JRC Scientific and Technical Reports

36th PLENARY MEETING REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-11-01)

PLENARY MEETING, 11-15 April 2011, Barza d'Ispra

Edited by John Casey & Hendrik Doerner

EUR 24806 EN - 2011

JRC EUROPEAN COMMISSION

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

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JRC64828
EUR 24806 EN
ISBN 978-92-79-20170-7
ISSN 1831-9424
doi:10.2788/15586

Luxembourg: Publications Office of the European Union

Printed in Italy

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PLENARY MEETING

11-15 APRIL 2011, BARZA D'ISPRA

1. INTRODUCTION

The STECF plenary took place at the Casa Don Guanella, Barza d'Ispra (Italy), from 11 to 15 April 2011. 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 15 April.

2. LIST OF PARTICIPANTS

The meeting was attended by 28 members of the STECF, two external experts, two DG- Maritime Affairs and Fisheries (MARE), four JRC experts, and two members from the STECF secretariat. Section 10 of this report provides a detailed participant list with contact details.

The following members of the STECF informed the secretariat that they were unable to attend the meeting:
Cardinale, Massimiliano
Daskalov, Georgi
Malvarosa, Loretta
Kuikka, Sakari

3. INFORMATION TO THE PLENARY

3.1. STECF agenda 2011, web site, declarations

Update on STECF 2011 agenda

The secretariat informed that the dates of two Expert Working Groups meetings have been changed. The STECF web site will be updated accordingly.

EWG 11-13: Ecosystem Approach to Fisheries Management: will now be convened from 16-20 January 2012

EWG 11-20: Assessment of Mediterranean Sea stocks - part 3: will now be convened from 16-20 January 2012

New STECF web site

The secretariat informed that overall feedback on the new STECF web site has been very positive. The new STECF web site (https://stecf.jrc.ec.europa.eu/home) includes a report depository containing all reports released by the STECF and its predecessor the STCF sorted by subject area. The report section is divided in the two main sections "recent" (2005 to now) and "historic" (2004 back to 1982).

The secretariat informed the STECF that it currently establishes a STECF/STCF publication list table containing report references, publication year, category and web links. The prototype was presented. The PDF of the STECF/STCF publication list will be published in the report section of the STECF web site and regularly updated.

Following the recommendation of the STECF EWG-11-02 and discussions during the STECF plenary the secretariat agreed to compile a separate document listing all recommendations made by the STECF in a table also distinguishing to whom specific recommendations are of particular interest (e.g. Commission, Member States, DCF National Correspondents). This document will be published on the STECF web site as PDF and regularly updated commencing in May 2011.

Declarations

In accordance with the Commission Decision 2005/629/EC of 31 August. 2005 on STECF, members of the STECF are requested to annually provide CVs and a declaration of commitment. Members of the STECF and external experts invited to the STECF meetings are requested to provide a declaration of interests for each meeting they attend. Those declarations should go on the public STECF web site. The secretariat requested the members of the STECF and external experts to sign an authorisation form to use personal data on JRC websites in the context of STECF. Scan-PDFs of authorized declarations will be placed on the STECF web site with the personal signature of the experts omitted.

4. STECF INITIATIVES

4.1. FISHRENT model presentation and discussion

Background

The FISHRENT model is a newly-developed approach for assessing the likely consequences of fisheries management proposals. It can deal with proposals relating to fishing effort as well as TAC driven policy measures, can simulate an unlimited number of years, allows for optimization and includes a factor to account for the extent to which the policy makers follow the biological advice. It potentially offers a promising basis for integrated biological and economic modelling of management proposals.

Pavel Salz has kindly agreed to present an overview of the model in order that STECF can discuss its merits, and understand its capability and utility with a view to using it to provide advice in response to relevant requests from the Commission. Further information on the FISHRENT model "Study on the remuneration of spawning stock biomass" can be found on: http://ec.europa.eu/fisheries/documentation/studies/index_en.htm

STECF comments

An overview of the FISHRENT model was presented to the STECF by Pavel Salz, FRAMIAN. The model was developed in relation to Call for tenders MARE/2008/11 – Lot 3.

The main characteristic of the model are:

1. Independent stock growth, catches and investments
2. Multi-fleet and multi-species – flexibly expandable
3. Simulation for 15, 25 year and longer
4. Optimization of any variable
5. Effort and TAC driven policies
6. Management plan rules
7. Investment function
8. Discards of overquota and undersized catches
9. Endogenous policy decisions
10. Access fees
11. Modular structure
12. Graphical and database output

STECF has not fully assessed the capability and utility of the FISHRENT model and the following text reports the initial reflections of the STECF in this respect.

STECF notes that the model is comprehensive and presents a number of innovations which were not previously integrated in a similar way that can be summarized as the integration of the characteristics listed above, producing a dynamic link between stocks and fleets. It also observes that the economic behavioural and management modules within FISHRENT are extensive and able to cope with a range of the questions asked in relation to the current management of fisheries within the EU.

FISHRENT is primarily suitable for testing and comparing the economic consequences of different policy scenarios based on an average median stock biomass. The model is capable of addressing questions related to, for instance management plans combining TAC and effort rules, long-run analyses with capacity adjustments and short-run analyses of economic performance using a dynamic link between stocks and fleets.

STECF noted however, that the biological module in FISHRENT is oversimplified compared to the range of biological models currently used for stock assessments and standard management strategy evaluations. STECF is aware that a simple and deterministic stock growth production function cannot capture the dynamics of actual inter-annual variations in stock abundance over a long time period, especially for depleted stocks. This oversimplification makes it challenging to link typical biological management scenario analyses with the in-depth economic analyses that FISHRENT can produce. In particular, natural variability and especially inter-annual variability and uncertainty in future recruitment around a usually poorly identified stock-recruitment relationship is vital in this respect. Furthermore, this variability is most easily captured through a standard stochastic age-based biological module which FISHRENT does not currently use.

