The estimated total catch was about 59% (2.5 times) higher than the reported landings on average for 2002-2009. The WG considers this value as a maximum potential value and assumes that actual catch may lay in the region between the estimated and reported catch. Based on the estimated catches the historic assessment was run. The recruitment and SSB based on re-estimated catches, were higher by about 57% and 67% respectively, and the average fishing mortality (F_{4-8}) was lower by 13%.

Because of uncertainties about actual catch the WG interprets the turbot assessment only in relative terms – i.e. they are considered indicative of trends only. Biomass of turbot is low compared to historical levels. The drop in abundance is consistent with the decreases in CPUE and landings.

STECF advice on turbot in the Black Sea

The STECF-Black Sea WG has evaluated reference points based on age structured Yield per Recruit and Production models. Recent estimated catches (1500 - 2700 t) exceed $MSY = 2457$. Fishing mortality is rather high: 0.6 – 0.8 and exceeds both $F_{0.1} = 0.1$ and F_{max}/F_{msy} , which is in the range of 0.3. Given the present uncertainties about actual catches and the rather bad condition of the stock the WG recommends $F_{0.1} = 0.15$ as an appropriate interim target reference point for the exploitation of turbot in the Black Sea.

STECF suggests that in 2010 and in near future the exploitation is kept at a low level in order to allow the stock to recover to historical levels.

The WG evaluated the technical measures for Black Sea turbot in the EU Regulation for 2010 for Black Sea (Council Regulation (EC) No 1287/20009, Annex II). In conformity with annex II, the minimum mesh size of the gill nets for turbot is 400 mm. In the absence of relevant information of the selective properties gill nets for turbot, STECF is unable to determine whether the current mesh size of 400 mm for gill nets is appropriate for the sustainable exploitation of turbot in the Black Sea.

STECF suggests that special investigations are undertaken in future in to identify the extent of IUU fishing on turbot in the Black Sea.

Other Black Sea stocks

Available information on anchovy, horse mackerel, whiting, dogfish and Rapa whelk was reviewed and data needs and availability for stock assessment were discussed. The five stocks were judged to be of primary importance for the fisheries and the ecosystem. STECF considers that some form of quantitative stock assessment can be applied to these stocks using age and size structured methods. In order to progress with such assessments there is a need to make additional efforts to properly process historical data and perform assessments (as has been done with sprat and turbot). A road map for assessing additional stocks proposes two additional meetings to be held in 2011 to deal with anchovy and whiting are proposed in the WG report. It is likely that additional expertise will be needed to undertake such work and carry out the additional assessments. STECF advises that the Black Sea WG will be unable to provide assessments for horse mackerel, dogfish and Rapa whelk until after data and assessments for anchovy and whiting have been undertaken.

4.8. SGECA 10-04: Evaluation of data collected in relation to the DCF on the processing sector

Request to STECF

STECF is requested to review the report of the STECF-SGECA-10-04 Working Group of October 11 – 15, 2010 (Ispra) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the STECF-SGECA 10-04 Working Group are to be found in Annex VII.

Background

Under the DCR and DCF regulations 22 MS are requested to deliver data on the processing industry. STECF was requested to analyse the data and to prepare an ‘Annual Economic Report (AER) on the European Union (EU) Fish Processing Industry’.

STECF observations, comments and recommendations

The STECF-SGECA 10-04 report is the second report (the first was prepared by the STECF-SGECA 09-03 WG) on the economic performance of the fish processing industry. This time the TORs are concentrated on data analysis and what follows from that.

STECF notes that the process leading to the report improved. The call for data was earlier and the JRC staff was able to do more checking of the data in advance of the meeting. A common template for the national chapters was provided which improved the comparability.

STECF notes that there is in general substantial improvement especially with data delivery, data coverage and data quality. Only for Belgium the delivered data was in such a state that it makes no sense to include it in the EU overview.

STECF further notes that all MS delivered data and most of them in time. However, not every country was covered by an expert at the meeting and, therefore, some of the national chapters have to be prepared by participants at the meeting and discussed afterwards with national correspondents to improve the presentation of at least basic figures.

STECF recognises that SGECA 10-04 addressed all Terms of Reference. However, STECF notes that TOR 4 on the comparability between the DCR and DCF needs further discussions in the subgroup to get a better comparability between parameters/indicators. The data delivery for 2006/7 followed the DCR and the 2008 data was collected under the new DCF.

STECF notes that in some countries the number of companies is quite low (Cyprus and Malta). In the report for those countries only basic information (number of firms, employment and cost structure) are provided. Slovenia reported data from companies with fish processing not as main activity to avoid confidentiality issues. In this case there is a high proportion of other income. In countries with many firms with fish processing as main activity these type of companies normally are not included in the data delivery.

STECF notes that there are discrepancies between DCF and EUROSTAT data and there are several reasons for that. The most important one is that in many countries there is a threshold for companies to deliver data to the statistical offices mostly by setting a minimum number of employees by firm (10 or 20 in many cases). Under the DCF, data for smaller companies are also collected or further statistics are taken into account (like list of companies which have to deal with hygienically issues coming from processing fish).

STECF further notes that the DCF is more detailed in many cases and include indicators not collected by EUROSTAT.

STECF notes that the working group discussed the inclusion of an indicator for the sector's expectations on the future development of the companies. A possible indicator is the relation between net investment and depreciation. STECF **recommends** to test the utility of this indicator in next year's report.

STECF notes that in the DCF the NACE Code is wrong and **suggests** changing the code to 10.20.

STECF **recommends** deleting footnote 8 in Appendix 12 of Commission Decision 93/2010. The footnote refers to the DCR program (net, investment) and is by mistake adopted for the DCF program (total assets).

STECF also **recommends** deleting footnote 11 of Appendix 12 of Commission Decision 93/2010 because the footnote is not applicable for the fish processing industry since it relates to the fishing sector.

Methodological issues arising from the report

STECF notes that the definition of the population of fish processing companies causes inconsistencies between countries and possible misinterpretation of trends. According to the definition of NACE Code 10.20, companies are included on the basis of the main activities. Some MS use information from other sources to establish main activity, thus sometimes giving rise to inconsistencies. Furthermore, the selection criterion on main activity is based on turnover. This implies that for firms with several activities (not only related to fish processing), changes in the importance of these activities may result in firms being included in one year but not in the next.

STECF observes that the dependency question on raw material from the fishing fleet was one of the important information from the data delivery under the DCR but was not included in the DCF. STECF notes that collection of data on raw material is complicated.

STECF notes that without being able to analyse the linkages between the catching and processing sector there are further doubts on the value added of the data collection in the DCF compared to using data from official national statistics already available.

Having the lengthy discussion about this in mind before the revision of the DCR, STECF **recommends** to set up a separate STECF working group in 2011 to consider this issue, including other possibilities for establishing such a link. Therefore, the scope of the meeting shall be broader also taking any other possibilities into account (e.g. usefulness of the PRODCOM statistics in the MS). It is necessary for the success of this meeting that there is preparatory work ahead of the meeting and it seems also very valuable to invite experts from the industry.

STECF notes that the aim of this working group shall also be investigate the costs of including data collection on raw material or other additional sources in the DCF.

4.9. SGMOS 10-06b: Evaluation and assessment of multi-annual management plans

Request to STECF

STECF is requested to review the reports of the **SGMOS-10-06b** Working Group of October 18 – 22, 2010 (Vigo) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the SGMOS-10-06b Working Group are to be found in Annex VIII.

When reviewing the SG-MOS 10-06b report, the STECF was asked to highlight limits faced when evaluating or assessing management options in terms of economic and social impacts. STECF will be also requested to suggest paths to reduce these limits, either by indicating possible assumptions which would be followed to make fisheries, métiers and fleets matching better or by highlighting possible modifications to the list and to the level of aggregation of economic parameters listed in the DCF.

STECF Observations

Approach to the work

In line with the STECF process, described in the STECF-SGMOS 09-02 and STECF-SGMOS 10-01 WGs, STECF set up a scoping meeting SG-MOS 10-06a which was held in Copenhagen in June 2010. This group involved Commission

staff, Observers and STECF experts. The scoping meeting produced a report (STECF-SGMOS 10-06a) which specified a series of work activities to be carried out before the October meeting. Following this Working Documents were prepared by participants for the main meeting which was held 18-22 October 2010 in Vigo, Spain. At this meeting there were 19 experts (6 economists and 13 biologists), Five Commission staff attended part time (including two from CFCA) and eight observers nominated by Baltic, NS, NWW and SWW RACs, Member States and ICES. The study group was open to observers throughout and their participation was regarded by the group as a particularly important part of this work. The working procedures were organised to facilitate observer participation by scheduling the presentation and discussion of topics on specific days to allow part time attendance if required. STECF is grateful for the input from observers.

Reports

In total five separate reports are prepared by STECF-SGMOS 10-06 WGs, the first, scoping meeting report STECF-SGMOS 10-06a was dealt with by the STECF summer plenary. The remaining four reports are dealt with here:-

STECF-SGMOS 10-06b Report of the Impact Assessments for North Sea plaice and sole multiannual management.

STECF-SGMOS 10-06c Report of the Impact Assessments for Western Channel sole multiannual management.

STECF-SGMOS 10-06d. Report of the Evaluations of Southern hake and Nephrops Multi-annual plan

STECF-SG MOS 10-06e. Report of the Evaluations of Baltic cod Multi-annual plan

These reports were provided to STECF substantively complete with conclusions that will not change but with minor editorial issues. It is anticipated that the reports will be completed by 19 November.

STECF provides below general comments and conclusions on each Evaluation and Impact Assessment which are drawn from the individual reports.

STECF conclusions for NS plaice and sole

Modelling: STECF considers the biological modelling was appropriate, it was developed to include a range of different stock dynamics within the base case model incorporating uncertainty in stock recruitment function, measurement error and variability in the fishery. Several alternatives were tested and under the scenarios investigated the long term trends in stock development and TAC did not show any notable differences that would invalidate the use of the chosen base case scenario. A range of management scenarios examined the likely impacts of varying aspects of the multi-annual plan on the stocks and the fishery. These included different candidate F

targets for each stock, increasing the allowable annual TAC change, and increasing the annual F reduction percentage.

Long term Objectives: The simulations show that given the probability of $SSB < Blim$ for both North Sea plaice and sole the current plan can be accepted as precautionary in the long term and will reach management plan targets for both plaice and sole. There are no indications that the F target for sole should be amended from $F = 0.2$. There are indications that a target of $F = 0.23$ for plaice would be a more appropriate F target for MSY.

Robustness to collapse: The simulations show that the plan for plaice appears robust to stock collapse through recruitment failure, the same is not the case for sole (though the likelihood of this happening is thought to be low). However, if this was to happen, some additional action is required. Such action is implied in the management plan but is not explicitly described. It is considered that the best trigger for remedial action should be a value for mean recent recruitment, though the most suitable period and value has not yet been determined.

Compatibility of sole and plaice targets: In the simulations the link between plaice and sole fishery is limited. However, scenarios considering linked fishing effort for the two stocks show that the plan is robust to a range of mixed fishery scenarios. The long term matching of the two F targets will always be a potential problem. Given the historic ratio of F sole / F plaice the proposed F_{msy} target for plaice of $F = 0.23$ is more in line with the $F = 0.2$ target for sole than the current plaice target of $F = 0.3$.

As a general strategy for this mixed fishery it is thought to be sensible to keep plaice SSB high in line with the MSY objective because if fishing opportunities for plaice become limiting, catches of sole may have to be reduced to protect plaice. In contrast if sole becomes limiting it would still be possible to catch plaice outside the areas where sole is caught.

Interannual constraint on change in TAC. The current 10% constraint is considered acceptable from a biological perspective. If there was a desire to change this limit an increase of up to 25% would make the exploitation safer from a biological perspective. Increasing the limit about 25% is not helpful, increasing variability in TAC for no benefit.

Economic considerations suggest the fleets are currently generally in profit and the prognosis is good for most fleets. Allowing the shifting of effort between mixed plaice and sole fishery and towards a plaice only fishery would be economically beneficial, allowing more plaice to be caught when fishing for sole is limiting. However, such an arrangement might necessitate area regulation and must be compatible with cod recovery requirements.

STECF conclusions for Western Channel Sole

Long term Objectives In the absence of B_{lim} or F_{lim} reference points it is difficult to evaluate the yields for WC sole in the context of appropriate risks for different exploitation rates of this stock. Nevertheless F s in the range 0.2 to 0.27 provide robust options whilst providing reasonably high catches of sole. The probability of SSB being below B_{loss} rises rapidly if target F s are at 0.3 and greater. Such probabilities attain high levels under some biological assumptions. In some of these high F situations, long term risks are higher than short term risks indicating that these levels of F may be inappropriate strategies for exploitation if the aim is to have a lower risk of stock decline.

F s between 0.2 and 0.27 give similar yields, though very slightly higher yields are found between F -0.25-0.27, suggesting that F_{msy} might be closer to 0.27 than 0.2.

Currently with the SSB close to a recent low and still below the historic B_{loss} (2700 t) all strategies have short term risks (low SSB up to 2115) due to natural variability in recruitment.

No bioeconomic models are available to indicate economic responses different from maximising landings.

Strategy options: Constant TAC targets give either lower yield for the same risks as F strategies or higher risks for the similar yields.

Constraint to inter-annual variability in TAC is associated with a slight reduction in target F s slightly below F_{msy} .

Banking and then paying back up to 10% of the TAC has no important impact on long term risks.

Assessment: In the past the ICES Assessment has not been available: A survey is available to give an index of the exploitation rate should the ICES assessment become unavailable. Increased measurement error is associated with increasing risk and declining yields.

STECF conclusions for Southern Hake and *Nephrops*

Compliance: During the first four years of plan fishing effort and fishing mortality have been rather stable and not in line with plan expectations. Since 2005 hake landings have been higher than the recommended TAC and landings are now 2.2 times the TACs. This information suggests that the Southern hake recovery plan was not really enforced.

While regulated fishing effort has declined, operative effort has increased as effort transferred to gears that catch more hake with the same effort.

Success of the plan : Southern Hake stock assessments from ICES show that there has been an increase in SSB, mostly derived from strong year classes entering in the stock in 2005-2007. However, the F reduction from 2006 expected from the plan has not been achieved.

Failure to enforce the plan means that objectives of F reduction has not been achieved and $F=F_{msy}$ will probably not be reached by the intended date of 2015. In consequence, the plan is not succeeding in achieving its stated objectives.

The main elements of the plan have had the greatest influence in the failure to achieve the plans objectives are a lack of landing control and insufficient reduction of fishing effort in the fleets fishing hake and *Nephrops*.

Considerations for Impact Assessments

Linking this plan with catches of other future plans for other species caught within a variety of fisheries is an approach that would provide better economic understanding of the consequences of a plan. Management could consider more explicitly the contribution of each fleet for the fishing mortalities of the different species.

The current failure to achieve F reductions needs to be addressed if there is to be any expectation of success for such a plan in the future. Any revisions require an evaluation of future landings compliance and choice of effort reduction that is likely to be effective in reducing fishing mortality.

STECF conclusions for Baltic cod

There are a number of design issues associated with the wording of the plan, regarding the calculation of target F and changes to effort.

The biological considerations are provided separately of Eastern and Western stocks.

Eastern Baltic cod

The management plan has in general been effective for the Eastern Baltic stock. Recruitment has been higher in recent years compared to the past 10 year's average. Since 2007 the compliance to management rules has improved resulting in reduced catch and reduced F.

Currently Eastern Baltic cod is estimated as being harvested a little below the current estimate of F_{msy} and this is expected to be maintained sustainably provided the management plan is complied with. This is considered to be the case under the full range of recruitment regimes observed in the past. There is no reason to believe that this will not be maintained until 2015 and beyond under the plan.

Western Baltic cod

In comparison to the eastern Baltic stock, the western Baltic stock has not shown any significant signs of recovery. The recent weak recruitment in combination with a reduced weight at age in the catch has resulted in the inability to reduce F as relatively larger numbers of individuals were required to provide the TAC.

Currently Western Baltic cod is being exploited above the F target of 0.6. Simulations suggest that the F target of 0.6 will be reached by 2015 provided there is compliance with the plan. The current estimate of F_{msy} is $F=0.24$. The current management target is not compatible with this in the long term.

Considerations for Impact Assessments

There is a range of additional aspects that should be considered if there is to be a major revision of cod management in the Baltic, such as: timing of spawning closures, inclusion of recreational fisher's catch; and unresolved biological issues involving mixing of the Baltic cod stocks, and migration. There are some concerns regarding the reduction in mean weight at age and the proportion of cod contributing to spawning for the older age groups in the Western Baltic stock. Future work or revisions to the plan should include continuity of these effects as a possible scenario along with developments returning to previously observed growth and recruitment. The scoping meeting should also consider published literature on multi-species interactions and management plan development in the Baltic. Collection of economic or transversal data should be organized so that it can be attributed to Eastern and Western stocks.

Specific points from STECF

If the Commission wishes to continue with Impact Assessments for these and other stocks, or to initiate Evaluations for other plans STECF stresses the importance of planning ahead. In order to get Observers, Managers and appropriate scientists to participate it is essential to agree the TOR (choice of plans) well in advance of the first of next year's meetings, ideally before the end of 2010.

STECF has identified the need for a more detailed examination of economic and social targets for multi-annual plans. It might be appropriate to hold a discussion on this specific area and an ideal time to do this would be the next scoping meeting for Evaluations.

4.10. STECF-SGMED 10-02: Assessment of Mediterranean Stocks Part I

Request to STECF

STECF is requested to review the report of the STECF-SGMED-10-02 Working Group of May 31 to June 4, 2010 (Heraklion) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the STECF-SGMED-10-02 Working Group are to be found in Annex IX.

STECF observations

STECF notes that during the STECF-SGMED-10-02, with exception of **ToRs g)** (requesting tests of empirical biologic indicators) and **ToR j)** (requesting tests of data

availability score cards), all other TORs were successfully addressed. In particular, the STECF-SGMED-10-02 report dealt with the assessment of historic and recent trends in stock parameters (stock size, recruitment and exploitation) and relevant scientific fisheries management advice. SGMED-10-02 presents 69 stock assessment approaches with relevant data for European hake (*Merluccius merluccius*, 14 stocks), red mullet (*Mullus barbatus*, 15 stocks), striped mullet (*Mullus surmuletus*, 2 stocks), common Pandora (*Pagellus erythrinus*, 1 stock), common sole (*Solea solea*, 1 stock), anchovy (*Engraulis encrasicolus*, 6 stocks), sardine (*Sardina pilchardus*, 5 stocks), pink shrimp (*Parapenaeus longirostris*, 10 stocks), blue and red shrimp (*Aristeus antennatus*, 4 stocks), giant red shrimp (*Aristaeomorpha foliacea*, 4 stocks), and Norway lobster (*Nephrops norvegicus*, 7 stocks). Such stock assessment approaches by the STECF-SGMED-10-02 WG cover new stocks and new species (striped mullet and common pandora) as compared with last year's (2009) deliveries (STECF-SGMED-09-02).

The following table summarizes the findings from the STECF-SGMED-10-02 WG report.

species	assessment approaches	estimated exploitation rates	status overfished	status sustainably fished	status unknown
European hake	14	8	8	0	0
red mullet	15	7	7	0	0
striped mullet	2	1	1	0	0
common pandora	1	1	1	0	0
common sole	1	1	1	0	0
anchovy	6	6	5	1	0
sardine	5	5	2	3	0
pink shrimp	10	5	4	0	1
blue and red shrimp	4	1	0	0	1
giant red shrimp	4	1	1	0	0
Norway lobster	7	2	2	0	0
sum	69	38	32	4	2

For 38 of the 69 stock assessment approaches resulted in analytical assessments of exploitation rates or coefficients of exploitation rates (fishing mortality), while for 36 stocks fisheries management advice consistent with high long term yields conditional of proposed reference points could be provided. The status of 2 crustacean stocks remains unknown. Overall, the recent (in 2008 or 2009) status of 32 out of 36 stocks was assessed as overfished (89%), while only 4 stocks were considered sustainably exploited consistent with high long term yields. All demersal fish stocks (100% of 18 stocks) were found overexploited. Among the 9 crustacean stocks assessed 7 were overexploited (78%) with 2 stocks of unknown status. The highest rate of sustainably exploited stocks (36%) was found among the small pelagics, where 7 out of 11 stocks (64% of the total) were classified as overexploited. In some cases (e.g. red mullet in GSA06) the status of overexploitation was already detected in the analyses conducted more than ten years ago

confirming that some Mediterranean European fish stocks have been overfished for decades.

The STECF-SGMED-10-02 WG considered that the scientific management advice for fisheries exploiting the assessed demersal fish and crustacean stocks focuses on the need to implement multi-annual management plans in the near future. Those plans should aim to reduce fishing mortality, through fishing effort reductions, towards the proposed limit management reference points consistent with high long term yields. The STECF_SGMED-10-02 WG noted that it is unlikely that conflicts between multispecies fisheries will arise during the initial phase of such management plans as the great majority of the assessed demersal stocks are overfished.

The STECF-SGMED-10-02 WG considered that the scientific management advice for fisheries exploiting the assessed stocks of small pelagic focuses on the need focuses on the need to implement multi-annual management plans in the near future. Those plans should aim to keep fishing mortality at or below the proposed limit management reference points consistent with high long term yields or to reduce fishing mortality towards them. STECF notes that the management of fisheries targeting stocks of small pelagics through effort management alone runs the risk of not achieving the desired objectives. The reason for this is: Fleets exploiting small pelagic species in the Mediterranean have the ability to target more than one stock and a restriction on overall fleet effort does not ensure a reduction in effort on the stock of concern. For example a fleet currently exploiting stock A, which is more valuable than stock B, could choose to direct all of its effort to stock A if the effort is restricted since the revenue gained would be greater. Thus, STECF agrees with STECF-SGMED 10-02 that landing restrictions may be a more appropriate management tool to control the exploitation rate on small pelagics in the Mediterranean than effort restrictions alone. Taking into account the above arguments, STECF **recommends** that consideration be given to introduce additional measures including restrictions on landings as a more effective means to achieve desired exploitation rates on small pelagic species in the Mediterranean. The species of concern are primarily anchovy and sardine.

STECF emphasizes that to assess the effectiveness of multi-annual management plans implies that evaluations are undertaken at appropriately-prescribed intervals and that the plans are adapted in the light of the results of the evaluations. The plans need to be supported by effective control and enforcement measures together with collection of fisheries-related data. STECF notes that not all Member States have fully implemented the Data Collection Regulation and notes that full implementation of the provisions of the data collection regulation is a prerequisite to effective scientific monitoring and management of the stocks and fisheries.

The STECF-SGMED-10-02 WG also reviewed the stock assessments of anchovy and sardine in GSA 17 carried out within the framework of FAO-AdriaMed Project and presented at GFCM-SAC-SCSA meeting in 2009 (Malaga, 2009). Results were reviewed and compared with previous assessments carried out by the 2009 STECF-SGMED 09-02 WG. Significant improvements in the new assessments in relation to previous

assessments were noted. However, detailed information on input data as number and weight at age by each fleet and country and parameter diagnostics of the assessments are missing in the report. However, in absence of detailed information on input data as number and weight at age by each fleet and country, diagnostics of the assessments models and the fact that the use of growth parameters are not in line with previous STECF-SGMED WG recommendations, STECF is not in the position to endorse the results of these assessments of anchovy and sardine in GSA 17.

The STECF-SGMED-10-02 WG reports that inconsistent information as well as late and lack of data submissions again significantly hampered the accomplishment of its tasks. Major drawbacks were missing fisheries data for 2009 from Italy, Greece and Cyprus, as well as a late submission of data from Malta, which impeded updates and assessments of most recent parameters of many exploited stocks in the relevant GSAs.

The STECF-SGMED-10-02 report recommends that the data sets for conducting stock assessment need to be available well in advance (4 weeks) before the beginning of the relevant assessment meetings in order to allow JRC to process, evaluate and prepare the data for the assessment working groups. The report also recommends that no data should be accepted after the deadline for submission and that erroneous data should be interpreted as being not submitted. Furthermore, the WG notes that any progress in data submissions in terms of compliance with uploading procedures and data consistencies will compromise the necessary preparations for future working groups. In addition and in accordance with the provisions of the DCF to allow appropriate data preparation by Member States, the STECF-SGMED recommends future data calls should be issued at least 2 months in advance of assessment meetings.

STECF notes that the STECF-SGMED-10-02 WG has continued to develop and test specific R scripts to evaluate MEDITS and other CPUE or abundance surveys and has recommended that a dedicated workshop be established to undertake the following:

- perform an in depth effort to standardize MEDITS abundance data for main target and priority species using the R scripts,
- further test if the age slicing function (conversion of length structured data into age structured data) developed within the R scripts is usable for different species as shrimps,
- finalize and test the scripts for the standardization of the abundance at age indices and
- perform comparative SURBA assessments with numbers at age standardized using appropriate models and those empirically raised to the surface or time units.

The STECF-SGMED-10-02 report notes that bio-economic modelling, deterministic short and medium term predictions of stock size and catches (landings) under various management options and the relevant scientific advice will be conducted during the STECF-SGMED-10-03 WG (13-17 December 2010). However, the STECF-SGMED-10-02 report stresses that the lack of 2009 fisheries data will impede such short term

forecasts for many stocks and fisheries in GSAs bordering the Italian, Greek and Cyprian coasts.

STECF recommendations and conclusions

STECF endorses the STECF-SGMED-10-02 WG report and agrees with the recommendations listed in the report.

STECF agrees that there is the need to implement multi-annual management plans in the near future for Mediterranean demersal fisheries. Those plans should aim to reduce fishing mortality, through fishing effort reductions, towards the proposed limit management reference points consistent with high long term yields.

STECF agrees with STECF-SGMED 10-02 recommendation that landing restriction may be a more appropriate management tool to control the exploitation rate on small pelagics in the Mediterranean than effort restrictions alone. Taking into account the above arguments, STECF **recommends** that consideration be given to introducing additional measures including landing restrictions as a more effective means to achieve desired exploitation rates on small pelagic species in the Mediterranean. The species of concern are primarily anchovy and sardine.

STECF **recommends** that the data sets for conducting stock assessment need to be made available well in advance (4 weeks) before the beginning of the relevant assessment meetings in order to allow JRC to process, evaluate and prepare the data for the STECF-SGMED assessment working groups.

STECF **recommends** that no data should be accepted after the deadline for submission and that erroneous data should be interpreted as being not submitted.

STECF **recommends** that future data calls to be issued at least 2 months in advance of STECF-SGMED assessment WG meetings.

STECF **recommends** that a dedicated workshop be established to continue to develop and test specific R scripts to evaluate MEDITS and other CPUE or abundance surveys.

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

5.1. Requests for advice supported by ad hoc contracts - Request of a STECF opinion on possible alternatives for technical conservation measures to be applied in the West of Scotland

Background

In 2008 scientific advice called for zero catch of cod, haddock and whiting in an area West of Scotland, which is an area of particular importance for the Scottish fleet. The Commission has received this advice for some years in succession for cod and for whiting but the fishery was not closed because there was non-zero advice for haddock. Given a zero catch advice for all three species that are caught together, the Commission proposed to close targeted fisheries for whitefish in this area under the 2009 fishing opportunities regulation.

The UK, with support from Ireland, did not accept a full closure of the whitefish fisheries in this area. After an extended discussion, the agreement was reached that technical conservation improvements be put in place straight away with the aim to increase the selectivity of gears used in other fisheries (Norway lobster, anglerfish and megrims) so that whitefish by-catches are reduced. These measures were adopted in Annex III of the fishing opportunities regulation 2009. Since the entry into force of the Lisbon Treaty, this annex had to be eliminated from the regulation. The annex is now included in Council Regulation (EC) No 1288/2009 on transitional technical measures, that was adopted in the 2009 November Council.

The UK and Ireland opposed to this regulation, although it was largely based on their proposal, on the argument that the package makes the haddock fishery economically unfeasible, the main grounds being:

- They prevented the catching of haddock
- Some ancillary, local fisheries were unintentionally affected (for squid, crawfish)
- Larger mesh sizes allowed megrims to become stuck in the nets, which means the fish became bruised and lowered their market price
- Inshore Nephrops fishers wanted to retain an earlier design of net, with a smaller square-mesh panel.

It is important to point out that in the report sent on April 2010 as regards reporting obligations on catches and discards by vessels catching whitefish in ICES VIa, the uptake for the lowered haddock quota was unaffected. Also, in the last ICES advice, it does not seem that there has been any reduction in discarding of haddock despite the new technical measures introduced in 2009.

After some meetings with the Scottish authorities, they have forwarded to the Commission an alternative proposal to adjust the measures in place to take account of the reality of the particular fisheries in the area, while maintaining, or even improving conservation objectives.

Terms of Reference

By taking into account comments and recommendations highlighted by the STECF during its last plenary meeting and made available in its PLEN 10-02 report, it is requested to support STECF when answering the following points:

1. Towed gear currently used in whitefish fisheries of the West of Scotland is characterized by a mesh size of 120 mm cod end with a 120 mm squared mesh panel. The UK authorities suggest, in order to avoid meshing and to improve the quality and first sale value of catch of megrims, a change of gear to mesh size of 110 mm equipped with a squared mesh panel of 120 mm with the conditions currently permitted in the North Sea under Article 4(5) of Regulation (EC) No 2056/2001.
 - In the light of data submitted by the UK authorities, the STECF is requested to assess possible changes in catch compositions possibly induced by such a change in fishing gears used in the West of Scotland.
 - In particular, STECF is requested to assess if the following catch composition (more than 70 % of any mixture of the target species included in the longer list of such target species for mesh size range 80 to 90 mm specified in Annex I to Regulation (EC) No 850/98, and no more than 25 % of whitefish, including no more than 5 % of cod in the catches) could be ensured when using this new towed gear.
2. The UK authorities would like to be granted with derogations:
 - a) to use a square mesh window of at least two metres in length for vessels of less than 112 kW using towed nets (Article 7(2)b of Regulation (EC) No 850/98). This claim is based on the fact that such vessels target Nephrops having very low levels of whitefish catches and it is supported on the data provided.
 - b) To use tangle nets within the French line (coastal fisheries) to target crawfish by for upwards of 40 vessels, the majority of which are under 10 metres length. The reasons for this derogation are also based on the low levels of catches of whitefish and supported by the data provided.
 - In the light of available information, particularly on catch composition, the STECF is requested to give its opinion about these possible derogations to Technical Conservation Measures which aim to limit catch of whitefish like cod and haddock.
 - If information made available on catch composition and if it appears that such derogations would not have impact on the dynamic of whitefish stocks, the STECF will be asked to suggest areas where these

derogations may be applied in the West of Scotland to match with distribution of crawfish.

3. The UK pointed out that the current 30% limit on catch compositions covering cod, haddock and whiting is difficult to achieve by their fleet due to the spawning season on haddock during March-May. The proposal to lift the catch composition for haddock at a given time of the year if the haddock quota uptake is below normal levels, is in the following terms:

When catches of haddock in the West of Scotland would represent less than 50 % of the quota by beginning of September, UK vessels equipped with Scottish seines of mesh sizes of 110 mm would have to comply with no more than 20 % of Cod and Whiting, including no more than 5 % of cod in the catches. Catches of haddock would nevertheless remain limited by the quota.

Such a new rule would have a direct impact on the distribution of the fishing pressure deployed on haddock over the year, by concentrating the main part of the catches during the last quarter of the year.

- The STECF is requested to advice on the possible impact on the dynamic of the West of Scotland haddock stock if such a modification, which would imply fishing activity mainly oriented on Haddock during the last quarter of the year, was to be agreed.
4. The UK authorities asked for an evaluation of the current definition of the so called "French Line" established in the West of Scotland to distinguish between whitefish fisheries on the shelf and deep sea fisheries upon the slope. The current position of the "French Line" could not match with the geographic and bathymetric distribution of whitefish species likes cod, whiting and haddock and associated species like megrims and anglerfish.
 - The STECF is requested to give its opinion on the position of the "French Line" in the light of information available on the geographic and bathymetric distribution of whitefish species and associated species (cod, whiting, haddock, megrims and anglerfish).

By taking into account comments and recommendations highlighted by the STECF during its last plenary meeting and made available in its PLEN 10-02 report, it is requested to support STECF when answering the following points:

1. *Towed gear currently used in whitefish fisheries of the West of Scotland is characterized by a mesh size of 120 mm cod end with a 120 mm squared mesh panel. The UK authorities suggest, in order to avoid meshing and to improve the quality and first sale value of catch of megrims, a change of gear to mesh size of 110 mm equipped with a squared mesh panel of 120 mm with the conditions currently permitted in the North Sea under Article 4(5) of Regulation (EC) No 2056/2001.*

- *In the light of data submitted by the UK authorities, the STECF is requested to assess possible changes in catch compositions possibly induced by such a change in fishing gears used in the West of Scotland.*
- *In particular, STECF is requested to assess if the following catch composition (more than 70 % of any mixture of the target species included in the longer list of such target species for mesh size range 80 to 90 mm specified in Annex I to Regulation (EC) No 850/98, and no more than 25 % of whitefish, including no more than 5 % of cod in the catches) could be ensured when using this new towed gear.*

STECF Response

Background

The current regulations pertaining to mesh size and permissible gears used to the east of the management (French) line in ICES division VIa are included in Council Regulation (EC) No 1288/2009. This regulation specifies that for vessels targeting whitefish the minimum mesh size is 120mm and that the trawls are fitted with a 120mm square mesh panel.

The UK authorities wish to reduce the current minimum mesh size in use in VIa east of the current management (French) line from 120mm to 110mm while maintaining the current minimum specification for the square mesh panel (120mm placed 9-12m from the cod-end). For the purposes of the work presented here we refer to the combination of a 120mm diamond mesh cod-end fitted with a 120mm panel as the “120/120” and the 110mm cod-end fitted with a 120mm panel as the “110/120” configuration. Concurrent to the request, the UK authorities note that the fisheries will be subject to the catch composition provisions currently in place in the North Sea (ICES division IV) where it is possible to use a mesh size of 110mm (article 4(5) Regulation (EC) No 2056/2001), provided that the catch composition includes 70% or more of any mixture of the target species for the mesh size 80 to 90mm specified in Annex 1 of Regulation (EC) No 850/98 and no more than 25 % of whitefish, including no more than 5 % of cod.

The rationale behind this request is that the mesh size of 120mm results in damage to megrim catches due to meshing in the cod-end, causing bruising and resulting in a lower market value. Similar problems are reported by Irish fishermen which has resulted in comparison trials being undertaken to compare the relative damage associated with the 120/120 combination versus the 110/120mm combination. Anon (2010) observe that with the current 120/120 configurations, in excess of 30% of megrim catches are damaged whereas, the 110/120 was associated with a damage rate of 15%.

In an earlier response to the request made by the UK authorities (STECF, 2010), it was noted that to assess the potential impact of reducing the mesh size from 120/120 to 110/120, it would be necessary to have selectivity parameters obtained from gear trial experiments where both gear variants were assessed in the area concerned (ICES division VIa). To simulate the effect that reducing the mesh size would have on the catches of the

species of concern, it was noted by STECF (2010) that the UK authorities should provide representative catch data (landings and discards) composition by species and length class of the gear in the area of concern. In addition to selectivity data on cod, haddock and whiting, to quantify what the relative change in catch weight by species would be as a result of the reduction in mesh size, selectivity parameters are required for the species caught in the fishery and belonging to the longer list of species associated with the 80 to 90mm mesh band in annex 1 of Regulation (EC) No 850/98.

It has not been possible for the UK authorities to provide selectivity data obtained from trials in ICES division VIa nor for species other than cod, haddock and whiting. STECF have been presented with a dataset derived from a generic selectivity model that is based on selectivity data, for cod, haddock, and whiting only, obtained from a wide range of experiments conducted in the North Sea (Anon, 2002). Clearly, this limits the ability of STECF to assess the impact that a reduction in mesh size would have on the catch composition. To supplement the data provided, Irish selectivity and catch comparison data for megrim and hake obtained from ICES division VI, has been used. The Irish data covers a range of cod-end and square mesh panel configurations (100/110; 120/120; 110/120).

Methods

To assess the impact on catch composition of a change from 120/120 to 110/120, the selectivity parameters for each gear combination have been estimated for each species for which selectivity data is available. Selectivity for haddock, cod and whiting respectively estimated from a selectivity model based on data from the North sea (Anon, 2002). To assess the impact on megrim catches, selectivity data from Irish experiments (pers. Comm. Irish Sea Fisheries Board) were used. Because these experiments did not directly quantify the selectivity of a 120/120 combination, the mean selection factors (SF) ($L_{50}/\text{mesh size}$) from experiments conducted with a range of mesh sizes (100mm and 110/120mm) were used to determine an approximate estimate of L_{50} and selection range for the selectivity of the 120/120 configuration. The SF, which is the ratio of 50% selection length (L_{50}) and the measured mesh size, can be used to infer the likely selectivity (L_{50}) of a mesh size. The SF for the two mesh sizes (100 and 110/120mm) was reasonably consistent, 2.76; and 2.75 respectively. The mean SF was then used to infer an L_{50} estimate for the 120/120 combination from $L_{50} = \text{SF} * \text{mesh size}$. We assume a constant selection range. Obviously, it would be preferable to use selection parameters obtained from the 120/120 combination; in its absence, this approach at least allows for an approximate estimate of the changes in megrim catches to be made.

Here we assumed that selectivity for megrim is solely associated with the cod-end rather than the combination of the cod-end and square mesh panel combined. This assumption is supported by evidence from other experiments (Walsh and Millar, 2002; Fonteyne and R'bant. 2002), showing that selectivity of flatfish is not significantly influenced by square mesh due to their morphology.

We used the length and weight composition obtained from the 2009 UK sampling programme to provide an estimate of the catch composition by length. To estimate the

potential impact on catch numbers associated with the change from 120/120 to 110/120, it is first necessary to reconstruct the fished population by raising the retained catches at length to a virtual population based on the selectivity characteristics (proportions retained at length) of the mesh configuration currently used.

$$\text{Exploited population}_{2009} = C_n @ L_{2009} / S_{\text{current}}$$

It is then possible to estimate the catch numbers at length that would have resulted from a change in mesh configuration.

$$C_n @ L_{\text{predicted}} = \text{Exploited population}_{2009} * S_{\text{new}}$$

The ‘virtual’ population numbers at length by species have then been multiplied by the estimated retention probability at length from the ‘new’ gear i.e. 110/120 derived from the model.

Contrasting the catch numbers at length from the current fishing pattern (120/120) with those predicted for the 110/120 combination provides an estimate of the change in catch that would have occurred if the gear selectivity pattern from the 110/120 combination had been used in 2009.

Weight at lengths estimates were applied to the number of fish retained (landed and discarded) at each length class to estimate the difference in weights retained for each species to provide an estimate of the change in catch weights that would have occurred if the 110/120 combination had been used in 2009.

Results

Figures 1-5 show the actual and predicted catch profile for haddock, cod, whiting and megrim for the 120/120 and 110/120 mesh sizes. The catch numbers for the four species for the 120/120 and 110/120 and percentage change is provided in table 1. The breakdown between landings and discards assumes that the proportion of discards at length remains constant irrespective of mesh configuration and catch sizes.

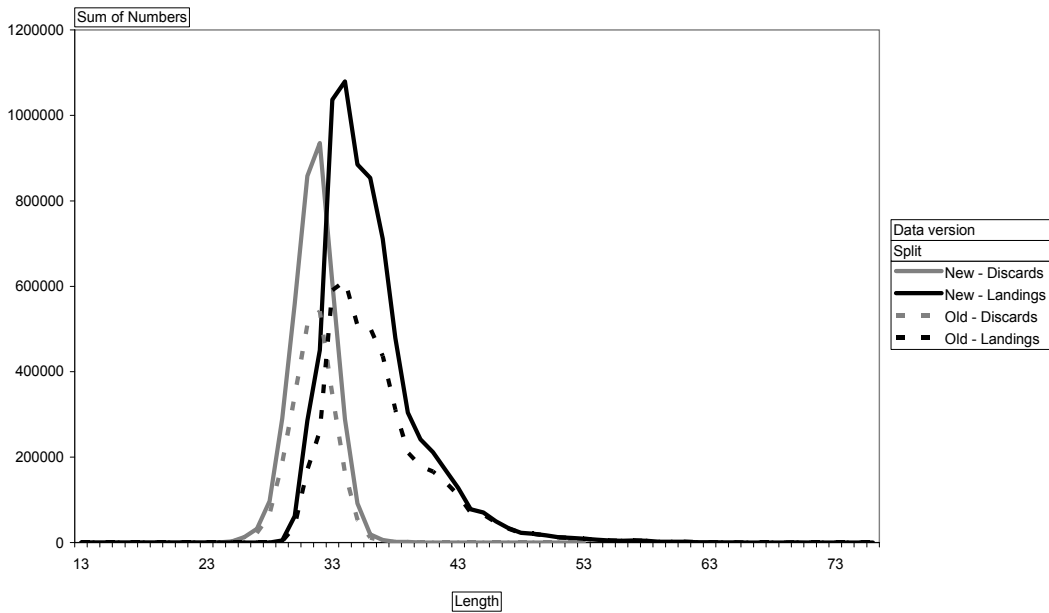


Figure 5.1.1. Length profile of 2009 haddock catches (dashed line) and predicted catches based on a 110/120 gear configuration (solid line)

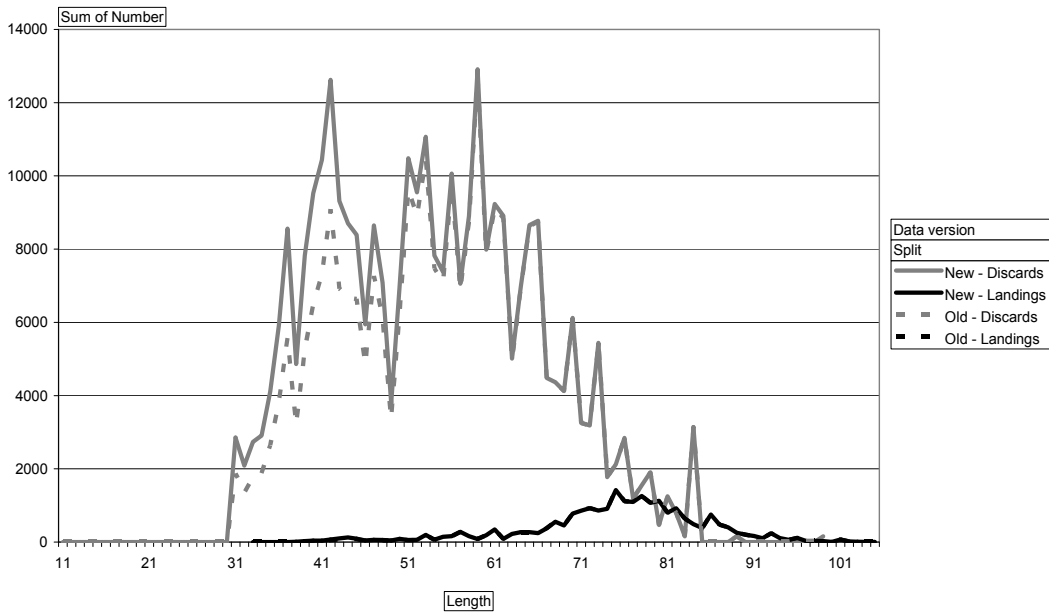


Figure 5.1.2. Length profile of 2009 cod catches (dashed line) and predicted catches based on a 110/120 gear configuration (solid line)

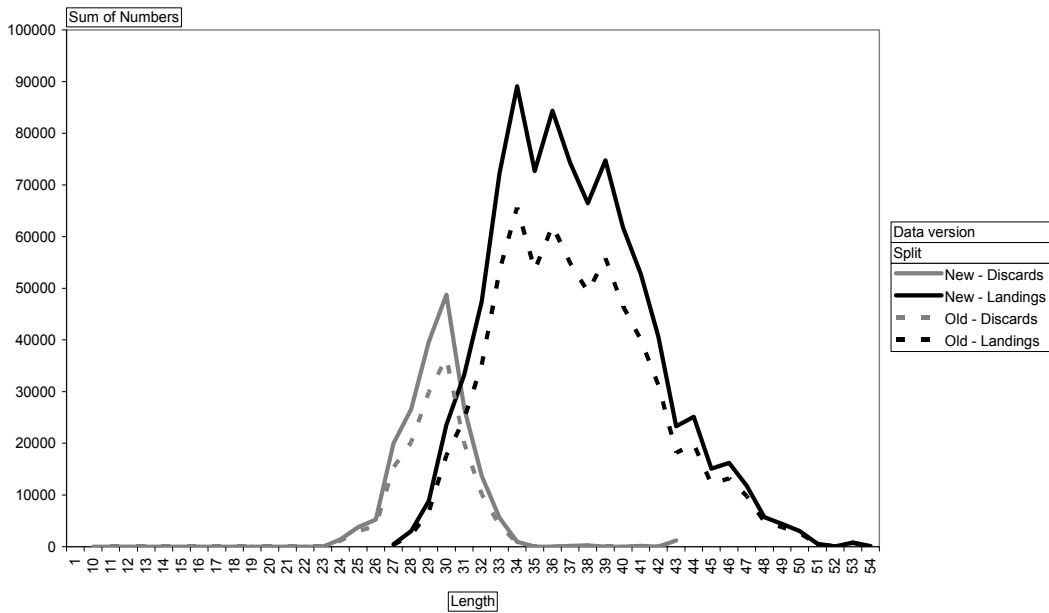


Figure 5.1.3. Length profile of 2009 whiting catches (dashed line) and predicted catches based on a 110/120 gear configuration (solid line)

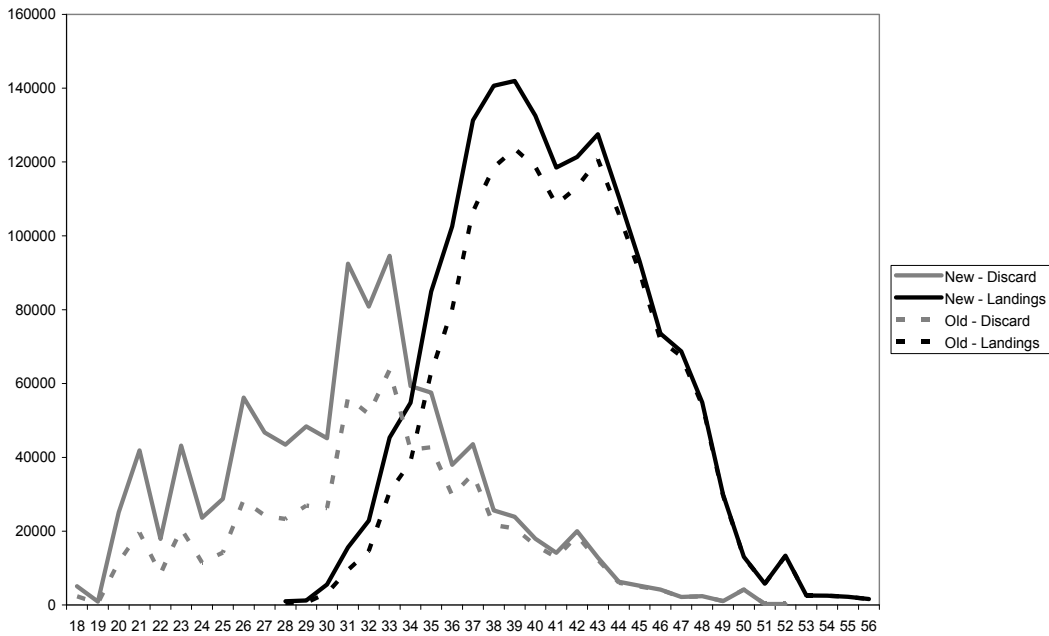


Figure 5.1.4. Length profile of 2009 megrim catches (dashed line) and predicted catches based on a 110/120 gear configuration (solid line)

		110/120		120/120		
		Discards	Landings	Discards	Landings	Discard Change

						rate*	in absolute catch
Whiting	Number	194163	911861	146079	684655	18%	33%
	Weight (t)	45	441	34	335	9%	32%
Cod	Number	322624	22719	283619	22486	93%	13%
	Weight (t)	597	103	565	103	85%	5%
Haddock	Number	3803610	7259029	2257942	4574383	34%	62%
	Weight (t)	1138	3428	672	2279	25%	55%
Megrim	Number	1033262	1719387	666742	1509856	38%	26%
	Weight (t)	278	963	201	873	22%	16%

Table 5.1.1. Change in landing and discard numbers and weights for haddock, cod, whiting and megrim and overall catch. The discard rate (*) remains unchanged as the proportion of discards remains fixed irrespective of catch size.

Table 5.1.1 shows the predicated impact on catches that would have occurred if a 110/120 combination had been used. The largest impact on landings and discards by weight of reducing the mesh size would be a substantial increase in haddock discards (68%) and landings (59%). For cod, the shift in mesh size is predicted to have resulted in an increase in cod discarding (14%) with an increase in cod landings (1%). For whiting, the shift in mesh size is predicted to have resulted in an increase in whiting discards (33%) and increase in whiting landings (32%). The large increase in haddock discards is due to a significant proportion of the population length structure falling within the selection span of the 110/120 mesh configuration. The effect of reducing the mesh size to 110mm would have resulted in a significant increase in mortality (catch by weight) for all species, but particularly for whiting (32%) and haddock (55%) and by number 33% and 62% for whiting and haddock respectively.

Based on the estimated changes in landings of cod, haddock, whiting and megrim and no assumed change in catch of other species (highlighted in grey in table 2) it is apparent that a reduction in mesh size would have increased the contribution that ‘whitefish’ (cod, haddock and whiting) make to the overall landings composition from 36% to 45%. This assumed no change in the discarding pattern across species and no change in the selectivity for species for which no selectivity data were available. This latter assumption is likely to be violated in practice, but given the lack of selectivity data, it is not possible to quantify the likely change in contribution these species make to the overall landings composition associated with a reduction in mesh size. Furthermore, catch data from the Irish Sea Fisheries board (BIM), where the impact of changing from 120/120 to 110/120 were compared using the alternate haul method, were used to infer the likely percentage change in anglerfish and hake catches.

Species	120/120		110/120	
	Current landings	% Composition	Predicted Landings	% Composition
Cod	103	1.4%	103	1.2%
Haddock	2279	30.2%	3419	38.4%
Whiting	335	4.4%	442	5.0%
Whitefish		36%		45%
Megrim*	878	11.6%	966	10.8%
Angler**	762	10.1%	762	8.6%
Plaice	32	0.4%	32	0.4%
Nephrops	17	0.2%	17	0.2%
Saithe	2863	37.9%	2863	32.1%
Lemon sole	12	0.2%	12	0.1%
Hake**	276	3.7%	290	3.3%
Total	7557	100%	8905	100%

*Selectivity estimate for 120/120 inferred from selection factor (ratio of L50/mesh size obtained from 110/120 combination data)

**Percentage change in catch rates estimated from catch comparison data.

Table 5.1.2. Comparison of catch composition (tonnes) and relative contribution to overall catch for 120/120 and 110/120 mesh combinations.

Conclusions

Even given the caveats noted above associated with the lack of selectivity data for certain key species, the current catch (landings) composition (36%) violates the 25% composition rule associated with 850/98. STECF considers based on the data presented, that for the UK fleets operating in this area decreasing the selective properties of the gear via reductions in the minimum mesh size would exacerbate this further i.e. the relative contribution of whitefish (particularly haddock) would increase beyond the 25% (predicted to increase to 45%) threshold rather than diminish it, assuming the exploitation pattern remained unchanged.

We assume the saithe catches to remain unchanged, but calculations show that saithe catches would need to have increased by 350% in order to obtain a whitefish catch composition at or below 25%. Plaice, *Nephrops* and lemon sole catches are negligible and even large increases in their landings would have caused only small changes in whitefish catch composition.

In practice, catch composition as prescribed in current EC regulations relate to the retained catch selected onboard following capture and is not related to the composition of the catch selected by the fishing gear. STECF notes that catch composition regulations may not meet the objective of controlling fishing mortality. Catch composition percentages for individual species can easily be met simply by discarding fish in order to meet the prescribed rates.

STECF notes that discarding of some species e.g. cod is extremely high and that reductions in mesh size may accelerate this further.

It should be noted that, since catch compositions not only depend on gear selectivity parameters but also on the relative abundances and age compositions of the stocks, future catch compositions cannot be predicted without knowledge of the future state of the stocks. The likely catch compositions that STECF can calculate through the procedure above, is valid only under the assumption of ‘all else being equal’. This implies that STECF will never be able a priori to ‘ensure’ (as requested in the second question of the ToR) anything with regards to catch composition. Therefore STECF **recommends** that if such a measure is agreed, there is adequate monitoring and evaluation to determine whether unintended consequences arise through changes in catch composition.

ToR 2. The UK authorities would like to be granted with derogations:

a) to use a square mesh window of at least two metres in length for vessels of less than 112 kW using towed nets (Article 7(2)b of Regulation (EC) No 850/98). This claim is based on the fact that such vessels target Nephrops having very low levels of whitefish catches and it is supported on the data provided.

b) To use tangle nets within the French line (coastal fisheries) to target crawfish by for upwards of 40 vessels, the majority of which are under 10 metres length. The reasons for this derogation are also based on the low levels of catches of whitefish and supported by the data provided.

- *In the light of available information, particularly on catch composition, the STECF is requested to give its opinion about these possible derogations to Technical Conservation Measures which aim to limit catch of whitefish like cod and haddock.*
- *If information made available on catch composition and if it appears that such derogations would not have impact on the dynamic of whitefish stocks, the STECF will be asked to suggest areas where these derogations may be applied in the West of Scotland to match with distribution of crawfish.*

STECF (2010) noted that in order to fully evaluate the impact that reducing the length of the square mesh panel from 3m to 2m and to derogate the used of tangle nets for the crawfish the following data should be supplied:

(i) Number of vessels concerned;

(ii) Total effort involved;

- (iii) Spatial information of the fishing activities of the fleets concerned;*
- (iv) Recent data on the absolute levels of total landings of cod, haddock, and whiting (presented separately by species) by the vessels concerned when using the 2m or the 3m SMP and tangle nets respectively in the area concerned (time series of 3 or more years);*
- (v) Recent and representative observer data on discards of cod, haddock, and whiting (presented separately by species) by the fleets concerned when using the 2m or the 3m SMP and tangle nets respectively in the area concerned.*
- (vi) Selectivity parameters of the 2m and the 3m SMP for cod, haddock, and whiting.*

STECF Response

ToR 2(a)

Background

Prior to the introduction of the emergency measures (Regulation (EC) No 43/2009, annex III, article 6 regulations) and the subsequent transitional regulations (Regulation (EC) 1288/2009) it was permitted for vessels <112kW to use a square mesh panel of 2m (850/98, Article 7(2)c), constructed from 80mm mesh and inserted anterior to the cod-end (850/98 Article 7(4))

Since the introduction of the emergency and transitional measures (43/2009, annex III, article 6) it has been prohibited to use a square mesh panel of less than 3m irrespective of vessel power (43/2009, annex III, appendix 5.1). Additionally, the panel minimum mesh size was increased to 120mm and the positioning of the panel fixed at between 9 and 12m from the cod-line (43/2009, annex III, appendix 5.1) and the minimum cod-end mesh size increased to 80mm (43/2009, article 6(5)iv).

STECF notes that there are no experimental data where 2m and 3m square mesh panels have been compared directly in the fishery concerned (*Nephrops* TR2 in VIa). STECF notes that the selectivity estimates submitted by the UK are derived from a model based on selectivity data collected in the North Sea. The model estimates the effect of including a 3m square mesh panel as a factor change in selectivity. In order to determine the effect of adding a 2m panel, the UK authorities have adjusted the panel factor by the ratio of panel lengths (2/3). This assumes that the effectiveness of the panel varies linearly with length. Without data from dedicated selectivity experiments where panel lengths are varied, it is not possible to ascertain whether this assumption is valid in practice. The model predictions presented by the UK authorities suggest that altering the panel length from 3m to 2m would reduce the L50 for cod, haddock and whiting by ~9% (table 5.1.3).

Table 5.1.3. Predicted haddock, whiting and cod selectivity parameters for a 2 and 3m square mesh panel.

	haddock		whiting		cod	
	L50	sr	L50	sr	L50	sr
SMP @ 9 – 12m (3m panel)	27.9	4.3	32.5	9.3	31.2	6.6
SMP @ 10 – 12m (2m panel)	25.5	4.3	29.7	8.5	28.5	6.1

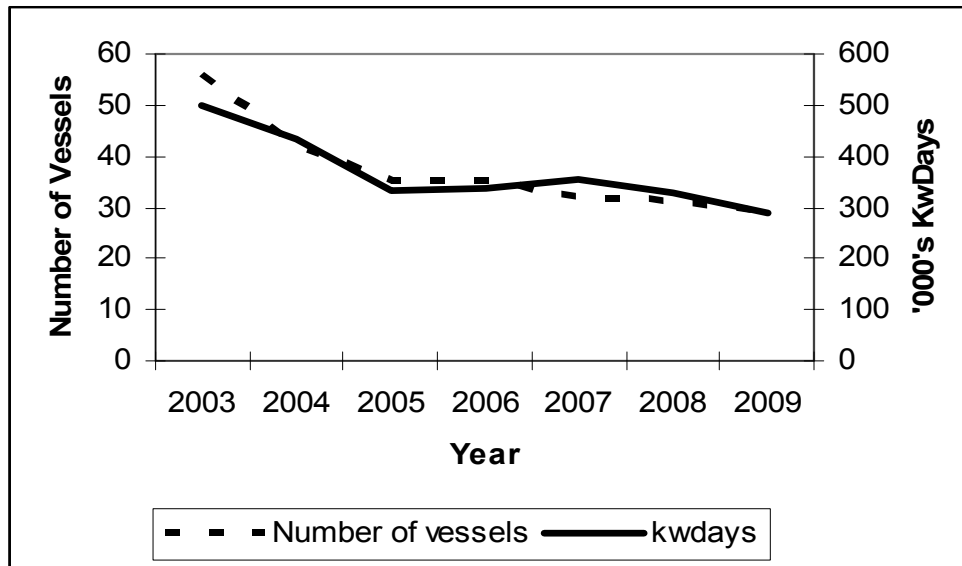


Figure 5.1.5. Change in number of vessels less than 112 kW in ICES sub-division VIa and associated effort (kW days)

STECF note that the fishing effort and the number of vessels engaged in the fishery has declined substantially in the past few years (figure 5.1.5) and that landings data for cod, haddock and whiting associated with the fishery and presented by the UK authorities shows very low levels of landings associated with this group (figure 6) .

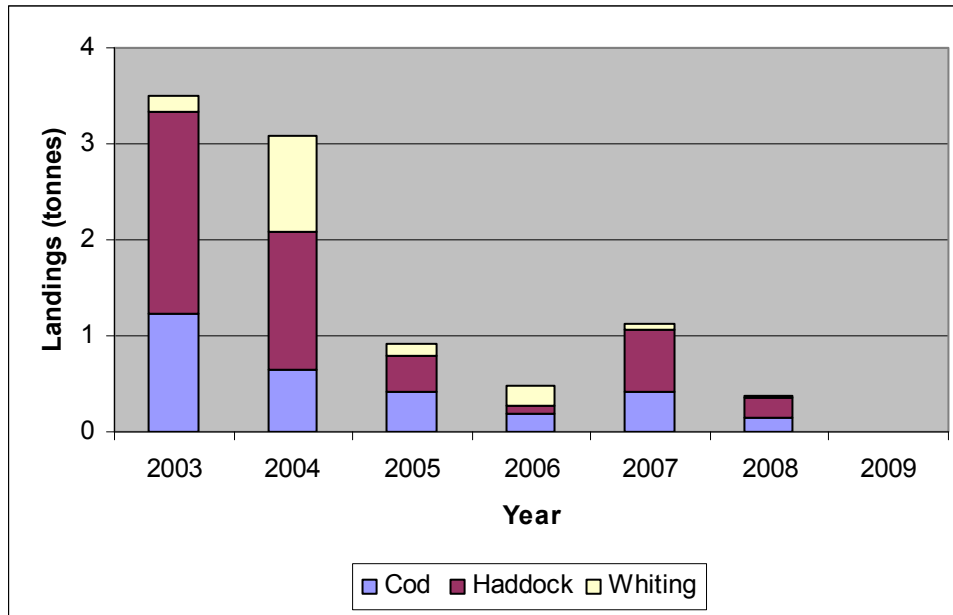


Figure 5.1.6. Landings of cod, haddock and whiting associated with UK vessels <112Kw in ICES sub-division VIa.

No observer data has been presented, so it has not been possible for STECF to assess what the likely impact on catches would be, but given the general decline in effort and the low reported landings and the marginal shift in selectivity, the impact of reducing the square mesh panel from 3m to 2m is likely to have a very minimal impact on catches.

Conclusion

STECF therefore concludes that derogating vessels <112kW in ICES sub-division VIa to use a 2m panel, provided that effort levels will not increase above current levels, is unlikely to result in any measurable increase in fishing mortality of cod, haddock and whiting.

ToR 2(b)

No data has been provided to the STECF to assess whether the fishery for which the derogation is being sought has low catches of whitefish.

ToR 3

The UK pointed out that the current 30% limit on catch compositions covering cod, haddock and whiting is difficult to achieve by their fleet due to the spawning season on haddock during March-May. The propose to lift the catch composition for haddock at a given time of the year if the haddock quota uptake is below normal levels, in the following terms:

When catches of haddock in the West of Scotland would represent less than 50 % of the quota by beginning of September, UK vessels equipped with Scottish seines of mesh sizes of 110 mm would have to comply with no more than 20 % of Cod and Whiting, including no more than 5 % of cod in the catches. Catches of haddock would nevertheless remain limited by the quota.

Such a new rule would have a direct impact on the distribution of the fishing pressure deployed on haddock over the year, by concentrating the main part of the catches during the last quarter of the year.

- *The STECF is requested to advise on the possible impact on the dynamic of the West of Scotland haddock stock if such a modification, which would imply fishing activity mainly oriented on Haddock during the last quarter of the year, was to be agreed.*

Methods

2009 haddock catch numbers@age and weights@age by quarter were used, separately for landings and discards, for all gear with mesh sizes ≥ 110 mm in ICES division VIa as provided by the UK. Because the data were aggregated by quarter we evaluated the UK proposal as if the rule would consider quota uptake until the beginning of October rather than September.

Although it cannot be predicted how fishing activity might change if the proposed rule is implemented, STECF considers two plausible scenarios. These scenarios consider what the catches and the fishing mortalities would have been in 2009 if the proposed rule had been implemented in 2009. In these scenarios all else is considered to remain equal.

In 2009 uptake in the first three quarters (landings 1306 t) was under 50% (47.7%) of the UK part of the TAC (2737 t).

The following scenarios are considered.

1. The first scenario considers that under the proposed rule fishing activity and fishing patterns would not have changed. The uptake of the UK part of the TAC was already below 50% by September 2009. Under the proposed rule, without landings-composition restrictions for haddock in the last quarter, it was assumed that marketable (i.e. $>$ MLS) fish caught in the last quarter would have been landed rather than discarded. Looking at the landings and discards numbers@age and weights@age data provided, it seems plausible to assume that discarded fish up to and including age 3 had been discarded in 2009 because they were undersized (i.e. $<$ MLS) and would still have to be discarded if the proposed rule were in place. According to the data provided, discards of age 4 and older in the last quarter of 2009 amounted to 334 t. If these had been landed rather than discarded, the total landings for 2009 would have been $2276 \text{ t} + 334 \text{ t} = 2609 \text{ t}$, which is still below the UK part of the TAC (2737 t). In this scenario total fishing mortality on haddock is not impacted and discarding is reduced.

2. Scenario 2 assumes that, in addition to landing all marketable fish as under scenario 1, fishing activity would have increased in the last quarter in order to fully take up the UK part of the TAC without landings-composition restrictions. Assuming no changes in age composition and weights@age, an increase of fishing activity by 10% (i.e. a multiplier of 1.1) in quarter 4 and assuming that all age 4+ fish would have been landed, would just have resulted in full quota uptake. Note that the multiplier would also be applied to the catching of undersized fish which still have to be discarded. If the multiplier is applied to quarter 4, the annual fishing mortality increases by the multipliers in Table 4. Based on this scenario, the proposed rule may lead to an increase in Scottish partial fishing mortality on the haddock stock of up to 5% compared to the current situation; this higher fishing mortality rate may be detrimental to the dynamics of the haddock stock. Moreover, any increased fishing activity stimulated by the removal of the landings-composition constraints on haddock, would lead to increased catches of cod and whiting as well, but these may still have to be discarded because of the landings-composition restrictions on these species.

age	multiplier
0	1.04
1	1.04
2	1.04
3	1.05
4	1.04
5	1.03
6	1.07
7	1.02
8	1.05
9	1.01
10	1.01
11	1.00

Table 5.1.4. Fishing mortality multiplier by age with application of the proposed harvest conditions.

Other scenarios can be envisaged, but are considered to be less likely than either of the above.

Conclusion

It seems that the current restrictions in landings composition prohibit full quota uptake. Implementation of the proposed rule would probably not lead to reduced fishing in the first three quarters as compared to the current situation (and thus not reduce fishing mortality on spawning haddock), but allow full quota uptake in the last quarter. Fishing mortality on haddock would likely either remain the same or increase (all else being equal) and is unlikely to decrease as a result of the proposed rule. Since, owing to the

current discarding practices, the fishing mortality level is already higher than the level intended by the TAC, a further increase is undesirable.

Another issue might be that the proposed rule may lead to increased discarding of haddock before October, and quite likely to increased discarding of cod and whiting after September because the landings composition constraints on the latter species are still in place while the haddock-targeted activity may have increased after September.

ToR 4.

The UK authorities asked for an evaluation of the current definition of the so called "French Line" established in the West of Scotland to distinguish between whitefish fisheries on the shelf and deep sea fisheries upon the slope. The current position of the "French Line" could not match with the geographic and bathymetric distribution of whitefish species likes cod, whiting and haddock and associated species like megrims and anglerfish.

The STECF is requested to give its opinion on the position of the "French Line" in the light of information available on the geographic and bathymetric distribution of whitefish species and associated species (cod, whiting, haddock, megrims and anglerfish).

STECF (2010) comments to original request

STECF considered the location of the French Line in relation to the depth profile (see Figure). It roughly coincides with the 200m depth contour, although at some points it crosses the 300m depth contour and approaches the 400m depth contour. To evaluate the position of the French Line, information on the spatial and bathymetric distribution of cod, haddock, whiting, megrims, and anglerfish as well as on the fishing activity and catches relative to the French Line is required. Both fishery-independent survey data and commercial catch (including discards) data of high spatial resolution would be helpful. Information on landings or catches linked to VMS would be particularly informative. Commercial data may be obtained from one or both relevant Member States (the UK and France). Note that bathymetric distribution data alone are not sufficient because the bathymetric distribution of the species concerned may vary by latitude; therefore bathymetric data need to be combined with geographic position data.

STECF Response

The UK authorities have provided maps that show spatial fishing effort (VMS) linked to logbook data for six species (cod, haddock, whiting, megrim, monkfish and saithe) associated with UK vessels. Bathymetry (200m, 300m and 400m) as well as the management line is contained on each map. The data presented provides information on the spatial exploitation pattern. This can not be interpreted as the distribution of the individual species, only the distribution of the retained catch. For each species, the VMS 'pings' are weighted according the retained catch weights, ranging from zero to over 150kg (depending on species). While the provision of the maps allows STECF to provide

some qualitative comments on the distribution of UK landings relative to the management (French) line, the lack of quantitative data e.g. retained catches and effort east and west of the line, precludes any quantitative assessment. Additional information on effort and landings would allow for the estimation of LPUE east and west of the line providing some quantitative basis for comment on the density distribution of the exploited components of each stock.

For almost all the species concerned, VMS data associated with positive retained catch (e.g. greater than zero) show that all species are caught both to the west and east of the management line (Figures 5.1.7-11).

Cod (figure 5.1.7): This species is caught in all areas with significant landings from inside the line to the North and North West of Lewis and the West of the Orkney Islands. Catches are generally associated with the northern part of VIa along the shelf break. In addition, significant landings are also taken to the west of the management line in waters deeper than 200m, particularly in the depth band of 200 to 300m, with the VMS and landings data indicating some minor cod catches in depths greater than 300m ICES (2010) note that 65% of UK cod landings from VIa are taken to the west of the management line.

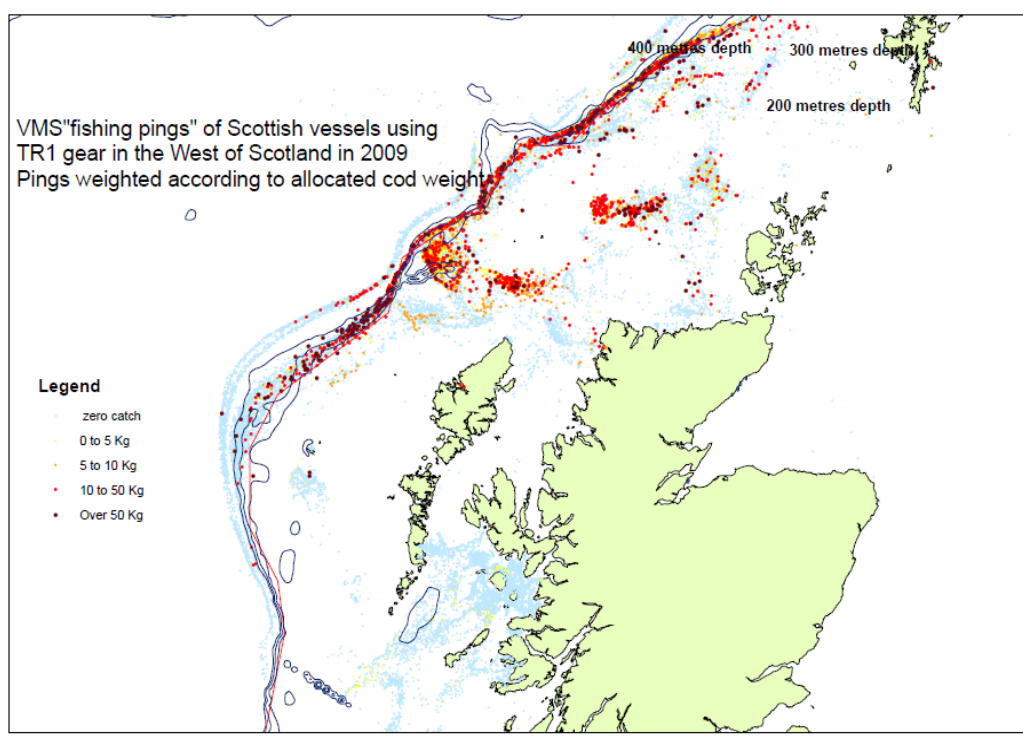


Figure 5.1.7. Cod landings and VMS data associated with TR1 gear group.

Whiting (figure 5.1.8) -Whiting landings are largely distributed to the east of the management line and are generally associated with the northern part of VIa inside the

shelf break with the majority being taken to the north and north west of Lewis and the west and north west of the Orkney Islands.

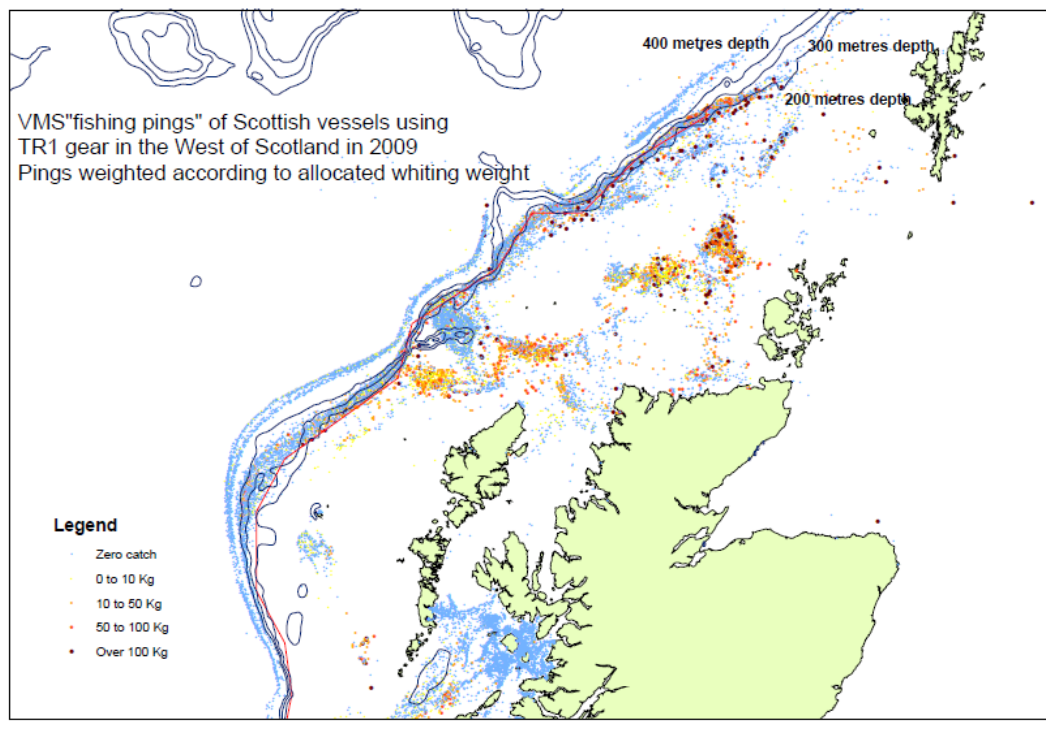


Figure 5.1.8. Whiting landings and VMS data associated with TR1 gear group.

Haddock (figure 5.1.9) - Haddock landings are widely distributed across the entire area, both to the west and east of the management line in depths of up to 300m

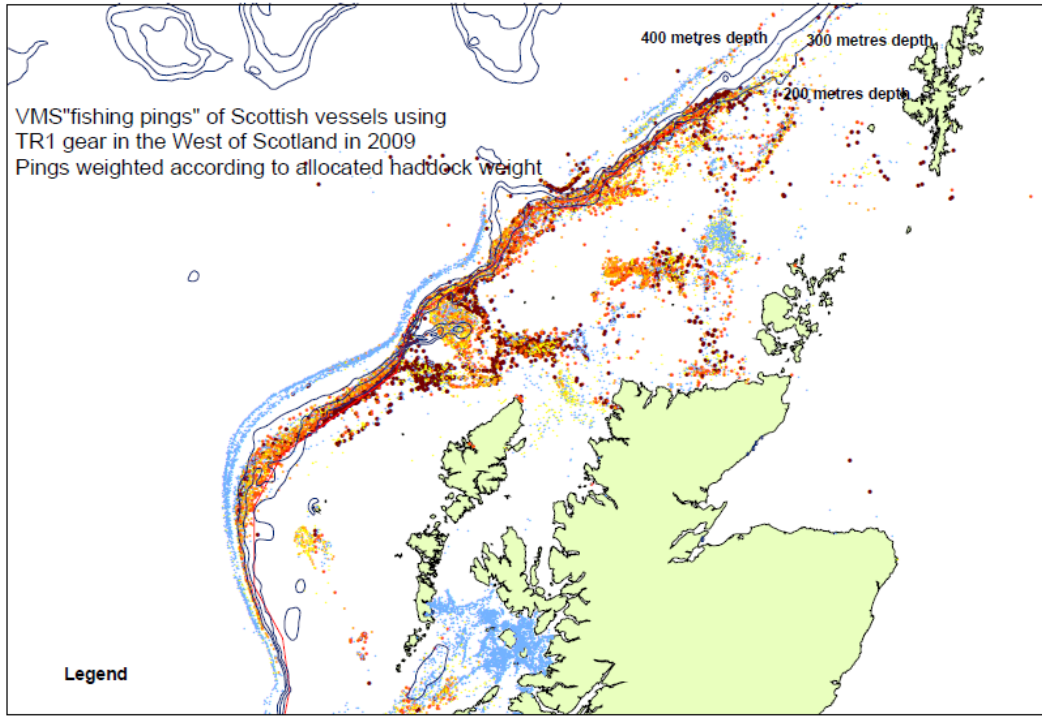


Figure 5.1.9. Haddock landings and VMS data associated with TR1 gear group.

Megrim (figure 5.1.10) - Megrim landings are widely distributed but with localized 'hot spots' to the north west of Lewis and the North west of the Orkney Islands to the east of the management line and are taken in waters up to 300m with catches in deeper waters mainly taken along the shelf break to the west of the Hebrides in depths ranging from 200 to 300m

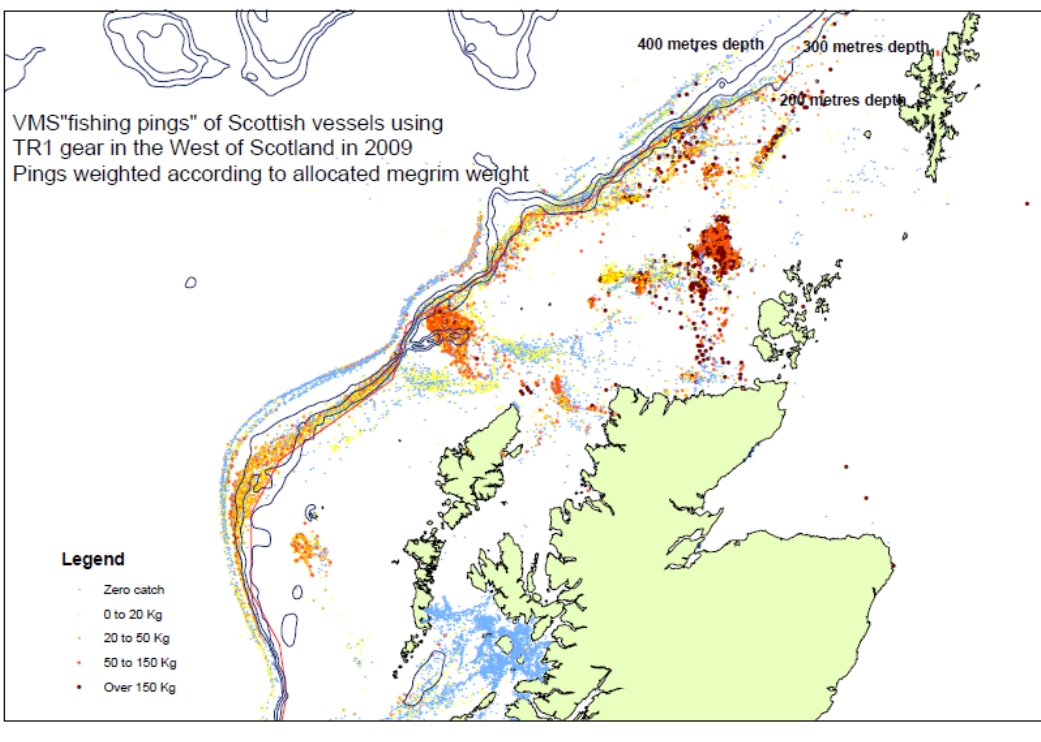


Figure 5.1.10. Megrim landings and VMS data associated with TR1 gear group.

Anglerfish (figure 5.1.11) Anglerfish landings are predominately taken to the west of the management line and are the species with low catch rates to the east of the management line. Catches are distributed along the entire shelf break but most prominent to the North West and west of the Hebrides and in depths ranging from 200 to 400m

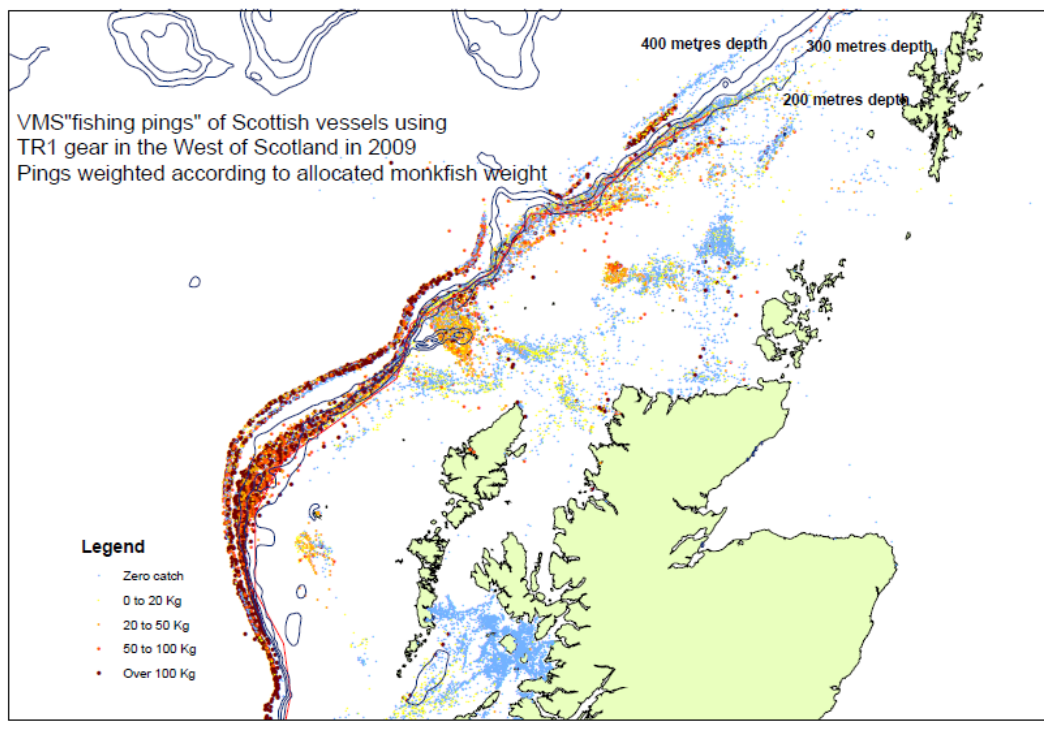


Figure 5.1.11. Anglerfish landings and VMS data associated with TR1 gear group.

Saithe (figure 5.1.12) landings are predominately taken along the shelf break in waters from 200 to 300m deep. The catches are mainly distributed in the northern part of VIa

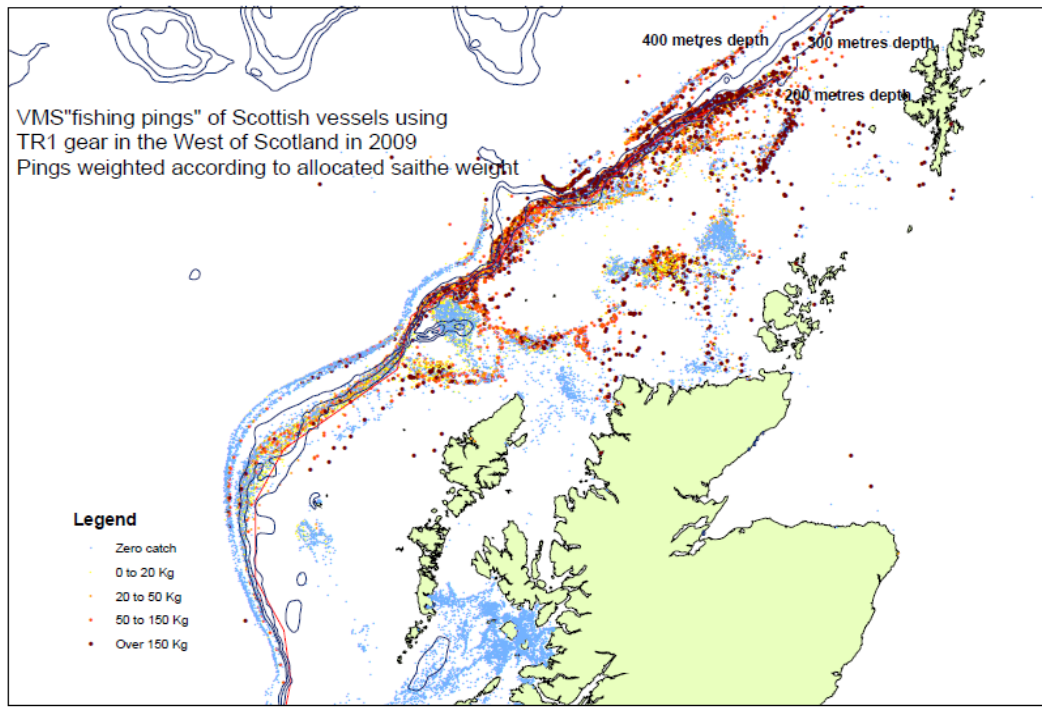


Figure 5.1.12. Saithe landings and VMS data associated with TR1 gear group.

General remarks

- The figures presented only include data from UK vessels and does not include information from other fisheries operating in this area e.g. French, Spanish and Irish fleets.
- With the exception of monkfish and whiting, there is no clear delimitation in marketable catches east and west of the management line. Landings data show that the shelf fishery is dominated by haddock, megrim, whiting and to a lesser extent cod. The maps indicate that there is significant mixing of all species (with the exception of whiting) along the 200m contour both east and west of the management line.
- Marketable catches of cod are more dominant in the northern part of VIa, and significant catches are observed to the west of the management line in depths up to 400m.
- The data presented only partially covers the management area, having a southerly limit of 56°30' N, whereas the management line extends to the southernmost limit of VIa (54°30' N). It is therefore not possible to comment on the distribution of catches relative to the management line south of 56°30'.

- Given that the management line is intended to delimitate between areas of low and higher cod distribution, there is no evidence to show that the current management line is appropriately placed for this function.
- The data presented (VMS maps linked to logbook landings data) does not allow for a quantitative evaluation of the distribution of catches relative to the management line. To quantitatively assess the distribution of cod catches and effort either side of the management line, effort and catch data are required. This might allow for spatial estimates of CPUE. However, it will be difficult to attribute operational logbook catches to specific VMS pings within each 24 h period (see Gerritsen and Lordan, 2010), whereby it may be impossible to resolve the spatial and bathymetric distribution of CPUE if fishing activity regularly crosses the management line (or, more importantly: depth contour lines) within 24 h periods.