STECF stresses that there is no universal model that can be applied to address fishery management issues. The choice of model to be used is dependent on the questions asked. STECF proposes that if feasible, the capability and utility of FISHRENT and other suitable models, and comparisons of outcomes provided by different modelling platforms could be explored in the context of specific requests to STECF this year, specifically EWG 11-07 and EWG 11-15.

4.2. FISHPOPTRACE presentation

Background

Genetic data is commonly used for wildlife management, and is also applied for the identification of population and conservation units for marine species. However the inclusion of genetic data in fishery models, for stock identification and assessment, is rarely applied, and integration of genetic information in marine fishery management schemes has been slow.

The FP7 funded project FishPopTrace has used Single Nucleotide Polymorphisms (SNPs) as genetic markers to identify populations of cod (*Gadus morhua*), common sole (*Solea solea*), herring (*Clupea harengus*) and European hake (*Merluccius merluccius*) across European waters. Such data can be used to analyse the state and putative boundaries of fish populations and also to monitor changes that are known to impact stock recovery and resilience. The approach can be a valuable accompanying measure to existing fishery management schemes.

Jann Martinsohn (JRC), member of the FishPopTrace steering committee, has kindly agreed to present an overview of the FishPopTrace activities and results. The relevance and value of genetic analysis for fishery management will be discussed, and reasons for the current hesitant integration of genetic information into management schemes will be explored.

This overview should set a foundation aiding STECF to assess the value of genetic information for fishery management, also with respect to the provision of scientific advice to the European Commission. Further information on the FISHPOPTRACE PROJECT can be found on: http://fishpoptrace.jrc.ec.europa.eu/

STECF comments

Key outcomes of FishPopTrace of potential value to fisheries management

STECF considered the presentation on FishPopTrace and noted a number of 'key' outcomes of potential direct relevance to fisheries management and the provision of scientific advice to the European Commission, namely:

Spatial and temporal stock identification and differentiation.

Results from FishPopTrace have identified several hundred novel population-relevant genetic markers, or Single Nucleotide Polymorphisms (SNPs), for a number of target commercial fish species. Based upon an extensive sampling programme the genetic populations of the target species (*Gadus morhua, Solea solea, Clupea harengus* and *Merluccius merluccius*) have been spatially mapped. It appears that the results have identified a number of distinct fish populations in more areas and with higher certainty than has previously been possible using conventional survey techniques. For example, using SNP analysis, it has been possible to discriminate between cod from Canada, North Sea, Baltic Sea and Northeast Arctic populations; between herring from the North Sea and North Atlantic; between common sole from the Irish Sea and Thames regions and between hake from the Mediterranean and Atlantic areas.

It also appears from a time series analysis of tissue samples that there is a general level of temporal stability in the data, e.g. genetic signatures of populations examined changed little over a ten year period.

STECF acknowledges that the identification of discrete stocks is an important requirement for their effective management. In particular, further work to compare the spatial and temporal trends of known European genetic stocks with those used for current stock assessment purposes would have some merit. An outcome of interest would be to identify and describe the stocks with the greatest match/mismatch by comparing genetic *versus* present stock units and to consider the implications of the results in terms of current stock assessment and fisheries management practices.

Estimates of effective population (stock) size.

Although not explicitly studied by FishPopTrace, population genetic approaches have allowed questions related to population (stock) sizes to be addressed. It is generally assumed that marine fish have relatively large population sizes, but a number of genetic studies on commercially exploited species indicate the effective population size (*i.e.* the number of reproducing individuals within a population) can be orders of magnitude smaller than the census population size (the total number of individuals of a population). Examples are Atlantic cod (*Gadus morhua*) (Hutchinson et

al. 2003; Arnason, 2004), plaice (*Pleuronectes platessa*) (Hoarau et al. 2005), striped bass (*Morone saxatilis*) (Diaz et al. 2000), and sardine (*Sardina pilchardus*) (Laurent and Planes 2007).

STECF considers that a further evaluation of the utility of genetic markers in estimating the effective population size of specific commercial fish species (stocks) would be useful, especially in relation to those stocks with the greatest match/mismatch previously identified under 3.2.1.

Stock connectivity and resilience

Effective population size and the connectivity between populations have important implications for fisheries management and the conservation of fish stocks. For example, the extent and connectivity between fish populations and/or stocks is largely determined by the level of interbreeding of individuals from one distinct population to another which introduces the exchange of genes between populations (a process called "gene flow"). The rate of exchange (migration of fish) depends upon many factors, but it is known that such exchanges are correlated with the effective population size (Waples and Gaggiotti, 2006). In addition, FishPopTrace has evaluated SNPs that are linked to genes involved in adaptation to the local environment (*i.e.* they are subject to natural selection). Investigating the link between natural selection and specific changes in the genome is now possible in natural marine fish populations. Such an advance is significant as studies are now able to move beyond the mere detection of genetic differences among marine fish populations, to the identification of how and why such differences relate to their level of fitness in stressful environments, so-called local adaptation.

STECF considers that genetic techniques could help to identify which stocks are at the greatest risk to possible fishing induced local extinctions, by mapping their connectivity and assessing resilience. Such information could be of value in developing more effective fisheries management plans and in establishing more appropriately designed networks of Marine Protected Areas.

Compliance (enforcement) monitoring and assessment

The tools developed and tested within FishPopTrace offer opportunities to track and trace fish and fish products which are of value in verifying the authenticity of the catch and landing declarations. In addition to their value in supporting legal enforcement requirements the techniques ensure a common standard can be applied across Europe with many different analytical laboratories and countries using the same methods and sets of genetic markers. It is noteworthy that forensic genetics are not only providing robust evidence for prosecution, but they also have a strong deterrent effect.

Other/Further Benefits

Genetic studies can also identify the degree of mixing between populations of wild and farmed (aquaculture) origin, a matter of growing significance in light of increasing aquaculture activity. These issues have been successfully addressed and applied for anadromous fish (salmon) (Glover et al., 2008; Glover, 2010) and are currently being investigated by the project AquaGen (http://aquagen.jrc.ec.europa.eu) for marine fish. Related to this are re-stocking or stock enhancement approaches, where fish bred in captivity are released into the environment. Such "alternative management" measures need careful consideration and should take into account possible genetic impacts.