Conclusion

STECF notes that in order to undertake a quantitative analysis of the management line, catches and VMS data from all fisheries (UK, Spain, Ireland and France) operating in VIa are required. Data from Scottish trawl fisheries indicate that with the exception of whiting and anglerfish, all other species (cod, haddock, megrim and saithe) are taken both east and west of the management line. If the data submitted by the UK authorities is representative of other fisheries taking place in VIa, STECF concludes that it is not possible to define a management line that simultaneously satisfies the objectives of controlling mortality on cod and permitting fisheries for other species.

Reference

Gerritsen, H., and Lordan, C. Integrating vessel monitoring systems (VMS) data with daily catch data from logbooks to explore the spatial distribution of catch and effort at high resolution. – ICES Journal of Marine Science, doi:10.1093/icesjms/fsq137.

5.2. Requests for advice supported by ad hoc contracts - Request of a STECF advice on the assessment of management options for multi-annual plans - Haddock West of Scotland

Background

ICES has been requested to prepare a biological assessment of long-term plan options concerning haddock in zone VIa and EC waters of Vb.

STECF is requested to assess economic consequences of implementing the various options advised by ICES compared to continuing to fish under current arrangements. STECF is particularly invited to liaise with ICES on the compatibility of evaluation systems.

This evaluation should apply to stocks of haddock in the North Sea, in zones VIa and EC waters of Vb.

Terms of Reference

If possible, evaluate probable future trends in additional incidental impacts on populations of other marine organisms arising as a result of the management plan options.

Assess likely economic consequences of implementing the various options advised by ICES compared to continuing to fish under current arrangements. The experts carrying out the assessment are requested to liaise with the stock assessment scientists who prepared the biological scenarios on the compatibility of impact assessment systems.

Specific requests

- 1) Provide a description of the UK and Irish fleets which prosecute Area VIa and Vb(EC) haddock, their recent activity and, as far as possible, their economic outcomes. This will highlight the vessels which are likely to be affected by the management plan.
- 2) Based on the predicted landings arising from the options advised by ICES, estimate for the relevant fleet segments likely future trends in:
 - a) the entire landings of the vessels involved. It might be appropriate to make qualitative assessments and comments with regard to likely responses of vessel businesses to reductions in TACs of these haddock stocks, specifically, the extent to which they are likely to exploit other fisheries or simply to reduce their overall activity,
 - b) the value of catches, with appropriate assumptions about prices that can realistically be made given lack of data to suggest specific relationships between volume of landings and sales price achieved,
 - c) fishing effort, in terms of vessel numbers, activity and kW deployed,
 - d) costs (both fixed and variable) of expected activity levels,
 - e) employment onboard vessels associated with this activity,
 - f) expected cash flow and gross value added (as defined in The 2009 Annual Economic Report on the European Fishing Fleet) of the vessels involved in these fisheries.

Appropriate assumptions should be made and described regarding the remainder of the fishing opportunities of the vessels involved being held stable for all the options assessed.

Expected trends should be contrasted with the probable consequences of continuing to fish the stock according to rates of fishing mortality as recently experienced, or according to:

- i. ICES advice corresponding to the MSY framework;
- ii. ICES advice according to the precautionary approach.

A 20-year time frame should be used for the evaluations. Detailed modelling outputs might only be appropriate for a shorter time frame, but comparative likely outcomes for the longer term, implying the effects of investment decisions, should be considered qualitatively at least.

STECF response

A report addressing these terms of reference is being prepared with a delivery date to DG MARE on 19 November 2010. A representative from the contractors (Dr Colin Brodie SEAFISH), presented preliminary results to the STECF plenum, but the results to date were inconclusive. STECF therefore intends to review the SEAFISH report and adopt its response to the above Terms of Reference by written procedure.

5.3. Requests for advice supported by ad hoc contracts - Request of a STECF advice on the assessment of management options for multi-annual plans - Celtic Sea Herring

Background

ICES has been requested to prepare a biological assessment of long-term plan options concerning Celtic Sea herring.

STECF is requested to assess economic consequences of implementing the various options advised by ICES compared to continuing to fish under current arrangements.

STECF is particularly invited to liaise with ICES on the compatibility of evaluation systems. Account should be taken of national fisheries management arrangements put in place by Ireland.

Terms of Reference

If possible, evaluate probable future trends in additional incidental impacts on populations of other marine organisms arising as a result of the management plan options.

Assess likely economic consequences of implementing the various options advised by ICES compared to continuing to fish under current arrangements. The experts carrying out the assessment are requested to liaise with the stock assessment scientists who prepared the biological scenarios on the compatibility of impact assessment systems.

Specific requests

- 1) Provide a description of the fleets which prosecute Celtic Sea Herring (in ICES subarea VIIa-N and in ICES subareas VIIa-S & VIIg,h₂,j,k their recent activity and, as far as possible, their economic outcomes. This will highlight the vessels which are likely to be affected by the management plan.
- 2) Based on the predicted landings arising from the options advised by ICES, estimate for the relevant fleet segments likely future trends in:
 - a) the entire landings of the vessels involved. It might be appropriate to make qualitative assessments and comments with regard to likely responses of vessel businesses to reductions in TACs of these herring stocks, specifically, the extent to which they are likely to exploit other fisheries or simply to reduce their overall activity,
 - b) the value of catches, with appropriate assumptions about prices that can realistically be made given lack of data to suggest specific relationships between volume of landings and sales price achieved,
 - c) fishing effort, in terms of vessel numbers, activity and kW deployed,
 - d) costs (both fixed and variable) of expected activity levels,
 - e) employment onboard vessels associated with this activity,
 - f) expected cash flow and gross value added (as defined in The 2009 Annual Economic Report on the European Fishing Fleet) of the vessels involved in these fisheries.

Appropriate assumptions should be made and described regarding the remainder of the fishing opportunities of the vessels involved being held stable for all the options assessed.

Expected trends should be contrasted with the probable consequences of continuing to fish the stock according to rates of fishing mortality as recently experienced, or according to:

- i. ICES advice corresponding to the MSY framework;

- ii. ICES advice according to the precautionary approach.

A 20-year time frame should be used for the evaluations. Detailed modelling outputs might only be appropriate for a shorter time frame, but comparative likely outcomes for the longer term, implying the effects of investment decisions, should be considered qualitatively at least.

STECF response

A report addressing these terms of reference is being prepared with a delivery date to DG MARE on 19 November 2010. STECF therefore intends to review the SEAFISH report and adopt its response to the above Terms of Reference by written procedure.

5.4. Requests for advice supported by ad hoc contracts - Request of a STECF opinion on the Greek National Programme 2011-2013 submitted under the DCF

Terms of Reference

The STECF is requested to evaluate the 2011 to 2013 National Programme submitted by the Greek authorities under the new Data Collection Framework (Council Regulation (EC) 199/2008) using the new Guidelines and Procedures developed in SGRN 09-03.

The evaluation will be based on the overarching criteria of conformity and scientific relevance. The STECF will also consider the performance of the new guidelines for submission of NPs and, where necessary, make appropriate recommendations for their improvement.

Collection of data on subsidies

STECF notes that Greece intends to collect data for the following variables to be collected as direct subsidies: compensation for fishing cessation, fuel duty refunds from purchasing transit fuel, compensation for the increase of international oil prices and subsidies for the modernization of the vessels from the 2007-2013 Fisheries Operational Plan. However, according to the DCF, investment subsidies are excluded from the direct subsidies. MS should follow the DCF and use definitions of Appendix VI of Decision 2010/93/EU.

STECF observes that there is no partitioning of compensation for fishing cessation into temporary and permanent cessation in the DCF at present. Data for the temporary cessation should be collected as direct subsidy, and other subsidies should be separated. For management purposes, there could be a need to collect both direct subsidies (e.g.

compensation for permanent cessation) and capital subsidies (e.g. modernization of vessels using public support). STECF **recommends** that Appendix VI of Decision 2010/93/EU be revised in order to clarify the definition of direct subsidies. This issue could form an item on the agenda of a future STECF-SGECA WG.

Evaluation of the Greek proposal for a National Data Collection Programme 2011-2013

Introduction

The Greek proposal for a national data collection programme (NP) was not submitted in time to be evaluated by the STECF-SGRN 10-01 WG. The proposal was therefore evaluated by an *ad-hoc* group of independent experts drawn from the participants from the STECF-SGRN 10-01 WG.

The NP Proposal was evaluated based on the conformity and the scientific relevance of the data to be covered and also the quality of the proposed methods and procedures (Article 6 of Reg. 199/2008). The conclusions and recommendations of the independent experts are laid down in this report, for subsequent endorsement by STECF and further consideration by the EC. It is stressed that regarding the submission of the NP proposals and TRs, Articles 2 and 5 of Commission Regulation 665/2008 clearly stipulate that MSs have the obligation to use the guidelines and templates established by STECF. The primary aim of the NP Proposals is to allow STECF to evaluate:

- What has been planned by MS to meet the requirements of the DCF;
- The methods that will be used to collect the data;
- The soundness of the derogations requested, and the reasons for any nonconformity in the NP Proposals with the provisions of the DCF.

The process adopted by the ad-hoc group of Experts to evaluate the Greek NP proposals was exactly the same as that prescribed by the STECF-SGRN 09-03 WG, in which a set of module-specific questions were developed. For completeness, the questions used are listed below following the results of the evaluation. The results of the evaluation of the Greek NP are presented in the same table format as for the NPs evaluated by the STECF-SGRN 10-01 WG.

The evaluation format is divided into two parts. Part 1 consists of a series of 9 questions which are based on Article 4 and 5 of Council Regulation 199/2008 and the Guidelines (SGRN 09-03). General scores were given for each question to signify how the NP performed in relation to these questions (YES = > 90%; Mostly 50-90%; Partly = 10-50%; NO= <10%). It should be emphasised here that the responses represent a general overview from the biologists and the economist. Part 1 also contains some general comments in relation to the NP. The objective of Part 1 is to give the Commission a general overview of the NP and to highlight any issues which need attention. Part 2

consists of specific comments on the NP module by module. It gives the major issues in the NP's that need to be addresses by the Member States.

A number of general comments and recommendations were made in STECF-SGRN 10-01 WG report. These general comments and recommendations are of relevance for a number of Member States including Greece. In particular the general comments on target and sampling frames, sampling of sharks and timing of data availability should be noted by all MSs.

Following the review of the Greek proposals for their National Programme 2011-1013, by the ad-hoc group of independent experts, STECF endorsed the findings and conclusions presented below.

MEMBER STATE : GREECE
PART 1 – GENERAL COMMENTS OF SGRN ON NP

QUESTION	Yes/Mostly/Partly/ No
<i>From Article 4 Council Regulation 199/2008</i>	
1 Was the NP drawn up in accordance with the Community Programme ?	Yes
2 Did the NP include a multiannual sampling programme ?	Yes
3 Did the NP include a scheme for at sea monitoring of commercial and recreational fisheries where necessary ?	Yes
4 Did the NP include a scheme of research surveys at sea?	Yes
5 Did the NP include a scheme for the management and use of the data for scientific analyses purposes?	Yes
<i>From Article 5 Council Regulation 199/2008</i>	
6 Did the MS co-ordinate their NP with other MS in the same marine region and did the MS make every effort to co-ordinate their actions with third countries having sovereignty or jurisdiction over Waters in the same marine regions.	Partly
7 Did MS take into account the recommendations made by RCM's	Partly
<i>From SGRN 09-03 Guidelines</i>	
8 Did MS follow the SGRN 09-03 Guidelines ?	Mostly
9 Did the NP allow SGRN to evaluate what is planned by the MS ?	Yes
10 Overall Comments by SGRN on NP	
(a) The Greek national proposal for the collection of fisheries is in general in accordance with EC 199/08 and Commission Decision 93/2010. The proposal is in general well written, comprehensive and in line with the guidelines.	

(b) In paragraph II.C Regional co-ordination, it is said that Greece will attend the RCM for the “Other regions” (new name RCM for the Long Distance Fisheries) implicating that Greece have fisheries in other regions. However the entire NP proposal only deals with fleets, fisheries and species within Mediterranean Sea. Greece should clarify this point.

(c) Greece should throughout the NP proposal refer to the Commission Decision 2010/93 and not 2008/949. MS should further refer to DCF (data collection framework) and not DCR.

(d) Greece should, under the paragraphs “Data presentation” in the NP proposal clearly report when the data will be available for end-users. This information is missing in some sections.

e) In general, Greece need to better describe target and sampling frames, planned methods for how final estimates should be achieved and how the data quality is evaluated.

f) Greece list only a few recommendations (STECF and RCM) and MS responses throughout the NP proposal. These lists need to be expanded.

g) Greece is asked to clarify why there is no recreational fishery for bluefin tuna.

h) Greece will establish computerized database system to integrate the collected biological, catch, effort, landing and socioeconomic primary data. It needs to be clarified when this establishment is supposed to be finalized and to what extent the text is describing data management when this establishment is finalized or the situation of today.

PART 2 – SPECIFIC COMMENTS BY SGRN ON NP

SECTION - MODULE	MAJOR SGRN COMMENT
I General Framework	MS have followed the guidelines

II Organisation of NP	<p>MS have in general followed the guidelines. However the following meetings should be deleted from table II.B.1 since these meetings were held prior to the programme period 2011-2013:</p> <ul style="list-style-type: none"> • Workshop on Methods to evaluate and estimate the precision of fisheries data used for assessment (WKPRECISE) • Workshop on Sampling Methods for Recreational Fisheries (WKSMRF) • Workshop on Age estimation of European hake (WKAEH) • Workshop on Age reading of European anchovy (WKARA) • Workshop on Age calibration of Red and Stripped mullets (WKACM) • Workshop on Sexual Maturity Staging of sole, plaice, dab and flounder (WKMSSPDF) • Workshop on Maturity Staging of Crustaceans (WKMSC)
III Module on the Evaluation of the Fishing Sector	
III.A General Description of the Fishing Sector	
III.B Economic Variables	
III.B.1 Data Acquisition	<p>In subsection (a) <u>Definition of variables</u>, MS refers to <u>Appendix VI</u> of Commission Decision 2010/93/EC, however in Appendix VI, there is a requirement to explain the methodology for certain economic variables, e.g. FTE national, imputed value of unpaid labour. Fuel efficiency of fish capture has also be defined and explained. MS should include definitions of those indicators to this subsection.</p> <p>STECF observes that Greece is going to collect data for certain variables with regard to direct subsidies: compensation for fishing cessation, fuel duty refunds from purchasing transit fuel,</p>

	<p>compensation for the increase of international oil prices and subsidies for the modernization of the vessels from the 2007-2013 Fisheries Operational Plan. However, according to the DCF, investment subsidies have to be excluded from the direct subsidies. MS should follow the DCF and use definitions of Appendix VI of Decision 2010/93/EU.</p> <p>MS is requested to name segments in table III_B_1 according to Appendix III of Decision 2010/93/EU.</p> <p>The data collection for economic variables in Tables III.B.1 and III.B.3 is planned only for one year, stating that the reference year is 2008. MS is reminded that this is a multiannual NP and the data collection should be planned for 3 years, stating the year for which the actual data will be collected in the column “reference year”.</p> <p>MS should clarify how the sample size has been determined. It is not clear if sample size is defined according to precision levels or in relation to the size of the segment.</p>
III.B.2 Estimation	<p>MS is asked to provide further information on planned methodologies to derive final estimates from data collected and to describe the type of estimators to be used according to the type of sampling strategy.</p>
III.B.3 Data Quality Evaluation	<p>MS is asked to clarify the methods used to assess the variability of the estimates.</p> <p>Regarding the estimation of capital value, MS should consider that according to the common PIM methodology, only fixed tangible assets have to be valued. The market value of the license should be excluded or reported separately.</p> <p>Regarding the estimation of capital costs, MS has to clarify the method of depreciation which will be used (linear or digressive).</p>
III.B.4 Data Presentation	No Comments

III.B.5 Regional Co-ordination	No Comments
III.B.6 Derogations and Non Conformities	No Comments
III.C Biological – Metiér Related Variables	
III.C.1 Data Acquisition	<p>The ranking of métiers to sample (table III.C.1) have been done using only one reference year (2008).</p> <p>MS is requested to strictly follow the agreed (PGMed 2009, RCMMed&BS 2009 and RCMMed&BS 2010) naming convention at Regional Level:</p> <p>SB_DEF_0_0_0 should be replaced by SB_SV_DES_0_0_0</p> <p>FPO_MCF_0_0 should be replaced by FPO_DES_0_0_0 GTR_MCD_>=22_0_0 should be replaced by GTR_DES_>=16_0_0</p> <p>LHP_FIF_0_0_0 should be replaced by LHP_LHM_FIF_0_0_0</p> <p>LLD_LPF_<4_0_0 should be replaced by LLD_LPF_0_0_0</p> <p>LLS_DEF_6-12_0_0 should be replaced by LLS_DEF_0_0_0</p> <p>MS need to revise the metiér names in table III.C.1 and table III.C.3.</p> <p>Table III.C.2. MS should add for drifting longlines the segmentation agreed at regional level (RCMMED&BS 2009) for sampling the large pelagic species (BFT, ALB, SWO). This segmentation is the one adopted by ICCAT and data should be reported as follow: LLD_LPF_0_0_0 (BFT) LLD_LPF_0_0_0 (ALB) LLD_LPF_0_0_0 (SWO)</p> <p>MS need to revise table III.C.2 and III.C.3 taking this into account. Text need to be updated. MS should within their NP proposal include a</p>

	<p>brief description of the selected métiers.</p> <p>Expected number of trips to be sampled concurrently at markets for OTB_DEF_>40_0_0 is missing in table III.C.3 and III.C.4. MS need to update.</p> <p>All species in appendix VII should be included in table III.C.5 For métier based sampling all encountered G1 and G2 species need to be measured for length. Further, the correct CV target is 12,5% and not 25% MS need to update table III.C.5</p> <p>In Table III.C.5 Column Planned minimum no. of fish to be measured/aged at national level MS did not follow the recommendations of the PGMED 2010 report for all the species. For example for <i>Sarda sarda</i> no sampling is planned however MS has to sample 29 individuals for age and 86 for length according to the PGMED 2010 report. Furthermore MS plan to sample certain species more than the agreed number at regional level. For example for <i>Xiphias gladius</i> PGMED 2010 reports that Greece should sample 188 specimens for length and 124 specimens for age. In the Table III.C.5 MS list that it will sample 850, 150 and 400 specimens from GSAs 22, 20, 23 respectively for a total of 1400 specimens. The total number of samples agreed at regional level for all MS is 1515 specimens. MS need to clarify the situation and to update the table according to the recommendations of the PGMED 2010 as endorsed by the RCM 2010.</p> <p>MS should clarify if small scale fisheries (< 10m) are included in the sampling, in particular within the sea sampling.</p> <p>MS need to describe the frame population in more detail</p> <p>MS inform that the results of the sampling in 2011 will be used to modify sampling intensities in 2012-2013 if necessary. The approach is good but MS is reminded that such revisions need to be included in a revised NP.</p>
III.C.2 Estimation Procedure	No comments
	MS need to elaborate on sources of bias and

III.C.3 Data Quality evaluation III.C.4 Data Presentation	update the text Data will, in accordance with the NP proposal, be available for end-users 6 months after finalization of the sampling year.
III.C.5 Regional Co-ordination	Only one RCM recommendation listed together with response at the MS level. It is however not possible to evaluate if MS have responded to other recommendations. MS to expand the list of recommendations.
III.C.6 Derogation and Non Conformities	MS want to carry out pilot study on eel fisheries since existing information is too scarce to implement routine data collection. The approach is considered fully acceptable.
III.D Biological – Recreational Fisheries	
III.D.1 Data Acquisition	MS states that no sampling is planned since there are no recreational fisheries for eel and bluefin tuna. If there is a recreational fishery for eel, this will be covered by the pilot study. STECF is aware that there is (limited) recreational fishery for bluefin tuna in Greece. MS should perform sampling to determine the extent of this fishery, especially on the juvenile bluefin tuna, which is a common recreational fishery using trolling lines in most Mediterranean MS. If MS has already conducted such a study, MS is invited to supply the reference.
III.D.2 Estimation Procedures	Not Applicable
III.D.3 Data Quality Evaluation	Not Applicable
III.D.4 Data Presentation	Not Applicable
III.D.5 Regional Co-ordination	Not Applicable
III.D.6 Derogations and Non	Not Applicable

Conformities	
III.E Biological – Stock Related Variables	
III.E.1 Data Aquisition	<p>MS should include all appendix VII species in table III.E.1</p> <p>Concerning sharks, as stated in the text, MS is not obliged to collect stock related variables, since the landings of almost all sharks species are less than 200 tons. However, MS is reminded that all MS is obliged to always collect data related to length sampling. Moreover, MS is invited to collect data related to weight, sex and maturity at least during scientific survey (i.e. MEDITS and the MEDIAS surveys).</p> <p>Table III.E.2 sampling of stock related variables for large pelagics should be conducted in 2013 as agreed in the PGMED 2010. MS to update table accordingly.</p> <p>MS should adjust Table III.E.2 with the correct sampling scheme (i.e. age for <i>Boops boops</i>, <i>Mullus Surmuletus</i> should be sampled on a yearly basis and not on a triennial) in accordance with the 93/2010 Decision (annex VII Med and Black Sea).</p> <p>MS will sample age of <i>Xiphias gladius</i> and <i>Thunnus thynnus</i> on a yearly basis. Age sampling of these species are only required on a triannual basis.</p> <p>Table III.E.3 should report the correct CV% values. For stocks of species that can be aged, precision level shall be estimated at a precision level 3 (CV 2.5%). For maturity, fecundity and sex ratios, a choice may be made between reference to age or length, precision of level 3 must be achieved (2.5%). For stocks for which age reading is not possible, but for which a growth curve can be estimated, average weights and lengths for each pseudo age (e.g.</p>

	<p>derived from the growth curves) shall be estimated with a precision of level 2 (CV 12.5%). MS should adjust the table with the correct values. Table III.E.3. In the text under the section “III.E.3 Data quality evaluation” MS reported that the samples proposed for large pelagic species are based on the 2010 RCM Med&BS. However, in the table III.E.3, for large pelagics species, the numbers of planned specimens to be collected at National level not reflect the agreement reached at Regional level. MS should adjust the table with the correct numbers.</p> <p>MS should describe target and frame populations better.</p>
III.E.2 Estimation Procedures	Methods should be described more thoroughly (or references should be given) in future programs.
III.E.3 Data Quality Evaluation	Methods should be described more thoroughly (or references should be given) in future programs.
III.E.4 Regional Co-ordination	<p>The numbers of planned specimens to be collected at National level not reflect the agreement reached at Regional level (see section III.E.1).</p> <p>Only one RCM recommendation listed together with response at the MS level. It is however not possible to evaluate if MS have responded to other recommendations. MS to expand the list of recommendations.</p>
III.E.5 Derogations and Non Conformities	MS want to carry out pilot study on eels since existing information is too scarce to implement routine data collection. The approach is considered fully acceptable.
III.F Transversal Variables	
III.F.1 Capacity	For vessels licensed for more than one gear, Greece will allocate vessels in different fleet segments “proportionally to the relative effort of the gears” estimated through a sample survey. This is not in compliance with DCF which requires that the dominance criteria shall be

	<p>used to allocate each vessel to a segment based on the number of fishing days used with each gear.</p> <p>According to the DCF, vessels less than 12 metres using passive gears may be aggregated by gear type. The rest of the fleet (1353 vessels, according to table III_B_1) should be allocated in the appropriate fleet segment on the basis of the actual gears mainly used during a year. In order to allow this allocation, Greece should implement a field survey to monitor these vessels (vessels using active gears and vessels > 12 m).</p>
III.F.2 Effort	<p>MS is asked to provide further information on planned methodologies to derive final estimates from data collected and to describe the type of estimators to be used according to the type of sampling strategy.</p> <p>MS is asked to clarify the methods used to assess the variability of the estimates</p>
III.F.3 Landings	<p>MS is asked to provide further information on planned methodologies to derive final estimates from data collected and to describe the type of estimators to be used according to the type of sampling strategy.</p> <p>MS is asked to clarify the methods used to assess the variability of the estimates</p>
III.G Research Surveys at Sea	
III.G.1 Planned Surveys	No comments
III.G.2 Modification in the Surveys	No comments
III.G.3 Data Presentation	Data will, in accordance with the NP proposal, be available for end-users 6 months after finalization of the sampling year.
	Concerning the Medits international database

III.G.4 Regional Co-ordination	there is incongruence between the text and the table III.G.1: the text reported the presence of an international database, in the table this not appears. MS should clarify.
III.G.5 Derogation and Non Conformities	No comments
IV Module of the Evaluation of the Economic situation of Aquaculture and Processing Industry	
IV.A Collection of data Concerning Aquaculture	
IV.A.1 General Description of the Aquaculture Sector	An additional segment has been added, that of ‘Extensive farming -estuaries & lagoons’, due to the important socio-economic aspects that are associated to it. MS is asked to give a description of this additional segment in terms of species and farming techniques.
IV.A.2 Data Aquisition	<p>Greece is asked to provide more information on “segments falling under the main categories presented above, for which no separate and distinct data exists, but will be treated and presented separately at the final report (market as (YES) on table IV.A.1.)”. In particular, MS should clarify which sampling strategy will be implemented for these segments. According to DCF these segments cannot be excluded from the data collection.</p> <p>The data collection for aquaculture in Tables IV.A.2 and IV.A.3 is planned only for one year, stating that the reference year is 2008. MS is reminded that this is a multiannual NP and the data collection should be planned for 3 years, stating the year for which the actual data will be collected in the column “reference year”.</p>
IV.A.3 Estimation	Details of the methodology for estimation of capital cost and unpaid labour have to be provided in the NP proposal and not in the

	Annual Report.
IV.A.5 Presentation	Information on when data will be available is missing
IV.A.6 Regional Co-ordination	No comments
IV.A.7 derogation and Non Conformities	No comments
IV.B collection of data Concerning the Processing Industry	
IV.B.1 Data Acquisition	MS has to clarify the type of data collection that will be applied (in Table IV.B.1 and IV_B_2 the type of data collection is probability sample survey, while in the text it is said that data will be collected through a census).
IV.B.2 Estimation	No information is given on estimation procedures. In the text there is a reference to an Annex VIII that however is not included in the NP proposal. MS need to update text
IV.B.3 Data Quality Evaluation	No information is given on data quality evaluation. In the text there is a reference to an Annex VIII that however is not included in the NP proposal. MS need to update text
IV.B.4 Data Presentation	No comments
IV.B.5 Regional Co-ordination	No comments
IV.B.6 Derogation and Non Conformities	No comments
V Module for the Evaluation of the effects of the fishing	In table III.G.1 it seems like MS will not use data from the Medias survey for estimation of ecosystem indicators. MS should explain why or

sector on marine ecosystems	update the table.
VI Module for the Management and Use of Data	MS will establish computerized database system to integrate the collected biological, catch, effort, landing and socioeconomic primary data. It needs to be clarified when this establishment is supposed to be finalized and to what extent the text is describing data management when this establishment is finalized or the situation of today.
VII Follow up of STECF Recommendations	There is a short list of SGRN-STEFCF recommendations and actions taken. It is however not possible to evaluate if MS have responded to other recommendations. MS to expand the list in future programs
VIII List of Derogations	No comments
IX List of Acronyms and Abbreviations	No Comments
X Comments, Suggestions and Reflections	No comments
XI References	No comments
XII Annexes	Existing annexes concise. The text refers to an annex VIII which is not present in the NP proposal.

Annex 2

Questions used in the Evaluation (Based on the STECF-SGRN 09-03 WG)

- I **General framework**
 - Is the general framework clearly outlined?

- II **Organisation of the National Programme**
 - A National organisation and coordination**
 - Are the partners, involved in the data collection domain of expertise, well described?
 - B International coordination**
 - Is table II.B.1 completed?
 - Is international coordination well identified?
 - C Regional coordination**
 - Is participation in relevant RCM well identified?

- III **Module of the evaluation of the fishing sector**
 - A General description of the fishing sector**
 - Is table III.A.1 completed?
 - Does the fishing sector of the MS completely listed?
 - B Economic variables**
 - Table 3.B.1 filled in properly?
 - Table 3.B.2 filled in properly?
 - Table 3.B.3 filled in properly?
 - SUPRA REGION XX**
 - 1 Data acquisition**
 - (a) Definition of variables
 - Capital value
 - Value of quota and fishing right
 - FTE
 - Fuel efficiency of fish capture
 - Others?
 - (b) Type of data collection
 - Types in line with guidelines?
 - (c) Target and frame population
 - Is population in the Table 3.B.1 the same as in the Fleet register at the 1 of January?
 - Allocation of vessels to the segments?
 - Allocation of vessels to the supraregion?
 - Clustering?
 - (d) Data sources
 - List and description of data sources used?

Is there information how the consistency of data coming from different data sources will be ensured?

Questionnaire provided?

(e) Sampling stratification and allocation scheme

Type of sampling strategy?

Description of selection of sampling units?

Further stratification within fleet segment ?

If further stratification is used is there information about how the stratification been made?

Determination of sample size for each fleet

segment

Is there information about targets used to determine the sample size? Why they been chosen?

Sample evolution over time, rotational

groups

Description of rotation if it is used

Description of changes in sample size over

the time

2 Estimation

Does methodology to derive final estimates from data collected presented for each variable?

Does the method how MS is going to estimate variables in the case of census and non-response described?

3 Data quality evaluation

Does methods to assess the variability of the estimates and bias explained well?

Does the method used for assessing the quality of the data acceptable?

Formulas presented?

4 Data presentation

When the data will be available?

Reference year?

Confidentiality problems?

5 Regional and international coordination

Is there a list of RCM recommendations with brief description and responsive actions in NP?

List complete?

6 Derogations and non conformities

Are derogations explained and justified?

C Biological metiér related variables

REGION XX

Table 3.C.1 filled in comprehensively?

Table 3.C.2 filled in comprehensively?

Table 3.C.3 filled in comprehensively?

Table 3.C.4 filled in comprehensively?

Table 3.C.5 filled in comprehensively?

1 Data acquisition

(a) Codification and naming convention

Following RCM recommendations fishing ground – mesh size range - metiér code - assignement procedure?

(b) Selection of metiér to sample

Is the selection of the metiér well described?

(c) Type of data collection

Is the type of data collection well/comprehensive described?

(d) Target and frame population

Is the entire population covered (incl. small scale fisheries)?

(e) Sampling stratification and allocation scheme

Are merging of metiér done according to the RCM recommendations?

Is sampling protocol well described?

Is sampling plan specified with a precision objective? And if not is a minimum objective specified?

Is national stratification in line with the DCF?

2 Estimation procedures

Are the methods described comprehensively?

3 Data quality evaluation

Are the methods described comprehensively?
Are potential sources of bias well identified?

4 Data presentation

Does the NP gives an acceptable time-lag when data are available to end-users?

5 Regional and international coordination

Has the MS taken steps to coordinate the sampling programme with countries of the same marine region?
Is there a list of RCM recommendations with brief description and responsive actions in NP?

6 Derogations and non conformities

Are the derogations demanded and non-conformities listed, and do SGRN consider them fully justified?

D Biological recreational fisheries

1 Data acquisition

Are all species required by DCF (in App. IV) well covered?

(a) Type of data collection

Is the type of data collection well/comprehensively described?

(b) Target and frame population

Are target and frame population well described?

Are target and frame population matching?

(c) Data sources

Is there a comprehensive description of the data sources?

(d) Sampling stratification and allocation scheme

Is sampling protocol well described?

Is the chronology of work outlined (including pilot studies) in line with the DCF?

2 Estimation procedures

Are the methods described comprehensively?

3 Data quality evaluation

Are the methods described comprehensively?

Are potential sources of bias well identified?

4 Data presentation

Does the NP give an acceptable time-lag when data are available to end-users?

5 Regional and international coordination

Has the MS taken steps to coordinate the sampling programme with countries of the same marine region?

Is there a list of RCM recommendations with brief description and responsive actions in NP?

6 Derogations and non conformities

Are the derogations demanded and non-conformities listed, and do SGRN consider them fully justified?

E Biological stock-related variable

Table 3.E.1 filled in comprehensively?

Table 3.E.2 filled in comprehensively?

Table 3.E.3 filled in comprehensively?

1 Data acquisition

(a) Selection of stocks to sample

Is the distinction between stocks sampled and not sampled clear?

(b) Type of data collection

Is the type of data collection well/comprehensively described?

(c) Target and frame population

Are target and frame population well described?

Are target and frame population matching?

(d) Sampling stratification and allocation scheme

Is sampling protocol well described?
Is sampling plan specified with a precision objective? And if not is a minimum objective specified?

2 Estimation procedures

Are the methods described comprehensively?

3 Data quality evaluation

Are the methods described comprehensively?

Are potential sources of bias well identified?

4 Data presentation

Does the NP gives an acceptable time-lag when data are available to end-users?

5 Regional and international coordination

Has the MS taken steps to coordinate the sampling programme with countries of the same marine region?

Is there a list of RCM recommendations with brief description and responsive actions in NP?

6 Derogations and non conformities

Are the derogations demanded and non-conformities listed, and do SGRN consider them fully justified?

F Transversal variables

1 Capacity

1 Data acquisition?

2 Data quality evaluation?

2 Effort

1 Data acquisition

Is all the population covered (incl. < 10m.)?

Is sampling protocol well described?

Is sampling plan leading to some sort of bias? (e.g. non proportionality, ...)

Are the protocols and methods used well described ?

Are sources of information in line with the quality requirements?
Is national stratification in line with the

DCR?

2 Data quality evaluation
Is the method used for assessing the quality of the data acceptable?

3 Data presentation

4 Regional and international coordination
Are there initiatives taken to coordinate the sampling programme with countries of the same marine region?

5 Derogations and non conformities
List the derogations demanded and comment on their justification?

3 Landings

1 Data acquisition
Is all the population covered (incl. < 10m.)?
Is sampling protocol well described?
Is sampling plan leading to some sort of bias? (e.g. non proportionality, ...)
Are the protocols and methods used well described ?
Are sources of information in line with the quality requirements?
Is national stratification in line with the DCF?

2 Data quality evaluation
Is the method used for assessing the quality of the data acceptable?

3 Data presentation

4 Regional and international coordination
Are there initiatives taken to coordinate the sampling programme with countries of the same marine region?

5 Derogations and non conformities

Are the derogations demanded and non-conformities listed and explained?

G Research surveys at sea

1 Planned surveys

Is Table III.G.1 completed?

Correspondence of the surveys with the DCF, both in terms of technicalities and naming convention

Is there a brief overview of the surveys?

Is there a map of the surveys?

2 Modifications in the surveys

Comment on the modifications demanded?

3 Data presentation

Will data be made available to end-users in due-time?

4 Regional and international coordination

Are the surveys internationally coordinated?

Do the MS follow the agreed international protocols?

Are all data accessible in international database?

5 Derogations and non conformities

Are the derogations demanded and non-conformities listed, and do SGRN consider them fully justified?

IV Module of the evaluation of the economic situation of the aquaculture and the processing industry

A Collection of economic data for the aquaculture

Does Table IV.A.1 filled in properly?

Does Table IV.A.2 filled in properly?

Does Table IV.A.3 filled in properly?

General description of the sector

Does sector of the MS completely listed?

1 Data acquisition

(a) Definition of variables

Are the variables collected well documented?

(b) Type of data collection
Types in line with guidelines?

(c) Target and frame population
Is all the population covered?

(d) Data sources
Are the sources of information consistent with the coverage of the population/ not introducing bias?

(e) Sampling frame and allocation scheme
Is sampling protocol well described, including the allocation of enterprises within segments, and the concordance of the segments with the Regulation?

2 Estimation
Are methods to raise the final estimates well documented?

3 Data quality evaluation
Is the method used for assessing the quality of the data acceptable?
Does methods to assess the variability of the estimates and bias explained well?
Formulas presented?

4 Data presentation
When the data will be available?
Reference year?
Confidentiality problems?

5 Regional and international coordination
Is there a list of RCM recommendations with brief description and responsive actions in NP?
List complete?

6 Derogations and non conformities
Are derogations explained and justified?

B Collection of data concerning the processing industry
Does Table IV.B.1 filled in properly?

Does Table IV.B.2 filled in properly?

1 Data acquisition

(a) Definition of variables

(b) Type of data collection

Types in line with guidelines?

(c) Target and frame population

(d) Data sources

List and description of data sources used?
Is there information how the consistency of data coming from different data sources will be ensured?

Questionnaire provided?

(e) Sampling frame and allocation scheme

2 Estimation

Does methodology to derive final estimates from data collected presented for each variable?

Does the method how MS is going to estimate variables in the case of census and non-response described?

3 Data quality evaluation

Does methods to assess the variability of the estimates and bias explained well?

Does the method used for assessing the quality of the data acceptable?

Formulas presented?

4 Data presentation

When the data will be available?

Reference year?

Confidentiality problems?

5 Regional and international coordination

Is there a list of RCM recommendations with brief description and responsive actions in NP?

List complete?

6 Derogations and non conformities

Are derogations explained and justified?

V Module of the evaluation of effects of the fishing sector on the marine ecosystem

Table V.1 filled in comprehensively?
Does the MS made the necessary adjustments to account for the ecosystem approach in term of

- o Survey protocol
- o Availability of VMS information to relevant end-users
- o Calculation of discards rates per metièrs
- o Fuel consumption estimates

VI Module for management and use of the data

A Management

Is there a description of the storage database system?
Is it clear how the quality control and validation process of the primary and aggregated data are made?

B Use of the data

Is MS planning to participate at known relevant meetings?

VII Follow-up STECF recommendations

Is there a list of STECF recommendations with brief description and responsive actions in NP?

VIII List of derogations

Is there a history of derogations, together with the reference with the NP year it was given?
Is there a complete list of derogations sought in the current NP proposal?

IX List of acronyms and abb reviations

Present?

XI comments, suggestions and reflections

Is there any issue raised that needs to be addressed by SGRN?

XI References

Present?

XII Annexes

Are annexes concise and essential in understanding the NP proposal?

5.5. General issues - Assessment of incidental catches of cetaceans

Background

The Commission, after receiving Member States second annual report, has the obligation to report to the European Parliament and to the Council on the operation of Council Regulation (EC) No 812/2004 on incidental catches of cetaceans in fisheries. This report shall be updated following the submission of the fourth annual report by Member States and will be based on the assessment done by ICES and STECF of the MSs reports.

As part of the Memorandum of Understanding between the European Commission and ICES, the Commission has a standing request to ICES to review the situation of incidental catches of cetaceans and the status of small cetaceans in European waters.

The Commission, aiming to gather elements that can be used as the basis to develop any further initiative as appropriate, requested ICES to present an assessment based on the 2007 and 2008 Member States' reports and on recent scientific information and also asked ICES to consider the following elements:

1. Assessment of the national reports from 2007 and 2008, and specific scientific reports provided by Member States in the context of Reg. 812/2004;
2. Based on the best available knowledge on the cetacean species concerned by Regulation 812/2004 provide an assessment of the population status and map their yearly distribution and density in European waters since 2004;
3. Identify areas outside the scope of Reg. 812/2004 where measures would be necessary to be applied to reduce the incidental catches of cetaceans.

4. Provide an evaluation of mitigation measures currently in place and an assessment on the most recent developments of mitigation measures used to reduce the incidental catches of cetaceans, including information on cost.
5. Following the assessment made in point 4) identify the most efficient mitigation measure for each species concerned by Reg.812/2004 and according to the fishing gear in use.

Term of Reference

STECF is requested to review the reports delivered by ICES on the situation of incidental catches of cetaceans and the status of small cetaceans in European waters and, if necessary, provide any further updates to the points covered.

Background

The Commission, after receiving Member States second annual report, has the obligation to report to the European Parliament and to the Council on the operation of Council Regulation (EC) No 812/2004 on incidental catches of cetaceans in fisheries. This report shall be updated following the submission of the fourth annual report by Member States and will be based on the assessment done by ICES and STECF of the MS reports.

As part of the Memorandum of Understanding between the European Commission and ICES, the Commission has a standing request to ICES to review the situation of incidental catches of cetaceans and the status of small cetaceans in European waters.

The Commission, aiming to gather elements that can be used as the basis to develop any further initiative as appropriate, requested ICES to present an assessment based on the 2007 and 2008 Member States' reports and on recent scientific information and also asked ICES to consider the following elements:

6. Assessment of the national reports from 2007 and 2008, and specific scientific reports provided by Member States in the context of Reg. 812/2004;
7. Based on the best available knowledge on the cetacean species concerned by Regulation 812/2004 provide an assessment of the population status and map their yearly distribution and density in European waters since 2004;
8. Identify areas outside the scope of Reg. 812/2004 where measures would be necessary to be applied to reduce the incidental catches of cetaceans.
9. Provide an evaluation of mitigation measures currently in place and an assessment on the most recent developments of mitigation measures used to reduce the incidental catches of cetaceans, including information on cost.

10. Following the assessment made in point 4) identify the most efficient mitigation measure for each species concerned by Reg.812/2004 and according to the fishing gear in use.

STECF reviewed the following ICES advice:

ICES Advice section 1.5.1.3. May 2010 EC request on cetacean bycatch Regulation 812/2004, Item 1 ‘Assessment of the national reports from 2007 and 2008, and specific scientific reports provided by Member States in the context of Reg. 812/2004’

ICES Advice section 1.5.1.4. May 2010 EC request on cetacean bycatch Regulation 812/2004, Item 2 ‘Based on the best available knowledge on the cetacean species concerned by Regulation 812/2004 provide an assessment of the population status and map their yearly distribution and density in European waters since 2004’

ICES Advice section 1.5.1.5. Oct 2010 EC request on cetacean bycatch Regulation 812/2004, Item 3 ‘Identify areas outside the scope of Reg. 812/2004 where measures would be necessary to be applied to reduce the incidental catches of cetaceans’

ICES Advice section 1.5.1.6. Oct 2010 EC request on cetacean bycatch Regulation 812/2004, Item 4 ‘Provide an evaluation of mitigation measures currently in place and an assessment on the most recent developments of mitigation measures used to reduce the incidental catches of cetaceans, including information on cost’

ICES Advice section 1.5.1.7. Oct 2010 EC request on cetacean bycatch Regulation 812/2004, Item 5 ‘Following the assessment made in point b) identify the most efficient mitigation measure for each species concerned by Reg.812/2004 and according to the fishing gear in use.’

In reaching their conclusions STECF also considered:

ICES Advice section 1.5.1.2. May 2010 on new information regarding small cetaceans, marine mammals, seabirds, and sensitive habitats and impact of fisheries.

ICES Advice section 1.5.1.4 2008 Format for National Reports made under EU Regulation 812/2004

Scientific, Technical and Economic Committee for Fisheries STECF - Subgroup on fishery and the environment (SGFEN) SEC (2002) 376

Scientific, Technical and Economic Committee for Fisheries STECF - 28th plenary meeting report of the (PLEN-08-02) SEC (2008) Section 10.6

and analyses that underpinned the ICES advice as described in:

Reports of the Study Group for Bycatch of Protected Species (SGBYC) for 2008, 2009 and 2010

Report of the Working Group on Marine Mammal Ecology (WGMME) for 2009 and 2010

Item 1 (ICES Advice section 1.5.1.3.)

STECF observations and comments

STECF notes that the monitoring activities and report submissions required by 2004/812 have led to improved quantification and understanding of the distribution and rate of cetacean bycatch and that MS reporting is increasingly timely. However, the ICES advice notes that data are not reported in a consistent way by MS, as also noted in the STECF (2008) review of the 2006 and 2007 reports, and that this inconsistency limits the subsequent use of data that are collected.

In response to a request from the EC, ICES (2008) developed a standard reporting template for the MS to adopt. Although the template was distributed and ICES ultimately received a full set of national reports for 2008, most MS continued to use their own preferred format.

STECF (2008) previously recommended some small modifications to the ICES report template, but based on the current STECF review of the data compiled by ICES (2010), further modifications to the template are recommended. This is because the resolution of fleets and regions is insufficient to provide an analysis of bycatch rates and mitigation measures that is consistently linked to the scale of management.

Further, data are reported by MS for variable ranges of months, an approach that is guided by the present table format. This does not allow consistent analysis of seasonal patterns in discarding and a standard and specified time resolution would improve the value of the data for assessing fishery-cetacean interactions.

812/2004 does not include a requirement for Black Sea MS to report and it ignores the activities of smaller vessels that are known to be responsible for significant cetacean bycatch in some areas. 812/2004 could readily be extended to improve monitoring of pinniped bycatch.

Conclusions

STECF continues to support the view that a common template for reporting the data collected to support 812/2004 would enable more effective compilation and more rigorous analysis of the data. STECF also considers that uptake is not the only issue reducing the potential value of the data required by 2004/182 and that the template also requires modification. This is because the compilation of the data indicates that 'fleet' has been interpreted in different ways by different nations and that the resolution of fleets and

areas in the compiled data can be too coarse to consistently identify fleet segments responsible for the greatest impacts.

Recommendations

STECF **recommend** that the EC request the use of a standard reporting template by MS. Thus the existing request under ‘Description of the fleets’ (ICES 2008) with the appended note: *‘Table 1 should be completed in order to describe relevant fleets, including the number of fishing vessels, the gear types, and target species. Gear type should at least differentiate between the following types: bottom-set gillnet, tanglenet, driftnet, single pelagic trawl, pair pelagic trawl, high-opening trawl, or other relevant gear type (specified). If possible, the type of tanglenet (e.g. trammelnet) should be indicated. For static gear also the mesh size should be included.’* should be modified to request that fleet segmentation follows the DCF classification, requesting Level 4, 5 and 6 data as well as vessel LOA and that fleet segments are allocated to areas based on GSA regions (GCFM), ICES subareas and ICES divisions. The template structure should be modified to accommodate this information.

STECF **recommend** that the EC request consistent methods of bycatch reporting by MS, with a monthly resolution, rather than using a variable range of months.

STECF **recommend** that 812/2004 should also apply to the Black Sea states

STECF **recommend** that the requirements of 812/2004 should be extended to apply to vessels <15m.

STECF **recommend** that the requirements of 812/2004 should be extended to apply to pinniped bycatches.

Item 2 (ICES Advice section 1.5.1.4.)

STECF observations and comments

STECF recognises the significant progress in estimating the abundance of cetacean (and pinniped) populations. STECF recognises the need for dedicated surveys to estimate abundance and STECF recognises the need for research on population discrimination where population structures are not known. The cetacean populations in the Mediterranean and the ‘Macronesian’ Seas (ICES subarea X and EU waters south of the Azores) are the least well quantified.

Conclusions

While improved estimates of abundance are available, the significance of discarding rates cannot be consistently and reliably assessed in all fisheries without more information

from dedicated surveys and assessments of population structure. Priorities for research are the cetacean populations in the Mediterranean and the ‘Macronesian’ Seas.

Recommendations

STECF **recommend** that studies of abundance and population structure in the Mediterranean and the ‘Macronesian’ Seas should be given a high priority to improve advice on the relationships between bycatch rates and population size.

Item 3 (ICES Advice section 1.5.1.5.)

STECF observations and comments

STECF did not have time to complete a full review of the sources underlying entries into the tables of bycatches compiled by ICES, but did identify some issues relating to the data presented for some fisheries. The mix of fleet segments used for reporting also complicates interpretation of the report.

For the Mediterranean Sea, the pelagic trawls and Italian long surface-set nets are pooled together. It is not possible to assess whether the seemingly important statement ‘Italy: Few recent observations, large in past, no reason to expect change’ refers to trawls or driftnets. If it refers to driftnets, it should be noted that the driftnet fleet, the most numerous in the Mediterranean in the ‘90s (about 770 vessels) has been reduced to a few illegal vessels after the enforcement of the EC driftnet ban from January 1st, 2002. Further, for bottlenose dolphin in the Mediterranean, pelagic trawl and purse seines are pooled. In general, data on cetacean by-catch are difficult to understand if they are not directly related to the sampled GSA (GCFM regions) and a single and specified fleet segment. Data on static nets in the ‘Mediterranean’ reported in table 1.5.1.5.2, are based on a single study in Sardinia, without any literature reference.

STECF notes that available resources are not, at present, systematically directed towards monitoring cetacean bycatch in those fisheries where bycatch rates are expected to pose the greatest risk to population status. STECF discussed the costs and benefits of broad and targeted approaches.

Conclusions

Better targeting of resources based on the data thus far collected under 812/2004 and from research projects would be achieved if existing information were used to conduct a systematic risk assessment for cetacean bycatch at the resolution of the fleet segment and relevant management area (the highest possible resolution).

The risk analysis could systematically exclude fisheries with no bycatch issue, but it needs to be clear which fisheries have and have not been considered. ICES pick this up to an extent in 1.5.1.3. vii. ‘Even when bycatch monitoring has yielded no cetacean bycatch, this information can be useful in delimiting areas of potential concern. Adherence to the

monitoring scheme mandated under Regulation 812/2004 in fisheries where bycatch rates are now known to be low is not considered to be the most effective targeting of resources, especially when bycatch is known to be occurring more frequently in fisheries or areas where there is no mandated monitoring under Regulation 812/2004.’

Article 4 of 812/2004 states that “*Member States shall take the necessary steps to collect scientific data on incidental catches of cetaceans for vessels with an overall length less than 15 m ... by means of appropriate scientific studies or pilot projects*”. STECF support the ICES recommendation that the monitoring of vessels under 15 m is poorly specified in 812/2004, but there is little expectation that extensive monitoring will be conducted without changes to the regulation.

The ICES advice recommends needs for mitigation based on an assessment of bycatch rates in relation to Ascobans criteria (rate exceeds 1.7% of population size per annum). If 1.7% is accepted as the limit, STECF considers that the case for immediate mitigation is strong for harbour porpoises in the Baltic (Sub-divisions 24-32) and the Belt Seas and Kattegat (Sub-divisions 21-23) and that mitigation is required, in former case to reduce bycatch as close as possible to zero. There are also ICES recommendations for mitigation of harbour porpoise bycatch in Atlantic (South) static nets and bottlenose dolphin bycatch in the Mediterranean, but STECF consider the evidence on rates of bycatch and specificity of information on the fleets and areas where mitigation measures are required to be insufficient to identify which specific fisheries should be targeted for mitigation measures.

The Ascobans criteria have been used as a basis for deciding if bycatches ‘matter’ by ICES. So far as STECF are aware the EC do not have a defined criteria for determining when bycatches ‘matter’. STECF is uncertain whether high absolute rates of bycatch could be considered a driver for management intervention even if it cannot be demonstrated that these rates of bycatch lead to the Ascobans target being exceeded. If high absolute rates of bycatch are recorded in clearly defined fisheries and mitigation is feasible, then implementation of mitigation measures may be appropriate. For example, research demonstrates that acoustic deterrent devices would effectively reduce the bycatch of common dolphins in sea bass and albacore pelagic trawl fisheries even though ICES indicates that the latest estimates of bycatch rates do not exceed the Ascobans target.

Recommendations

STECF **recommend** a systematic risk assessment for cetacean bycatch based on available data. This should be based on DCF fleet segmentation (DCF level 4, 5, 6 and LOA) and appropriate spatial resolution for assessment of these fleets (GSA regions for Mediterranean, ICES subdivisions for Baltic, ICES divisions). The risk assessment should cover all fleet segments and also include the small vessels that are not currently covered by 812/2004. The outputs of the risk assessment should be used to target

resources towards fisheries and areas where bycatch poses the highest risk to cetacean populations. The approach should draw on existing ICES and STECF³ evidence.

STECF **recommend** monitoring of any vessels <15m where a risk assessment demonstrates that rates of bycatch pose a high risk to cetacean populations.

STECF **recommends** that bycatch mitigation is required for harbour porpoises in the Belt Seas and Kattegat (ICES Division IIIa south and subdivisions 22 and 23), because current bycatch rates exceed the 1.7% Ascobans target.

STECF **recommends** that existing bycatch mitigation strategies harbour porpoises in the Baltic (Sub-divisions 24-32) should be strengthened with the aim of reducing bycatch rates to zero.

(Note that the following recommendation has been reworded after the meeting in a way that is not identical to the wording agreed at the time, we will need approval from the committee for this change)

If the EC consider that it is a management objective to reduce absolute cetacean bycatches, even when bycatch rates may not exceed 1.7% of population size, then STECF **recommends** the mandatory use of acoustic deterrent devices in fisheries where the best available scientific evidence suggests that they could significantly reduce bycatch rates.

Item 4 (ICES Advice section 1.5.1.6.) and Item 5 (ICES Advice section 1.5.1.7.)

STECF observations and comments

STECF notes the ICES advice on mitigation measures and recognises that a range of technical and implementation issues exist. STECF notes that research projects and application of mitigation methods are providing additional data to assess the performance of mitigation measures.

Conclusions

Further development of technologies to assess in-water operation of acoustic deterrents for monitoring and enforcement purposes is required. STECF also consider that employing acoustic deterrents on set nets at fishery scales could lead to the displacement or exclusion of animals with consequences for bycatch in other areas and impacts on foraging movements and migration. Although this should not delay the adoption of current recommendations for acoustic deterrents in those fisheries where there is a need for immediate bycatch mitigation, the consequences of large scale use of acoustic deterrents, especially in enclosed seas, should be investigated.

3 Scientific, Technical and Economic Committee for Fisheries STECF - Subgroup on fishery and the environment (SGFEN) SEC (2002) 376; Scientific, Technical and Economic Committee for Fisheries STECF - 28th plenary meeting report of the (PLEN-08-02) SEC (2008) Section 10.6

The potential application of time and space closures could be assessed more effectively if fleet segment specific data of high spatial resolution could be allocated to the month of capture. This would be achieved if recommendations relating to Item 1 were followed.

At present, STECF considers that the adoption of acoustic deterrents should be considered on a case by case basis and that there remains a strong case for adoption in fisheries with high bycatch rates where the bycatch rates are known to be reduced by acoustic deterrents (harbour porpoises, common dolphins), see item 3 above.

Recommendations

STECF **recommend** that the EC encourage the development of technologies to assess in-water operation of acoustic deterrents for monitoring and enforcement purposes.

Other information

Although not strictly covered by the ToR, STECF also reviewed ICES Advice section 1.5.1.2. May 2010 on new information regarding small cetaceans, marine mammals, seabirds, and sensitive habitats and impact of fisheries. There were some inconsistencies in the reporting and related advice. These are reported because they provide a rationale for our recommendations on a revision of 812/2004 and the associated reporting template. Such revisions are expected to reduce the probability of such inconsistencies.

Tables 1 and 3 in the ICES Advice section 1.5.1.2. provide inconsistent resolution of fleets and areas, the recommendations relating to Item 3 above are intended to allow these issues to be addressed in future compilations and analyses. The text reports unreferenced anecdotal information on dolphins in the Mediterranean and it is difficult to interpret how this information can or should be used. The discussion of the anecdotal information states that ‘in the Mediterranean Sea, bycatches of common and striped dolphins, as well as bottlenose dolphins are the most commonly reported’ when other sources suggested that common dolphin bycatches are rare owing to the reduced prevalence of this species and increased prevalence of striped dolphins in the Mediterranean. In Table 1 there is an estimate of 70 individuals of striped dolphins caught by the French pelagic trawl fishery in the Mediterranean, but no catches of this species have been reported in Table 3. STECF also note that the by-catch most endangered species of marine mammal in Europe (the Mediterranean monk seal) is poorly documented and no estimate of the by-catch is included in Table 1, even though pinnipeds are covered by this request.

STECF also note some missing coverage of sectors in the Mediterranean. In GSA 10 and 17 drift nets called “Ferrettara” are widely used to catch some pelagic species. The technical characteristics these nets are different from the illegal drift nets called “Spadara nets” targeting swordfish. The impact of the Ferrettara nets on cetaceans has never been assessed.

Main technical characteristics of the legal Ferrettara and illegal Spadara

Characteristic	Ferrettara	Spadara
Distance from the coast	less than 10 nm	everywhere (zigzag setting)
Height	≤ 20 m	≥ 35 m
Length	≤ 2.5 km	≥ 15 km
Mesh opening	≤ 180 mm	≥ 300 mm
Target species	greater amberjack (juv), saddled seabream, mackerel, salp, bogue	swordfish, albacore

According to the available information, several hundreds “spadara” driftnets are illegally still used in various non-EU Mediterranean countries, even though the use of these nets is prohibited by GFCM. In Sardinia all the drift nets are banned, including Ferrettara.

STECF notes that by-catches of dolphins and other mega-fauna are problematic in the pelagic trawl fisheries operating in Mauritania (Zeeburg *et al*, 2006) and that the available information on the recent fishery activities in the CEEAF area is very incomplete. STECF considers that appropriate mitigation should be considered in these fisheries.

Zeeberg, JJ., Corten, A and de Graaf, E., 2006. Bycatch and release of pelagic megafauna in industrial trawler fisheries off Northwest Africa. *Fisheries Research* 78 (2006) 186–195.

5.6. General issues - Request for advice on possible incentives aiming to trial fully documented fisheries in European fisheries (Catch Quota System)

Background

Several Member States are planning to run "trials on fully documented fisheries", as has already been the case in 2010 in Cod fisheries of the North Sea in 2011 in both the North Sea as well as the Baltic Sea cod fisheries.

These projects are planned to be carried out under the normal quota, but the vessels participating in such trials (e.g. when equipped with CCTV) would get extra quota and would have to count all catches against their quota allocations. To allow such a new framework based on "catch quotas", Member States would request for an incentive based on an increase of the national quotas of 5 %. Out of the overall increase of the National quota by 5%, vessels participating in the catch quota system could then receive individually up to 30% more quota.

As this needs to be discussed from a scientific point of view, STECF is requested by the European Commission, to provide a generic statement on this type of approach, which could lead to changes in fishing behaviours and which could favour an approach based on fully documented fisheries and to provide advice on the introduction of such a system in the Baltic Sea cod fishery in 2011.

Terms of Reference

STECF is therefore requested to advise on possible "trial on fully documented fisheries" supported by incentives based on an increase of fishing possibilities adopted by the Council, considering the following points:

- based on available information, summarise present knowledge and beliefs concerning the effectiveness of "trials on fully documented fisheries", in particular with respect to testing a catch quota system as a management tool in the European fisheries;
- advise on the information that should be collected during any such further trials and its subsequent analysis and reporting in order to evaluate such management systems;
- advise on the potential benefits (e.g. higher TACs) and associated risks (e.g. control issues) of a catch quota system against the background of the present status of the main stocks distributed in European waters, considering the review of the ICES advice made available by the SG-RST and by taking into account the current uncertainties regarding the status these stocks.
- advice on the likely impact of the introduction of an incentive based increase of both the TACs as well as the effort by 5% in the Baltic cod fishery in 2011 for both the Western and the Eastern cod stock in light of the existing multi-annual plan for these two stocks. STECF is also requested to assess the amount of catch incentive that should be provided maximum in light of the actual levels of discards in the Western and the Eastern Baltic?

STECF response

STECF has earlier responded to a question about the use of catch quota trial for western channel sole (STECF (2010)). In relation to that trial, STECF noted that the proposal was feasible and potentially effective provided there was adequate monitoring and evaluation. The STECF text also highlighted the need to consider outcomes in ongoing trials in the North Sea and Baltic Sea and the introductory text below summarizes some of the features of those trials.

Short description of the remote electronic monitoring system used in the trials on fully documented fishery.

The remote electronic monitoring (REM) system used in the pilot studies conducted in Denmark, England and Scotland is developed by Archipelago Marine Research Ltd The system comprised of a GPS, hydraulic pressure transducer, a photoelectric drum rotation

(winch) sensor (Figure 1) and four television (CCTV) cameras providing an overhead view of the aft deck and closer views of the fish handling areas and discard chute areas for catch identification. Sensors and cameras are connected to a control box located in the wheelhouse. The control box consists of a computer that monitors sensor status and activated image recording.

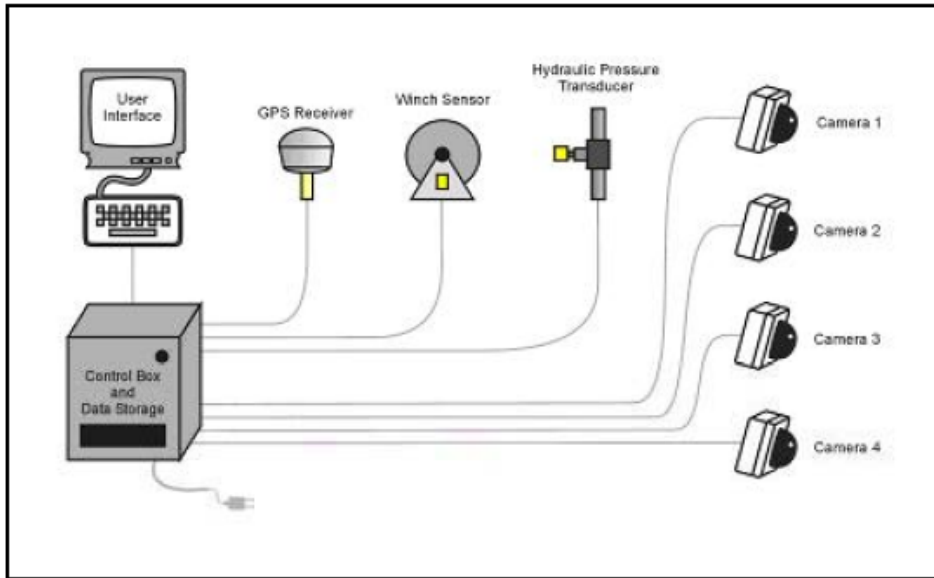


Figure 5.6.1. Schematic diagram of the REM system.

The control box has a storage capability for about 30 days of vessel fishing activity. REM sensor data and image recording are recorded continuously while the REM system is powered which, in principle, is constantly during the entire fishing trip (port to port). No image recording takes place in port.

The sensor data (GPS, hydraulic and winch rotation) is used to determine the spatial and temporal parameters for the start and end of each fishing trip and each fishing event. The key vessel activities including transit, gear setting, and gear retrieval can be identified using software developed by Archipelagio, and compared with the logbook recordings. Figure 2 shows a spatial plot and sensor time series illustrating part of a typical fishing trip.

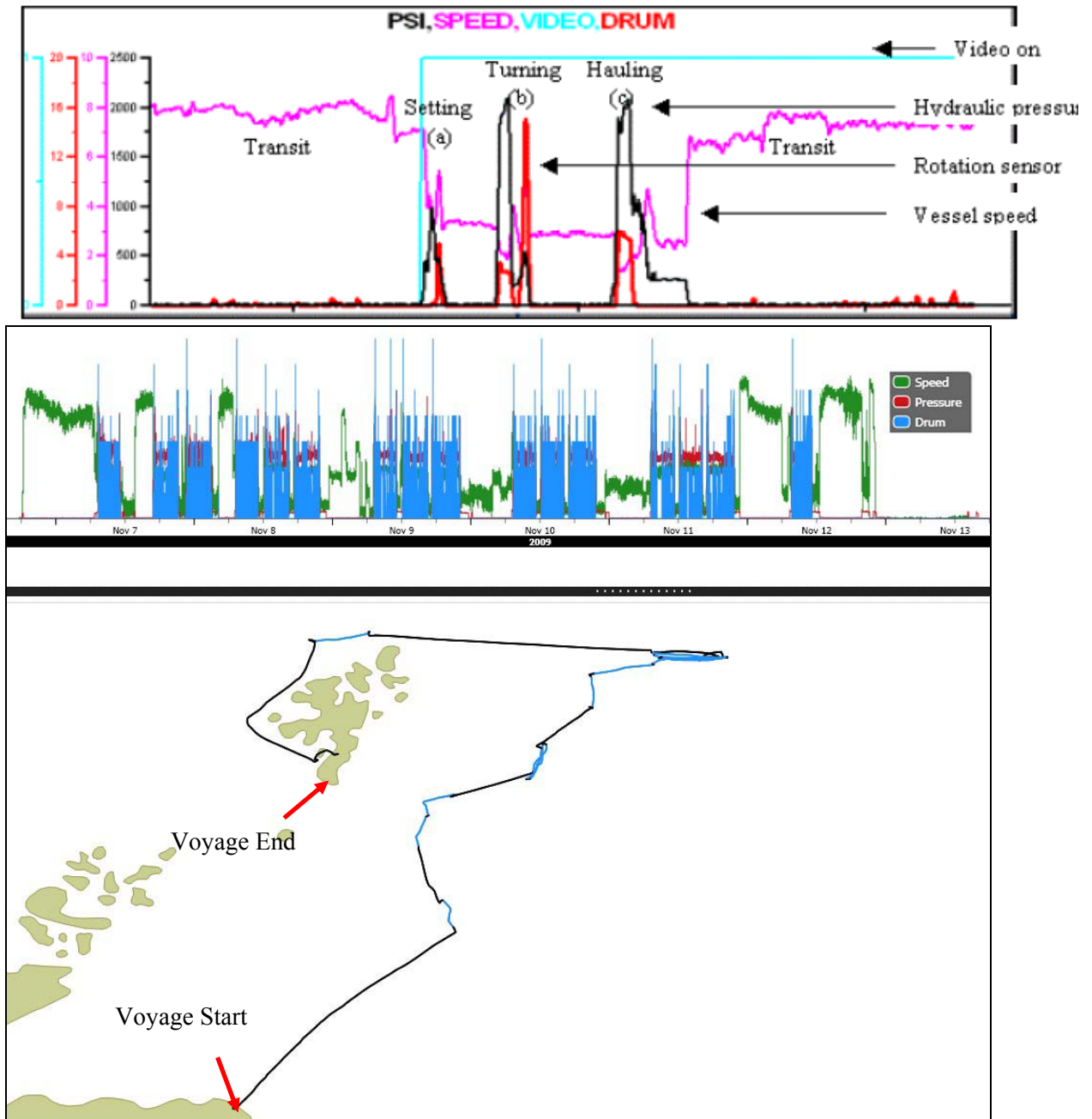


Figure 5.6.2. Sensor time series and spatial plot illustrating a typical fishing from the start to the end. Periods of high drum rotation and hydraulic pressure readings correspond to towing (highlighted in blue on the spatial plot).

The objectives of image recording are to examine and assess the amount of fish caught for comparison with the catch amount recorded by the crew and to document catch handling and discards.

Short description of the catch quota trials

According to Council Regulation (EU) No 219/2010 Member States may allow vessels participating in initiatives regarding fully documented fisheries to make additional catches within an overall limit of an additional 5 % of the quota allocated to that Member State, provided that:

- the vessel makes use of closed circuit television cameras (CCTV), associated to a system of sensors, that record all fishing and processing activities on board the vessel,
- all catches of cod with that vessel are counted against the quota, including those fish below the minimum landing size,
- the additional catches are limited to 30 % of the normal catch limit applicable to such a vessel.

Table 5.6.1: Information on catch quota trials conducted by Denmark, England and Scotland were available to STECF. The special conditions for the vessels participating in the three trails are summarised below:

	Denmark	England	Scotland
No of vessels participating	7	6	17
REM system	Must be in operation	Must be in operation	Must be in operation
VMS	Must be in operation	Must be in operation	Must be in operation
Electronic logbook	Yes	No information	No
Recording of cod catches	Catches of cod must be sorted from the remaining catch and weight of cod discarded and retained recorded by haul.	Crew must record all cod catches (identifying retained and discarded fractions) on log sheets for every haul	All caught cod to be recorded. All caught cod to be landed. Responsibility on vessel to be able to account for all cod caught
Recording of catches of other species than cod	Weight of retained catch by species and haul. Weight of total discards by haul.	No special conditions	
Other requirements	Crew must record position for shooting and retrieving the gear by haul	No special conditions	Requirement to take observers whenever required. Duty of care code to ensure system functioning
Maximum quota premium per vessel participating in the trials	+ 30 % cod	+30 % cod	+30% cod

TOR 1. Based on available information, summarise present knowledge and beliefs concerning the effectiveness of "trials on fully documented fisheries", in particular with respect to testing a catch quota system as a management tool in the European fisheries

The preliminary assessment of the use of REM to verify the total catches recorded by the vessels are very promising. There is, in all three trials as well as in previous Danish and smaller scale Scottish trials on fully documented fishery, a good agreement between the catches reported by the vessels and the estimates obtained from analyses of the REM

data. The REM system also provides very accurate information on effective fishing effort and fishing positions.

The results of a Danish pilot project conducted in 2008 - 2009 (Dalskov, J. & Kindt-Larsen, L., 2009) showed that the estimate of discards of cod by viewing the video records could be made with high accuracy, especially if the vessel had a sorting conveyor belt where the discarded fish passed the discard chute individually. If large amounts of discards occur the accuracy of the estimated discard amounts decreased unless specific onboard catch handling protocols were followed. The conclusion from trial was that image quality of the video recordings was very high and can be used to provide reliable estimates of species and size composition of the catch and discards.

The preliminary results of the English and Scottish trials also indicate a good correlation between the crew records, observer data and REM data. Recent developments in Scotland including the crosschecking of standard landings information on size categories with REM material has demonstrated that it was possible to detect a vessel which was not following the rules of the trial. The appropriate action (to remove the vessel from the trial) was quickly taken.

TOR 2. Advise on the information that should be collected during any such further trials and its subsequent analysis and reporting in order to evaluate such management systems

In addition to the data collected using the REM system, catch composition data should be collected including as a minimum, weight of the total catch and discards, and for the species included in the trial, weight of retained catch and discards. In order to assess the effectiveness of such trials it is important that information on catch composition of all species included in the trials is recorded by fishing operation (haul). In addition, data on the catch handling system used on board should be collected. This should include data on the presence or absence of conveyor systems and the process of unwanted catch/waste are disposed of. It is recognised that the catch handling and processing procedures can influence the ability of REM systems to detect species and sizes of fish discarded.

To be able to verify the information collected by the crew and the REM system it is important to take advantage of other routinely collected information and to use this forensically to cross-check with the REM data. Information on landed market categories and size composition data from REM vessels may be compared with those vessels not in the scheme and used to identify aberrant landings patterns. A presentation from Scotland illustrated examples of this. The flow chart below (Figure 3) prepared by compliance authorities in Scotland provides one example of how the material gathered during a trial or a more extensive management scheme might be used in a coordinated way.

The use of material from various sources implies that the introduction of fully documented fisheries need not imply the establishment of completely new data collection systems, rather, the schemes potentially offer more efficient ways of using resources.

Scottish Remote Electronic Monitoring System - Logic And Work Flow

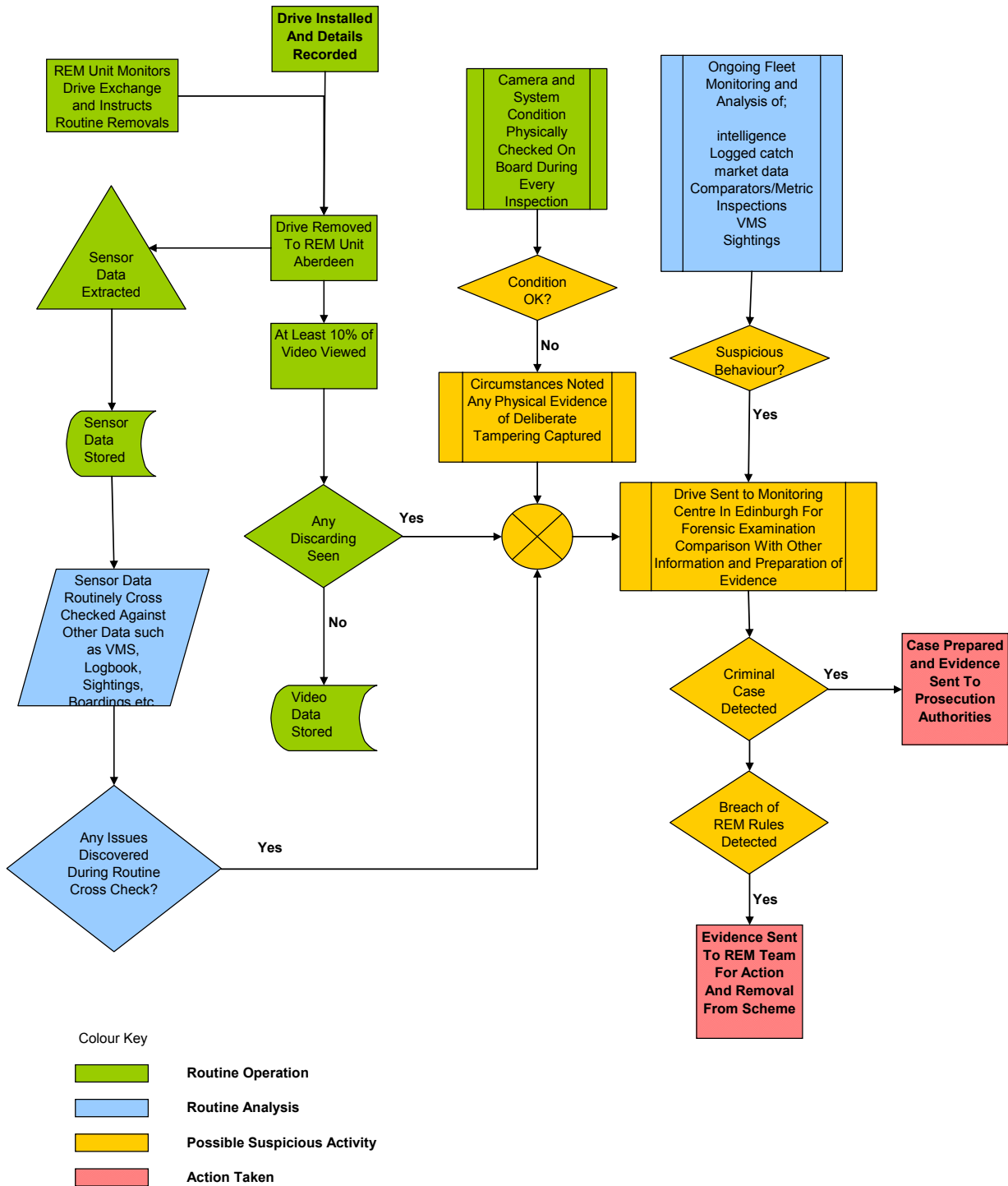


Figure 5.6.3 Schematic of a compliance system linking together information from various sources

TOR 3. Advise on the potential benefits (e.g. higher TACs) and associated risks (e.g. control issues) of a catch quota system against the background of the present status of the main stocks distributed in European waters, considering the review of the ICES advice made available by the SG-RST and by taking into account the current uncertainties regarding the status these stocks.

Within the time available STECF was not in the position to conduct detailed analyses on potential benefits and associated risks of a catch quota system. Such analyses are planned as part of the ongoing trials and when the results of these analyses become available, STECF will be able to provide a comprehensive response to this TOR if requested to do so.

The central principle of a catch quota system is that the total catch of the species concerned are counted against the quotas. Assuming that the vessels fishing under the catch quota system do not change in catch composition, any increase in the TAC that match the catch that would previously have been discarded and not counted against the quota will not result in any change in fishing mortality. However, the preliminary results of the ongoing trials suggest a change in fishing practices to avoid capturing small cod for the vessels involved. If this holds the changed size composition would, with unchanged total catches, result in a reduction in fishing mortality of smaller cod.

For the fisheries where the TAC advice is given on the basis of catch, as is the case for ICES advice on these cod fisheries, the use of such catch quotas links the catches more closely to the advice as the discard component is explicitly documented. Provided the limits to the catch quotas are set in the context of catch advice, as was the case in these trials, the approach would tend to improve the effectiveness of a TAC system to deliver the target fishing mortality. In addition with the improved documentation of the fishery, this would be expected to lead to an improvement in the quality of the advice. However, if there is a change in selectivity in the fishery due to changes in fishing practices (see above) this would need to be taken into account in the assessment.

Preliminary analysis of the effect participating in a catch quota scheme on the revenue of Scottish vessels operating in the North Sea was presented to STECF. The analysis indicates that in general, a catch quota scheme may lead to positive net benefits for participating vessels.

The added value of REM for fisheries data collection was discussed in detail at the "Workshop on Fully Documented Fishery", held at the Technical University of Denmark in March 2010 (Dalskov, 2010). In brief, REM data can for example be used to improve: the investigation of fishing behaviour and practices; the quality of stock assessments (e.g. total catch estimates, catch species and length composition); the estimation of actual fishing effort (especially for fixed gears); the by-catch monitoring of sensitive species such as harbour porpoise; as well as the validation of self-sampling programmes.

Information presented to the Commission from the Control Authorities, states "from a control perspective the early results are encouraging and there seems to be nothing

significant to indicate that the systems under operation in the trials cannot provide the necessary confidence to run catch quota systems.” Recent experience in Scotland has demonstrated that the system has detected an occurrence of rule-breaking and enabled corrective action (removal from the scheme). A more comprehensive evaluation of the benefits for compliance and monitoring should be possible when the final results of the trials are made available.

TOR 4. Advice on the likely impact of the introduction of an incentive based increase of both the TACs as well as the effort by 5% in the Baltic cod fishery in 2011 for both the Western and the Eastern cod stock in light of the existing multi-annual plan for these two stocks. STECF is also requested to assess the amount of catch incentive that should be provided maximum in light of the actual levels of discards in the Western and the Eastern Baltic?

Eastern Baltic cod.

An increase in the EU quota and fishing effort of 5% will have very little impact on the development in the stock and the level of exploitation.

For 2011, the EU quota for cod in subdivision 25 to 32 for 2011 is 58,957 t. Discards are predicted by ICES to be 3,300 t. Assuming Russian catches in the order of 5,000 t the total catch of cod is predicted by ICES to be around 67,000 t. in 2011. Increasing the EU quota by 5% would give a total catch in 2011 in the order of 70,000 t. corresponding to a 4% increase in fishing mortality to $F=0.18$. The target F in the management plan is 0.3. This change will be negligible in the context of F in 2011 and will in any case be taken into account in subsequent advice for 2012. However, even this small effect may be mitigated, if the increase in the EU quota is allocated to vessels operating under a catch quota system, because the increase may be partly or fully compensated by a reduction in discards that are presently not counted against the quotas.

The fishing effort limits adopted for 2011 for Baltic cod fisheries is a maximum number of days absent from ports of 160 per vessel. An increase of the number of days by 5% may not result in any measurable effect on the fishing mortality of cod. However, information on the deployed effort by individual vessels from other Member States is required before the potential impact of a 5% increase in permissible effort can be properly evaluated.

Discards in the trawl fisheries are predicted to be around 9% (in weight) of the predicted landings. The corresponding figure for the gillnet fishery is 4%. To account for the inclusion of discards in the catch reporting under a catch quota system the vessels quotas should on average not exceed the above predicted discards percentages for each vessel group. STECF notes, that the considerations do not take account of any change in exploitation pattern resulting from shifting to a catch quota system. STECF furthermore notes that the figures above reflect the average discards by the two gears and may not be representative for the discard situation observed at the vessel level.

Western Baltic cod

For 2011 the TAC for cod in subdivision 22 to 24 is 18,800 t. and discards predicted by ICES to be 2,200 t. giving a total predicted catch of cod 21,000 t. in 2011. Increasing the TAC by 5% would with no change in discards give a total catch in 2011 in the order of 21,940 t. corresponding to an increase in fishing mortality of app. 6% from 0.65 to 0.69. The target F in the management plan is 0.6. However, if the increase in the EU quota is allocated to vessels operation under a catch quota system, the increase may be partly or fully mitigated by a reduction in discards that are presently not counted against the quotas and the effect in terms of increased catches and fishing mortality is likely to be less than indicated above.

Although an increase in the TAC in 2011 by 5% may have minor impact on the development of the western Baltic cod stock STECF notes that the fishing mortality predicted for 2011 is above the target fishing mortality of 0.6 and well above the F_{MSY} of 0.24 proposed by ICES. As long as the stock is in a rebuilding phase it is important that the fishing possibilities are set in accordance with the management plan. STECF therefore **recommends** that an increase in the TAC in support of operating a catch quota system only is introduced if the catch quota system is likely to result in reductions in discards.

The fishing effort limits adopted for 2011 for western Baltic cod fisheries is a maximum number of days absent from ports of 163 per vessel. To properly evaluate the impact of an increase in the maximum number of days at sea by 5% data on days at sea has to be available on vessel level. Such information was only available for Danish vessels in 2009. This information showed that the majority of vessels used less or significantly less days than the maximum allowed number of days indicating that an increase would have little impact on the catches of cod unless the additional allocation of days is taken up. However, these data may not necessarily be representative for the other Member States vessels operating in the Baltic Sea. In addition, the TAC and quota system for the western Baltic cod seems to have been effective in limiting catches. STECF therefore considers that an increase of the number of days by 5% may not have any measurable effect on the fishing mortality of cod. However, information on the deployed effort by individual vessels from other Member States is required before the potential impact of a 5% increase in permissible effort can be properly evaluated.

On average trawlers have been responsible for approximately 94% of discards of cod in the western Baltic and gillnetters 6%. In recent years 70% of the landings have been taken by trawlers and 30% by static gears. Applying these figures on the predicted landings and discards in 2011 gives a predicted discard by trawlers of around 16% (in weight) of the predicted landings. The corresponding figure for the gillnet fishery is 2%. To account for the inclusion of discards in the catch reporting under a catch quota system the vessels quotas should on average not exceed the above predicted discards percentages for each vessel group. STECF notes, that the considerations do not take account for any change in exploitation pattern resulting from shifting to a catch quota system. STECF furthermore

notes that the figures above reflect the average discards by the two gears and may not be representative for the discard situation observed at the vessel level.

References:

Dalskov, J. & Kindt-Larsen, L. (2009) Final Report of Fully Documented Fishery. DTU Aqua report no. 204-2009. Charlottenlund. National Institute of Aquatic Resources, Technical University of Denmark, 49 p.

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(http://www.aqua.dtu.dk/upload/aqua/publikationer/forskningsrapporter/221-2010_workshop-on-fully-documented-fishery.pdf)

STECF (2010). Scientific, Technical and Economic Committee for Fisheries (STECF) – 33th Plenary Meeting Report. (eds. Casey J. & Doerner H.). 2010. Publications Office of the European Union, Luxembourg, 114 pp.
http://fishnet.jrc.it/c/document_library/get_file?uuid=274aef22-f881-44aa-bc7a-ea7b94d95bd8&groupId=1416

5.7. General issues - Request for advice on the impact of management decisions addressing uncertainties in category 11 stocks

Background

During the last negotiations on TACs and Quotas for 2010 (in December 2009) the Council and the Commission recognized that scientific advice for a number of stocks is unknown due to insufficient data to assess their status and that work should continue in 2010 to address this management shortcoming. The Commission presented in April 2010 a non-paper to the Member States summarising the main shortcomings characterising these "category 11" stocks as well as exploring possible options to overcome these weaknesses through improved data collection and proposing a decision tree guiding managers in cases of uncertainties of scientific nature.

In its request for advice concerning the implementation of categories 6 to 9 (Annex IV to the aforementioned Communication) the Commission considered approaches to TAC-fixing based on indicators of overfishing and trends in abundance that could be inferred from surveys by STECF. The Commission's aforementioned non-paper addresses in greater depth possible methods for TAC-

fixing in situations where such information are not available (Category 11, and the situation described in Rule 4 of Annex IV when no representative data exist).

Terms of Reference

Further to the STECF advice⁴ of July 2010 in response to a number of questions from the European Commission in relation to the Commission's non-paper on "Management Decisions Addressing Uncertainties in Category 11 Stocks", the STECF is requested to:

1. List (by common name, scientific name and area) the 49 stocks classified by the STECF as category 11 stocks at the July 2010 plenum (including Baltic Sea stocks).
2. Out of the 49 stocks mentioned under point 1, list the 18 stocks considered as of low importance from an economic point of view. For these 18 stocks, the STECF is also requested to advise:
 - whether there is any evidence, based on historical data, that any of these stocks suffers from reduced reproductive capacity and whether it is appropriate to reduce (from y to $y+1$) the TAC by 15% in such cases; and
 - to describe and possibly quantify the role of these stocks to the ecosystem.
3. Out of the 49 stocks mentioned under point 1, list the 15 deep-sea stocks and the 11 stocks that are addressed by ICES Working Group on the Assessment of New MoU Species or by the ICES/HELCOM Workshop on Flatfish in the Baltic Sea. For these 26 stocks, the STECF is requested to advise exactly on what can be done to overcome the current lack of availability and willingness of scientists to evaluate existing information on these stocks – even though the information may not be sufficient to support an analytical assessment allowing only a quality analysis of trends in stock size and exploitation level. In case the STECF concludes that both ICES and STECF scientists face serious difficulties to evaluate these 26 stocks, the STECF is requested to advise whether it is appropriate to carry out these evaluations through contractors.
4. Out of the 49 stocks mentioned under point 1, list the remaining 5 stocks for which additional information is required to allow an assessment. For these 5 stocks, the STECF is requested to advise on what information is required to allow the STECF to assess the state of these stocks.

In addition to the aforementioned, the STECF is requested to analyse the relationship between landings (if possible catches) and TACs of category 11

⁴ 34th Plenary meeting report of the Scientific, Technical and Economic Committee for Fisheries (PLEN-10-02).

stocks. The STECF is requested to compile data on these two variables as far back in time as possible in order to establish a long term trend giving indications on the state of the stock. By analysing fishing trends over a long period, it is expected that annual and seasonal variations due to exceptional economic (e.g. fish prices, demand and fuel costs) and mixed fisheries (e.g. abundance of target species) factors are eliminated.

STECF response

In accordance with the categorisation given in COM(2010) 241 FINAL, the following stocks were classified by STECF as Category 11.