Framework to evaluate potential application

Population genetics has been applied to support routine fisheries management. For example, SNP-based 'real time' stock monitoring is now routinely applied for Pacific salmon (Seeb, 2011 and references therein). Examples of routine application in European marine fish stocks are the Danish western/eastern cod stock assessments, and Norwegian coastal *versus* Arctic cod stock assessments. Further examples, including other marine fish species are provided in recent reviews by Reiss *et al*. (2009); Hauser and Carvalho (2008). While these examples demonstrate that fishery genetics are of value in some fisheries management cases, they have not been widely integrated into routine assessments.

To better understand the utility for fish population genetics in fisheries management, STECF suggests that it would be beneficial to further explore the FishPopTrace findings. To achieve this STECF recommends that consideration be given to developing a number of research programmes to address the following themes:

- A comparison of the spatial and temporal trends between known European genetic stocks and those used for current stock assessment purposes. To identify and describe the stocks with the greatest match/mismatch comparing genetic *versus* present stock units and to highlight the potential implications for stock assessments and fisheries management advice.

- An evaluation of the utility of genetic markers in estimating the effective population size and [sub-population connectivity] of specific commercial fish species (stocks) and if possible provide estimates for those stocks with the greatest match/mismatch from I.
- An evaluation of the potential use of genetic techniques to identify stocks at potential risk to local extinction and consider how this information could be used for fisheries management.

- As a final task and pending the outcome of the above actions an evaluation of the practicalities of applying genetic techniques for routine stock assessment purposes should be undertaken.

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5. ASSESSMENT OF STECF EWG REPORTS

5.1. SGMED 10-03 Assessment of Mediterranean Sea stocks - part 2

STECF is requested to review the report of the **SGMED-10-03** Working Group of December 13 - 17, 2010 (Mazara del Vallo, Sicily (Italy)) meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF observations

STECF notes that the STECF-SGMED 10-03 WG provided management advice regarding the stock specific exploitation and stock size status applying the concept of limit reference points consistent with high long term yields and precautionary reference points for stock size, respectively. In addition, the STECF-SGMED 10-03 WG reviewed three stock assessments assessed by the GFCM-SAC. The stock assessments carried out increased the number or updated the assessments presented by the STECF-SGMED-10-02 WG, which were reviewed by STECF during its 2010 autumn plenary meeting (STECF PLEN 10-03).

In total, 79 separate stock assessments for 11 demersal and small pelagic species were performed in STECF-SGMED WGs in 2010. Quantification of a reference point for exploitation and a consistent classification was possible for 45 of the stocks assessed. F_{MSY} and, as an approximation, $F_{0.1}$ were previously defined as stock-specific limit fisheries management reference points consistent with high long term yields. The STECF-SGMED WGs experienced difficulties with the determination of precautionary reference points related to reproductive capability for self renewal, mainly due to the available data being limited to short periods of few years. Consequently, SGMED classified the stock size only for a limited number of stocks. Among the 45 assessed stocks, the great majority (40 stocks representing about 89% of total) were defined as being subject to overfishing. Only 5 stocks (11%) were defined as sustainably exploited.

34 demersal stocks (finfish and crustaceans) were assessed, of which 33 were identified as overfished. Only one demersal stock was assessed as being exploited sustainably. As demersal stocks are caught in mixed fisheries, the consistent management advice concerns the reduction of exploitation towards the proposed reference level through fishing effort regulation by means of multi-annual management plans that account for multi-species effects. Annual catches including discards corresponding to the advised effort reductions can be projected for the short- and medium-term for the relevant fleets and stocks.

Among the 11 small pelagic stocks assessed, exclusively anchovy and sardine, 7 were classified as overfished, while 4 stocks were assessed to be exploited sustainably. STECF notes that the management advice for fisheries targeting small pelagics focuses on the need for a consistent approach to establishing multi-annual management plans to keep fishing mortality at or below the proposed limit management reference points.

The 2010 STECF-SGMED WGs also performed deterministic short and stochastic medium term predictions for 37 stocks for which analytical assessments were carried out during the STECF-SGMED-10-02 and STECF-SGMED-10-03 WG meetings.

The STECF-SGMED-10-03 WG continued to review bio-economic approaches and available models and a bio-economic analysis of the demersal fishery exploiting hake and red mullet in GSA07 (Gulf of Lions) was undertaken as a case study. STECF notes that the inability to provide fully-integrated management advice is related both to design of available models and data shortfalls with regard to timing and the required aggregation.

The suitability of using GLM/GAM for standardization of CPUE or the stratified means approach was addressed. This is an important issue as CPUE indices derived from the MEDITS survey often drive the tuning of the XSA assessment. Furthermore, such indices are used for survey-based modelling approaches where CPUE trends are fundamental indicators of trends in the stocks.
The STECF-SGMED 10-03 WG constructed a common data base on individual condition of exploited Mediterranean fish species using voluntary data submissions from the experts through a request sent in advance of the WG meeting.

As requested a review of several fishing net designs and their technical properties was undertaken. This review is a first attempt to give an overview of such issues in the Mediterranean and it addressed many technological parameters of fishing gear design and geometry which can influence fishing efficiency and fishing effort. It was also discussed some weak aspects of Council Regulation (EC) 1967/2006 and how to improve the effectiveness of technical measures relating to square-mesh codends aimed at reducing mortality of juvenile fish. Some clarifications on the lengths and circumferences of codends and extension pieces currently in use were also provided. Moreover, other technical changes of the gears and the consequences as regards the fishing efficiency as well as the impact on the seabed were addressed. Finally, the introduction of appropriate measures for

enforcement and control of the use of multi-rig trawl nets and ground gear characteristics were also tackled.

STECF conclusions

STECF endorses the work and findings presented in the report of the STECF-SGMED 10-03 WG: Assessment of Mediterranean Stocks Part II.

STECF concludes that the catch data agreed and used by GFCM-SAC to assess the stock status of anchovy and sardine in GSA 17 appear inconsistent. The reasoning for the inconsistencies is explained in the relevant sections of the report of the STECF-SGMED 10-03 WG. STECF concludes that the inconsistencies identified call into question the results of the assessment and the corresponding advice. STECF therefore advises that the assessments and advice for anchovy and sardine in GSA17 should not be accepted as an appropriate basis for management until the inconsistencies in the input catch data have been investigated and resolved. .

Based on the review undertaken by the STECF-SGMED 10-03 WG, STECF concludes that the 2010 Mediterranean DCF data call, although significantly improved compared with earlier calls, did not fully support its work due to late, inconsistent and erroneous data submissions. STECF further concludes that the Mediterranean data call was overly complex, which probably contributed to the observed shortfalls. STECF acknowledges that the updated MEDITS database represents a large improvement over the previously tested versions.

STECF concludes that the estimation of individual fish condition may prove useful as an indicator of stock health status and could provide a complementary variable to the outcomes of standard assessments.

STECF recommendations

STECF considers that management of fisheries targeting stocks of small pelagics in the Mediterranean through effort control alone, runs the risk of not achieving the desired management objectives, as the fleets concerned have the ability to selectively target different stocks. STECF therefore recommends that consideration be given to introduce landing restrictions as a complementary means to achieve desired management objectives on small pelagic species in the Mediterranean.

Recognising that STECF-SGMED WGs has been unable to deliver integrated bio-economic advice STECF recommends to dedicate a specific expert working group meeting with expertise in both stock and fisheries assessments as well as in fisheries economy attending to undertake bio-economic analyses and to provide respective integrated management advice. Such a meeting should be convened in early 2012 after the stock assessments and forecasts of stock size and catches have been accomplished in 2011 and appropriate economic data arising from the 2011 DCF data call have been compiled and quality checked. The Terms of Reference for such an Expert Working Group will be developed and presented in the report of the July 2011 STECF plenum.

STECF recommends that the 2011 Mediterranean and Black Sea DCF data call be revised according to the specifications given in Appendix 3 to the STECF-SGMED10-03 WG report. STECF recommends that the required aggregation of economic parameters that are not mandatory under the provisions of the DCF definitions be highlighted, as they require a pre-agreement (gentlemen agreement) between DG Mare and national administrations.

STECF recommends the voluntary data submission and analyses on individual fish condition of commercially exploited species in the Mediterranean to be continued.

5.2. STECF-EWG 11-01 on multi-annual management plans – part 1

STECF is requested to review the reports of the **STECF-EWG-11-01** Working Group of February 28 to March 4, 2011 (Copenhagen) meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF is requested to review:

1) the report on Impact Assessments for the new management plan for Bay of Biscay sole of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

2) the working document on Scoping for Impact Assessments for new plans Eastern and Western Baltic Cod, Scoping for historic Evaluations of existing plans: North Sea cod, Kattegat cod, West of Scotland cod, and Irish Sea cod of the joint STECF/ICES Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

Introduction

A joint ICES / STECF meeting was held in Copenhagen 28 February to 4 March 2011, to prepare an impact assessment for Bay of Biscay sole, scope the Impact Assessment for Baltic Cod, and the historic evaluations of existing plans for Kattegat, North Sea, West of Scotland and Irish Sea cod. The meeting involved STECF, ICES scientists dealing with Economy and Biology and included Observers (Commission staff, Managers, Stakeholders). Two separate reports were prepared by the STECF-11-01 WG, one on the Impact Assessment of Bay of Biscay sole (EWG-11-01a) and another on the Scoping for Impact Assessments for Baltic cod and Evaluation of Cod in Kattegat, North Sea, West of Scotland and Irish Sea (EWG-11-01b). Both reports were reviewed by the STECF during its 36th plenary meeting held from 11 to 15 April 2011in Ispra, Italy. The following observations, conclusions and recommendations represent the outcomes of that review.

Review on the Impact Assessment of Bay of Biscay sole

STECF observations

STECF commends the STECF EWG 11-01 WG for its excellent work with the Impact Assessment of fisheries on Bay of Biscay sole and the report provided. STECF considers that this study is of a high standard and would particularly like to thank the group who carried out the work for their efforts in providing comprehensive and relevant biological and economic analyses.

Biological Modelling: STECF considers the biological modelling was appropriate. It was developed to include a large range of different stock dynamics incorporating uncertainty in stock recruitment function and measurement error. Several alternatives were tested and under the scenarios investigated the long term trends in stock development and TAC did not show any notable differences. A range of management scenarios examined the likely impacts of option for a multi-

annual plan on the stocks and the fishery. These included different candidates for F targets, increasing the allowable annual TAC change, testing several $B_{trigger}$ values (the biomass at which exploitation rates are reduced) and the use of a fixed TAC strategy.

Long term Objectives: The simulations carried out show that given the probability of SSB< B_{lim}1 for sole a target F of 0.26 (F_{msy}) can be accepted as precautionary in the long term. With levels of estimation precision assumed and no misreporting, exploiting the Bay of Biscay sole stock at F_{msy} (0.26) can be considered precautionary. An F target of 0.26 does not produce significantly higher long term yields relative to Fs in the range of 0.15-0.35. Target Fs between 0.15 and 0.35 will give yields higher than 95% of yield at F=0.26. Furthermore, for all F values below 0.35, the risk on SSB falling below B_{lim} is low. Fishing at F higher than F_{msy} would however result in a lower long term biomass and therefore a potential higher risk to the stock. A higher target F would also potentially result in higher ecosystem impact of the fishery.

Robustness to collapse: The simulations also show that the choice of $B_{trigger}$ for Bay of Biscay sole has little impact on the management as all plausible candidate values are lower than the current SSB which is expected to increase under all recommended strategies. Variability in TAC in the near future (5 years) or the longer term (20 years) is expected to be similar and the probability of SSB below B_{lim} is also expected to be the same. Taking the above into consideration, a $B_{trigger}$ of 11,000t (above B_{lim} and compatible with CV on estimation error derived from ICES quality sheets) may be a valid candidate.