1. Alfonsinos/Golden eye perch (*Beryx spp.*)
2. Black scabbard (*Aphanopus carbo*) in other areas
3. Blue ling (*Molva dypterygia*) in other areas (I, II, IIIa, IVa, VIII, IX, and XII)
4. Blue Ling (*Molva dypterygia*) in Va and XIV
5. Blue Ling (*Molva dypterygia*) in Vb, VI and VII
6. Brill (*Scophthalmus rhombus*) in the Baltic Sea
7. Brill (*Scophthalmus rhombus*) in the North Sea
8. Cod (*Gadus morhua*) in Division VIb (Rockall)
9. Dab (*Limanda limanda*) IIa (EU zone), North Sea
10. Dab (*Limanda limanda*) in the Baltic Sea
11. Flounder (*Platichthys flesus*) - IIa (EU zone), North Sea
12. Flounder (*Platichthys flesus*) – IIIbcd
13. Greater forkbeard (*Phycis blennoides*)
14. Greater silver smelt (*Argentina silus*) in other areas (I, II, IIIa, IV, Vb, VI, VII, VIII, IX, X, XII and XIV)
15. Greater silver smelt (*Argentina silus*) in Va
16. Herring (*Clupea harengus*) in Division Vb and VIb
17. Herring (*Clupea harengus*) in Division VIIe,f
18. Herring (*Clupea harengus*) in Subdivision. 31
19. Herring (*Clupea harengus*) in the Clyde (Division VIa)
20. Lemon sole (*Microstomus kitt*) in the North Sea
21. Ling (*Molva molva*) in Vb (Faroes)
22. Norway lobster (*Nephrops norvegicus*) in the Noup (FU 10)
23. Norway pout (*Trisopterus esmarki*) in Division VIa (West of Scotland)
24. Plaice (*Pleuronectes platessa*) - Vb (EU zone), VI, XII, XIV
25. Plaice (*Pleuronectes platessa*) in Division VIIbc
26. Plaice (*Pleuronectes platessa*) in the Baltic Sea
27. Plaice (*Pleuronectes platessa*) in VIII, IX and X
28. Pollack (*Pollachius pollachius*) in all areas
29. Red (blackspot) seabream (*Pagellus bogaraveo*)
30. Roundnose grenadier (*Coryphaenoides rupestris*) in all other areas. (I, II, IV, Va2, VIII, IX, XIVa, and XIVb2)

31. Roundnose grenadier (*Coryphaenoides rupestris*) in Subareas VI and VII and in Divisions Vb and XIIb
32. Roundnose grenadier (*Coryphaenoides rupestris*) on the Mid-Atlantic ridge (Xb, XIIc, Va1, XIIa1, and XIVb1)
33. Saithe (*Pollachius virens*) in Div's VII, VIII, IX, X
34. Sandeel (*Ammodytes spp. & Gymnammodytes spp.*) in Division VIa
35. Sole (*Solea solea*) - VIIbc
36. Sole (*Solea spp.*) - VIIIcde, IX, X
37. Sprat (*Sprattus sprattus*) in Divisions VIIde
38. Turbot (*Psetta maxima*) in the Baltic Sea
39. Turbot (*Psetta maxima*) in the North Sea
40. Tusk (*Brosme brosme*) in Divisions I and II (Arctic)
41. Tusk (*Brosme brosme*) in IIIa, IV, Vb, VIa, VII, VIII, IX, XIIb (Other areas)
42. Tusk (*Brosme brosme*) in Subarea VIb (Rockall)
43. Tusk (*Brosme brosme*) on the Mid-Atlantic Ridge (Division XII excluding XIIb)
44. Whiting (*Merlangius merlangus*) - IX, X
45. Whiting (*Merlangius merlangus*) - VIII
46. Whiting (*Merlangius merlangus*) in Division VIb (Rockall)
47. Whiting (*Merlangius merlangus*), Skagerrak & Kattegat (IIIa)
48. Witch (*Glyptocephalus cynoglossus*) in the North Sea

Of the 48 stocks listed above, the following stocks are considered by the STECF to be of low economic importance.

1. Cod (*Gadus morhua*) in Division VIb (Rockall)
2. Herring (*Clupea harengus*) in Division Vb and VIb
3. Herring (*Clupea harengus*) in Division VIIe,f
4. Herring (*Clupea harengus*) in Subdivision. 31
5. Herring (*Clupea harengus*) in the Clyde (Division VIa)
6. Norway lobster (*Nephrops norvegicus*) in the Noup (FU 10)
7. Norway pout (*Trisopterus esmarki*) in Division VIa (West of Scotland)
8. Plaice (*Pleuronectes platessa*) - Vb (EU zone), VI, XII, XIV
9. Plaice (*Pleuronectes platessa*) in Division VIIbc
10. Plaice (*Pleuronectes platessa*) in VIII, IX and X
11. Sandeel (*Ammodytes spp. & Gymnammodytes spp.*) in Division VIa
12. Sole (*Solea solea*) - VIIbc
13. Sole (*Solea spp.*) - VIIIcde, IX, X

STECF advises that there is no basis to judge the status of any of the stocks listed above in relation to any biological reference points or whether they are suffering from reduced reproductive capacity. STECF also considers that it has no objective scientific basis with

which to judge whether it is appropriate to reduce the TAC on these stocks by 15% (from y to $y+1$).

A judgement on whether a 15% reduction in TAC is an appropriate management measure is dependent on a number criteria and what such a management measure is intended to achieve. STECF suggests that likely outcomes of management would best be expressed in terms of the acceptable risks associated with achieving or not achieving particular management objectives. Furthermore, it is desirable that acceptable levels of risk in relation to specific management objectives are clearly stated in advance in order that fisheries scientists, fishery managers and other stakeholders are conversant with the bounds of the framework they are working with. STECF suggests that it would be desirable if acceptable risk levels associated with particular managements objectives are enshrined in future CFP legislation, to ensure an improved basis for scientist and fishery managers to effectively calculate communicate and implement risk analysis and risk management.

In relation to the request to describe and possibly quantify the role of the above stocks to the ecosystem STECF was unable to provide an informed answer with the resources and information available during its 35th plenary meeting.

3. Of the 48 stocks listed as Category 11 stocks in point 1 above, the following are classed as deep-sea stocks

1. Alfonsinos/Golden eye perch (*Beryx spp.*)
2. Black scabbard (*Aphanopus carbo*) in other areas
3. Blue ling (*Molva dypterygia*) in other areas (I, II, IIIa, IVa, VIII, IX, and XII)
4. Blue Ling (*Molva dypterygia*) in Va and XIV
5. Blue Ling (*Molva dypterygia*) in Vb, VI and VII
6. Greater forkbeard (*Phycis blennoides*)
7. Greater silver smelt (*Argentina silus*) in other areas (I, II, IIIa, IV, Vb, VI, VII, VIII, IX, X, XII and XIV)
8. Greater silver smelt (*Argentina silus*) in Va
9. Red (blackspot) seabream (*Pagellus bogaraveo*)
10. Roundnose grenadier (*Coryphaenoides rupestris*) in all other areas. (I, II, IV, Va2, VIII, IX, XIVa, and XIVb2)
11. Roundnose grenadier (*Coryphaenoides rupestris*) in Subareas VI and VII and in Divisions Vb and XIIb
12. Roundnose grenadier (*Coryphaenoides rupestris*) on the Mid-Atlantic ridge (Xb, XIIc, Va1, XIIa1, and XIVb1)
13. Saithe (*Pollachius virens*) in Div's VII, VIII, IX, X
14. Tusk (*Brosme brosme*) in Divisions I and II (Arctic)
15. Tusk (*Brosme brosme*) in IIIa, IV, Vb, VIa, VII, VIII, IX, XIIb (Other areas)
16. Tusk (*Brosme brosme*) in Subarea VIb (Rockall)

Of the 48 stocks listed as Category 11 stocks in point 1 above, the following are addressed by the ICES Working Group on the Assessment of New MoU Species or by the ICES/HELCOM Workshop on Flatfish in the Baltic Sea.

1. Brill (*Scophthalmus rhombus*) in the Baltic Sea
2. Brill (*Scophthalmus rhombus*) in the North Sea
3. Dab (*Limanda limanda*) IIa (EU zone), North Sea
4. Dab (*Limanda limanda*) in the Baltic Sea
5. Flounder (*Platichthys flesus*) - IIa (EU zone), North Sea
6. Flounder (*Platichthys flesus*) – IIIbcd
7. Lemon sole (*Microstomus kitt*) in the North Sea
8. Plaice (*Pleuronectes platessa*) in the Baltic Sea
9. Turbot (*Psetta maxima*) in the Baltic Sea
10. Turbot (*Psetta maxima*) in the North Sea
11. Witch (*Glyptocephalus cynoglossus*) in the North Sea

On the question of the willingness of scientists to undertake assessments, STECF notes that there is no shortage of willingness among scientists to carry out assessments and in fact the majority of stocks identified above have been assessed in some way. The absence of an analytical assessment in some cases is dictated by a number of factors, primarily an acute shortage of resources to collect more data and undertake new assessments in a system that already faces severe demands and in some cases, a shortage of appropriate data and information. STECF considers that simple indicators in trends in stock size and exploitation level may be sufficient for providing advice on the state of the stocks and fishing possibilities. However, although the analyses required to produce such advice may in principle be simple, substantial work is often required to establish the necessary data bases and indicators. The resources required to establishing the basis are often not available at scientific institute level and unless resources can be made available, STECF considers it unlikely that major progress is made in the short term.

STECF has no objection for assessments to be undertaken by individual contractors provided that such assessments undergo appropriate review by an appropriate independent scientific group. However, STECF considers that it is important that the formulation of advice on the basis of the assessments is done by an appropriate independent scientific system such as STECF and ICES, and **recommends** to maintain the status quo with regard to provision of advice.

Of the 48 stocks listed as Category 11 stocks in point 1 above, the following are identified as requiring additional information in order to conduct an assessment.

Ling (*Molva molva*) in Vb (Faroes)
Pollack (*Pollachius pollachius*) in all areas
Sprat (*Sprattus sprattus*) in Divisions VIIId,e
Whiting (*Merlangius merlangus*) – VIII

In order to undertake an assessment the data required for the above stocks is essentially the same as the data required to assess any stock. Furthermore the data required is dependent on the type of assessment required. For ling (*Molva molva*) in Vb (Faroes) for example, catch and effort data and survey indices are available and an assessment is undertaken by ICES using such information even if the assessment cannot provide precise estimates of exploitation rate or stock size or form the basis for a catch forecast. For sprat (*Sprattus sprattus*) in Divisions VII d,e however, only reported landings are currently available and the stock status remains unknown. To assess this stock would require additional information, especially on incoming recruitment since it is a short-lived species and potentially subject to large inter-annual fluctuations in biomass and abundance. This would imply survey information on e.g. egg and larval production which would most likely not be cost effective (the survey may cost more than the value of the resource). what for we have these here?

In general for most species, data on catch and effort are fundamental in order to undertake an assessment using a stock-production model, whereas age- disaggregated catch at age, and fleet specific effort data together with survey estimates of trends in stock abundance at age and recruitment are required for VPT-type analytical assessments.

Relationship between landings (if possible catches) and TACs of category 11 stocks

The information and resources available during the 35th plenary meeting did not permit STECF to properly address this request. Accordingly STECF was unable to provide an informed response on the relationship between landings (or catches) and TACs for category 11 stocks. Furthermore, the request to STECF indicates that compilation of TAC and catch (landings) data over an extended time period was requested in order to obtain indications on stock status. STECF advises that the information requested would alone not be appropriate to use to derive any reliable conclusions on stock status and could only be used to examine the difference between agreed TACs and reported landings.

5.8. General issues - Request to review scientific information on anglerfish and megrim West of Scotland and in the North Sea and on North Sea cod

Background

The UK authorities have submitted **additional** scientific information to the Commission on anglerfish in the North Sea and West of Scotland, megrim in the North Sea and West of Scotland and cod in the North Sea.

Terms of Reference

STECF is requested to review the information submitted and advise on any implications for the management of fisheries exploiting these stocks.

STECF response

5.8.1. Megrin and Anglerfish

There is currently no accepted analytical assessment for either megrim or anglerfish. However, recent dedicated surveys in Division IVa and Subarea VI have been used as the basis of the ICES advice. These surveys are primarily focussed on anglerfish, but megrim are also caught in sufficient levels to provide advice also. These stocks are classified as being between Category 6 and 9 in the EC Consultation on Fishing Opportunities, where “the status of the stock not known precisely and STECF advises that:

Annex IV.4. Where abundance information either indicates no change in stock abundance, is not available or does not adequately reflect changes in stock abundance, an unchanged TAC would apply.

Annex IV.5. Where ICES considers that representative stock abundance information exists, the following rule applies:

- a. If the average estimated abundance in the last two years exceeds the average estimated abundance in the three preceding years by 20% or more, a 15% increase in TAC applies.
- b. If the average estimated abundance in the last two years is 20% or more lower than the average estimated abundance in the three preceding years, a 15% decrease in TAC applies.

Anglerfish

ICES (2010) note that recent dedicated anglerfish surveys in Division IVa and Subarea VI indicate a decline in abundance since 2007; and a decline in biomass in 2009 in all areas surveyed with the exception of Division VIb (Rockall). Changes in abundance using the EC rule as reported by ICES (2010) imply a zero change in TAC in both ICES division IV and VI . However, the ICES advice in 2010 did not include the most recent survey data (2010) due to the timing of the survey. Table 1 shows the updated application of the EC rule and the estimated change in biomass.

Table 1. Change in anglerfish biomass using the updates 2006 to 2010 survey data as presented to STECF Plenary 10-03

	2006- 2008	2009- 2010	% cha nge
Sub-Area IV (partial)	26.747	19.501	- 27%
Division	12.58667	8.911	-

Via			29%
Division VIb	8.837667	10.574	20%
Sub-Area VI	21.42433	19.485	-9%
Northern Shelf (partial)	48.17167	38.986	- 19%

STECF notes that on the basis of the new survey data submitted by the UK authorities and applying the rules for setting TACs, as proposed by the European Commission, implies the following changes to the TACs: a 15% reduction in the TAC for the North Sea (Sub Area IV); and no change for the west of Scotland (Sub area VI). If separate considerations are given for ICES Divisions VIa (west of Scotland) and VIb (Rockall), then these would incur a 15% decrease and 15% increase respectively. However, STECF notes that there is no basis to suggest that anglerfish in VIa and VIb are separate stocks. ICES (2010) note that “The distribution of anglerfish in the North Sea, Kattegat, and Skagerrak is associated with the distribution to the West of Scotland (Divisions VIa and VIb). It is likely that catches from these areas come from the same biological stock. Genetic studies have found no evidence of separate stocks and particle-tracking studies have indicated interchange of larvae between areas.”

STECF conclusions regarding anglerfish

STECF agrees with the interpretation of the most recent (2010) survey data does not alter the categorisation of anglerfish in VI, zero reduction in TAC in 2011. The new survey data changes the categorisation of anglerfish in IV, which now implies a 15% reduction in TAC rather than a zero change in TAC as advised by ICES (2010).

Megrim

ICES (2010) note an increase in biomass on the Northern Shelf contrasting the average estimated abundance in the last two years (2008 and 2009) with average estimated abundance in the three preceding years (2005 – 2007). Split by area, the biomass estimates increase by 28 and 23% for ICES area VI and IV (partial coverage) respectively. ICES (2010) notes that there is considerable uncertainty of the survey indices from IV and advised that it was not possible to conclude that the apparent change in biomass was significant. Including the 2010 survey data (table 2), STECF (2010) notes that there is little difference in the relative change in megrim biomass in VI (23%) but there is a decline in the relative biomass in IV (-9%).

Table 2. Change in megrim biomass using the updates 2006 to 2010 survey data as presented to STECF Plenary 10-03

	2006-	2009-	% Cha
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	2008	2010	nge
Area IV (partial)	5364	4866	-9%
Area VI	3816	4704	23%
Total	9180	9570	4%

STECF Conclusions regarding megrim

STECF notes that the inclusion of the new survey data does not change the basis of the ICES (2010) advice for VI and IV megrim which imply a change of +15% for the 2011 TACs in ICES Sub-area VI, relative to 2010; and no change in ICES Sub-area IV.

5.8.2. North Sea cod

STECF has reviewed the new information provided by the UK Authorities on North Sea cod together with information from Annex 2 of the 2009 ICES WGNSSK report which includes a number of maps of cod distribution in the North Sea over different ages and years. The distributional maps suggest potential changes in the distribution of cod as observed with the third quarter ICES IBTS (IBTSq3) survey. The UK submission presents a revised assessment for North Sea cod, fitted without age groups 2+ from the IBTSq3 to account for the apparent spatial change in the distribution of cod which may have resulted in a change in survey catchability.

STECF has reviewed the additional information and concluded that the evidence and arguments presented in Annex 2 of the 2009 ICES WGNSSK Report in support of a significant change in the distribution of cod in recent years are too weak to justify removal of age groups 2+ from the IBTSQ3 survey time series.

However, STECF remains concerned about the results of the assessment accepted by ICES to provide its advice for North Sea cod in June 2010, and supports ICES ACOM's view that additional work needs to be undertaken to investigate the issues surrounding the IBTS tuning series.

STECF notes that the estimated increase in F between 2008 and 2009 in the ICES assessment is primarily driven by the results of the IBTS tuning series and is not supported by effort and catch (landings and discard) information. The effort and catch information reported by member States to the STECF-SGMOS 10-05 WG, indicates that fishing mortality is likely to have remained stable over the period 2008-2009.

Furthermore, STECF also notes that there is no evidence of a decline in fishing effort for the main fleets exploiting cod since 2008.

STECF notes that Article 12 (4a) of the long-term plan for North Sea cod (Council Regulation (EC) 1342/2008) prescribes that the maximum allowable fishing effort in 2011 for aggregated effort groups where the percentage cumulative catch of cod is equal to or exceeds 20 % of the total catch should be adjusted applying the same relative change as predicted for fishing mortality. The fishing mortality in 2010 is predicted by ICES to be $F=0.85$ and the fishing mortality in 2011 consistent with a reduction in the TAC by 20% (TAC advice consistent with the management plan) is predicted to be $F=0.48$. This corresponds to a 44% reduction in fishing mortality and would if accepted imply a similar reduction in the maximum permitted effort.

However, as explained above there are indications that fishing mortality may have remained stable over recent years and the implied reduction in fishing mortality from 2010 to 2011 derived from the ICES assessment may be an overestimate. STECF notes that if fishing mortality has remained stable since 2008 this implies F in 2009 and 2010 will have been $F=0.71$. Accepting that the fishing mortality in 2011 consistent with the 20% reduction in TAC is equal to 0.48 as advised by ICES, the implied reduction in fishing effort from 2010 to 2011 should be 33%. However, this value of 33% may be an underestimate of the reduction in F (and effort) from 2010 to 2011 required to take the 2011 TAC prescribed by the management plan. If fishing mortality has in reality, remained stable since 2008, the stock size estimated by ICES for 2010 is likely to be an underestimate of the true stock size. This is because fishing mortality in 2009 and 2010 will have been less than the fishing mortality rates derived from the ICES assessment and will have resulted fewer cod being caught leading to more survivors in 2010 and 2011. A larger stock in 2010 and 2011 would therefore imply, that the fishing mortality required to take a TAC in 2011 of 32,240 t would be less than $F=0.48$ as predicted by ICES. Under such circumstances, the provisions of the long-term plan for North Sea cod (Council Regulation (EC) 1342/2008) would prescribe a reduction in fishing effort from 2010 to 2011 greater than 33%.

For the reasons outlined above, STECF is not in the position to advise on the precise adjustment to the maximum fishing effort for 2011 prescribed by the long-term plan for North Sea cod (Council Regulation (EC) 1342/2008).

5.9. Mediterranean Sea & Black Sea - Assessment of management plan submitted by Spain for the mechanised dredge fleet operating on the Mediterranean coast of Andalusia

Background

According to Council Regulation (EC) No 1967/2006 (art.19), Member States are expected to adopt National 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 such as targets against which recovery to or maintenance of stocks within safe biological limits for fisheries exploiting stocks at/or within safe biological limits (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 of limit reference points 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.

Spain has submitted a proposal for a management plan for the mechanized dredge fleet operating on the Mediterranean coast of Andalusia.

Terms of reference

STECF is requested to review the current proposal for a management plan, to evaluate its findings, to make appropriate comments, also with respect to the elements/measures included in the management plan and to advise whether the plan contains elements that account for the state of the exploited resources, if concerned fisheries are expected to exploit main target stocks in line with their production potentials and if the plan is expected to maintain or to revert fisheries productivity to higher levels and in which time frame.

STECF observations

STECF notes that MS's Management Plans should ensure a sustainable exploitation of stocks and that impact of fishing activities on marine eco-systems be kept at sustainable levels.

The proposed plan includes a fairly good description of the fishery, gears used, catches, oceanographic and hydro-geological features.

In the Plan, it is stated that the Administration had performed a series of actions aimed at the sustainable exploitation of the natural resources of Mediterranean fishing grounds and to protect natural spaces of Community interest. These policies for environmental protection and aimed at the sustainability of traditional fisheries include the definition of minimum landed individual sizes and the limitation of fishing pressure, obtained through a limitation of licences. The main declared goal is to re-establish stocks to levels which guarantee the maximum sustainable yields. No information has been given on this aspect of the proposed management Plan.

With regard to the target species for the mechanised dredge gears, the only information refers to the species abundance by depth, although the data source remains unknown. No information is given on the commercial size distributions of the species caught.

The plan includes a request for a derogation to Article 13.2 of the Regulation which prohibits boat dredging and hydraulic dredging at less than 0.3 nautical miles from the coast. The fishing area where mechanised dredge fleet operates is limited because the continental shelf is very narrow.

At present, 151 fishing boats are considered to be highly dependent or dependent on this mechanised dredges fishery. A reduction of the fishing effort by the small-scale fleet has resulted in a permanent removal of 18 boats and a further reduction of another six boats is scheduled.

Member States have the obligation to adapt their fishing capacity in order to attain a sustainable balance between capacity and existing resources. Without any assessment of the status of the resources in relation to appropriate reference points, it is difficult to detect if a balance has been reached at the current level of fishing pressure and removals. Furthermore STECF is unable to determine whether the existing capacity is sufficient to guarantee sustainability.

Over the last 15 years landings of bivalve molluscs from the hydraulic dredge fishery have remained stable or declined. From the information presented, it is unclear to which areas the landings relate. There labels on the graph are uninformative and landings values in the graphs are much higher than those referred to in the text. With regard to environmental aspects, the documentation alleges that the gear used for the capture of bivalve molluscs on the Mediterranean coast of Andalusia has very little effect on the environment “in comparison to other types of fishing gear”. However, no information is supplied on the potential impact of this activity on the benthic community. The only statement relates to the fact that there are specific regulations governing fishing activities in the zones where the ecosystems are more sensitive (Sites of Community Interest).

STECF concludes that due to the absence of appropriate information to permit a reliable assessment of the stocks’ status or real impact of fishing operations on the fishing grounds and benthic community, the sustainability of the exploitation of bivalves involved in this fishery cannot be determined at this time. STECF therefore advises that at present, a decision to grant or decline the derogation request for mechanised dredge

fleet operating on the Mediterranean coast of Andalusia will need to be based on alternative criteria.

5.10. Mediterranean Sea & Black Sea - Assessment of management plan submitted by Italy for the boat seines fisheries (transparent goby, sandeel and fries of sardine) and for hydraulic and boat dredges for molluscs

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 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 (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 of limit reference points 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.

Moreover, with a view to exploit the target species of transparent goby, of sandeel and the fry of sardine, the boat seine fisheries concerned should be granted both derogation to the minimum mesh size of 40 mm square or 50 mm diamond and to the minimum distance from the coast of 3 nautical miles or to the depth of 50 m isobath where that depth is reached at a shorter distance from the coast.

In order to benefit of such derogations, as stipulated by Article 9(5) and Article 13(5) and (9) respectively of the Mediterranean Regulation (Council Regulation EC No 1967/2006), the fisheries concerned, in addition of being managed within an adequate management plan, shall be highly selective, in order to ensure that catches of species mentioned in Annex III are minimal, have a negligible effect on the marine environment and shall not be carried out above seagrass beds of *Posidonia oceanica* or

other marine phanerogames. For the latter issue a derogation to operate in the water columns above seagrass beds is available (Article 4(1) second subparagraph) provided that the lead-line and/or the hauling ropes of boat seines do not touch the seagrass bed during the fishing operations.

Moreover, in order to exploit the fry of sardine in derogation to the minimum catching size, as established by Article 15 of the Mediterranean Regulation, the national plan shall indicate that the stock of sardine is within safe biological limits.

Member States were expected to provide up-to-date scientific and technical justifications for such derogations.

Italy transmitted the following reports:

- boat seines fisheries including:
 - 1 report with national management plan for boat seines fisheries in different GSAs,
 - 2 reports for boat seine fisheries related with the national management plan and providing complementing information underpinning the requests of derogation to the minimum distance, the minimum mesh size, the minimum size and operation over seagrass beds;
- fisheries exploited by dredges: 1 national management plan for dredges in different areas

Terms of reference

STECF is requested to review the plans submitted by the Italian authorities, to evaluate their findings, to make appropriate comments, also with respect to the elements/measures included in the management plans and to advice whether each plan contains elements that account for the state of the exploited resources, if concerned fisheries are expected to exploit main target stocks in line with their production potentials and if the plan is expected to maintain or to revert fisheries productivity to higher levels.

STECF is also requested to evaluate whether the fisheries carried out are highly selective, both in terms of species and sizes, have a negligible effect on the marine environment and if the fishing gear risk damaging the seagrass beds during the fishing operations. STECF shall also advice whether the stocks of sardine, concerned by the fishing for fries of sardine, are within safe biological limits.

STECF Response

STECF has been unable to provide an agreed response to the National Management plan for dredges in the time available to the Plenum. STECF intends to provide a response by written procedure on or before 30 November 2010.

In relation to the other management plans for boat seine fisheries, STECF has evaluated three documents provided by the Commission from the Italian authorities.

- 1) NATIONAL MANAGEMENT PLAN FOR BOAT SEINES As per art. 19 of Reg. (EC) 1967/2006
- 2) NATIONAL MANAGEMENT PLAN FOR JUVENILE SARDINE (*Sardina Pilchardus*) FISHERIES WITH BOAT SEINES Pursuant to Articles 19 and 15 of Regulation (EC) No 1967/2006 DEROGATION REQUEST REGARDING MESH SIZE AND DISTANCE FROM THE COAST (Art. 9 and Art. 13 of Reg (EC) No 1967/2006)
- 3) NATIONAL MANAGEMENT PLAN FOR DEROGATION TO MESH SIZE AND DISTANCE FROM THE COAST (RULE (EC) N. 1967/2006, ART. 9) AND 13) REGARDING THE USE OF BOAT SEINES FOR TRANSPARENT GOBY (*APHIA MINUTA*) FISHING IN GSA 9

STECF notes that the information (text and figures) in the National Management Plan for Boat Seines largely overlaps with that provided in the other two Management Plans for juvenile sardine and transparent goby.

1) Technological considerations

- In all the documents from the Italian authority the derogation to the minimum mesh size, in derogation to the Art. 9 of Reg EC No 1967/2006, should be referred to the use of mesh less than 40 mm square-mesh or 50 mm diamond-mesh size for towed seines and not to the use of mesh less than 40 mm minimum size.
- Technical measures for boat seines:
 - a) *limitation on the size of fishing gear: net length should not exceed 300 m....* Should be read as “headrope length should not exceed 300 m”;
 - b) *net limitation of the mesh size: the mesh will be in the range from 3 to 5 mm.* Should be read as “the mesh length will be in the range of 3-5 mm”
 - c) *Net length restrictions: limitation on the size of fishing gear: net length should not exceed 300 m and should be armed with neutral buoyancy in order to avoid or minimize impact on the seabed: Traditionally the boat seines are used on the bottom: ballast prevails with respect to buoyancy.*

To guarantee a neutral buoyancy and ensuring an efficient control of fishing activities will positively minimize impact on the seabed.

- d) For the time being, traditional boat seine activities are carried out on soft bottoms (sand and gravel). If the seine nets were used on *Posidonia* meadows the delicate fish product might be contained by impurity causing great economic loss to the fishermen themselves. In the same way, in order to avoid damage to the net, the boat seine is not used on a sea bottom characterized by the presence of sea grass meadows.

2) Biological considerations

Exploitation of sandeels

STECF notes that although information on the fishery for sandeel is included in the Italian National management plan for Boat seines, there is no specific request for a derogation to fish for sandeel using this gear. STECF notes it is not clear if the Italian ‘Management plan on seine net (“Burzin”) used for Mediterranean sandeel (*Gymnammodytes cicerelus*) fishing’ (in GSA9), previously presented by the Italian authority and discussed under point 6.2 in STECF PLEN-10-01 and for which additional data and information have been required, should be considered included in the new Italian “Management Plan for Boat Seine”. If it is the case, STECF notes that the biological information actually provided is almost the same already provided along with the previous documents and, therefore, in the absence of the specific request for a derogation, has not attempted to give an opinion regarding the potential impact of small mesh size fisheries for sandeel within 3 nautical miles from the coast.

Exploitation of fry of sardine

The Commission requires that in order to exploit the fry of sardine in derogation to the minimum landing size, as established by Article 15 of the Mediterranean Regulation, the national plan shall indicate that the stock of sardine is within safe biological limits.

STECF stock review contains only information on sardine in GSA 16.

For GSA 9 and 10: estimates of biomass are not available, but indications on the stock status are given from Medits trawl survey trends in CPUE. These show a stock which has increased a little from the lowest level observed in the previous three years. In any case, bottom trawl gear is not appropriate to assess trends in abundance of sardine.

For sardine in GSA 16: an estimate of the state of the stock is available from SGMED 09-02. STECF considers that the biomass estimates of the total population obtained by hydro-acoustic surveys for sardine in GSA 16 shows that the most recent stock estimate (2008) is well below the average value for the stock over the preceding decade. “However, in the absence of proposed or agreed reference points, SGMED-10-02 is

unable to fully evaluate the state of the stock and provide any scientific advice in relation to them.”

For sardine in GSA 17: no numerical information is presented but indications are of a ‘fully exploited stock’ according to latest GFCM assessment (2010) and an overexploited stock according to the last SGMED accepted assessment in 2009.

For sardine in GSA 18: no numerical information is presented but it is thought to be similar to or indeed part of the same stock in GSA 17.

For sardine in GSA 19: no numerical information is presented but information suggests a possible improvement in the stock from a low in 2003-2004.

For adult sardine in GSA 16 and based on the report of the STECF-SGMED 10-02 WG, STECF **recommends** the application of the proposed exploitation rate $E \leq 0.4$ as management target for stocks of anchovy and sardine in the Mediterranean Sea. If this estimate of exploitation rate can be considered as equivalent to F/Z estimate obtained from the fitting of standard stock assessment models, the current exploitation rate (0.22) and even all the previous available estimates are lower than the reference point suggested by Patterson (1992). The fishing mortality level corresponding to $F/Z=0.22$ is $F=0.14$, if $M=0.51$, estimated with Pauly (1980) empirical equation, is assumed. Using the exploitation rate as a target reference point, the stock of (Adult) sardine in GSA 16 is considered as being sustainably exploited.

No information is presented on exploitation rates on adult sardine in other GSA.

STECF has no information on the exploitation rate of the sardine fry but notes that the estimates of adult biomass in many GSA is near the lowest levels observed in the last 10-15 years.

STECF is therefore unable to determine if the stocks of sardine are within safe biological limits.

In order to benefit from derogations, as stipulated by Article 9(5) and Article 13(5) and (9) respectively of the Mediterranean Regulation (Council Regulation EC No 1967/2006), the fisheries concerned, in addition of being managed within an adequate management plan, shall be highly selective, in order to ensure that catches of species mentioned in Annex III are minimal. The documentation provided to support the plans suggests that potential bycatch is able to escape and the gear is selective, however (unlike transparent goby), no numerical data on species composition is presented in the documentation that was supplied in support of the derogation request.

Thus, there is insufficient no up-to-date information to assess whether the stocks of sardine are within safe biological limits. STECF is therefore unable to assess the potential impact of the proposed derogation on the sardine stocks at the present time. STECF considers that a decision to grant or refuse the Italian request for a derogation to fish for sardine fry will need to be made using other criteria.

Additional suggestions / requirements for sardine

STECF needs to be able to evaluate if adult sardine is within safe biological limits. If assessments are not available, information on trends in abundance for all areas is required and some proposals for relative or absolute measures of safe biological limits for these sardine stocks needs to be made.

To show that the fishery is or is not species selective, numerical data on bycatch should be supplied.

Exploitation of transparent goby in GSA 9

The information provided on the fishery for transparent goby does not explicitly indicate if the stock is within or outside safe biological limits. However, as transparent goby population is based on a single year class, current status of the stock does not provide a basis for such a consideration, rather the fishery must be managed to ensure an appropriately low annual exploitation rate and sufficient survival of adults to recruit to the spawning stock.

However, STECF notes that, taking into account the difficulty to provide an assessment of stock status for a species with a lifespan of one year, a limit level was defined. An average value of 17 kg/day/boat has been defined in the Plan in the Tuscany area (the lower quartile value for the catch/day time series). A similar value (20 kg/day) was estimated using the Depletion-Corrected Average Catch (NOAA Stock Assessment toolbox, Alec MacCall, NMFS/SWFSC/FED), a new simple method for estimating sustainable catch levels when the data available is limited. Fig 34 of the Plan indicates that for the most recent years, CPUE are on average well above (about 40kg/day) the proposed reference value.

The planned management regime proposes action to limit the fishery after a decline in CPUE below a fixed reference level for three consecutive years. followed by complete closure of the fishery if no recovery occurs within the following 2 years. However, as transparent goby has a life cycle of 1 year, STECF does not consider that this approach will provide sufficient protection for the stock and **recommends** a shorter period to be defined.

In order to benefit from derogations, as stipulated by Article 9(5) and Article 13(5) and (9) respectively of the Mediterranean Regulation (Council Regulation EC No 1967/2006), the fisheries concerned, in addition of being managed within an adequate management plan, shall be highly selective, in order to ensure that catches of species mentioned in Annex III are minimal. The information supplied under the request for derogation suggests that the fishery for transparent goby is very species selective supporting the assertion that the fishery is sufficiently selective to comply with this particular requirement for obtaining a derogation.

Additional suggestions / requirements for transparent goby

STECF needs to be able to evaluate if the stock of transparent goby is within safe biological limits. The documentation supplied in the application suggests that there are data available that can be used to estimate (albeit very approximately) historic biomass by year and the catch rate (CPUE) at which the fishery ceases. Given this information it might be possible to develop an in-year approach to management, which could use catch rates in the fishery to provide a biomass related management rule. Such an approach would require in year data collection, in-year or better real time assessment and a demonstrable management response. On the other hand, recruitment timing may show important changes from one year to another, even if the recruitment strength can be similar. Moreover, the presence of more than one micro-cohorts may produce misleading perceptions of the strength of the yearly recruitment. It is hence necessary to analyze the catch rates throughout the season to evaluate the status of the stock.

Effect of boat seine fisheries on areas of *Posidonia oceanica* or other marine phanerogames

In order to benefit of such derogations, as stipulated by Article 9(5) and Article 13(5) and (9) respectively of the Mediterranean Regulation (Council Regulation EC No 1967/2006), the fisheries concerned, in addition of being managed within an adequate management plan, shall and shall have a negligible effect on the marine environment and shall not be carried out above seagrass beds of *Posidonia oceanica* or other marine phanerogames. For the latter issue, a derogation to operate in the water columns above seagrass beds is available (Article 4(1) second subparagraph) provided that the lead-line and/or the hauling ropes of boat seines do not touch the seagrass bed during the fishing operations.

No direct information is supplied regarding the impact of boat seines on *Posidonia oceanica* or other marine phanerogames. The request for derogation for catching transparent goby indicates the fish are “identified on the seafloor” and the management plan stipulates that fisheries are not above areas of seagrass. The information on sardine fry provides the following information: “This equipment has been designed so that its upper part stays afloat on the water surface. In fact, the lead line skims the bottom without causing damage to the substrate, also due to the slow speed of net hauling, always less than one knot and the vessel completely motionless.” STECF notes that the gear is intended to contact the seabed but based on the information presented is unable to comment on the impact of the gear on the seagrass which is above the substrate.

STECF considers that as no specific information regarding the impact on *Posidonia oceanica* or other marine phanerogames is provided it is not possible to determine if the lead-line and/or the hauling ropes of boat seines do or do not touch the seagrass bed during the fishing operations. Thus STECF considers that at present insufficient evidence was submitted to determine whether fishing for transparent goby and sardine fry using boat seines is likely to have any detrimental impact on areas of *Posidonia oceanica* or other marine phanerogames. STECF therefore consider that in the absence of such information, if a derogation to fish with boat seines for *Aphia minuta* and sardine fry is

granted, it should specifically exclude fishing over areas of *Posidonia oceanica* or other marine phanerogames unless it can be demonstrated that the impact on such habitats is negligible.

However, STECF considers that there is the need of a “clean” product (absence of any material that may produce a reduction of the product quality and price) for this fishery and thus it constrains fisherman to avoid the areas where *Posidonia* or other marine phanerogams are present. In any case, in the *Aphia minuta* and sardine fry fishery plan is stated that the fishing on *Posidonia oceanica* or other marine phanerogames beds is forbidden and thus STECF consider likely that the impact of this fisheries on *Posidonia oceanica* or other marine phanerogames is negligible.

Socio-economic considerations

The background information indicates that sardine fry and transparent goby fisheries give high value per kg and provide an important source of income and employment for the artisanal fisheries.

STECF notes that the revenue derived from sardine fry fishing is estimated at approximately 17 million euros per annum. With regard to employment, fishermen directly employed in the whole boat seine fisheries amount to approximately 2000, of which some 1.200 are involved in the sardine fry fisheries. STECF also recognizes that the importance in terms of employment is even higher if the ancillary industries (such as processing of this product) are considered. STECF notes that catches of sardine fry accounts for approximately 35% of the total revenue of the vessel with peaks of 50% in certain groups and areas.

STECF notes that because the boat seine fleet is traditionally dependent on the fishery for sardine fry and transparent goby, it is obvious that the revenue of the fleets currently exploiting them will be reduced if the proposed plan is rejected, unless the fleet is able to divert its efforts to exploit alternative resources. However, STECF was unable to evaluate this aspect as an impact analysis was not requested by the EU at that stage.

5.11. Mediterranean Sea & Black Sea - Request for information on fishing strategies oriented to catch picarel (*Spicara smaris*)

Terms of Reference

STECF is requested

- To indicate which are the factors influencing the target fishing for picarel (*Spicara smaris*) with different fishing gears (boat seine, shore seines,

bottom trawlers, purse seines) such as: reproductive season, spawning grounds, daylight, nighttime, seagrass beds, sediment type, depth, others

- to indicate whether target fishing for picarel (*Spicara smaris*) with bottom trawlers is independent from daytime or if instead it occurs either during hours of daylight or at nighttime.
- to indicate whether, irrespective of the fishing gears used, commercial fishing for picarel (*Spicara smaris*) may occur exclusively over *Posidonia* beds either close to the sea bed or in the water column

Background

STECF notes that no background documentation was provided by the Commission in relation to this request.

Information on the picarel (*Spicara smaris*) fishery

Spicara smaris is distributed in shallow waters over the continental shelf primarily at depths between 15 m - 170 m). The species inhabits *Posidonia oceanic* beds and muddy bottoms and occurs in schools except when breeding. Spawning occurs during late winter and early spring (February- May) and also occurs in mærl beds.

Picarel is very abundant in some Mediterranean areas, as the northeastern Mediterranean. In Greek waters, picarel constitutes the main target species of boat seiners which operate at depths shallower than 50 m. Regarding other Mediterranean areas, based on MEDITS trawl survey data, it was reported to be the most abundant species on the continental shelf (60 m - 120 m depth) off the east coast of Corsica (Mérigot et al., 2007), and to be relatively abundant in the eastern Adriatic, where the biomass estimates were 30.25 kg/km² and 1224 individuals km², with most of the specimens found at depths between 50 m -100 m (biomass index 69.20/ km² and density index 2799 individuals/km²), and no individuals observed at depths greater than 200 m (Jukic-Peladic et al., 1998).

Recent landings of picarel from the Mediterranean were about 5250 t (FAO statistics, 2008). The countries with highest landings are Greece (3119 t) and Italy (1529 t). Other countries with recorded landings of picarel are Spain (333 t) and Croatia (109 t). Other countries' landings amounted to less than 50 t per country. In Greece, boat seiners account for approximately 48% of total picarel landings by Greek vessels and otter trawls also make an important contribution (c. 27%, Katsanevakis et al. 2010a).

STECF notes that during the period 1979-1991, the mean annual Mediterranean landings of picarel were 13 000-18000 t and that more than 50% of the total Mediterranean catch of picarel (6700-9800 t) was landed in Greece (Vidalis and Tsimenidis, 1996).

Katsanevakis et al. (2010b) identified and described the boat seines métiers in the Aegean and East Ionian Sea, using boat seining data collected during 2002-2006 (2041 trips). Boat seines operate close to the coastal line usually between 10 and 50 m, on sandy, sandy/muddy bottoms or sea grass beds. According to current Greek legislation, fishing is allowed from one hour after sunrise to one hour before sunset. A closure for boat seines

is implemented in Greece from the beginning of April to end of September. Katsanevakis *et al.* (2010b) concluded that the “picarel-bogue” métier was the most important in both the Aegean and East Ionian Seas. IN 2007, a total of 362 vessels held boat seine licenses, of which 106 were registered in ports on the Ionian Sea and the rest were registered in the Aegean Sea. The number of vessels with a boat seine license has decreased by more than 30% since 1991. The boat seine is the main gear for picarel, especially for small individuals, which are in greatest demand. Small individuals (0+ age; ~8 cm in length) are abundant in October and their abundance reduces progressively. Katsanevakis *et al.* (2010b) considered that the high abundance of picarel and its high demand, especially during the opening of the fishing season in October, is the main reasons why picarel is the primary target species of boat seines. Furthermore, beach seine catches of pickarel attain higher prices due to the better condition (alive) of the specimens being caught.

The fishing season for bottom trawlers in Greece extends from October to May. Bottom trawlers operate mostly during daylight. Katsanevakis *et al.* (2010a) also identified the bottom trawl métiers, based on 3942 trips data. One of these métiers is “picarel-European hake” that operates both in the Aegean and Ionian Seas, on the upper part of the continental shelf. These authors highlight that although picarel has low market value compared to other target species of trawlers, it contributes substantially to the total value of the landings of the "picarel- European hake" métier.

Results from a bottom trawl survey carried out over the continental shelf at depths >60 m in autumn, winter and spring (180 fishing days) in the Ionian Sea, showed that picarel was among the most abundant fish species (an average, 343 picarel were caught per day; Tsagarakis *et al.* 2008).

Off the Mediterranean coast of mainland Spain, picarel is not a target species, However, around the Balearic Islands, fishing for picarel using boat seines (locally called “artet per a gerret”) is permitted. At present, this activity is allowed between 15 October 2010 and 31 March 2011 (BOIB 2010).This gear operates between 3 m and 60 m depth. Along the Catalan Coast (from the Delta of the Ebro River to the French border) picarel landings have steadily decreased from around 60 t in 2000 to < 1 t in 2009. The relatively high landings in 2000 and 2001 were obtained by purse- seining. The trawl landings were obtained in summer (July-August), and those of small- scale fishing in February- March (fishing statistics by the Fisheries Department of the Generalitat de Catalunya).

STECF conclusions

STECF considers that picarel is only a target for the fishery in Greece. It is the main target species of boat seines and a by-catch species for bottom trawlers and purse-seining. Bottom trawl catches of picarel are much smaller than those of boat seiners, and catches of picarel by purse seiners are very low compared to their main target species (sardine, anchovy).

The main reasons why picarel is the primary target species of Greek boat seiners are its high demand and relatively high abundance, especially at the start of the fishing season in October.

Picarel landings in Greece have decreased from 6700-9800 t during 1979-1991 to 3100 t in 2008 but since the number of boat seiners has also decreased (by 30% from 1991 to 2007; Katsanevakis et al. 2010b), STECF is unable to assess whether the decline in landings is attributable to a decline in effort, a decline in species abundance or other factors.

In Greece, bottom trawlers operate mainly during daylight. Picarel is the species that contributes most to the landings of the “picarel- hake” métier (around one third of the métier landings), the other dominant species in the landings being European hake and red mullet. This métier operates in the upper part of the continental shelf. Although picarel is the major component of the landings from the “picarel- hake” métier, it is not possible to assess whether it is this species or the other dominant species (hake and red mullet) that drives the strategy for the choice of fishing ground.

Given that picarel are a target species for boat seiners, that picarel are found distributed over *Posidonia* beds and that boat seiners are permitted to fish over *Posidonia* beds if the gear does not come into contact with the beds during the fishing operation, commercial fishing for picarel using boat seine may occur over *Posidonia* beds. Since other gears that also catch picarel are not permitted to fish over *Posidonia* beds (i.e. bottom trawls) fishing for picarel does not occur exclusively over *Posidonia* beds.

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5.12. Mediterranean Sea & Black Sea - Request for information on catch composition associated to fishing strategies of bottom trawlers in the Mediterranean Sea

Terms of Reference

STECF is requested to provide, both in absolute and relative terms, detailed species catch composition for benthic and demersal fisheries carried out by commercial bottom trawlers in the Mediterranean.

Different type of bottom trawl fisheries and seasons must be taken in due account (e.g. littoral areas; continental shelf; slope; deep water crustaceans; beam-trawl for flatfish; etc.).

The species composition should be detailed as much as possible with the category "other species" nihil or limited to less than 3%.

STECF response

STECF was unable to provide a response to this request because data were not available at the level of disaggregation required.

5.13. Western Waters and Outermost Regions - Request for an STECF advice on boarfish (Caproidae)

Background

Recent catch reports indicate an extremely rapid expansion of the fishery for boarfish, notably in areas VIIh and VIIj. Total reported catches by vessels of the European Union increased from 243t in 2005 to 83 708t.

There is no TAC in place for boarfish. The only relevant management measure is the requirement in R(EC) No 850/98 to fish this species with mesh size of 100mm or more.

Little is known about this species, and there is a concern that an excessively rapid fisheries expansion could lead to a rapid stock collapse.

Terms of reference

STECF is requested to:

- a) Briefly summarise known relevant information about this stock, its abundance, distribution and life-history as far as is known and is relevant for management purposes.
- b) Advise on appropriate interim measures to manage fishing opportunities on this species in the immediate and near-term future, in the context of the precautionary approach and (insofar as possible) MSY criteria. Such a strategy should aim to keep a low risk of stock depletion.
- c) Advise on appropriate information-gathering measures concerning the stock, such as biological sampling from commercial vessels and the initiation of new surveys, to permit the development of scientific advice that will permit the orderly development of this fishery towards maximum sustainable yield criteria.
- d) Advise on actual or potential ecosystem effects of this fishery, including by-catches in the fisheries targeting this species.
- e) Advise on appropriate mesh-size of fishing gear needed to target boarfish..

STECF response

In its response to the request, STECF has considered several background documents provided by JRC together with additional information made available to this meeting by the Marine Institute, Ireland (Working document untitled “Boarfish biology and fishery” by Clarke and *al.*, 2010 annexed to the report)

Summary of available information about the stock, its abundance, distribution and life-history

STECF first notes that the life history information for the species is sparse and that there is limited data available on the fishery.

The boarfish, *Capros aper*, is a small, gregarious, mesopelagic species, distributed at depths of 40–600 m. Its broad distribution is considered to extend from Norway to Senegal, including the Mediterranean, Azores, Canaries, Madeira and Great Meteor Seamount. Western IBTS data indicates that the current centre of distribution in the Northeast Atlantic region is in ICES areas VIIj, VIIh and VIIIa, particularly in rectangles close to the shelf edge. It is found over rock, coral, and sand (Blanchard and Vandermeirsch, 2005). Much of the biological information available for *C. aper* is limited to trophic analyses (Morato et al., 2000; Santos and Borges, 2001; Blanchard and Vandermeirsch, 2005; Lopes et al., 2006a). Boarfish exhibit size-related sexual dimorphism with males being smaller than females. Morphotypes of *C. aper* have been identified off the coast of Portugal (Lopes et al., 2006b), and although they tend to aggregate separately, and as a result are landed apart, the types may not be reproductively isolated. In the Northeast Atlantic, spawning aggregations form off the southwest coast of Ireland from June to August (Blanchard and Vandermeirsch, 2005). This has been

confirmed most recently as a large abundance of eggs and larvae were observed in the Celtic Sea, particularly along the shelf edge, during the 2010 July Mackerel egg survey. Preliminary data from samples collected to date indicates length at 50% maturity is equal to 10.5 cm TL.

The episodic nature of boarfish abundance in the Northeast Atlantic is evidenced from the historical literature. Historically considered rare, large abundances were periodically observed in the western English Channel from the 1840's to 1880's (Couch, 1844; Cunningham, 1888; Day, 1880-1884). In the early 1900's boarfish were noted for their sporadic occurrence in the English Channel and were scarce or absent for many years in the area around Plymouth where they had previously been abundant (Cooper, 1952). In the mid 1900's there was another apparent increase in abundance in that region. Groundfish surveys carried out in more recent years indicate that abundance appears to be increasing in most regions, e.g. the Celtic Sea (Pinnegar et al., 2002; Trenkel et al., 2004; Tidd and Warnes, 2006; ICES, 2008), the Bay of Biscay (Farina et al., 1997; Blanchard and Vandermeirsch, 2005), and offshore seamounts (Fock et al., 2002). Hypotheses for the increase include the effect of climate change/variability on distribution (Blanchard and Vandermeirsch, 2005; ICES, 2008).

One preliminary investigation of age, growth and mortality in the NE Atlantic suggests that boarfish is a long lived, slow growing species (White et al., 2010). Age at maturity for males and females were estimated to be 5.25 and 4.6 years, respectively and the maximum age observed to be 26 years. Another study from the Mediterranean has estimated the age of boarfish (Kaya & Özyaydin, 1996) and found age at maturity to be 2 years and maximum age 4 years. Females had a greater asymptotic length ($L_{\infty} = 130.0$ mm) than males ($L_{\infty} = 110.8$ mm). The study, based on examination of transverse sectioned otoliths, assumes that each otolith ring counted is annual, a hypothesis which still needs to be validated. Growth pattern exhibit a well defined asymptotic length which is reached early in the development of the fish, suggesting that it is optimal for the species to reach the asymptotic size quickly and thereafter allocate the surplus energy elsewhere, e.g. into reproduction. The presence of very old fish in the study suggests that the populations sampled, which undergo directed but occasional fishing pressure and unknown discard mortality, have not yet shown the age truncation typical of long-fished species (Ottersen et al., 2006). Although the growth rate of *C. aper* is similar to that of co-occurring pelagic species in the area, the relatively small size and late age at maturity of *C. aper* suggest that the species is less productive and, therefore, more sensitive to fishing pressure than the larger and earlier maturing herring (*Clupea harengus*), mackerel, horse mackerel, and blue whiting (*Micromesistius poutassou*).

Previously described as a nuisance bycatch in the mackerel (*Scomber scombrus*), horse mackerel (*Trachurus trachurus*), and crustacean trawl fisheries (Fonseca et al., 2005), spawning aggregations have, since 2007, become the target of a directed commercial fishery for fish-meal off the west coast of Ireland by Irish and Danish vessels. Landing increased from 700t in 2004 to more than 83,000t in 2009. Preliminary landing in 2010 are 110,000t. The development of the fishery is the result of displacement and diversification of the pelagic fleet from traditional species.

Interim measures to manage fishing opportunities on this species in the immediate and near-term future

In newly developing fisheries, it is frequent that effort and catch increase over time as experience, and profits, are gained in the fishery, until catches decrease at high levels of effort (Hilborn and Sibert, 1988). In parallel with this development, the catch rate (CPUE) generally declines from the high values observed at the start of the fishery. This corresponds to the so-called 'fishing-down' stage in which old and large individuals are removed from the stock. When fishing capacity and technology are important (as is often the case when redistribution of existing fishing effort from a stock with fishing restriction to a new exploited stocks occurs) the danger is that catch and effort do not develop slowly enough to provide clear signals of stock decline well in advance of serious over-fishing and stock depletion. In other word, the fishery develops faster than the biology can be assessed. The high levels of effort may then continue far beyond the stage at which population productivity can compensate for the fishery removals; there is then a serious risk of stock collapse.

Usually, it is not possible to tell how large a stock is without exploiting it and we cannot be sure that a most productive level has been reached without obtaining observations from stock sizes below that level (Walters, 1998). The challenge for the management of new/developing fishery is thus to permit some fishery development (and avoid under-fishing the resource in the sense of missing economic opportunities) at a pace allowing the collection of scientific information needed to better assess stock productivity and sustainability.

The precautionary approach to fisheries management requires prudent foresight (FAO, 1995). STECF notes that FAO suggests the following for new/developing fisheries:

- Access be controlled early
- A conservative cap be placed on catch and effort
- Area closures to limit risks to environment and resource be introduced
- PA reference points be established
- Voluntary agreements be encouraged
- Research programmes be started

In addition, FAO considers that management plans be developed quickly and that environmental effects should not be considered to be negligible unless proven so.

For boarfish, the situation is somehow in line with the description given above for a new developing fishery. The fishery is expanding rapidly and catches are increasing dramatically: 24,683t in 2008, 83,196 in 2009 and probably more than 110,000t in 2010 (provisional data). In the absence of sufficient life-history and fishery information for boarfish in the Northeast Atlantic, the potential impact of the recent commercial exploitation on its dynamics in the area is still unknown. It is thus impossible for STECF to give advice on catch options that are consistent with either precautionary reference points or in relation to maximum sustainable yield.

STECF further notes that an interim management plan is under development by Ireland and Denmark. This proposal is still at an early stage of development but from the information made available to STECF, it would be based on TAC limits corresponding to a substantial reduction on the current catches in 2010 (111,000 t to date).

STECF considers that given the large gaps in knowledge on exploitation rates and stock status, precautionary measures should be initiated until sufficient information is available to assess the stock. STECF **recommends** that a TAC should be implemented in 2011 at a level corresponding to a substantial reduction in catch over recent years. STECF also considers very important that a program of information gathering be developed to improve understanding of biology, ecology and exploitation of boarfish. In the long term, an adaptive process of regular information gathering, reassessment of the stock and adjustment of harvest policy should be implemented.

Information-gathering measures

STECF notes that both Ireland and Denmark are undertaking studies, focusing on providing a rational basis for a long term management plan. STECF encourages these initiatives. These studies include age validation, growth, mortality, reproductive strategy, fecundity, maturity and selection of valid indices for stock size and trajectory over time with the aims of using age-based assessment models. Boarfish having a strong acoustic signature, it should also be possible to use acoustic survey to provide abundance and/or biomass estimates. In the former case, this could be used in a survey-based harvest control rule.

STECF considers that the implementation of information gathering measures for a new/developing fishery is a complex issue which could not be adequately address during an STECF plenary meeting. STECF advises the Commission to appoint appropriate experts to identify information-gathering measures that could be implemented to permit the development of scientific advice for development of this fishery towards maximum sustainable yield criteria. This group of expert could prepare a report before the STECF 2011 spring plenary meeting

Potential ecosystem effects of this fishery

The ecological role and significance of boarfish in the NE Atlantic is largely unknown.

The diet has been investigated in the Eastern Mediterranean, Portuguese waters and at Great Meteor Seamount and consists primarily of copepods, specifically *Calanus helgolandicus*, with some Mysid shrimp and Euphausiids (Fock et al., 2002; Lopes et al., 2006; MacPherson, 1979). Despite the obvious potential for these species to feed on fish eggs and larvae, there was no evidence to support this conclusion in Portuguese waters and they were not considered predators of commercial fishes and thus their increase in abundance was unlikely to affect recruitment of commercial fish species (Lopes et al., 2006).

Boarfish appear an unlikely target of predation given their array of strong dorsal and anal fin spines and covering of ctenoid scales. In the Azores however, there is evidence to suggest that they may be an important component of many species of fish and sea birds diets. Given their frequency in the diets of marine and bird life in the Azores boarfish appear to be an important component of the marine ecosystem in that region. There is currently insufficient evidence to draw similar conclusions in the Northeast Atlantic

Boarfish have, until recently, been considered a periodical unwelcome bycatch in mixed demersal, pelagic and crustacean-trawl fisheries (Fonseca et al., 2005; Gatcombe, 1879). In the NE Atlantic they are often caught together with mackerel (*Scomber scombrus*) and horse mackerel (*Trachurus trachurus*) and occasionally with Blue whiting (*Micromesistius poutassou*). The commercial fishery for boarfish is highly selective and targets dense shoals of boarfish. Catches are generally considered clean from September to February at which point a quantity of mackerel is found in the catches. Information on the by-catch of other fish is sparse, and it is thought to be minimal. Like all pelagic trawl fisheries, there are probably sporadic instances of cetacean by-catch, though information is also lacking.

Advise on appropriate mesh-size of fishing gear needed to target boarfish.

The fishery has used typical pelagic trawl nets with mesh size of 32-54 mm. Preliminary information suggests that only the smallest boarfish escape this mesh size. In October 2010, the European Commission notified national authorities that under the terms of Annex 1 of Regulation 850/1998 industrial fisheries for this species should not proceed with mesh sizes of less than 100 mm.

A mesh size of 100 mm is considered by the industry to be too large to select for boarfish, and unsuitable to the fishery. However it is not clear if adaptations to the cod end to restrict the effective cod-end mesh size, to less than 100 mm, may be applied legally. Mesh sizes of less than those used in the fishery to date (c. 45mm), may be associated with the “bucketing” effect whereby fish pile up and force other fish out of the mouth of the net, reducing efficiency.

The efficiency of a pelagic trawl relates to mesh size in both the outer part of the net and in the cod end. In general terms, the outer meshes must be sufficiently large to reduce drag, whilst the meshes in the cod end must sufficiently small as to trap target species (Fréon and Misund, 1999). The most important industry consideration regarding mesh size is to achieve efficiency. Given that the fishery has been for fish meal, there is no incentive for the industry to achieve size selectivity of the catch.

Mesh size is not usually considered a useful management measure in pelagic trawl fisheries. Suuronen et al. (1997) suggest that the usefulness of conventional minimum cod-end mesh-size management in of pelagic fisheries is questionable. This is because cod end meshes get blocked and prevent fish escaping. In addition, small pelagic shoaling species like boarfish may not survive escapement. Unless the level of escape mortality is known, there may be little benefit in changing pelagic trawl selectivity (Suuronen and

Sarda, 2007). Taking the above into consideration, STECF considers that a mesh size of c.45mm is appropriate for this fishery as an interim measure until reliable information on mesh selectivity for boarfish becomes available.

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5.14. Western Waters and Outermost Regions - Request for an STECF advice on black scabbard (*Aphanopus carbo*) in waters around Madeira

Background

DG MARE is not in possession of scientific advice or reports related to the black scabbard in waters around Madeira, for which the Union fixes an annual TAC. However, the Portuguese administration has put forward that a scientific report on the stock and its exploitation has been published in a national scientific journal, and requests that the findings therein be taken into account when fixing the TACs.

Terms of reference

STECF is requested to:

- a) Summarise the publication(s) to the extent relevant for the assessment of the stock status,
- b) Advise on the black scabbard component around the waters of Madeira taking into account the information available in the publication(s).

STECF response:

Current state of knowledge

The Fisheries

There are a number of black scabbard fisheries in different areas, such as the Azores and Northern Europe (ICES subareas II, IV, V, VI and VII combined), continental Portugal (mainly ICES IXa) and Madeira waters (CECAF 34.1.2). The Northern Europe fisheries are characterised by the fact that *A. carbo* is not the target species, being caught as by catch in the trawl fisheries. In Subareas VI, VII, and XII, and Division Vb, black scabbard is mainly taken in mixed trawl fisheries along with roundnose grenadier and sharks. Nevertheless, in the waters off mainland Portugal black scabbard is taken in a targeted longline fishery that started on late 80's. In Madeira this longline fishery is one of the oldest recorded deep-water fisheries dating back to the mid 17th century. Trends in landings of black scabbard are given in Figure 5.14.1. Charts showing the distribution of black scabbard in the Northeast Atlantic are shown in Figure 5.14.2.

From the information presented in the background documentation and additional information, it is clear that the longline fisheries from the Portuguese EEZ (Madeira, Azores and mainland) have exhibited similar temporal patterns regarding fishing capacity. In effect, both fisheries have shown an increase in fleet size between the late 1980s and the early 1990s followed by a decrease from the late 1990s to the early 2000s. This most recent reduction was closely accompanied by an investment in technology: larger vessels with higher engine power and also new equipment, such as winches used to haul the gear. The increase in vessel dimensions and power is more pronounced in the mainland fishery.

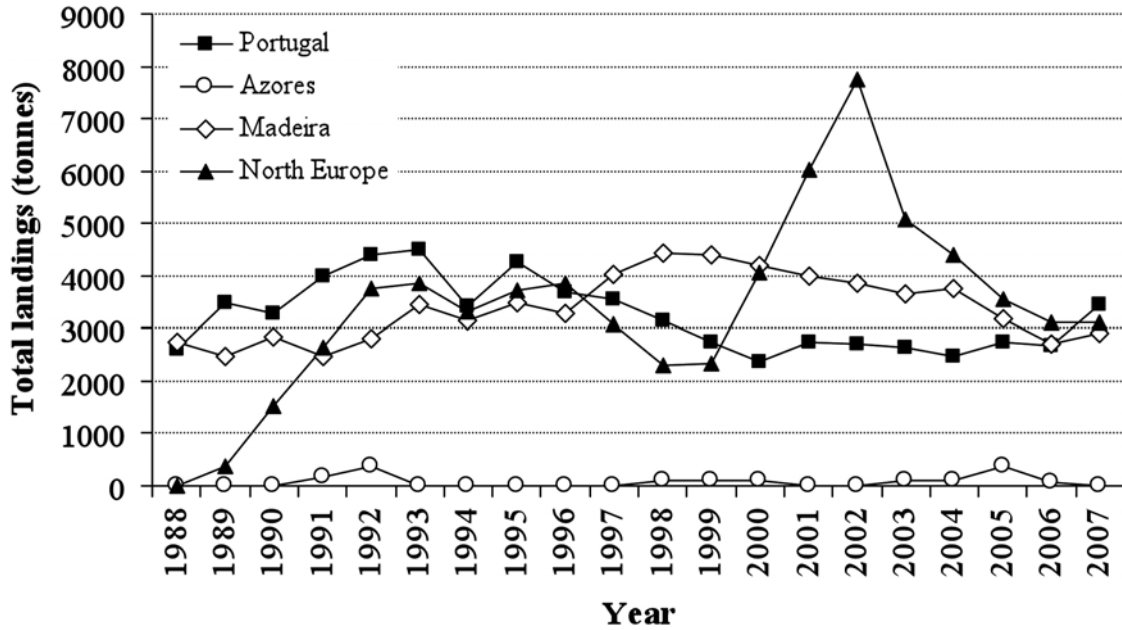


Fig. 5.14.1. – Total landings (tonnes) reported by mainland Portugal, Madeira, the Azores and northern Europe (subareas II, IV, V, VI and VII combined) for the last 20-year period. Sources for Madeira data: DREM (2008); Other data: ICES (2008).

When comparing mainland Portuguese fishery and Madeiran fishery a number of difference were identified:

There are presently more vessels engaged in fishing for black scabbard off Madeira than off mainland Portugal. Despite the different fleet sizes observed in the two fisheries, the annual landings of the species have been similar in the recent years at around 3,000 tonnes.

The fishing vessels of the mainland fishery have, on average, a larger size and engine power than the vessels from the Madeiran fishery. The fishing strategy is also different for the two fleets. Whereas the mainland vessels usually perform only one haul per fishing trip, Madeiran vessels conduct more than two hauls per fishing trip. Furthermore, the duration of fishing trips in Madeiran waters has increased to five or more days in recent years, reflecting the search for more distant grounds to capture this species. In Madeira waters, black scabbard abundance has decreased in recent years and the fleet has extended operations southwards to Canary Islands waters.

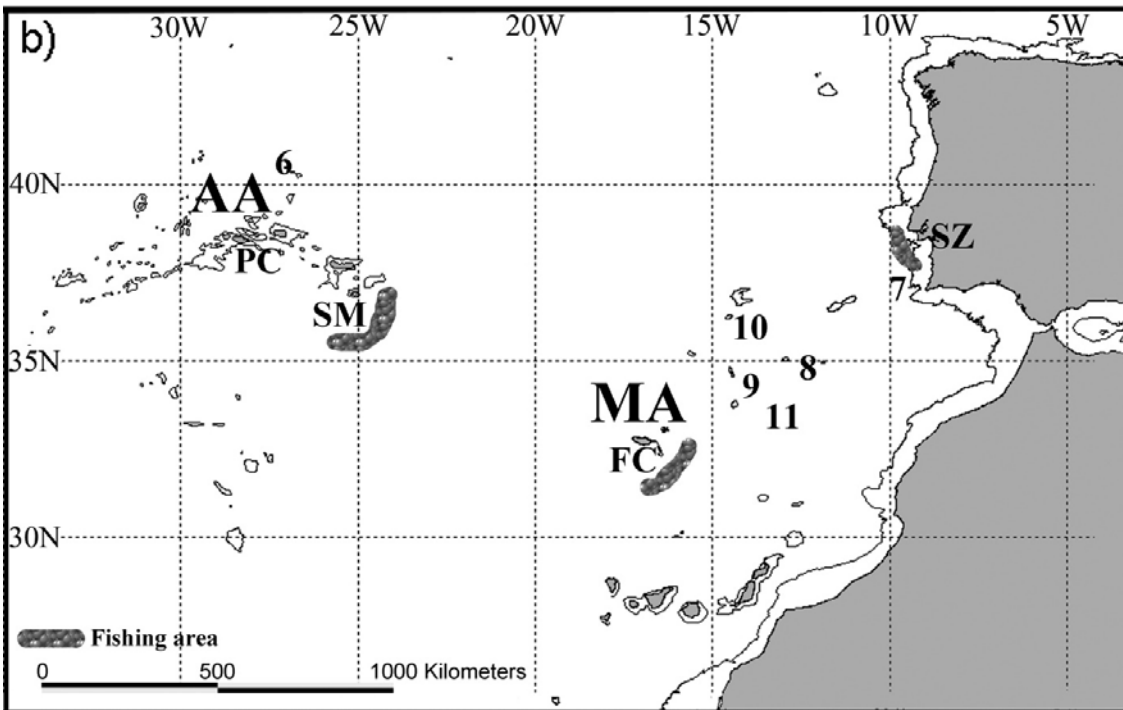
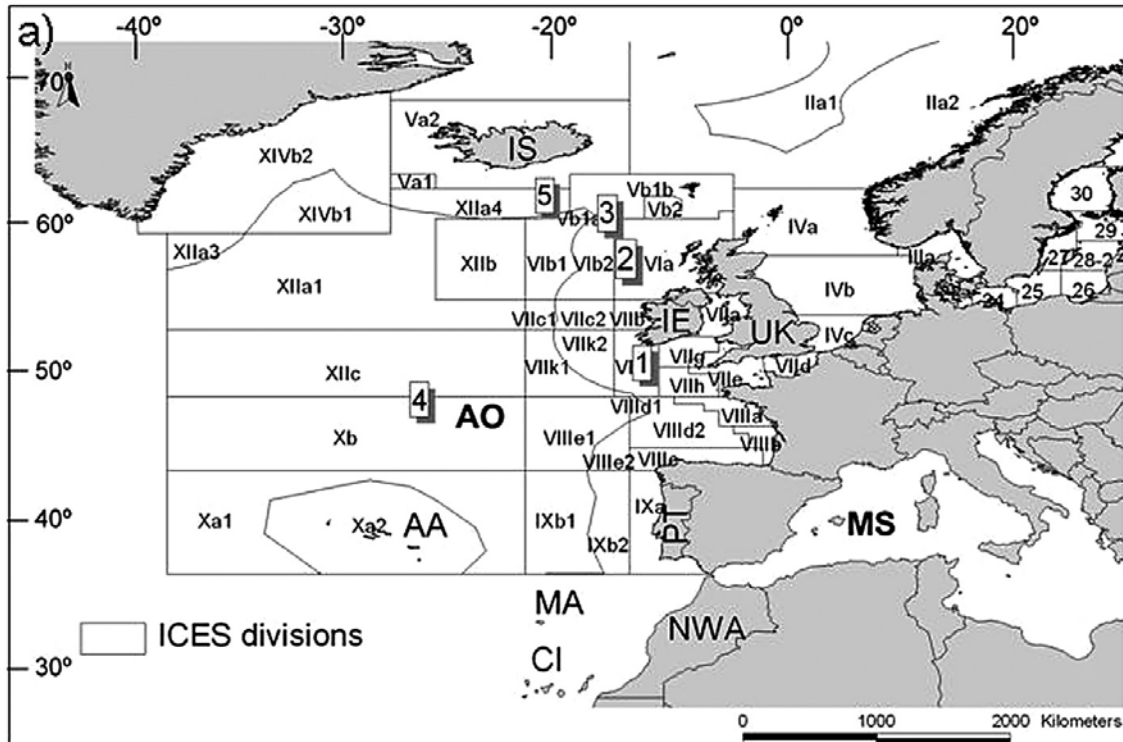


Fig. 5.14.2. – a) Map of the northeast Atlantic with the ICES divisions and b) the southern northeast Atlantic with the sampling locations of black scabbard and the 1000 m isobath. AA, Azores Archipelago; AO, Atlantic Ocean; CI, Canary Islands; FC, Funchal; IE, Ireland; IS, Iceland, MA, Madeira Archipelago; MS, Mediterranean Sea; NWA, Northwest Africa; PC, Pico Island; PT, mainland Portugal; SM, Santa Maria Island; SZ,

Sesimbra (mainland Portugal); UK, United Kingdom; 1, Porcupine Seabight; 2, Rockall Trough; 3, Hatton Bank; 4, Faraday seamount; 5, Reykjanes Ridge; 6, Sedlo seamount; 7, Gorringe seamount; 8, Ampère seamount; 9, Unicorn bank; 10, Lion seamount; 11, Seine seamount.

Mixing of species

In the northeast Atlantic the genus *Aphanopus* has two species (*A. carbo* and *A. intermedius*, Parin 1993). Both occur at a wide depth range (from 200 m to 1700 m for *A. carbo*) being slightly narrower in the case of *A. intermedius* (from 200 m to 1350 m). Their distribution is widespread with records in the northwest and eastern Atlantic and in the Pacific. However, in the east Atlantic, *A. intermedius* has a more southerly distribution, occurring in the Canary Islands south to Angola, whereas *A. carbo* has a more northerly distribution, occurring from Iceland to the Canary Islands.

Although it has been known for some time that there are two very similar species, *Aphanopus carbo* and *A. intermedius*, it is only recently that microsatellite markers (Stefanni and Knutsen, 2007) have made it relatively easy to separate the two species: The study concluded that from the 2 groups of individuals sampled, individuals from Madeira, mainland Portugal and the Faraday seamount comprise *A. Carbo* and a individuals from Pico Island (Azores) comprised *A. intermedius*.

Because *A. intermedius* is more common in waters around the Canary Islands, the recent southward extension of fishing operations of the Madeira fleet has resulted in an increased proportion of *A. intermedius* (20% by weight in some sampled catches) in the landings into Madeira in recent years.

The migratory hypothesis

The fish caught off Madeira and subsequently from the fishery that developed off mainland Portugal in 1983 are generally larger than those caught in more northerly areas off Scotland and Ireland. Fish from the northern area have nearly all been immature individuals and there exists only one report, from Icelandic waters, of a mature black scabbard from these northern areas of the eastern Atlantic. This has led to much speculation over the years as to whether there is a single spawning stock around Madeira. In fact Madeira and Canary Islands are the only known spawning areas of this species in the Northeast Atlantic. Part of this hypothesis is that there is a migration, possibly for feeding, of sub-adults to northern waters. The life stage at which such a migration might occur is unknown, because virtually nothing is known of the egg, larval or juvenile stages of this species.

Assessment of the species

For several decades, black scabbard have been a valued resource for fishing communities in Madeira and more recently for those in mainland Portugal. An assessment of the species' exploitation status was conducted only in the late 20th century and separated for the two areas of the Portuguese Exclusive Economic Zone (EEZ). Nowadays, species

stock assessment studies are usually conducted in the framework of scientific working groups from regional fisheries organizations: ICES analyses data from the fishery operating in continental waters, whereas CECAF deals with the data pertaining to the Madeira fishery.

The stability of the landings in the last decade in ICES Division IXa, the sharp decrease in the northern European areas, and the generalised absence of biological information on the species led the International Council for the Exploration of the Sea to establish the existence of a single stock in the northeast Atlantic, although divided into two components: north and south (ICES, 2007). The north component corresponds to subareas V, VI, VII and XII and the south component to subarea IX. Madeira Islands are included in the CECAF area 34.1.2. The black scabbard fishery (northern and southern components) are regulated by COUNCIL REGULATION (EC) No 2015/2006 of 19 December 2006. Management advice from ICES on deepwater species including black scabbard is biennial and is based on the reports of the ICES WGDEEP& ICES WGEF. The EC Proposals for fixing for 2011 and 2012 the fishing opportunities for EU vessels for black scabbard off Madeira are given in Table 5.14.1.

Table 5.14.1: The TACs proposed for the Madeira scabbard fish fishery:

Species: Black scabbard <i>Aphanopus carbo</i>		Zone: EU and international waters of CECAF 34.1.2. (BSF/C3412-)	
Year	2011	2012	
Portugal	3 643	3 643	
EU	3 643	3 643	
TAC	3 643	3 643	

Latest ICES advice for *A. carbo* (June, 2010) in VI, VII, and Divisions Vb, XIIb is that that no reliable assessment can be presented for this assessment unit and that stock status remains unknown. However, ICES notes that landings have shown a declining trend since the start of the fishery. For black scabbard in Subareas VIII and IX stock status also remains unknown although the absence of any trend in LPUE of black scabbard from Division IXa suggests that the biomass has been relatively stable since 1995. The advice for other areas (Subareas I, II, IV, X, XIV and Divisions IIIa, Va) was similar; there is no reliable assessment and stock status is unknown.

For all Divisions and Areas, discards are considered negligible (Portuguese longline fishery, French trawl fishery). Madeira is the only known spawning area for this species in the Northeast Atlantic.

From the information available to STECF, it is apparent that sub-area IX is the most important area for the exploitation of black scabbard in the northeast Atlantic. However the paucity of appropriate and reliable fishery-related data on black scabbard continues to compromise the scientific community's ability to provide pertinent management advice for fisheries exploiting this species. STECF **recommends** that appropriate data and information be made available either through collation of existing information and

collection of additional information, so that a reliable assessment of the resources of black scabbard in the northeast Atlantic can be undertaken.

Stock structure

The factors studied in the reviewed literature include life history parameters, otolith shape analysis, parasites, landings-and-effort data and contaminants. Sampling was conducted between 2005 and 2007 in three areas of the southern NEAtlantic: mainland Portugal, Madeira and the Azores.

Genetic studies

The stock structure of black scabbard in the northeast Atlantic remains unknown. Swan *et al.* (2003), based on otolith microchemistry, have suggested that there is a single stock. On the other hand, Quinta *et al.* (2004), based on the frequency of the mtDNA restriction patterns, raised the hypothesis of the existence of two separate stocks: one near the Madeira archipelago and the other including individuals from mainland Portugal and Hatton Bank. More recently, Stefanni and Knutsen (2007), using the same molecular technique (mtDNA), stated the hypothesis that the specimens living off Madeira and mainland Portugal and at the mid-Atlantic Ridge (Faraday seamount) may belong to the same stock unit.

Growth studies

Black scabbard, in contrast to some species considered as deep-water species, have a relatively fast growth rate; a mean length of 130 cm corresponds to 13 years old. The uneven distribution of length-at-age associated with poorer information on age data from the Azores made it impossible to apply a growth model separately to data from the three regions (Azores, Madeira and mainland Portugal) separately and compare parameters. Using an alternative approach comparing the mean lengths-at-age among the regions in evaluation across a common age range, the results suggest the presence of distinct stock management units in each area.

Significant differences were obtained in the comparison of the distribution of length-at-age between Madeira, the mainland and the Azores. These differences might arise due to the differential population fraction analysed, or the different habitat characteristics of each study area. A relevant finding is the stability in the population parameters over an 8-year period, showing that, although determined by sex and sexual stage, black scabbard demography did not change during the studied period. This finding might be related to a fairly stable fishing pressure (Bordalo-Machado and Figueiredo, 2009) in a long-developed fishery.

Reproduction

In previous studies it has been shown that the black scabbard displays differences in size range and sexual cycle along the NE Atlantic. In general, specimens caught off Madeira

and the Canary Islands attain larger total length and cover all maturity stages. Specimens caught in Portuguese continental waters are predominantly immature or spent, although there have been occasional records of pre-spawning individuals, with total lengths varying between 60 and 130 cm. In NW Scotland the specimens are small (below 65 cm total length) and are all immature. The reproductive cycle remains unclear.

Comparison of developing ovaries from mainland Portugal and Madeira revealed that those from Madeira were more advanced in development, with more cortical alveoli stage oocytes and a higher gonadosomatic index. Starting in July, the reproductive development of all females from mainland Portugal was interrupted by a generalised atresia of developing oocytes. Completion of gametogenesis and spawning only occurred for fish from Madeira but some fish from this area also failed to complete oocyte development due to mass follicular atresia of vitellogenic oocytes.

Otolith structure

The otolith contour shape of specimens caught off the Madeira archipelago is different from that of specimens caught off mainland Portugal, suggesting the probable occurrence of more than one distinct stock in Portuguese waters. However, it is important to note that the results from the analyses that considered the three areas are less consistent than those for two areas because the number of otoliths used was relatively small.

Parasites

From the 16 parasite taxa recorded for *A. carbo*, 6 were selected as biological tags. These discriminated the populations of the three sampled localities, leading to the conclusion that they might correspond to three stocks. However, in order to draw more robust conclusions about stock separation for these three localities, a multidisciplinary approach is needed, gathering information on the fish ranging from morphology (morphometrics, meristics and otolith microchemistry) to biology (life story characteristics).

Landing and effort data

The results obtained with the comparison of the LPUE series from the two fleets (Madeira and mainland Portugal) were not conclusive with respect to the existence of two different *A. carbo* populations under exploitation in the Portuguese EEZ.

Assuming that the species carries out migrations between the two regions, this result is in agreement with the following idea: changes in recruitment of black scabbard in the Madeira region is manifest off mainland Portugal after a three-month time lag. This implies that fish from the two regions may belong to the same exploited stock, a scenario that is consistent with the results of Stefanni and Knutsen (2007), who carried out a comparative phylogeography study of *Aphanopus carbo* using samples from four different NE Atlantic locations, including Sesimbra (mainland Portugal) and Madeira waters.

Contaminants

The analysis of some heavy metals (Hg, Cd and Pb) in tissues of scabbard from three different locations (mainland Portugal, Azores and Madeira) showed differences in concentrations.

Total mercury levels observed in black scabbard caught off the Azores and Madeira were significantly higher than those caught off the mainland. Taken together, the presence of high mercury levels in tissues from this benthopelagic species is expected and is related not only to the biochemistry of this metal but also to the ecological and biological characteristics of the species.

Levels of cadmium and lead from the specimens landed on the Portuguese mainland were significantly different from those landed in the Azores. Cadmium concentrations were higher in the mainland specimens, whereas lead concentrations were higher in the Azorean specimens. In contrast to the observed distribution pattern of mercury, region is the only factor that explains the observed variability of cadmium and lead levels.

In summary, the similarities and dissimilarities observed between regions might be due to differences in trace metal contents in the water, species physiology, and feeding preferences of the fish inhabiting these three Portuguese regions.

Conclusions on stock identity

The study reviewed by STECF concluded that the majority of the techniques used showed the existence of different black scabbard fish population units in the three study areas, (mainland Portugal, Azores and Madeira) or at least between two of them, namely mainland Portugal and Madeira. However, based on the findings in the review, it was recommended by the authors that genetic techniques be used in the near future to complement the above-mentioned studies and the described stock structure. Furthermore, this first attempt to examine the stock structure in the southern European region should be complemented by another study in the northern European areas to finally comprehend the black scabbard stock structure in the NE Atlantic.

STECF comments and recommendations

STECF first notes that literature regarding the biology and fishery of *A. carbo* is scarce. The species has never been assessed in an analytical way (assessments are based just in landings trends), and stock status in all areas remains unknown.

STECF notes that, because of the uncertainties regarding stock structure and identity. ICES considers that there is a single Northeast Atlantic stock, but for management purposes two components based on the fishing method, longline in the south and bottom trawl in the north, are differentiated.

STECF notes that state of knowledge on the spatial distribution of the black scabbard populations in the North Atlantic and others areas and its migratory patterns during the year is still very limited. This is particularly true for accurate data on the location and time of the year when mature females aggregate, on the location and time of hatching and on the location of nursery grounds. However STECF considers that the shortage of such information does not mean that the migratory hypothesis can be rejected and unless evidence for the existence for separate unit stocks can be provided, it is appropriate to consider the populations of black scabbard in the northeast Atlantic as a single unit stock.

STECF notes that landings of black scabbard in Madeira are composed of two different species (*A. carbo* and *A. intermedius*). However, the EU TAC relates only to *A. Carbo*, and the proportion of *A. intermedius* has increased during recent years as the Madeira fleet has extended its fishing range to the south towards the Canary Islands. STECF **recommends** that managers take this into account when setting TACs.

STECF notes that, according to ICES, the NE Atlantic the stock structure of black scabbard fish is still unknown. The more recent paper based on molecular techniques stated the hypothesis that the specimens living off Madeira and mainland Portugal and at the mid-Atlantic Ridge may belong to the same stock unit.

STECF recognises the effort carried out by the Portuguese researchers to provide a holistic approach to the stock structure in the southern area of distribution in the northeast Atlantic (Azores, Madeira and Mainland Portugal) . The results provide some evidence to support the existence of tow or possibly three stock units. However, STECF considers that because the results are based primarily on an analysis of quantitative phenotypic characteristics using a limited number of samples, they should be considered as preliminary allow considering not conclusive these results, being considered as preliminary unless more conclusive evidence for the existence of separate stocks is forthcoming, it is appropriate to consider the populations of black scabbard in the northeast Atlantic as a single unit stock.

STECF suggests that genetic techniques are probably the most appropriate tools to further investigate and describe stock structure. Furthermore, a complementary study in the northern European areas would be useful to determine the black scabbard stock structure throughout the NE Atlantic.

However, STECF notes that, if natal homing is the general structuring principle of black scabbard populations in the area, the question whether they are genetically distinguishable is not crucial for the existence of self-sustaining population units and for management (Waples et al. 2008). On the contrary, the existence of separated spawning aggregations is a key factor regulating the dynamic of the population (Svedäng et al. 2010) and should be taken into account in managing black scabbard stock (Cardinale et al. 2010).

With the limited knowledge available black scabbard fish, STECF is unable to advise on current status of the black scabbard stock component around the waters of Madeira.

STECF **recommends** that information that can be used to evaluate a long-term sustainable level of exploitation, stressing that fisheries independent data are desirable to improve the quality of the assessment.

References

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Svedäng, H., Stål, J., Sterner, T. and Cardinale, M. (2010) Consequences of subpopulation structure on fisheries management: Cod (*Gadus morhua*) in the Kattegat and Öresund (North Sea). Reviews in Fisheries Science 18(2), 139–150.

Waples, R.S., Punt, A.E. and Cope, J.M. (2008) Integrating genetic data into management of marine resources: how can we do it better? Fish Fish. 9: 423–449.

5.15. North Sea and Baltic Sea - Request for assessment of 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 2011 and follow the regulation [R (EC) No 676/2007].

Similar advice was requested from STECF in the previous years.

Terms of Reference

1. STECF is requested to advice 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. STECF is requested 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. STECF is requested 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 2009.

STECF response

STECF observes that similar advice has been requested in 2007, 2008 and for 2009 (see report STECF winter plenary meetings 2007, 2008 and 2009; report 2007, 2008 and 2009 STECF review of scientific advice). STECF follows the same approach for the current request. STECF notes that the TAC advice (following the regulation [R (EC) No 676/2007]) given for North Sea sole and plaice respectively implies a reduction of F in 2011 relative to F in 2010 of 10% for sole but an increase of 12.5% for plaice. Assuming (as before [STECF review of scientific advice 2007, 2008 and 2009]) a proportional relationship between fishing mortality and effort in kW*days, and a constant EU share of the TAC for plaice, STECF considers that the best estimate of the maximum level of fishing effort necessary to take catches equal to the EU shares of the TACs, would be equivalent to a reduction in effort in 2011 relative to 2010 of 10% when considering sole in isolation and a 12.5% increase when considering plaice in isolation.

Plaice is mainly caught together with sole in a mixed beam trawl fishery. Therefore, the maximum level of fishing effort necessary to take catches of both species equal to the respective EU shares of their TACs, would be equivalent to an increase in effort in 2011 relative to 2010 of 12.5%. STECF notes that this amount of effort would likely lead to a mismatch between effort and the sole TAC adopted according to the flatfish plan [R (EC) No 676/2007], potentially leading to over quota sole catches (under the assumptions of the calculations above the sole TAC would be overshoot by 2 890 tonnes, or 20%).

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); beam trawls with mesh size equal to or larger than 120 mm (BT1) and to a lesser extent gill nets (GN1) and trammel nets (GT1). The deployed level of effort (kW*days) in the North Sea for these gears over the period 2000-2009 is presented below.