STECF further notes that both types of options tested by the group (Gradual F reduction and Fixed TAC) are likely to give similar results on the short (2015) and longer term (2020) for yields, F level and risk on SSB. The main difference between these two approaches to management would be inter-annual variability in TAC, this variability would be greater for the F reduction strategy and lower for the constant TAC. This is an important point to consider as a constraint on the inter-annual variability in TAC would be advantageous to fishermen in planning future strategies and investments.

Gradual annual reductions in F towards achieving F_{msy} in 2015: Under a strategy of gradual annual reductions in F towards achieving F_{msy} in 2015, the current 15% constraint in inter-annual variation in TAC is considered acceptable from a biological perspective.

Fixed TAC strategy: Under a Fixed TAC strategy, TACs in the range of 3500t to 4500t appear to be precautionary and are predicted to give F_{msy} = 0.26 in 2015 with different probabilities. There is some uncertainty regarding the catch in 2010 and 2011 due to uncertainties in the way the fleet will utilise fishing opportunities during this period, however, irrespective the catch assumptions in 2010 and 2011, with a constant TAC of 4100t from 2012 onwards, F_{msy} could be reached with a 50% probability by 2015 with a 90% confidence interval in F in the range of [0.21,0.32] (assuming a change from constant TAC strategy to F_{msy} strategy once F_{msy} is reached).

This constant TAC approach is robust to the kind of reduction in mean recruitment seen in the past, (a reduction of 15% in the mean was observed between the periods before and after 1993). Simulations, beginning in 2012, indicate that a TAC of 4100 t shows low probability (<1%)| of reducing SSB below B_{lim} (9300 tonnes) under the existing recruitment regime or with up to 15% reduction in mean recruitment. Under the assumption of a 20% reduction in average recruitment a TAC of 4100 tonnes showed a low probability of reducing SSB below B_{lim} before 2017, but an increased probability thereafter.

1 As no B_{lim} has been defined for the Bay of Biscay sole stock, the STECF Working Group used Bpa/1.4 = 9,300t as a proxy. In all text, B_{lim} should be interpreted as the proxy for B_{lim} defined by the group

Economic considerations. In 2008 the vessels exploiting Bay of Biscay sole consisted of 400 vessels in total which generated total gross revenue of €168million. Dependency on sole is presented as proportion of revenues generated by sole. Sole gillnetters have highest economic dependency on sole, around 60% for the various length classes. Other metiers have dependency of around 10 – 20%. Operating profit margins are presented for the 12 fleet sub-segments and the sole gillnetters had segment average operating profit ratios of around 15% for the larger vessels, 20% for the under 10m vessels.

Economic impact assessment suggests that compared to the status quo, implementation of any of the options examined under the management plan could be expected to create slight long term gains and short term negative economic impacts for fleet segments involved in the sole fishery. The short term negative impact is not considered to be severe. However, the negative impact is an outcome of the model assumption that if Bay of Biscay sole TAC declines, vessels will not exploit other fishing opportunities. In reality however, it is believed that there are other legitimate fishing opportunities (albeit not quantified) that owners would exploit and therefore the modelled decline in earnings might not occur, or might not be as marked as the model output implies, if the management plan were implemented.

The proportion of vessels in each segment is assumed to be constant over the simulation period.

Management options tested are based on TAC controls. Total effort deployed by the fleets was modelled to match the permitted fishing opportunities which lead to decreases in effort. This is the consequence of both a reduced fishing mortality towards Fmsy and an increase in catch rate as stock levels and density increase.

The simulation analysis shows that there are important differences to outcomes for the vessels depending on whether the total effort reduction is achieved by making a reduction in the total number of vessels or by retaining the number of vessels and having each vessel spend less time, but more profitably, at sea. Reducing the number of vessels would also reduce the likelihood of effort reallocation to other species. However, this would have a direct effect on fleet size and employment. On the other hand, if the existing vessels are able to allocate more effort to other fishing opportunities, the management plan would have only a small effect on fleet performance and employment. However such displaced effort might impact other species and as a consequence may affect the performance of other fleets.

The fully coupled bio-economic modelling approach had some advantages over separate modules and STECF considers that the use of this approach has improved the relevance of the results. The modelling of the fleet response was limited to only total effort (days) or fleet size (vessels) and did not include a mixed response or a response related to the level of profit. However as most of the fleets remain in profit for all of the simulation period STECF considers that for the options evaluated the modelling is sufficient to rank the relative advantages or disadvantages of the options compared.

In order to provide management advice in the absence of an accepted assessment, STECF considers that Annex IV (rules 4 and 5) of COM(2010)241 final (fishing opportunities for 2011), would be a reasonable candidate for action. France has been carrying out a new survey for a number of years and it is anticipated that it will soon be able to provide an index of abundance for sole, if this or any other survey can provide adequate information on the status of the stock, information from such a survey should be taken into account for setting a TAC in the following year. Using this survey in accordance with Annex IV (rules 4 and 5), a 15% increase in TAC could be applied 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% decrease in TAC could be applied if the average estimated abundance in the last two years is 20% or lower than the average estimated abundance in the three preceding years.

Where abundance information, is not available or does not adequately reflect changes in stock abundance (ie. The survey is not informative), an unchanged TAC would apply unless the TAC is above 4100t. In that case the TAC should be reduced by 15% per year until it reaches 4100t (the fixed TAC value which has been evaluated as safe under the assumption of normal recruitment and safe for at least 7 years under reduced recruitment assumptions).

STECF conclusions

STECF endorses the findings of the STECF EWG report on the Impact Assessment for Bay of Biscay sole EWG 11-01a which forms an excellent basis for an Impact Assessment for fisheries on Bay of Biscay sole.