ANNEX	REG AREA	REG GEAR	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Ila	IV	BT2	81454512	77585759	66598651	60347021	59374478	58960080	50359617	48930697	36065424	37123037
Ila	IV	TR1	54932803	50903617	54308355	31519952	25244492	24509223	24600580	21119155	23873601	23746414
Ila	IV	TR2	8172106	10976862	21837265	19362864	18604904	17248758	16121927	16229836	16416392	14857664
Ila	IV	GN1	4897946	4499989	4297404	3392804	3447820	3323114	3252787	2275797	2413722	2441239
Ila	IV	BT1	2781127	2675692	7238757	5675042	4967390	4613201	5347147	4573736	3023356	2130900
Ila	IV	GT1	809347	899300	4011118	969896	1039412	1056798	1973787	1820771	1142813	1230051
Ila	IV	LL1	685063	540285	662902	264989	168268	189027	119561	44523	421095	765666
Ila	IV	TR3	5132676	3516779	3691963	3110526	3076432	2407530	1779807	842489	933455	622117

The ranking of the gear groupings according to Annex Ila of the FO regulation in the North Sea, catching plaice in 2009 is BT2, TR1, TR2, GN1, BT1 and GT1 with 67%, 14%, 8%, 7%, 3% and 1% respectively according to catches. The ranking according to the landings is BT2, TR1, TR2, BT1, GN1, and GT1 with 59%, 23%, 8%, 6%, 2% and 2% respectively.

The ranking according to sole catches in 2009 is BT2, GN1, GT1 and TR2 with 86%, 5%, 5% and 4% respectively. The ranking according to sole landings in 2009 is BT2, GN1, GT1 and TR2 with 87%, 6%, 6% and 2% respectively.

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5.16. North Sea and Baltic Sea - Request for information about ranking of the cod plan [R (EC) No 1342/2008] fleets according to their contributions to cod catches and landings in 2009

Background

Article 12 of the cod plan establishes conditions for the fishing effort allocations.

In accordance with paragraph 4 of this article the annual adjustment shall apply to the effort groups where the percentage cumulative catch calculated according to paragraph 3(b) of the same article is equal to or exceed 20%.

Therefore there is need to identify the effort groups to which the annual fishing effort will apply.

Terms of reference

The Commission requests STECF to provide the percentage cumulative catch that is calculated in accordance with article 12(3) of the cod plan for all effort groups under the cod plan.

The ranking should be made by the effort group according to their contributions to cod catches in 2009.

STECF response

STECF SGMOS 10-05 has provided tables of ranked catches by fishing gear type for the areas covered by Annex IIA in line with the TORs given to that study group. This information has been provided for a number of years however the standard tables contain rankings for both regulated and unregulated gears. This has the advantage of providing early indications of any emergent gears, not currently regulated, which nevertheless may be making an increasing contribution to cod mortality.

STECF is however asked to provide rankings for regulated gears in line with paragraph 3 and 4 of the cod recovery plan regulations as set out below.

“ 3. The effort groups for which an annual adjustment in the maximum allowable fishing effort shall be applied shall be decided on the following basis:

(a) the catches of cod taken by vessels in each of the effort groups shall be evaluated on the basis of data submitted by Member States in accordance with Articles 18, 19 and 20 of Council Regulation (EC) No 199/2008 of 25 February 2008 concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy (1);

(b) a list shall be compiled for each of the areas defined in Annex I to this Regulation of the aggregated effort groups and their corresponding cod catches, including discards. This list shall be arranged in ascending order of cod catch in each effort group;

(c) the cumulative catches of cod in the lists established according to point (b) shall be calculated in following way. For each aggregated effort group, the sum shall be calculated of the cod catch by that effort group and the cod catches made by all aggregated effort groups in the preceding entries in the list;

(d) the cumulative catches calculated according to point (c) shall be calculated as a percentage of the total cod catch by all aggregated effort groups in the same area.

4. For aggregated effort groups where the percentage cumulative catch calculated according to paragraph 3(b) is equal to or exceeds 20 %, annual adjustments shall apply to the effort groups concerned. The maximum allowable fishing effort of the groups concerned shall be calculatedetc”

The tables below provide cumulative percentage catches for the Kattegat, North Sea and West of Scotland in line with the Regulation. The catch data were derived from the SGMOS 2010 database. For the Irish Sea, SGMOS 10-05 was unable to collate catch data owing to discard shortfalls and so the ranking is based on landings data only. The

tables show the gear types to which adjustments in effort apply (red) and gear types contributing less than 20% of catches (green).

3a Kattegat			3b North Sea		
Gear Group	2009 % catch	cum. %	Gear Group	2009 % catch	cum. %
TR2	83.00375	100	TR1	62.384	100
TR1	11.46287	16.99625	TR2	20.999	37.616
GN1	5.138284	5.533382	GN1	7.393	16.617
GT1	0.395098	0.395098	BT2	7.09	9.224
TR3	0	0	GT1	1.21	2.134
LL1	0	0	BT1	0.592	0.924
			LL1	0.327	0.332
			TR3	0.005	0.005

3c Irish Sea			3d West of Scotland		
Gear Group	2009 % landings	cum. %	Gear Group	2009 % landings	cum. %
TR1	56.366	100	TR1	92.831	100
TR2	28.571	43.633	TR2	7.047	7.169
GN1	12.112	15.062	GN1	0.122	0.122
BT2	2.795	2.95	LL1	0	0
GT1	0.155	0.155	BT2	0	0
LL1	0	0	BT1	0	0

STECF conclusion

STECF notes that based on the method set out in the Regulation under article 12 of the cod plan, the gears to which effort adjustments in 2011 apply are all trawl gears. The gears affected in each area are as follows: Kattegat = TR2; North Sea = TR1 and TR2; Irish Sea = TR1 and TR2 and West of Scotland = TR1.

5.17. North Sea and Baltic Sea - Request for advice on fishing effort data to be used for establishment of the fishing effort baseline of Belgium in relation to the cod plan [R (EC) No 1342/2008]

Background

In accordance with the Article 12 of the Council Regulation (EC) No 1342/2008 establishing a long term plan for the cod stocks and the fisheries exploiting those stocks, the fishing effort baselines of Member States concerned were established in 2008 based on STECF advice.

On the basis of the data submitted by MS fishing effort baselines were reassessed by STECF SG-MOS working group in 2009.

Two MS strongly opposed to the results of the group stating that the data are not correct. According to BE the errors of 2009 were related to a problem of the method used for establishment of the fishing effort baseline. The baseline was amended during preparation of Annex IIA of the 2010 fishing opportunities Regulation after intense discussions in November 2009 (after the STECF Plenary). Furthermore, BE was granted the opportunity to submit the revised data in 2010. In accordance with data call the data had to be submitted in May 2010, the data was not available for the first STECF SG-MOS working group meeting in June. The data arrived only for the second and the last STECF SG-MOS meeting in September but, apparently, did not deviate from the 2009 submission and would thus, from the point of view of the Belgian administration, again contain the same errors (concerning various areas) as the data set submitted in the year earlier.

It was not possible to deal with this issue during the last STECF SG-MOS working group meeting. It is highly important that the fishing effort baselines are correctly established and based on proper data.

DG MARE's objective is to finalize the reassessment process of the fishing effort baselines in 2010. Therefore the Commission requests STECF to assess the data, submitted by Belgium after the STECF SG-MOS working group second meeting, with regard to the estimate of the fishing effort baseline and effort allocations for 2011.

Terms of reference

Provided that a remolded data-set from BE arrives in time, the Commission requests STECF to provide a report for BE for each effort group (as defined in the cod plan) on fishing effort in KW.days spent during the years 2004-2009 in form of annex to the STECF SG-MOS working group.

The STECF should describe the difference between the data sets (2010 spring and remolded), the difference in the method used by BE to establish the fishing effort baseline and whether this difference is a likely cause for the data difference, and report, where known, the reason why the corrected data did not arrive already in May 2010.

STECF response

Belgium explained to the Commission and to STECF that the Belgian effort data that had been provided to the September meeting of STECF SG-MOS 10-05 had been calculated incorrectly, in a similar way as the data provided to STECF SG-MOS 09-04. On the other hand, the revised baseline figures of the Belgian effort data provided in December 2009 had been calculated according to the Council Regulation 43/2009.

The effort dataset provided to STECF (mid October 2010) has been calculated according to the Council Regulation 43/2009 (and in the identical way as was done for the agreed baseline in December 2009).

The method that had been used for the databases provided to STECF-SGMOS 09-04 and the STECF SG-MOS 10-05, used the time spent in an area as a “fraction of a day” multiplied by the kW of the vessel. The effort for the agreed baseline update figures in December 2009 and the current update are calculated according to the Council Regulation 43/2009 taking into account time allocation against an area rounded up to the nearest full day.

Table 5.17.1 gives for each effort group (as defined in the cod plan) the Belgian fishing effort in KW.days spent during the years 2004-2009. The revised data have been incorporated into the STECF database on catch and effort held in JRC and will appear in summary spreadsheets on the relevant internet site.

ANNEX	REG AREA COD	REG GEAR COD	SPECON	COUNTRY	VESSEL_LENGTH	2004	2005	2006	2007	2008	2009
BoB	BoB	BEAM	none	BEL	o15m	656093	1206442	942990	980041	776015	1166436
Cel1	7bcefgghjk	BT1	none	BEL	o15m					1766	
Cel1	7bcefgghjk	BT2	none	BEL	o15m	4568918	3996701	3246205	4125018	2285026	2262069
Cel1	7bcefgghjk	GN1	none	BEL	o15m					2700	
Cel1	7bcefgghjk	none	none	BEL	o15m					23028	163201
Cel1	7bcefgghjk	TR2	none	BEL	o15m	119327	188914	424630	464699	467476	542774
Cel2	7fg	BT2	none	BEL	o15m	3744619	3121706	2534199	2892660	1651116	1819227
Cel2	7fg	GN1	none	BEL	o15m					1800	
Cel2	7fg	none	none	BEL	o15m					10708	15068
Cel2	7fg	TR2	none	BEL	o15m	110564	168754	400049	443057	434936	512801
DS	4	BEAM	none	BEL	o10t15m	40408	44863	7514	1740	580	
DS	4	BEAM	none	BEL	o15m	6213451	5888899	5288670	6419395	6012716	5134601
DS	4	BOTTOM TRAWLS	none	BEL	o10t15m		20332	1989		8619	442
DS	4	BOTTOM TRAWLS	none	BEL	o15m	521332	329254	364951	460334	618797	779261
DS	4	DREDGE	none	BEL	o15m					2562	9925
DS	4	GILL	none	BEL	o10t15m	121764	119231	109529	127997	135009	132019
DS	4	GILL	none	BEL	o15m	30878	29596	18422	5276	23400	31950
DS	4	LONGLINE	none	BEL	o10t15m					2210	
DS	4	POTS	none	BEL	o10t15m						1884
DS	4	TRAMMEL	none	BEL	o15m				15402	18000	4950
DS	6 EU	BEAM	none	BEL	o15m	18103	8566	4415	2356		
DS	6 EU	BOTTOM TRAWLS	none	BEL	o15m			1766	795		
DS	7 EU no 7d	BEAM	none	BEL	o15m	6051749	5691268	4400152	5266553	2841633	3001277
DS	7 EU no 7d	BOTTOM TRAWLS	none	BEL	o15m	132868	232400	458682	541488	535010	571932
DS	7 EU no 7d	DREDGE	none	BEL	o15m					76714	77454
DS	7 EU no 7d	GILL	none	BEL	o15m					2700	
DS	7d	BEAM	none	BEL	o10t15m						

DS	7d	BEAM	none	BEL	o15m	2422541	2070380	2782454	4802893	2696039	2271460
DS	7d	BOTTOM TRAWLS	none	BEL	o10t15m			0			0
DS	7d	BOTTOM TRAWLS	none	BEL	o15m	27043	10924	23328	13756	15816	43641
DS	7d	DREDGE	none	BEL	o15m				3723	18490	97179
DS	7d	GILL	none	BEL	o10t15m	471				4710	
DS	7d	GILL	none	BEL	o15m	18120	19026	23556	906	5850	21150
DS	7d	TRAMMEL	none	BEL	o15m				26676	16200	8100
DS	8 EU	BEAM	none	BEL	o15m	656093	1206442	942990	980041	776015	1166436
Ila	3b	BEAM	none	BEL	o10t15m	25856	22542	6409	1740	580	
Ila	3b	BEAM	none	BEL	o15m	493168	519222	538012	518373	508730	549496
Ila	3b	BT1	none	BEL	o15m	1439951	1509759	1333012	2640338	1971690	1028596
Ila	3b	BT2	none	BEL	o10t15m	14552	22321	1105			
Ila	3b	BT2	none	BEL	o15m	6702873	5930298	6200100	8063577	6228335	5827969
Ila	3b	DEM_SEINE	none	BEL	o15m						19509
Ila	3b	DREDGE	none	BEL	o15m				3723	21052	107104
Ila	3b	GN1	none	BEL	o10t15m	122235	119231	109529	127997	139719	132019
Ila	3b	GN1	none	BEL	o15m	48998	48622	41978	6182	29250	53100
Ila	3b	GT1	none	BEL	o15m				42078	34200	13050
Ila	3b	LL1	none	BEL	o10t15m					2210	
Ila	3b	OTTER	none	BEL	o10t15m						
Ila	3b	OTTER	none	BEL	o15m		5967				
Ila	3b	POTS	none	BEL	o10t15m						1884
Ila	3b	TR1	none	BEL	o15m	1989			161520	201379	227988
Ila	3b	TR2	none	BEL	o10t15m		20332	1989		7956	442
Ila	3b	TR2	none	BEL	o15m	546386	334211	388279	312570	433234	575405
Ila	3b	TR3	none	BEL	o10t15m					663	
Ila	3c	BT2	none	BEL	o15m	1482831	1694567	1153947	1141535	554841	653461
Ila	3c	DREDGE	none	BEL	o15m					53686	

IIa	3c	OTTER	none	BEL	o15m						
IIa	3c	TR2	none	BEL	o15m	13541	43486	34052	76789	67534	29158
IIa	3d	BT2	none	BEL	o15m	18103	8566	4415	2356		
IIa	3d	TR2	none	BEL	o15m			1766	795		
IIc	7e	3a	none	BEL	o15m	633428	689624	628907	1161512	584560	435523
IIc	7e	BEAM	none	BEL	o15m						36615
IIc	7e	DREDGE	none	BEL	o15m					12320	72820
IIc	7e	GILL	none	BEL	o15m					900	
IIc	7e	OTTER	none	BEL	o15m	6625	11039	17515	17231	32540	29091
WW	6 EU	BEAM	none	BEL	o15m	18103	8566	4415	2356		
WW	6 EU	BOTTOM TRAWLS	none	BEL	o15m			1766	795		
WW	7 EU no 7d	BEAM	none	BEL	o15m	6051749	5691268	4400152	5266553	2841633	3001277
WW	7 EU no 7d	BOTTOM TRAWLS	none	BEL	o15m	132868	232400	458682	541488	535010	571932
WW	7 EU no 7d	DREDGE	none	BEL	o15m					76714	77454
WW	7 EU no 7d	GILL	none	BEL	o15m					2700	
WW	7d	BEAM	none	BEL	o10t15m						
WW	7d	BEAM	none	BEL	o15m	2422541	2070380	2782454	4802893	2696039	2271460
WW	7d	BOTTOM TRAWLS	none	BEL	o10t15m		0				0
WW	7d	BOTTOM TRAWLS	none	BEL	o15m	27043	10924	23328	13756	15816	43641
WW	7d	DREDGE	none	BEL	o15m				3723	18490	97179
WW	7d	GILL	none	BEL	o10t15m	471				4710	
WW	7d	GILL	none	BEL	o15m	18120	19026	23556	906	5850	21150
WW	7d	TRAMMEL	none	BEL	o15m				26676	16200	8100
WW	8 EU	BEAM	none	BEL	o15m	656093	1206442	942990	980041	776015	1166436

Table 5.17.1: Belgian effort in KW.days for each effort group (as defined in the cod plan) in 2004-2009

The STECF is asked to describe the difference between the data sets. In Table 5.17.2 the differences are given as a factor of change; e.g. a value of zero means no change and a value of 1 means that the original value was increased by 100% (= doubled).

ANNEX	REG	REG GEAR	COUNTRY	2004	2005	2006	2007	2008
	AREA							
	COD	COD						
BoB	BoB	BEAM	BEL	0.103	0.573	0.112	0.105	0.109
Cel1	7bcefghjk	BT1	BEL	0	0	0	0	1.175
Cel1	7bcefghjk	BT2	BEL	0.166	0.177	0.15	0.406	0.15
Cel1	7bcefghjk	GN1	BEL	0	0	0	0	0.268
Cel1	7bcefghjk	none	BEL	0	0	0	0	0.303
Cel1	7bcefghjk	TR2	BEL	0.139	0.164	0.128	0.13	0.15
Cel2	7fg	BT2	BEL	0.153	0.147	0.14	0.339	0.146
Cel2	7fg	GN1	BEL	0	0	0	0	0.278
Cel2	7fg	none	BEL	0	0	0	0	0.465
Cel2	7fg	TR2	BEL	0.107	0.106	0.114	0.118	0.134
DS	4	BEAM	BEL	0.134	0.121	0.133	0.615	0.323
DS	4	DREDGE	BEL	0	0	0	0	2.207
DS	4	GILL	BEL	0.712	0.647	0.664	0.929	0.858
DS	4	LONGLINE	BEL	0	0	0	0	0.206
DS	4	TRAMMEL	BEL	0	0	0	0.084	0.021
DS	7d	BEAM	BEL	0.104	0.08	0.068	0.592	0.048
DS	7d	DREDGE	BEL	0	0	0	0.978	0.311
DS	7d	GILL	BEL	0.058	0.069	0.049	0.031	0.193
DS	7d	TRAMMEL	BEL	0	0	0	0.04	0.084
Ila	3b	BEAM	BEL	0.636	0.642	0.676	0.486	0.429
Ila	3b	BT1	BEL	0.141	0.085	0.08	1.116	1.078
Ila	3b	BT2	BEL	0.096	0.085	0.084	0.495	0.072
Ila	3b	DREDGE	BEL	0	0	0	0.978	0.413
Ila	3b	GN1	BEL	0.605	0.552	0.525	0.918	0.795
Ila	3b	GT1	BEL	0	0	0	0.056	0.05
Ila	3b	LL1	BEL	0	0	0	0	0.206
Ila	3b	OTTER	BEL	0	0	0	0	0
Ila	3b	TR1	BEL	0.345	0	0	0.044	0.051
Ila	3b	TR2	BEL	0.1	0.108	0.132	0.14	0.087
Ila	3b	TR3	BEL	0	0	0	0	0.773
Ila	3c	BT2	BEL	0.038	0.039	0.04	0.252	0.044
Ila	3c	DREDGE	BEL	0	0	0	0	0.037
Ila	3c	OTTER	BEL	0	0	0	0	0
Ila	3c	TR2	BEL	0.025	0.042	0.072	0.003	0.01
Ila	3d	BT2	BEL	0.138	0.067	0.193	0.36	0
Ila	3d	TR2	BEL	0	0	0.786	0	0
Ilc	7e	3a	BEL	0.152	0.189	0.111	0.557	0.117
Ilc	7e	DREDGE	BEL	0	0	0	0	0.189
Ilc	7e	GILL	BEL	0	0	0	0	0.25
Ilc	7e	OTTER	BEL	0.527	0.663	0.247	0.426	0.411

Table 5.17.2: Proportional change in Belgian effort data from the original submission values provided earlier to the current correctly calculated values of the Belgian effort (e.g. a value of zero means no change and a value of 1 means that the original value was increased by 100% (= doubled)).

5.18. North Sea and Baltic Sea - Request for assessment of Assessment of cod catches in Baltic Sea subdivisions 27 & 28

Background

Article 29 of Council Regulation (EC) No 1098/2007 of 18 September 2007 establishing a multiannual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks, requires the Commission to decide on an annual basis about the application of the fishing effort management limits defined in Article 8 of the same regulation to Subdivisions 27, 28.1 and 28.2.

Terms of Reference

The Commission requests STECF to advise if catches of cod in the period 1 October 2009 to 30 September 2010 in Subdivisions 27 and 28.2 were lower than 3% of the total catches of cod in Subdivisions 25 to 28 and if the catches of cod in Subdivision 28.1 were higher than 1.5 % of the total catches of cod in Subdivisions 25 to 28.

STECF response

STECF received catch data from the Commission for all member States fishing in the Baltic. It was not clear to STECF if the reported data relate to landings only or to total catch of cod (including estimates of discards). The reported proportions of the total catches of cod taken by the subdivisions concerned are summarised in Table 5.18.1.

Noting the lack of clarity on whether the data reported to the Commission represent landings or total catch of cod, the data in Table 1 indicate that between 1 October 2009 and 30 September 2010, Lithuanian catches largely exceeded the 3% of reported catches in areas 27 and 28.2, as Lithuania reported 7.5% catches of cod in this area. Catches from Latvia were just slightly above the threshold of 3% of catches. For all countries, less than 1.5 % were taken in Subdivision 28.1.

Table 5.18.1. Baltic Sea cod: Reported catches by country for SD27+28.1 and SD 28.1 in % of the total catches in SD25-28 for the period 1 October 2009 to 30 September 2010.

	28.1	27+28.2
FINLAND	0.0%	0.0%
DENMARK	0.0%	0.0%
POLAND	0.0%	0.0%
GERMANY	0.0%	0.0%
ESTONIA	0.1%	0.1%
LATVIA	0.0%	3.1%
LITHUANIA	0.0%	7.5%
SWEDEN	0.0%	0.4%
TOTAL	0.0%	0.5%

5.19. North Sea and Baltic Sea - Request for advice on fishing effort restrictions in the Baltic Sea

Background

According to Council regulation (EC) No 1098/2007 establishing a multiannual plan for the cod stocks in the Baltic sea and the fisheries exploiting those stocks, in 2011 fishing effort in the area A should be reduced by 10% resulting in 163 days absent from port, but for area B the level of fishing effort allocation will remain the same as in 2010, 160 days.

However at the same time, TAC will be increased in both areas (ie. 18.800 t for the west; 58 957 t for the East).

Number of MS has expressed their concerns about the discrepancy between the available fishing effort and Quota. Several problems have been raised by the Member States like, there is not sufficient fishing effort for the small scale fleet fishing with gillnets in area A, and/or there is no sufficient fishing effort for the fishermen fishing for flatfish with active gear in area A. Furthermore one MS claimed that some of the segments of their fishing fleet do not have enough days to catch their quota in area B. Therefore MS requested for a derogation that would allow either National reallocation among segments within the given ceiling or swapping of effort among MS.

In this regard the Commission is asking the STECF to identify whether the fishing effort proposed for 2011 would allow MS to fully utilise their quotas overall and within the individual segments.

Terms of Reference

Provided that data necessary for assessment are received from the MS, the Commission requests STECF to advise whether MS have sufficient fishing effort allocation to catch out their Cod quota in the Baltic Sea.

STECF response

The Baltic cod management plan (Council regulation (EC) No 1098/2007) includes an effort control rule specifying how the Council shall decide on the maximum number of days absent from

port when fishing with trawls, Danish seines or similar gear of a mesh size equal to or larger than 90 mm, with gillnets, entangling nets or trammel nets of a mesh size equal to or larger than 90 mm, with bottom set lines, longlines except drifting lines, handlines and jigging equipment is allowed. The Council decision on the maximum number of days is implemented in the Baltic TAC and quota regulation (e.g. for 2010 Council regulation (EC) No 1226/2009) in the form of the maximum number of days a vessel may be fishing. There are in the implementation no figures for maximum fishing effort at Member State level or possibilities for exchange of days between vessels.

Restrictions on number of days a vessel can fish in the Baltic Sea have been in force since 1995. First in the form of closed periods (summer ban) and since 2006 also in the form of restrictions in fishing days outside the closed periods. The maximum allowed number of fishing days per year since 2004 resulting from these restrictions is given in the table below.

	sions 22 - 24	sions 25 - 28
	264	
	304	227
	305	247
	248	222
	224	179
	201	160
	181	160
	163	160

Maximum number of fishing days

STECF SGMOS 10-05 was asked to compare the maximum days at sea and the actual deployed days at sea. However, data on days at sea per vessel was not available to STECF SGMOS 10-05 and the group was not in the position to address the question.

To proper answer the TOR data on days at sea has to be available on vessel level. Such information was only available for Danish vessels in 2009. This information showed that the majority of vessels used less or significantly less days than the maximum allowed number of days. However, the data may not necessarily be representative for the other Member States vessels operating in the Baltic Sea.

Therefore, STECF is at this state not able to provide a detailed qualitative response to the TOR. However, the available information on the development in fishing effort and fishing mortality does not indicate that the fishing effort restrictions prohibit the utilisation of the quotas at Member State level. This may, however, not be the case at vessel levels. Pending on how Member States allocate

quotas to fishing vessels the maximum allowed days absent from port may not allow the vessel to fully fish its quota.

Exchange of fishing effort between vessels may allow consistency between available quota and fishing effort. However, if an exchange system is introduced it is important that the system takes account for possible differences in capacity between vessels to ensure that the exchange does not result in an increase in potential effective fishing effort.

6. CONTACT DETAILS OF PARTICIPANTS

Name	Address	X	Email
STECF members			
Abella, J. Alvaro	ARPAT – AREA MARE Agenzia Regionale per la Protezione Ambientale della Toscana Articolazione Funzionale RIBM Risorse Ittiche e Biodiversità Marina Via Marradi 114, 57126 Livorno – Italia	Tel. diretto 0039-0586- 263456 Fax. 0039-0586- 263476	aa00477@mail.arpat.toscana.it
Andersen, Jesper Levring	Institute of Food and Resource Economics (FOI) Fisheries Economics and Management Division University of Copenhagen Rolighedsvej 25 1958 Frederiksberg Denmark	Tel.dir.: +45 35 28 68 92	jla@foi.dk
Bailey, Nicholas	Fisheries Research Services Marine Laboratory, P.O Box 101 375 Victoria Road, Torry Aberdeen AB11 9DB UK	Tel: +44 (0)1224 876544 Direct: +44 (0)1224 295398 Fax: +44 (0)1224 295511	baileyn@marlab.ac.uk n.bailey@marlab.ac.uk
Bertignac, Michel	Laboratoire de Biologie Halieutique IFREMER Centre de Brest BP 70 - 29280 Plouzane, France	tel : +33 (0)2 98 22 45 25 - fax : +33 (0)2 98 22 46 53	michel.bertignac@ifremer.fr
Cardinale, Massimiliano	Swedish Board of Fisheries, Institute of Marine Research, 45 321, Lysekil, Sweden	Tel 00-46-730-34-22- 09	massimiliano.cardinale@fiskeriverket.se
Casey, John	CEFAS Lowestoft Laboratory, Pakefield Road, Lowestoft Suffolk, UK NR33 0HT	Tel: +44 1502 52 42 51 Fax: +44 1502 52 45 11	john.casey@cefas.co.uk
Curtis, Hazel	Sea Fish Industry Authority 18 Logie Mill Logie Green Road Edinburgh EH7 4HS	Tel: +44 (0)131 558 3331 Fax: +44 (0)131 558 1442	H_Curtis@seafish.co.uk
Daskalov, Georgi	Laboratory of Marine Ecology, Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences	Tel.: +359 52 646892	gmdaskalov@yahoo.co.uk
Delaney, Alyne	Innovative Fisheries Management, -an Aalborg University Research Centre, Postboks 104, 9850 Hirtshals, Denmark	Tel.: +45 9940 3694	ad@ifm.aau.dk

Name	Address	X	Email
STECF members			
Di Natale, Antonio	Aquastudio via Trapani, 6, 98121 Messina Italy	Tel 00-39-090-34-64-08/00-39-010-23-45-221 Fax 00-39-090-36-45-60/00-39-010-25-61-60	aquauno@tin.it adinatale@acquariodigenova.it
Döring, Ralf	Johann Heinrich von Thünen Bundesforschungsinstitut, für Ländliche Räume, Wald und Fischerei, Institut für Seefischerei - AG Fischereiökonomie, Palmaille 9, D-22767 Hamburg, Germany	Tel.: 040 38905-185 Fax.: 040 38905-263	ralf.doering@vti.bund.de
Garcia Rodriguez, Mariano	Instituto Español de Oceanografía, Servicios Centrales, Corazón de María 8, 28002, Madrid, Spain		Mariano.Garcia@md.ieo.es
Gascuel, Didier	AGROCAMPUS RENNES 65 Route de Saint Brieu, bat.4 CS 84215, F-35042 RENNES Cedex	Tel. +33. (0)2.23.48.55.34 Fax. +33. (0)2.23.48.55.35	Didier.Gascuel@agrocampus-rennes.fr
Graham, Norman	Marine Institute, Fisheries Science Services (FSS), Rinville, Oranmore, Co. Galway, Ireland	Tel: + 353(0) 91 87200	norman.graham@marine.ie
Gustavsson, Tore Karl-Erik	Fiskeriverket, National Board of Fisheries, Ekonomi och personalenheten, Box 423, 401 26, Göteborg, Sverige	Tel 00-46-31-74-30-300 Fax 00-46-31-74-30-444	tore.gustavsson@fiskeriverket.se
Jennings, Simon	CEFAS Lowestoft Laboratory, Pakefield Road, Lowestoft Suffolk, UK NR33 0HT	Tel.: +44 1502562244 Fax: +44 1502513865	simon.jennings@cefaf.co.uk
Kenny, Andrew	CEFAS Lowestoft Laboratory, Pakefield Road, Lowestoft Suffolk, UK NR33 0HT	Tel.: +44 1502562244 Fax: +44 1502513865	andrew.kenny@cefaf.co.uk
Kirkegaard, Eskild	DTU Aqua, National Institute of Aquatic Resources, Technical University of Denmark, Charlottenlund Slot, Jægersborg Allé 1, 2920 Charlottenlund, Denmark	Tel: +45 33 96 33 42 Fax: + 45 33 96 33 49	ek@aquat.dtu.dk
Kraak, Sarah	University College Cork, Department of Zoology, Ecology and Plant Science (ZEPS) Based at: Marine Institute, Rinville, Oranmore, Co Galway, Ireland	Tel: +353 (0)91 387392 Fax +353 (0)91 387201	Sarah.kraak@marine.ie
Kuikka, Sakari	University of Helsinki, Department of Environmental Sciences, P.O. Box 65 (Viikinkaari 1), FI-00014 University of Helsinki, FINLAND	Tel.: +358 50 3309233 Fax. +358-9-191 58754	skuikka@mappi.helsinki.fi
Malvarosa, Loretta	Irepa onlus via San Leonardo, trav. Migliaro Salerno - Italia	tel. 0039 089 338978 fax 0039 089 330835	malvarosa@irepa.org

Name	Address	X	Email
STECF members			
Martin, Paloma	CSIC Instituto de Ciencias del Mar Passeig Maritim, 37-49 08003 Barcelona Spain	Tel.: 34.93.2309500 direct line : 34.93.2309552 fax 34.93.2309555	paloma@icm.csic.es
Motova, Arina	Lithuanian Institute of Agrarian Economics, V. Kudirkos str. 18, Vilnius LT-03105, Lithuania	Tel.: +37052314093	arinam@laei.lt
Muruu, Hilario	AZTI - Tecnalia / Unidad de Investigación Marina, Herrera kaia portualdea z/g 20110 Pasaia (Gipuzkoa), Spain	Tel: 94 6574000 (Ext. 821) Fax: 94 6572555	hmuruu@azti.es
Nowakowski, Piotr	West Pomeranian University of Technology – Faculty of Food Science and Fisheries, Department of Fishing Technique, Szczecin		piotr.nowakowski@zut.edu.pl
Prelezzo, Raul	AZTI - Tecnalia / Unidad de Investigación Marina Txatxarramendi Ugarteia z/g 48395 Sukarrieta (Bizkaia), Spain	Tel: 94 6029400 Ext: 406- Fax: 94 6870006	rprelezzo@suk.azti.es
Sala, Antonello	Fishing Technology Unit National Research Council (CNR) Institute of Marine Sciences (ISMAR) - Fisheries Section Largo Fiera della Pesca, 1 60125 Ancona - Italy	Tel: +39 071 2078841 Fax: +39 071 55313	a.sala@ismar.cnr.it
Somarakis, Stylianos	Department of Biology University of Crete Vassilika Vouton P.O. Box 2208 71409 Heraklion Crete Greece	Tel.: +30 2610 394065, +30 6936566764	somarak@biology.uoc.gr
Stransky, Christoph	Johann Heinrich von Thünen Institute [vTI] Federal Research Institute for Rural Areas, Forestry and Fisheries, Institute of Sea Fisheries, Palmaille 9, D-22767 Hamburg, Germany	Tel. +49 40 38905-228 Fax: +49 40 38905-263	christoph.stransky@vti.bund.de
Theret, Francois	Ifremer – Laboratoire de technologie des pêches, Lorient		Francois.Theret@ifremer.fr
Ulrich, Clara	DTU Aqua, National Institute of Aquatic Resources, Technical University of Denmark, Charlottenlund Slot, Jægersborg Allé 1, 2920 Charlottenlund, Denmark	Tel.: +45 35883395	clu@aqu.dtu.dk
Vanhee, Willy	CLO-Sea Fisheries Department Ankerstraat, 1 8400 Oostende Belgium	Tel 00-32-59-34-22-55 Fax 00-32-59-33-06-29	willy.vanhee@dvz.be
van Oostenbrugge, Hans	Landbouw Economisch Instituut-LEI, Fisheries Section, Burg. Patijnlaan 19 P.O.Box 29703 2502 LS The Hague The Netherlands	Tel:+31 (0)70 3358239 Fax: +31 (0)70 3615624	Hans.vanOostenbrugge@wur.nl

Name	Address	X	Email
STECF members			
Invited experts			
Sabatella, Evelina	Irepa onlus via San Leonardo, trav. Migliaro Salerno - Italia	tel. 0039 089 338978 fax 0039 089 330835	esabatella@irepa.org
Brodie, Colin	Sea Fish Industry Authority 18 Logie Mill Logie Green Road Edinburgh EH7 4HS		C_Brodie@seafish.co.uk
JRC experts			
Rätz, Hans-Joachim	Joint Research Centre JRC	Tel: +39 0332786073 Fax: +39 03329658	Hans-joachim.raetz@jrc.it
Sampson, David	Joint Research Centre JRC	Tel. +39 0332785029 Fax +39 0332789658	david.sampson@jrc.ec.europa.eu
Simmonds, E. John	Joint Research Centre JRC	Tel: +39 0332785311 Fax: +39 03329658	john.simmonds@jrc.ec.europa.eu

European Commission			
Biec, Virginia	Joint Research Centre JRC, STECF secretariat	Tel: +39 0332789658 Fax: +39 03329658	Virginia.biec@ec.europa.eu Stecf-payments@jrc.ec.europa.eu
Dörner, Hendrik	Joint Research Centre JRC, STECF secretariat	Tel: +39 0332789343 Fax: +39 03329658	Hendrik.doerner@jrc.ec.europa.eu Stecf-secretariat@jrc.ec.europa.eu
Goldmanis Edgars	DG MARE	Tel.: +(32) 2 2964526	Edgars.GOLDMANIS@ec.europa.eu
Lindemann, Jan Henning	DG MARE	Tel.: +(32) 2 29 87086	Jan-Henning.LINDEMANN@ec.europa.eu
Patterson, Kenneth	DG MARE	Tel.: +(32) 2 2998227	Kenneth.Patterson@ec.europa.eu
Ranner, Herwig	DG MARE	Tel.: +(32) 2 2999805	Herwig.RANNER@ec.europa.eu
Rodriguez-Alfaro	DG MARE	Tel.: +(32) 2 2961523	Sebastian.RODRIGUEZ-ALFARO@ec.europa.eu
Santos, Rita Maria	DG MARE	Tel.: +(32) 2 2956453	Rita-Maria.SANTOS@ec.europa.eu
Schmidt, Stefanie	DG MARE	Tel.: +(32) 2 2959296	Stefanie.SCHMIDT@ec.europa.eu
Tritten, Christian	DG MARE	Tel.: +(32) 2 2999509	Christian.TRITTEN@ec.europa.eu

7. ANNEXES

List of Annexes:

- Annex I: Terms of reference for the SGMOS-10-03 Working Group.
- Annex II: Terms of reference for the SGBRE-10-01 Working Group.
- Annex III: Terms of reference for the SGECA-10-03 Working Group.
- Annex IV: Terms of reference for the SGMOS-10-05 Working Group.
- Annex V: Terms of reference for the SGRN-10-03 Working Group
- Annex VI: Terms of reference for the SGRST-10-03a/b Working Groups
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- Annex VIII: Terms of reference for the SGMOS-10-06b Working Group
- Annex IX: Terms of reference for the SGMED-10-02 Working Group

7.1. Annex I: Terms of reference for the SGMOS-10-03 Working Group

Terms of reference of the SGMOS-10-03 Working Group ‘Development of the Ecosystem Approach to Fisheries Management (EAFM) in European seas’

Background

During its 30th plenary meeting, following upon the Commission request, STECF advised on the way to develop ecosystem approaches and bio-economic modelling (PLEN-09-01). STECF firstly made general comments and suggestions on the implementation of EAFM and bio-economic modelling. Secondly, STECF discussed a non-exhaustive list of currently available tools that seemed useful, and that could be more widely used or tested in Europe, in order to progress in implementing EAFM (see report in Appendix 2 of the present document).

STECF recommended that “In order to set out a roadmap to further consider the possibilities for implementing an ecosystem approach, a STECF subgroup should be set up under the auspices of STECF-SGMOS, with participation of ecologists, biologists and economists”.

STECF concluded that a pragmatic first step should be to use the tools described in its report, to show changes in the biological status of the species and to include economic information in the assessment.

Terms of Reference

Based on the STECF-09-01 report, the working group was requested to develop a feasibility approach to provide some useful ecosystem advices, considering two case studies: the North Sea (IIIa, IVa-c, VIId) and the Celtic Sea (VIIe-k).

For these two case studies, the working group was requested to gather existing knowledge and to analyse all available data (or identify lack of data and suggest improvement regarding data):

1. to examine trends in total catches and catch by species, and trends in fishing effort (possibly by country and/or fleet) over the past years, trying to take into account a period of time as large of possible (from 1950 if possible). The objective is to provide a comprehensive framework of the main characteristics and of the dynamic of the whole fishery.
2. to build an integrated synthesis of the stocks status and stocks trends at the ecosystem level, using tools listed in the STECF-09-01 report (Garcia and De Leiva 2005; Gros 2008; Froese and al. 2008) or all other relevant equivalent tools. Such representations should include the degree of stocks dependency to the considered ecosystem, and the representativeness of the considered stocks for fisheries occurring in the ecosystem.
3. to build a fleet-based synthesis, using fleet segment as defined by DCF. Such synthesis should include descriptors (and possibly trends analysis over the recent years) of: the fleets economic performance, and their respective contribution to the fishing mortality of each stock, their economic dependency on stocks, the co-occurring bycatch species (commercial and non-commercial).
4. to analyse ecosystem indicators computed by ICES or JRC, based on the list of agreed to by ICES (see table 5.1 in Appendix) and on DCF. If necessary, these indicators could be recomputed at the scale of the two ecosystems under study. Additional indicators may be considered following suggestions from STECF on SSB and Trophic levels (see Appendix). Such calculations should cover a period of time as long as possible, available data permitting, with the objective to assess the ecosystem health on a long time perspective.

5. to calculate standardised indicators of economic performance of fleets, and to analyse trends, based on the indicators used in AER (e.g. gross revenues, gross value added, net profit). Other economic indicators can also be considered (and computed when possible), to characterise the fleets dynamic and performance.
6. to review and discuss models that are already implemented or could soon be implemented in the two ecosystems to identify tools that would be useful to compare various fisheries management options, in an ecosystem perspective. This review should include both trophodynamic models, such as EwE or ET, and multi-species multi-fleets bio-economic models.
7. to discuss the appropriateness of the considered ecosystems (i.e. NS and Celtic Sea) as reference units for implementing EAFM and suggest approaches that should be used to define an agreed list of "reference ecosystems" in European waters.
8. to suggest a general format that could be used for the publication by STECF of an annual EAFM report and suggest an organizational structure that would be responsible for addressing future ecosystem analyses.
9. more generally, based on this first feasibility study, the working group is invited to comment regarding the best way to improve EAFM implementation in European waters.

7.2. Annex II: Terms of reference for the SGBRE-10-01 Working Group

Terms of reference of the SGBRE-10-01 Working Group ‘Review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities’

The working group was asked to:

1. Evaluate the Member States' reports on their efforts during 2009 to achieve a sustainable balance between fishing capacity and fishing opportunities and the Commission's summaries of MS reports, taking account in particular the following aspects:

a) Compliance of MS reports with Art. 14 of Council Regulation No. 2371/2002 and Art. 12 of Commission Regulation No. 1438/2003

b) Member States evaluation of the effect of fishing effort management measures on fishing capacity

c) Member States' assessment of the balance between fishing capacity and fishing opportunities for their fishing fleets

d) Where appropriate, Member States' application of the indicators proposed in the "Guidelines for an improved analysis of the balance between fleet capacity and fishing opportunities"

2. The Commission has produced a Draft updated version of the "Guidelines for an improved analysis of the balance between fleet capacity and fishing opportunities". The working group is asked to comment on this new Draft version of the guidelines, and where appropriate suggest alternative drafting, before the new Guidelines are finalised and forwarded to Member States for their application to the 2010 fleet reports.

3. Assess and comments on any progress evident in addressing the problem of availability of data for the calculation of the proposed indicators in MS reports.

4. Assess and comment on the appropriateness of any indicators used by MS for small scale coastal fleets and fisheries.

7.3. Annex III: Terms of reference for the SGECA-10-03 Working Group

Terms of reference of the SGECA-10-03 Working Group ‘review of economic data collected in relation to the DCF, harmonisation of sampling strategies’

The specific terms of reference for SGECA-10-03 were as follows:

1. Evaluation of the methodological reports included in NP proposals for the years 2011-2013 in order to compare different approaches. Discussion on possible harmonisation of sampling strategies among MS
2. Analysis of accuracy indicators achieved by MS in order to verify the possibility to define specific precision targets or sampling rates for each fleet segment and economic variable listed in appendix VI of the DCF
3. Discussion of methodological issues related to calculation of capital values and clarification of methods and definitions.
4. Response by MS to the call for economic data launched to produce the draft report on the "Economic Performance of the fish processing: Annual Report 2009 ": To evaluate the situation regarding the response by MS to the call for economic data launched to produce the draft report on the "Economic Performance of EU fish processing: Annual Report 2009 " on both coverage and quality of the data submitted. Data failures will be identified by the group in order to allow the Commission to enforce MS obligations on a clear basis. It is expected that quality, comparability and coherence issues will be raised by the economists, with particular emphasis on quality checks.
5. Definition of TORs, content and objectives of proposed workshops for 2011 on economic Data
6. AOB.