STECF recommendations

STECF notes that the use of an integrated bio-economic model used by the STECF EWG 11-01 on the Impact Assessment for Bay of Biscay sole, gave very useful additional information to assess the economic impact of a future management plan on the sole fishery in the Bay of Biscay. STECF recommends further development of the type of modelling approach described in the Annex to that report. (the final STECF EWG-11-01 report will be published on: https://stecf.jrc.ec.europa.eu/reports/management-plans).

Review on scoping for Impact Assessments for Baltic cod and Evaluation of Cod in Kattegat, North Sea, West of Scotland and Irish Sea

STECF observations

STECF would like to commend the group for its excellent preparatory work with the Impact Assessment of fisheries on Baltic cod and Evaluations of cod in Kattegat, North Sea, West of Scotland and Irish Sea.

This report satisfactorily identifies the work required to be carried out before the concluding expert working group STECF EWG 11-07.

Some additional aspects were identified:

In order to obtain the most complete economic analysis it was considered useful to ask the Norwegians if they would be interest to be involved in the economic analysis of North Sea fishery.

The scoping report has identified the importance of the analysis of diverse control measures (TAC, Effort, Area closure) to identify their relative utility. In reviewing the utility of the measures that are additional to TACs for cod, STECF requests the group to consider also the utility of these control measures for providing protection of other species.

STECF conclusions

STECF considers that the work described in the STECF EWG 11-01b report of scoping for cod plans provides a satisfactory basis to proceed with the impact assessments for Baltic cod and evaluations of the multi-annual plan for Kattegat, North Sea, West of Scotland and Irish Sea cod.

STECF recommendations

STECF has no specific recommendations at this stage

5.3. STECF-EWG 11-02 on present and future requirements of the Data Collection Framework

STECF is requested to review the report of the **STECF-EWG-11-02** Working Group of March 21 - 25, 2011 (Brussels) meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF comments

STECF noted that the report of EWG-11-02 covers a broad range of DCF issues of strategic as well as operational importance and commended EWG 11-02 having addressed all terms of reference and produced a report that will help prime discussion on a revision of the DCF. The meeting was important and timely as the reflections fit well into the timing for the CFP reform and the MSFD. STECF noted that Commissioner Damanaki attaches importance to the availability of robust scientific data and has recently written to Fisheries Ministers to draw their attention to the essential function of the DCF for the CFP and has called upon their support to improve our knowledge on fisheries for better scientific advice and fisheries management decisions.

The EWG 11-02 carried out an initial SWOT analysis on the DCF in order to develop a high level "snapshot" of the internal and external environment in which the DCF operates. STECF concurred with the SWOT analysis and considers that it should be an important input to the strategic planning process for the required revision of the DCF. STECF would especially like to draw the attention to the following elements in the SWOT analysis. The DCF has introduced more transparency on the data collected in the different MS and for the different methods which have been used to collect the data. It has stimulated harmonization of the data collection, introduced standards and enhanced cooperation between the MS. Furthermore, more attention has been given to the quality of the data and mechanisms have been introduced to improve the coordination between data users and data providers. However, the DCF has resulted in an increased amount of obligations for MS, an increased workload and more administrative requirements. STECF note that MS are affected by the current financial crisis and exposed to reductions in the national research budgets. In some cases, this has made it more difficult to comply with all requirements of the DCF. A further expansion of the DCF, without considering the financial consequences, would exacerbate this problem.

The SWOT analysis highlights the importance of the end users and the need to establish a better dialog between the data collectors and end users. The data to be collected under the DCF is driven by very detailed output specifications which may not necessarily reflect the needs of the end users. STECF considers it important that a revised DCF be more results driven with the end users have a central role in defining the data required.

A key topic addressed by EWG 11-02 was to examine how data collected under the DCF research vessel survey programme and under other DCF modules can be used to assist the ecosystem approach to fisheries management (EAFM) and at the same time provide information for the indicators related to the 'non-fish stock' descriptors in Annex 1 of the MSFD. STECF noted that the ICES Working Group on integrating surveys for the Ecosystem Approach (WGISUR) has the ongoing remit to develop surveys to be applicable to the ecosystem approach. STECF recognised that it is important to make use of existing structures that address priority key issues. ICES WGISUR was set up to examine issues surrounding the integration of surveys into the EAFM. It is recognised that many of the MSFD GES descriptors are closely linked to the EAFM, and therefore to the work of ICES WGISUR. The concept of expanding the scope of existing DCF-funded fishery surveys to include MSFD data collection raises the critical issue of survey design and the purpose of the survey. Given that vessel time is by far the most expensive component in costs of the DCF, STECF noted that it would be appropriate to examine what scale of integrated survey would be possible with the current commitment of vessel time by MS.

STECF noted that ICES and GFCM, which together with the STECF are the key data end-users of fisheries data, have provided feedback on the performance of the DCF to EWG 11-02. It is clear that the assessments for many stocks suffer from data deficiencies and that the degree of data deficiency varies from stocks to stock. In some situations, assessments are based only on trends in abundance indices and it is not possible to conduct forecasts on fishing possibilities. Data deficiency can be in the form of data absence (either not being collected or not being transmitted) and data quality. STECF notes that the feedback from data end-users is crucial to the DCF in order to identify data transmission issues, inconsistencies and omissions. It is important to identify necessary data that at present are not being collected and to provide comments on DCF data quality.

STECF have supported the Regional Data Base concept and welcomes the progress that has been made, driven by the RCM's. The Interim Steering Group meeting held in February 2011 developed a plan of action for 2011 (critical year) and the key goals for the period 2011 to 2013. STECF considered that regional databases have considerable potential to enable implementation of a regional approach to sampling programs and regional management of data. They potentially decrease problems with data deficiencies through more centralised transmission processes and increase transparency on how data sets are compiled, enabling assessment of quality. STECF considered that all these issues are of fundamental importance for the DCF and that the Regional Data Base concept should be an important part of a revised DCF.