7.4. Annex IV: Terms of reference for the SGMOS-10-05 Working Group

Terms of reference of the SGMOS-10-05 Working Group on Fishing Effort Regime in the Baltic

The specific terms of reference for SGMOS-10-05 were as follows:

The STECF (SGMOS-10-05) is requested to assess the fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Baltic Sea cod management plan **R(EC) No 1098/2007**:

1. To provide historical series, as far back in time as possible, according to each of the following fishing areas:

Areas covered by the R(EC) No 1098/2007 (Baltic Sea)

- (i) ICES division 22 to 24,
- (ii) ICES divisions 25 to 28, by distinguishing areas 27 and 28.2
- (iii) ICES divisions 29 to 32

The data should also be broken down by

Member State;

regulated gear types designed in R(EC) No 1098/2007;

unregulated gear types catching cod in fishing areas (i), (ii) and (iii);

for the following parameters:

- a. Fishing effort, measured in kW.days, in GT.days and fishing activity measured in days absent from port (according to definitions adopted in R(EC) No 1098/2008) and fishing capacity measured in kW and in number of vessels concerned.
- b. Catches (landings and discards provided separately) of cod in the Baltic Sea by weight and by numbers at age.
- c. Catches (landings and discards provided separately) of non-cod in the Baltic Sea by species, by weight and by numbers at age
- d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod in the Baltic Sea (such data shall be issued by Member state, fishing area (i), (ii) and (iii) and fishing gear concerned in accordance with Art. 3 of **R(EC) No 2187/2005**).

2. If relevant data are available, to comment on the quality of estimations on total catches and discards.

3. To assess the fishing effort and catches (landings and discards) of cod in the Baltic Sea and associated species corresponding to vessels of length overall smaller than 8 metres in each fishery, by gear and by Member State according to sampling plans implemented to estimate these parameters.

4. To assess the correlation between fishing mortality rates and the effort deployed by Member States. If a good correlation between fishing mortality rates and spend fishing effort is found, the SGMOS is asked to explain or describe it.

In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the SGMOS is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

5. To assess fishing mortality corresponding to the effort deployed and effort available.

6. To compare the evolution of days allocated to the cod fleet (allowed activity) and really used by that fleet and highlight possible shifts between metièrs.

7. To describe, as far as possible, the spatial distribution of the fishing effort deployed in the Baltic Sea, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of first fishing effort regime for the first time in such areas.
8. To highlight any unexpected evolutions shown by the data which are not in line with general trends.

7.5. Annex V: Terms of reference for the SGRN-10-03 Working Group

Terms of reference of the SGRNS-10-03 Working Group on REVIEW OF NEEDS RELATED TO SURVEYS

The specific terms of reference for SGRN-10-03 were as follows:

The Terms of Reference for the Surveys Review Group were developed by SGRN 09-04 and subsequently approved by the STECF. The specified Terms of Reference were as follows.

1. To set up a list of candidate surveys at sea to be supported by the Data Collection Framework (DCF) with their priorities, based on the list of criteria as proposed in report SGRN 09-04 (included below). Priorities can be 1 (good candidate), 2, 3 (no candidate). In case of priority 2, the review group might give options how the survey can be moved into priority 1.
2. To identify data gaps and research needs for the ecosystem approach to fisheries management based on the review of the DCF surveys. (See also SGRN 06-03 data gaps).
3. To provide feedback on the lessons learned during the survey review and ways to improve the selection system of surveys funded under the DCF.

Review criteria

The review criteria for evaluating the proposed surveys, as developed by SGRN 09-04 and subsequently approved by the STECF, were as follows.

1. Internationally coordinated and harmonized surveys.

Internationally coordinated: The survey complies with an international coordination group. International is not in reference to the number of countries involved in the survey. *Harmonized survey:* The survey has as standardized survey protocol.

2. Surveys designed to inform management decisions.

Management decisions: (a) fisheries management (stock assessment), (b) ecosystem management needs. Variables taken into account will at least be: number of species assessed, additional (ecosystem) information collected.

Monitoring of ecosystem variables: A key question to be considered relates to “are only DCF ecosystem variables taken into account?”

3. Access of data by the scientific community.

Under the DCF it is mandatory to make data available. It is, however, important to review if data are actually available. The INSPIRE directive might be incorporated.

4. Examine survey coverage in relation to area/season of the resource.

Season, areas, number of ecosystems, number of species. Information contained in the National Programs.

5. Ensure there is no duplication between surveys.

Duplication means overlap of area, target species, season, parameters collected by different surveys (e.g., the international IBTS is one survey).

6. Examine history of the survey data.

Length of the survey, historic use of the survey in management decision. Temporal, spatial coverage in the time-series.

Revision to Term of Reference 2

The Review Group decided to modify its Term of Reference 2 because it seemed that literal adherence to the original text of the Term of Reference would not be productive and because the text seemed inconsistent with sections of the SGRN 09-04 report. The original text was broken into two parts: the first for data gaps in the existing suite of surveys with respect to providing stock assessment advice; the second for data provided by surveys that support the ecosystem approach to fisheries management. The first part follows directly from the sections called “Identification of data gaps and research needs” in the reports from SGRN 09-04 and SGRN 07-01.

Revised Term of Reference 2: To identify data gaps and research needs for providing fishery management advice based on the review of the DCF surveys. To identify how surveys can better inform the development of an ecosystem approach to fisheries management.

7.6. Annex VI: Terms of reference for the SGRST-10-03a/b Working Groups

Terms of reference of the SGRSTS-10-03a/b Working Groups on REVIEW OF SCIENTIFIC ADVICE FOR 2011 - Part 3

The specific terms of reference for SGRST-10-03a were as follows:

The STECF is requested to review and comment as adequate scientific advice released in 2009 – 2010 in particular for the stocks specified below. Stocks reviewed in previous STECF reports, and for which no updated advices have been delivered meanwhile, shall be maintained in the report; this is to facilitate easy reference and consultation.

STECF is requested, in particular, to pinpoint possible inconsistencies, if any, between the available assessments and the ICES advice or advice delivered by scientific committees of RFMOs.

In addition, when reviewing the scientific advice from ICES, and any associated management recommendations, STECF is requested to take into account Harvest Control Rules adopted – or proposed by the Commission - in any type of multi-annual management plans and Harvest Control Rules suggested in the Communication from the Commission on fishing opportunities for 2011 (COM(2010)241-FINAL – see supporting documentation. STECF is therefore requested to advise on the TACs corresponding to the implementation of Annex III (pages 17-18) of COM(2010)241-FINAL. When interpreting such rules, references to reductions by one-quarter should be taken to mean reductions corresponding to reducing fishing mortalities by equal decrements beginning in 2011 in order to attain Fmsy in 2015..

For those stocks, excluding naturally short-lived species, where it will not be possible to provide an advice based on a catch forecast in relation to precautionary limits, STECF is requested advising on a TAC corresponding to the application of the following rule corresponding to category 6 to 9 of the Commission communication on fishing opportunities for 2011 (COM(2010)241-FINAL):

1. Where there is evidence that a stock is overfished with respect to the fishing mortality that will deliver maximum sustainable yield (or is depleted to a low level compared with historic levels), a reduction in TAC as needed to reach Fmsy, but no greater than 15% would apply.
2. Where there is evidence that a stock is under fished with respect to the fishing mortality that will deliver maximum sustainable yield, an increase as needed to reach Fmsy, but no greater than 15%, would apply.
3. The considerations in paragraphs 1 and 2 override subsequent paragraphs.
4. Where abundance information either indicates no change in stock abundance, is not available or does not adequately reflect changes in stock abundance, an unchanged TAC would apply.
5. Where ICES considers that representative stock abundance information exists, the following rule applies:
 - a. If the average estimated abundance in the last two years exceeds the average estimated abundance in the three preceding years by 20% or more, a 15% increase in TAC applies.
 - b. If the average estimated abundance in the last two years is 20% or more lower than the average estimated abundance in the three preceding years, a 15% decrease in TAC applies.

Where TACs have not been restrictive, and a reduction is required according to paragraph 1 or paragraph 5.b, STECF shall advise on an appropriate level of TAC reduction necessary to achieve the intended reduction in catches. STECF shall decide on an appropriate Fmsy proxy in each case.

NB: When reviewing stock assessment released by ICES, the STECF will be asked to pay attention to advice which were already reviewed by the SG-RST 10-02 and to update its opinion where needed.

Indeed, the formula for the ICES MSY transition, which ICES described in the "introduction" to its advice, has been implemented in some specific cases differently from what is written, particularly when SSB is lower than $SSB_{MSY-trigger}$ and F is above F_{MSY} , where the formula for the first year should be:

$$0,8.F_{present} + 0,2.F_{MSY} \cdot (SSB_{present}/SSB_{trigger})$$

However, in such cases the SSB ratio has erroneously been multiplied on the sum of the two F s and not just on the F_{MSY} part.

This mistake only affects the final calculation of the transition formula.

ICES is presently working on updates and will issue formal errata sheet as soon as possible.

The stocks concerned are:

- Herring (*Clupea harengus*) in ICES division IIIa and subdivisions 22-24
- Haddock (*Melanogrammus aeglefinus*) in ICES division VIa (West of Scotland)
- Plaice in (*Pleuronectes platessa*) in ICES divisions VIII f & g (Celtic Sea)
- Plaice (*Pleuronectes platessa*) in ICES division VII e (Western English Channel)
- Sole (*Solea solea*) in ICES division VII a (Irish Sea)
- Cod (*Gadus morhua*) in ICES divisions II a, III a, subarea IV and division VII d (North Sea)
- Norway lobster (*Nephrops norvegicus*) in ICES subarea VI (West of Scotland)

1. Stocks in the Northeast Atlantic assessed by ICES and which advice have been released since end of June 2010

1.1 - Resources of the North Sea

- Northern shrimp (*Pandalus borealis*) in ICES division IV a (Fladen Ground)
- Northern shrimp (*Pandalus borealis*) in ICES divisions III a West & IV a East
- Horse mackerel (*Trachurus spp.*) in ICES divisions III a East, IV bc & VII d
- Norway pout (*Trisopterus emarki*) in ICES subarea IV & ICES division III a
- Sandeel (*Ammodytidae*) in ICES division III a
- Sandeel (*Ammodytidae*) in ICES division IV a (excluding the Shetland area)
- Sandeel (*Ammodytidae*) in ICES division IV a – North of 59°N West of 0°W (Shetland area)
- Sprat (*Sprattus sprattus*) in ICES division III a
- Sprat (*Sprattus sprattus*) in ICES subarea IV

1.2 - Resources of the West of Scotland and West of Ireland

- Norway pout (*Trisopterus emarki*) in ICES division VI a
- Sandeel (*Ammodytidae*) in ICES division VI a

1.3 - Resources of the Celtic and Irish Seas

1.4 - Resources of the Bay of Biscay and Iberian waters

- Horse mackerel (*Trachurus spp.*) in ICES division IX a
- Horse mackerel (*Trachurus spp.*) in CECAF areas (Madeira Island)
- Horse Mackerel (*Trachurus spp.*) in CECAF (Canary Islands areas)
- Horse Mackerel (*Trachurus spp.*) in ICES subarea X and CECAF (Azores Islands)

1.5 - Widely distributed and migratory stocks

- Hake (*Merluccius merluccius*) in ICES division IIIa, ICES subareas IV, VI & VII & ICES divisions VIIIa, VIIIb & VIIIc
- Blue Whiting (*Micromesistius poutassou*) in ICES subareas I-IX, XII & XIV
- Horse mackerel (*Trachurus* spp.) in ICES divisions IIa, IVa, Vb, VIIa-c, VIIe-k & VIIIa-e
- Mackerel (*Scomber scombrus*) in the North East Atlantic (Southern, Westerns and North Sea spawning components)

1.6 - Elasmobranch resources in the Northeast Atlantic

- Spurdog (*Squalus acanthias*) in the Northeast Atlantic
- Catshark (*Scyliorhinus canicula*) and nursehound (*Scyliorhinus stellaris*) in the Northeast Atlantic, particularly in ICES subareas VI & VII and in ICES subareas VIII & IX
- Basking shark (*Cetorhinus maximus*) in the Northeast Atlantic
- Tope shark (*Galeorhinus galeus*) in the Northeast Atlantic, particularly in ICES subareas VI & VII and in ICES subareas VIII, IX & X
- Skates and rays in the Northeast Atlantic, particularly in ICES subareas VI & VII and in ICES subareas VIII & IX
- Porbeagle (*Lamna nasus*) in the Northeast Atlantic
- Thresher sharks (*Alopias vulpinus* & *Alopias superciliosus*) in Northeast Atlantic
- Blue shark (*Prionace glauca*) in the Northeast Atlantic
- Other demersal elasmobranchs in the Northeast Atlantic, particularly in ICES subareas VI & VII and in ICES subareas VIII & IX

NB: when reviewing advice on Spurdog and Porbeagle in the Northeast Atlantic, indicate and review also advice which would be available for both species in other areas

1.7 - Deep Sea resources

(p.m. advice were released by ICES in 2010 and cover the years 2011 & 2012 – see in particular advice of the ICES-WGEF) including deep-sea sharks, in particular

- Portuguese dogfish (*Centroscymnus coelolepis*),
- Kitefin shark (*Dalatias licha*),
- Leaf-scale gulper shark (*Centrophorus squamosus*)

1.8 - Resources in Icelandic and East Greenland Seas

- Cod (*Gadus morhua*) in ICES subareas XII
- Herring (*Clupea harengus*) in ICES subdivision Va (Icelandic summer-spawning)

1.9 - Resources in the Barents and Norwegian Seas

- Northern Shrimp (*Pandalus borealis*) in Sub-areas I (Barents Sea) and & IIb (Svalbard Waters)
- Herring (*Clupea harengus*) in ICES subareas I & II (Norwegian Spring Spawners)
- Capelin (*Mallotus villosus*) in ICES subareas I & II, including ICES division IIa west of 5°W (Barents Sea Capelin)

2. Stocks in the Mediterranean Sea and in the Black Sea

2.1 - Stocks under the jurisdiction of GFCM (Mediterranean Sea and Black Sea fish and shellfish stocks.

Nb: Highly migratory stocks are dealt with in ICCAT section

- Review advice explicitly released by GFCM-SAC and by STECF-SGMED on demersal and small pelagic stocks.
- Review advice on elasmobranchs as released by GFCM-SAC, STECF and Scientific Committee of other relevant international Convention operating in the

Mediterranean region: sharks, skates and rays excluding pelagic sharks already dealt with in the NE Atlantic and ICCAT sections if a single population is distributed in the whole area. Special attention must be given to highlight scientific elements and considerations indicating whether distinct populations exist in the Atlantic and the Mediterranean Sea.

- In addition, STECF is requested to summarise in a synoptic table the scientific advice about the state of the stocks and the level of overfishing as analysed either by the STECF-SGMED and/or by the GFCM-SAC in the recent years including the 2010.
- STECF is in particular requested to produce a table analogous to that reported in "ANNEX Ib – Stocks in the Mediterranean Sea" of the Commission communication COM(2010)241 final of 17.5.2010. Such a table was presented by the STECF Vice-Chair at the meeting on scientific advice in July 2009 and it was prepared on the basis of the information reported in the tables 3 and 4 of the attached Excel file. STECF presentation did not take into account neither large pelagic stocks (tunas, swordfish and alike) nor sharks species and the overall number of species considered of potential interest for fisheries and taken into account totalled up to 102.
 - Changes and/or inconsistencies in the state of a stock and the level of overfishing with respect to what reported last year must be underlined and comment as adequate.
 - A direct comparison of both tables 3 and 4 as reported this year with respect to what reported last year must be included.
- STECF is also requested to highlight the stocks that are caught in the same fisheries.
- STECF is requested to report/indicate for each stock the current state and the reference points either as fishing rates or biomass levels that have been used, either as target or threshold, to provide the advice on the state of the fishery or exploited fish stock. More than one reference point per stock can be reported in case different stock assessments methods have been used.
- STECF shall advice whether the following reference points can be considered as adequate target reference points that is to keep, with high probability, the fishing mortality and the exploitation rate or levels of biomass on the most relevant stocks at levels able to deliver high yields while keeping, with high probability, the stocks sizes above minimum acceptable levels in order to avoid undermining their production potentials. These levels are also commensurate to achieve economic sustainability.
 - the fishing mortality F or the exploitation rate E shall to be maintained at level equal to or smaller than the values corresponding to one of the following reference points: F_{msy} , $F_{0,1}$, $F_{0,2}$, $2/3 F_{msy}$, Z_{mbp} , F_{mbp} , F_{low} , F_{rep} , $E < 0,4$ or of an F value smaller than the F precautionary value that result in a 5% probability that the F limit will be reached.
 - the stock biomass B and/or the spawning stock biomass SSB shall be maintained at a level equal to or greater than a precautionary biomass level that result in a 5% probability that the minimum biological acceptable level be reached.
- STECF shall advice whether the following reference points can be considered as adequate limit/threshold reference points that is indicate a state of a fishery and/or a resource which is considered to be undesirable and which management actions shall avoid.
 - The limit reference points in terms of fishing mortality or exploitation rate correspond to one of the following points: F_{max} , F_{med} , $E > 0,4$, Z^* , $F < 25\%B$.

- The limit reference point in terms of biomass correspond to the biomass level below which the probability of poor recruitment increases as spawning biomass declines further.
- STECF is also requested to highlight the stocks that are caught in the same fisheries.

2.2 - Resources of the Black Sea

NB: *When assessing stocks distributed in the Black Sea, STECF will be requested to check and report possible problems encountered regarding access to relevant data, data quality and completeness of data.*

Background

For the year 2009, the European Community adopted catch limitations and associated technical measures for sprat and turbot fisheries in the Black Sea. With a view to update the assessments and catch forecast of the concerned stocks and fisheries in the area as well as assess the need for the establishment of further management measures for fish stocks in the Black Sea, STECF is requested to provide scientific advice on the present status and recent development of stocks and the marine ecosystem of the Black Sea and evaluate the existing measures.

Terms of reference

Without prejudice, STECF is requested to advice in particular on 2010 catch limitations as well as any additional management or technical measure in line with EU policy objectives and principles for sustainable fisheries management for the stocks listed in Annex I.

SG-RST 10-03 is requested to address the following ToR for Black Sea stocks:

- Compile and provide complete sets of national annual data on landings, discards, landings at age, discards at age, mean weight at age in the landings, mean weight at age in the discards, maturity ogives at age and natural mortality at age by area for the longest time series available up to and including 2009. The data should be compiled based on official data bases, best expert knowledge and by using the results of scientific surveys.
- Compile and provide all fishery independent data (pelagic, demersal, hydro-acoustic surveys) for the stocks as available, their juveniles, eggs or early life stages. In order to allow the use of such data to potentially calibrate virtual population analyses, the abundance, biomass and spawning stock biomass indices at age should be compiled for the longest time series available up to and including 2009.
- Compile and provide complete sets of annual fishing effort data (number of vessels, kW*days, fished hours) by nation, for fleets and gears (mesh size where applicable), and area for the longest time series available up to and including 2009.
- Assess trends in historic stock parameters for the longest time series available up to and including 2009 (fishing mortality at age) and up to and including 2009 (spawning stock biomass, stock biomass, recruits at age). Different assessment models should be applied as appropriate, including analyses of retrospective effects.
- Review and evaluate existing management measures and suggest additional measures in the short and medium term as well as long term management strategies in accordance with EU policy on fisheries;
- Propose and evaluate candidate limit and target reference points consistent with maximum sustainable yield and precautionary approach;
- Predict spawning stock biomass, stock biomass, recruits and catches at age and in weight in 2010, 2011 and the beginning of 2012 under different management scenarios including the status quo fishing (mean F at age 2007-2009, rescaled to 2009) and with a TAC constraint for 2010. Specifically comment on the consequences for the listed stock parameters with regard to reference points consistent with maximum sustainable yield;

- Up-date the description of EU fisheries exploiting these stocks, in terms of fleets, fishing gears, deployed fishing effort (capacity in N°-GT-kW, activity in days at sea, gear characteristics), catches and catch composition, size composition, discards, fishing grounds and seasonality;
- Identify knowledge and monitoring gaps for fisheries, stocks, vital fish habitats and other environmental aspects relevant to fisheries in the area and provide information on the reasons for this deficiency and suggest monitoring and scientific actions that need to be developed in the short and mid-term to fill these gaps;
- Evaluate the progress made in addressing such gaps since last year;
- Evaluate technical measures for Black Sea turbot in the EU Regulation for 2010 for Black Sea stocks⁵;
- Prepare and/or up-date maps showing geographic density patterns in annual abundance indices derived from surveys aggregated for age groups selected by the fisheries and compare them with maps of geographical distribution patterns in annual landings and discards of sprat and turbot by fishing gear;
- Identify other important fisheries and stocks that may be in need of specific management measures and analyze whether the scientific basis needs to be further developed;
- Report all results to the STECF Plenary in November 2010.

In support of its advice STECF shall provide for each stock:

- a) A full methodological description of the assessment and advisory procedure updated whenever a significant change is made;
- b) Estimates of landings, fishing mortality, recruitment and spawning stock together with information or estimates of the uncertainty with which these parameters are estimated;
- c) Where applicable, quantitative and qualitative estimates of IUU (Illegal, Unregulated and Unreported) fishing and its effects on the stocks of such fisheries;

List of stocks to be assessed

Species common name	Species scientific name	FAO CODE
Sprat	<i>Sprattus sprattus</i>	SPR
Turbot	<i>Psetta maxima</i>	TUR
Whiting	<i>Merlangius merlangus</i>	WHG
Anchovy	<i>Engraulis encrasicolus</i>	ANE
Mediterranean horse mackerel	<i>Trachurus mediterraneus</i>	HMM
Horse mackerel	<i>Trachurus trachurus</i>	HOM
Piked dogfish	<i>Squalus acanthias</i>	DGS
Rapa Whelk	<i>Rapana venosa</i>	RPW

⁵ Council Regulation (EC) No 1287/20009, Annex II

Bonito	<i>Sarda sarda</i>	BON
Red mullets	<i>Mullus barbatus</i>	MUT

3. Stocks located in waters of Outermost regions

- Shrimps (*Penaeus* spp.) in waters of the French Guyana
- Red snappers (*Lutjanus* spp.) in waters of the French Guyana

4. Stocks in waters under jurisdiction of RFMOs

4.1 - Stocks under the jurisdiction of NAFO

Only review of advice released **for stocks of Community interest** distributed in NAFO areas, with particular attention to be paid to the following stocks:

- Cod (*Gadus morhua*) in NAFO 2J3KL
- Cod (*Gadus morhua*) in NAFO 3NO
- Cod (*Gadus morhua*) in NAFO 3M
- *Glyptocephalus cynoglossus* in NAFO 2J3KL
- *Glyptocephalus cynoglossus* in NAFO 3NO
- *Hypoglossoides platessoides* in NAFO 3M
- *Hypoglossoides platessoides* in NAFO 3LNO
- *Illex illecebrosus* in NAFO sub-zones 3 & 4
- *Limanda ferruginea* in NAFO 3LNO
- Capelin (*Mallotus villosus*) in NAFO 3NO
- Northern prawn (*Pandalus borealis*) in NAFO 3L
- Northern prawn (*Pandalus borealis*) in NAFO 3M
- Greenland halibut (*Reinhardtius hippoglossoides*) in NAFO 3LMNO
- Skates & Rays (*Rajidae*) in NAFO 3LNO
- Redfish (*Sebastes* spp.) in NAFO 3LN
- Redfish (*Sebastes* spp.) in NAFO 3M
- Redfish (*Sebastes* spp.) in NAFO 3O
- Redfish (*Sebastes* spp.) in NAFO sub-area 2, divisions 1F and 3K
- White hake (*Urophycis tenuis*) in NAFO 3NO

4.2 - Stocks of Community interest in areas of CECAF

Only review of advice released **for stocks of Community interest** distributed in CECAF areas.

4.3 - Stocks of Community interest in areas of WECAF

Only review of advice released **for stocks of Community interest** distributed in WACAF areas.

4.4 - Stocks under the jurisdiction of SEAFO

Only review of advice released **for stocks of Community interest** distributed in SEAFO areas, with particular attention to be paid to the following stocks:

- Alfonsinos (*Beryx* spp.) in SEAFO
- Deep Sea red crab (*Chaceon (Geryon) quinquedens*) in SEAFO sub-division B1
- Deep Sea red crab (*Chaceon (Geryon) quinquedens*) in SEAFO, excluding sub-division B1
- Patagonian toothfish (*Dissostichus eleginoides*) in SEAFO
- Orange roughy (*Hoplostethus atlanticus*) in in SEAFO sub-division B1
- Orange roughy (*Hoplostethus atlanticus*) in in SEAFO, excluding sub-division B1

4.5 - Stocks of Community interest in the South West Atlantic

Only review of advice released **for stocks of Community interest** distributed in South West Atlantic.

4.6 - Stocks under the jurisdiction of CCALMR

Only review of advice released for stocks of Community interest distributed in CCALMR areas, with particular attention to be paid to the following stocks:

- *Champscephalus gunnari* in FAO 48.3
- *Champscephalus gunnari* in FAO 58.5.2
- Antarctic toothfish (*Dissostichus eleginoides*) in FAO 48.3
- Antarctic toothfish (*Dissostichus eleginoides*) in FAO 48.4
- Antarctic toothfish (*Dissostichus eleginoides*) in FAO 58.5.2
- Krill (*Euphosia superba*) in FAO 48
- Krill (*Euphosia superba*) in FAO 58.4.1
- Krill (*Euphosia superba*) in FAO 58.4.2
- *Lepidonotothen squamifrons* in FAO 58.4.2
- *Paralomis* spp. in FAO 48.3
- *Macrourus* spp. in FAO 58.5.2
- Skates & Rays (*Rajidae*) in FAO 58.5.2

5. Highly migratory species under jurisdiction of RFMOs

5.1 - Stocks under jurisdiction of ICCAT & IATTC

Review of all advice released for stocks of Community interest distributed in ICCAT & IATTC areas, with particular attention to be paid to the following stocks:

- Main species of pelagic sharks. (indicates if distinct stocks between the Atlantic and Mediterranean can be identified)
- Bluefin tuna (*Thunnus thynnus*) in the Atlantic Ocean, east of Longitude 45° W and in the Mediterranean Sea
- Bluefin tuna (*Thunnus thynnus*) in the Atlantic Ocean, west of Longitude 45°W
- Yellowfin tuna (*Thunnus albacares*) in the Atlantic Ocean
- Yellowfin tuna (*Thunnus albacares*) in Eastern Pacific Ocean
- Swordfish (*Xiphias gladius*) in the Atlantic Ocean, north of Latitude 5°N
- Swordfish (*Xiphias gladius*) in the Atlantic Ocean, south of Latitude 5°N
- Swordfish (*Xiphias gladius*) in the Mediterranean Sea
- Swordfish (*Xiphias gladius*) in the Eastern Pacific Ocean
- Northern albacore (*Thunnus alalunga*) in the Atlantic Ocean, north of Latitude 5°N
- Southern albacore (*Thunnus alalunga*) in the Atlantic Ocean, south of Latitude 5°N
- Albacore (*Thunnus alalunga*) in the Mediterranean Sea
- Bigeye Tuna (*Thunnus obesus*) in the Atlantic Ocean
- Bigeye Tuna (*Thunnus obesus*) in the Eastern Pacific Ocean
- Skipjack tuna (*Katsuwonus pelamis*) in Eastern Atlantic
- Skipjack tuna (*Katsuwonus pelamis*) in Western Atlantic
- Small tunas (blackskipjack, frigate tuna, Atlantic bonito, spotted Spanish mackerel, king mackerel and others) in the Atlantic Ocean and in the Mediterranean Sea
- Blue marlin (*Makaira nigricans*) in the Atlantic Ocean
- White marlin (*Tetrapturus albidus*) in the Atlantic Ocean
- Spearfish and sailfish in the Atlantic Ocean
- Spearfish (*Tetrapturus belone*) in the Mediterranean Sea
- Luvarus (*Luvarus imperialis*) in the Mediterranean Sea
- *Thunnus maccoyii* in all areas

5.2 - Stocks under jurisdiction of IOTC

Review of all advice released for stocks of Community interest distributed in IOTC areas, with particular attention to be paid to the following stocks:

- Main species of pelagic sharks
- Swordfish (*Xiphias gladius*)
- Bigeye Tuna (*Thunnus obesus*)

- Skipjack tuna (*Katsuwonus pelamis*)
- Yellowfin tuna (*Thunnus albacares*)

5.3 - Stocks in the Northeastern, eastern, southern and western-central Pacific

Review of all advice released for stocks of Community interest distributed in the Northeastern, eastern, southern and western-central Pacific.

- Swordfish (*Xyphias gladius*) in WCPFC Convention area South of 20°S
- Jack mackerel (*Trachurus murphyi*) in SPRFMO Convention area

6. Additional request on the impact of management decisions addressing uncertainties in category 11 stocks

Background information

During the last negotiations on TACs and Quotas for 2010 (in December 2009) the Council and the Commission recognized that scientific advice for a number of stocks is unknown due to insufficient data to assess their status and that work should continue in 2010 to address this management shortcoming. The Commission presented in April 2010 a non-paper to the Member States summarising the main shortcomings characterising these "category 11" stocks as well as exploring possible options to overcome these weaknesses through improved data collection and proposing a decision tree guiding managers in cases of uncertainties of scientific nature.

In its request for advice concerning the implementation of categories 6 to 9 (Annex IV to the aforementioned Communication) the Commission considered approaches to TAC-fixing based on indicators of overfishing and trends in abundance that could be inferred from surveys by STECF. The Commission's aforementioned non-paper addresses in greater depth possible methods for TAC-fixing in situations where such information are not available (Category 11, and the situation described in Rule 4 of Annex IV when no representative data exist).

Request to the STECF

Further to the STECF advice⁶ of July 2010 in response to a number of questions from the European Commission in relation to the Commission's non-paper on "*Management Decisions Addressing Uncertainties in Category 11 Stocks*", the STECF is requested to:

5. List (by common name, scientific name and area) the 49 stocks classified by the STECF as category 11 stocks at the July 2010 plenum (including Baltic Sea stocks).
6. Out of the 49 stocks mentioned under point 1, list the 18 stocks considered as of low importance from an economic point of view. For these 18 stocks, the STECF is also requested to advise:
 - i) whether there is any evidence, based on historical data, that any of these stocks suffers from reduced reproductive capacity and whether it is appropriate to reduce (from y to $y+1$) the TAC by 15% in such cases; and
 - ii) to describe and possibly quantify the role of these stocks to the ecosystem.
7. Out of the 49 stocks mentioned under point 1, list the 15 deep-sea stocks and the 11 stocks that are addressed by ICES Working Group on the Assessment of New MoU Species or by the ICES/HELCOM Workshop on Flatfish in the Baltic Sea. For these 26 stocks, the STECF is requested to advise exactly on what can be done to overcome the current lack of availability and willingness of scientists to evaluate existing information on these stocks – even though the information may not be sufficient to support an analytical assessment allowing only a quality analysis of trends in stock size and

⁶ 34th Plenary meeting report of the Scientific, Technical and Economic Committee for Fisheries (PLEN-10-02).

exploitation level. In case the STECF concludes that both ICES and STECF scientists face serious difficulties to evaluate these 26 stocks, the STECF is requested to advise whether it is appropriate to carry out these evaluations through contractors.

8. Out of the 49 stocks mentioned under point 1, list the remaining 5 stocks for which additional information is required to allow an assessment. For these 5 stocks, the STECF is requested to advise on what information is required to allow the STECF to assess the state of these stocks.

Background documents will be placed in the STECF ftp server on <ftp://stecfftp.jrc.it> upon reception from DG Mare contact point.

7. Request to STECF on possible incentives aiming to trial fully documented fisheries in European fisheries (Catch Quota System)

Background

Several Member States are planning to run "trials on fully documented fisheries", as has already been the case in 2010 in Cod fisheries of the North Sea in 2011 in both the North Sea as well as the Baltic Sea cod fisheries.

These projects are planned to be carried out under the normal quota, but the vessels participating in such trials (e.g. when equipped with CCTV) would get extra quota and would have to count all catches against their quota allocations. To allow such a new framework based on "catch quotas", Member States would request for an incentive based on an increase of the national quotas of 5 %. Out of the overall increase of the National quota by 5%, vessels participating in the catch quota system could then receive individually up to 30% more quota.

As this needs to be discussed from a scientific point of view, STECF is requested by the European Commission, to provide a generic statement on this type of approach, which could lead to changes in fishing behaviours and which could favour an approach based on fully documented fisheries and to provide advice on the introduction of such a system in the Baltic Sea cod fishery in 2011.

Terms of reference

STECF is therefore requested to advise on possible "trial on fully documented fisheries" supported by incentives based on an increase of fishing possibilities adopted by the Council, considering the following points:

- based on available information, summarise present knowledge and beliefs concerning the effectiveness of "trials on fully documented fisheries", in particular with respect to testing a catch quota system as a management tool in the European fisheries;
- advise on the information that should be collected during any such further trials and its subsequent analysis and reporting in order to evaluate such management systems;
- advise on the potential benefits (e.g. higher TACs) and associated risks (e.g. control issues) of a catch quota system against the background of the present status of the main stocks distributed in European waters, considering the review of the ICES advice made available by the SG-RST and by taking into account the current uncertainties regarding the status these stocks.
- advice on the likely impact of the introduction of an incentive based increase of both the TACs as well as the effort by 5% in the Baltic cod fishery in 2011 for both the Western and the Eastern cod stock in light of the existing multi-annual plan for these two stocks.

7.7. Annex VII: Terms of reference for the SGECA-10-04 Working Group

Terms of reference of the SGECA-10-04 Working Group Evaluation of data collected in relation to the DCF on the processing sector

The specific terms of reference for SGECA-10-04 were as follows:

Taking the second DCR call for fish processing data, SGECA 10-04 is requested to analyse and comment on the data delivered and if possible economic performance of MS national fish processing sector. JRC shall compile the data into similar tables for each of the MS as far as possible.

SGECA 10-04 is especially requested to work on and comment on the following items:

1. Data Coverage and quality
2. Data Analysis and description:
 - a) National level (preparing a chapter for each MS)
 - b) EU level
3. Discussion of additional issues following the data analysis and especially analysis of cost structures and vulnerabilities
4. Comparison of parameters on the Processing industry collected under the DCR and DCF.

Implications from the analysis for future data collection regulations.

7.8. Annex VIII: Terms of reference for the SGMOS-10-06b Working Group

Terms of reference of the SGMOS-10-06b Working Group Assessment of management options for multi-annual plans

The specific terms of reference for SGMOS-10-06b were as follows:

The SG-MOS 10-06 is requested to

A) Evaluate the following plans:

1. Multi-annual plan for hake and Nephrops in ICES sub areas VIIIc and IXa
2. Multi-annual plan for cod in the Baltic

Following and taking into account *inter alia* the STECF framework specified in Annex C of SG-MOS 10-06a and WDs prepared by participants prior to the meeting. Separate reports should be prepared for each plan.

B) Provide an Impact Assessment of the following plans:

3. Multi-annual plan for sole in the Western Channel
4. Sole and plaice in the North Sea

by taking into account by taking into account *inter alia*, the external report prepared by MRAG on assessing the impact for the revision multiannual plan for sole and plaice, WDs on sole and plaice prepared by IMARES, LEI, and WD prepared by CEFAS and Seafish on WC sole. The report should following the STECF framework specified in [Annex B of SG-MOS 10-06a](#). Separate reports should be prepared for each plan.

7.9. Annex IX: Terms of reference for the SGMED-10-02 Working Group

Terms of reference of the SGMED-10-02 Working Group Assessment of Mediterranean Stocks Part I

The specific terms of reference for SGMOS-10-06b were as follows:

STECF is requested to

a) update and assess historic and recent stock parameters for the longest time series possible of the species listed below and parameters of their fisheries (by fleets) by all relevant individual GSAs in the Mediterranean Sea or combined GSAs where appropriate. Assessment data and methods are to be fully documented with particular reference to the completeness and quality of the data submitted by Member States as response to the official Mediterranean DCF data call issued on 29 April 2010. Data collected outside the DCF and/or delivered to the meeting by non-EU scientists shall be used as well and merged with DCF data whenever necessary.

- Sardine (*Sardina pilchardus*)
- Anchovy (*Engraulis encrasicolus*)
- European hake (*Merluccius merluccius*)
- Common sole (*Solea solea*)
- Red mullet (*Mullus barbatus*)
- Deep-water rose shrimp (*Parapenaeus longirostris*)
- Red shrimp (*Aristeus antennatus*)
- Giant red shrimp (*Aristaeomorpha foliacea*)
- Norway lobster (*Nephrops norvegicus*)

b) assess historic and recent stock parameters for the longest time series possible of the species listed below and parameters of their fisheries (by fleets) by all relevant individual GSAs in the Mediterranean Sea or combined GSAs where appropriate. Assessment data and methods are to be fully documented with particular reference to the completeness and quality of the data submitted by Member States as response to the official Mediterranean DCF data call issued on 29 April 2010. Data collected outside the DCF and/or delivered to the meeting by non-EU scientists shall be used as well and merged with DCF data whenever necessary.

- Picarel (*Spicara smaris*)
- Other species of the Tables 1 and 2 of the official Mediterranean DCF data call issued on 29 April 2010 (see annex) with particular attention to: Common Pandora (*Pagellus erythrinus*), striped red mullet (*Mullus surmuletus*), bogue (*Boops boops*), sea bass (*Dicentrarchus labrax*), blue whiting (*Micromesistius poutassou*), gilthead seabream (*Sparus aurata*), Blackspot seabream (*Pagellus bogaraveo*), Poor cod (*Trisopterus minutus*), Sargo breams (*Diplodus spp.*), mackerel (*Scomber spp.*), spottail mantis squillid (*Squilla mantis*)

c) review of assessments of historic and recent stock parameters of demersal and small pelagic species listed under a) and b) and assessments of their fisheries in the Mediterranean Sea as conducted by other scientific frameworks including also national framework of non-EU countries.

d) assess, propose and review biological fisheries management reference points of exploitation and stock size related to high yields and low risk of fishery collapse in long term of each of the stocks listed under a) and b) and assessed by SGMED or other scientific frameworks. Assessment data and methods are to be fully documented with particular reference to the completeness and quality of the data submitted by Member States as response to the official Mediterranean DCF data call issued on 29 April 2010 while also taking into account the outcomes of previous data calls.

e) summarize and concisely describe in a separate chapter all data quality deficiencies of relevance for the assessment of stocks and fisheries resulting from the official Mediterranean DCF data call issued on 29 April 2010 while also taking into account the outcomes of previous data calls. Such description is to be forwarded to STECF/SGRN for its review and reconciliation of national programs.

f) advise on the recent status of exploitation and stock size of the species listed under a) and b) in relation to the biological fisheries management reference points as identified under d).

g) test the empirical biologic indicators and methodologies for their calculation recommended by SGMED-10-01 to be applied for stock assessment in data poor situations. Such tests should be run using the examples of data rich stocks. SGMED is requested to comment on the applicability of the results obtained from the empirical indicators for scientifically sound fisheries management advice.

h) continue the formulation of the program R-scripts and to test them to evaluate MEDITS and other CPUE or abundance survey results as initialized during SGMED-10-01 taking also into account the proposed draft terms of reference by SGMED-10-01. As a first priority, the survey evaluation should allow assessments of trends in stock specific abundance and biomass trends, also age based, not only for the total stock but also separately for the juvenile and adult components. As a second priority, standardization between independent time series of surveys with respective parameters of correlation, bias and precision shall be realized.

i) note that the last meeting of STECF/SGMED-10-03 in 2010 will focus on short and medium term projections of stock size and catches as well as bio-economic modeling as successfully conducted in 2009.

j) propose and test a scorecard for stock and fisheries assessment data quality. The scorecard should work as a factual summary and easily contribute to the interpretation of the assessment quality with regard to data availability. SGMED should consider how the information can be implemented in its stock summary sheets to avoid work duplication.

Table 1: Additional species as included in the data collection regulations.

Species common name	Species scientific name	FAO CODE
1. Bogue	<i>Boops boops</i>	BOG
2. Common dolphinfish	<i>Coryphaena hippurus</i>	DOL
3. Sea bass	<i>Dicentrarchus labrax</i>	BSS
4. Grey gurnard	<i>Eutrigla gurnardus</i>	GUG
5. Black-bellied angler	<i>Lophius budegassa</i>	ANK
6. Anglerfish	<i>Lophius piscatorius</i>	MON
7. Blue whiting	<i>Micromesistius poutassou</i>	WHB
8. Grey mullets (<i>Mugilidae</i>)	<i>Mugilidae</i>	MUL
9. Common Pandora	<i>Pagellus erythrinus</i>	PAC
10. Caramote prawn	<i>Penaeus kerathurus</i>	TGS
11. Mackerel	<i>Scomber spp.</i>	MAZ
12. Common sole	<i>Solea solea</i> (= <i>Solea vulgaris</i>)	SOL
13. Gilthead seabream	<i>Sparus aurata</i>	SBG
14. Spottail mantis squillids	<i>Squilla mantis</i>	MTS
15. Mediterranean horse mackerel	<i>Trachurus mediterraneus</i>	HMM
16. Horse mackerel	<i>Trachurus trachurus</i>	HOM
17. Tub gurnard	<i>Trigla lucerna</i> (= <i>Chelidonichthys lucerna</i>)	GUU

Table 2: Additional species not included in the data collection regulations.

Species common name	Species scientific name	FAO CODE
1. Sargo breams	<i>Diplodus spp.</i>	SRG
2. Axillary seabream	<i>Pagellus acarne</i>	SBA
3. Blackspot seabream	<i>Pagellus bogaraveo</i>	SBR
4. Greater forkbeard	<i>Phycis blennoides</i>	GFB
5. Poor cod	<i>Trisopterus minutus</i>	POD

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Author(s):

STECF members: Casey, J., Abella, J. A., Andersen, J., Bailey, N., Bertignac, M., Cardinale, M., Curtis, H., Daskalov, G., Delaney, A., Di Natale, A., Döring, R., Garcia Rodriguez, M., Gascuel, D., Graham, N., Gustavsson, T., Jennings, S., Kenny, A., Kirkegaard, E., Kraak, S., Kuikka, S., Malvarosa, L., Martin, P., Motova, A., Murua, H., Nowakowski, P., Prelezso, R., Sala, A., Somarakis, S., Stransky, C., Theret, F., Ulrich, C., Vanhee, W. & Van Oostenbrugge

JRC experts: Rätz, H.-J., Simmonds, J.

Invited experts: Sabatella, E.

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Abstract

The Scientific, Technical and Economic Committee for Fisheries hold its 35th plenary on 8-12 November 2010 in Brussels. The terms of reference included both issues assessments of STECF working group reports and additional requests submitted to the STECF by the Commission. Topics dealt with ranged from fisheries economics to management plan evaluation issues.

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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.