STECF welcomed the work done in examining the linkages and possible co-ordination mechanisms between the Data Collection Framework and the Control Regulation (CR) in order to achieve coherence on common issues such as sampling of recreational fisheries or sampling schemes for vessels under 10 m. There is a high degree of consistency in the data to be collected under the two regulations in terms of definition of the variables and the sampling intensity. The requirements to data quality in the two regulations are in most cases comparable and it thus seems unnecessary to have the commitments to collect the data both in the CR and the DCF.

STECF noted that many data end users have commented on the aggregation level of the economic data collected under the DCF (at the fleet segment level) and the consequences for the utility of these data in bioeconomic modelling. From these comments, it is clear that the economic data available from the DCF (at supra-region and fleet segment level) often don't have the right level of detail in order to answer the questions raised. More specifically, the economic data can be used to assess the broad economic consequences of management measures, but cannot currently be used to evaluate and compare specific management measures at the level of métiers and sub-areas. In this analysis, the behaviour of fishermen, changing their fishing patterns based on the costs and earnings

in different métiers/areas, cannot be taken into account. STECF noted that these issues are of major importance in evaluation of the effectiveness of measures and their economic consequences and harmonisation of biological, technical and economic segmentation is required in a revised DCF.
EWG 11-02 also discussed the time delay between the availability of the data and the reference year for the AER. Currently, the time delay for economic data is at least 1.5 years and for some data it might be as much as 3 years. Few years ago, the Commission has tried to lunch data calls before the end of the year of data collection, but it seems that for several MS, more timely transfer of the economic data is not feasible.

STECF conclusions

STECF recognises that the DCF research vessel survey programme accounts for a considerable portion of the annual DCF budget. Therefore, it is important to maximise the benefits of these surveys in the light of a changing policy landscape, particularly in relation to the EU Maritime Policy, the MSFD and the reform of the CFP.

STECF notes that data collected under the Control Regulation (CR) is used directly in the DCF. Landings and effort information provided by the DCF is in most cases based on data collected under the CR. National DCF programs may include additional data collection but the majority of the landings and effort data is collected by the control authorities as part of the CR. STECF conclude that duplication of CR data collection commitments in the DCF should be limited to those cases where the data collected under the CR is unlikely to fulfil the data quality requirements of the DCF.

STECF conclude that a key area to be considered in a revised DCF is the necessity for the DCF to provide all basic data necessary for calculation of indicators used for Impact Assessments and evaluations of Multi-annual Management Plans.

STECF notes that the metiers defined by the DCF are often inconsistent with the categories defined under management regimes. In particular, the mesh size categories at DCF level 6 refer to Council Regulation 850/98 and do not easily translate into gear categories defined under e.g. the current cod management plans (Annex IIa of Council Reg. 43/2009). Similarly, vessel length categories are inconsistent between the DCF/Annual Economic Report and the data call for effort management evaluation. STECF considers that it is of primary importance that improved consistency in fleet and métier definitions is ensured so that data are collected at an appropriate level to address management issues. STECF concludes also that some level of adaptability and flexibility is required in DCF in order to best meet the changing needs of fisheries management.

STECF endorses the timetable for the evaluation of the Annual Reports in June 2011 proposed by EWG 11-02 which is as follows:

TASK	TIMELINE
Develop Electronic Pre Screening Pilot under ad hoc contract	May 2011 (By France)
Submission of AR by MS	31st May 2011
Registration for EWG 11-08 Close	9th May (6 weeks before)
TOR for Sub Group Pre Screening	May 2011
Pre Evaluation by SGRN Sub Group	Mid June (By Correspondence)
Compilation of Recommendations	Mid June (By Correspondence)

TOR for EWG 11-08	May 2011
SGRN Participants - Task Allocation	13th June 2011
SGRN EWG 11 - 08	27th June 2011

The key issue is to have the TOR, registration and the pre screening exercise completed well in advance of the EWG 11-08.

STECF supports the ICES WGISUR and its associated Workshops. STECF welcome the collaboration in WGISUR between ICES and GFCM.

STECF will further consider the strategic issues at its July 2011 Plenary with the aim of developing a proposal for a high level roadmap for a revision of the DCF. STECF considers it important that a revision of the DCF be completed early in 2013 to allow Member States sufficient time to develop national and regional plans for data collection for the period after 2013 where the current National plans terminate. This leaves 2011 and 2012 for the Scientific Community and the Commission to further consider and act on the findings, conclusions and recommendations from end users.

STECF recommendations

DCF Operational Issues

STECF recommends that a group of 5-10 experts carry out a pre screening of the 2010 AR evaluation questionnaire by correspondence. The exact procedure for such an expertise is to be defined by the Commission and meeting chair. The completion of the questionnaire does not require specific/scientific competence. The precondition for this procedure to be effective is that the AR should be available at least 3 weeks before the EWG meeting. The pre-screening exercise should also take account of recommendations from STECF, RCM and Liaison Meetings in order to assist the AR evaluation.

DCF Strategic Issues

STECF recommends that financial support be found to investigate the potential for surveys that are funder through the DCF to be adapted to maximise their utility in providing information to support other frameworks e.g. the MSFD. Such an investigation should address the need for a Survey Atlas, definition of data needs and priorities, the development of designed-for-purpose surveys and the integration of DCF-funded and other surveys.

STECF recommends that national correspondents/national representatives in ICES, GFCM or other relevant national authorities ensure that information on all surveys performed in their national marine waters are made available for this task.

STECF recommendations on data issues

STECF recommends that the follow-up of end-user feedback needs to be improved. This could be achieved by setting up a more formal institutional system to manage the dialogue between end-users, National Programmes and DG MARE. STECF suggests that as a first step, a common database that facilitates the transmission of recommendations on data issues should be established by the Commission with input from the RCM.

Recognising that improved consistency in metier and fleet segment definitions used in the DCF and the management system is needed, STECF recommends that the flexibility to aggregate information in different ways to address the wide and evolving range of management issues is introduced in the DCF.

STECF recommends that regional data bases are considered in a revision of the present DCF and that efforts are made by the Commission to facilitate the use of regional databases.
STECF recommends that overlap in the CR and the DCF should be avoided. Data collected under the CR should not be included in the DCF unless it is to be expected that the quality of the data collected under the CR does not fulfil the quality requirements of the DCF. STECF further recommends including in the new DCF commitments for Member States to set up at national or regional level, a system to encourage cooperation between control authorities and the National Programmes of the DCF. The cooperation system should address all issues of relevance for the collection and processing of data to be collected under the CR and the DCF.

The CR includes commitments for Member States to develop and implement sampling plans for vessels not subject to logbook requirements and landing declarations. STECF recommends that when Member States develop the sampling plans, due notice is taken to the data requirements under the DCF. This could be done by actively involving at national level, the DCF experts in the development of the sampling plans.

5.4. STECF-EWG 11-03 on scoping indicators and methodologies related to the economic reports

STECF is requested to review the report of the **STECF-EWG-11-03** Working Group of March 28 – April 1, 2011 (Athens) meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF observations

STECF recognises that EWG 11-03 addressed all Terms of Reference. The EWG worked on the contents of the three annual economic reports: on the fishing fleet, fish processing and aquaculture.
STECF observes that the current fleet report is over 700 pages, and that in future considerations must be given to publish parts of the report in an electronic format and/or a database in order to be made publically available on the STECF web-site. STECF notes that the economic data, provided by MS, are aggregated in accordance with the DCF and there is no confidentiality problem in this case.

STECF notes the proposals for topics to be considered in the chapters of special interest. STECF observes that although the topics are interesting, the link between these and the data gathered under the DCF is not in all cases clear. In some cases the data availability/reliability is questionable (e.g. analysis of the transactions of fishing rights in the EU fleets). Furthermore, it is unclear whether some of the topics are a matter of urgency to deliver an opinion or to support a request for opinion on possible legal proposals to be released by the Commission.

STECF observes the unfortunate delay in publishing last year's AER for the fishing fleet, and discussed the need for projections in this year's report, if this happens this year also. Projections are

relevant to show the actual economic status of the fleets, which are not reflected in the collected data due to the delay in availability of economic data. In 2010, projections were made using the EIAA-model. For the 2011 AER for the fishing fleet, the 2010 economic figures could be projected using the simple method developed in SG-MOS 10-06, while the 2011 figures could be based on projections by the EIAA model.

STECF observes that according to the Article 2 (Role of STECF) of Commission Decision Nr. 2005/629/EC the Commission can request STECF opinion on the issues pertaining to the conservation and management of living aquatic resource. The STECF shall draw up an annual report on the economic development of fishery activity, impact of resource management on the economic situation and other economic factors affecting fisheries. The AER on fleet is of first priority and its importance in the bio-economic advice is unquestionable. The reports on the processing and aquaculture sector are of secondary importance. There are linkages between all three sectors, but these are difficult to assess.

STECF observes that a well functioning expert working group has been established in relation to the AER for processing industry, and that the produced report is of a high quality. In relation to aquaculture, there has never been a call for data before, and the availability of economic experts with knowledge of the sector is currently uncertain.

STECF endorses the improvement of structure and layout of the reports outlined in the report of the STECF EWG 11-03 (the final STECF EWG-11-03 report will be published on: https://stecf.jrc.ec.europa.eu/reports/economic).

STECF recommendations

STECF recommends to split the AER for fleets in two parts: one part including the general overview, regional chapters and chapters of special interest (which can be properly edited and published on paper) and one part including the national chapters and the appendices (which can put on the JRC website). The data from the appendices could alternatively be made available on the website in an electronic format.

STECF recommends publishing the AERs as soon as possible after the endorsement by STECF as the information analysed is getting out of date fast.

STECF recommends that in the 2011 AER projections for 2010-2011 is included, given that the report is published without delay. STECF endorses using the methodology proposed by the EWG for the 2010-projections and STECF recommends using the EIAA-model for the 2011 figures (potentially in the chapter of special interest). Provisional calculations should, however, be done before the meeting, either by JRC or by short term contracts to keep the workload during the meeting acceptable. In the coming years, STECF recommends an assessment of the usefulness of the FISHRENT model for such assessments.

STECF recommends that topics for the chapters of special interest are chosen that relate directly to the data gathered under the DCF and the (limited) time available at the meeting to produce these is kept in mind.

STECF also recommends establishing clear priorities for the working groups in terms of topics to what to cover (e.g. national chapters, regional analysis, EU overview, other topics and chapters of special interest).

Following Article 2 of Commission Decision Nr. 2005/629/EC of 26 August 2005 STECF must recall its previous recommendations about establishing a link between the fishing sector and processing sector. Furthermore, STECF recommends expanding this investigation to also include the possible links with the aquaculture sector. Pre-analysis of these relationships could be undertaken through a specific contract, and afterwards considered in an expert working group, which could then also consider the consequences in relation to the process for the development of the new DCF.

Given the obvious links between the catching and processing sectors, STECF strongly recommends that the EWG 11-14 is convened to prepare an annual economic report on the fish processing industry and that an annual economic report on the aquaculture would be best addressed through ad hoc contracts with the assistance of JRC experts.

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

STECF is requested to review the reports of the **SGMOS-10-05** Working Group of September 27 – October 1, 2010 (Edinburgh) meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF is requested to review:

1. the report of the STECF Expert Working Group on Fishing Effort Regime Annex IIa of the TAC & Quota Regulation, evaluate the findings and make any appropriate comments and recommendations.

2. the report of the STECF Expert Working Group on Fishing Effort Regime Deep-Sea & Western Waters, evaluate the findings and make any appropriate comments and recommendations.

When reviewing this STECF WG report, the STECF plenary is requested to discuss a possible endorsement of correction factors established by the STECF EWG by taking into account evaluations of Catch Per Unit of Effort, which would allow the Commission properly implementing several provisions laid down in the Cod plan adopted through R(EC) No 1342/2008.

Introduction

The STECF-SGMOS Effort Management WG (previously SGRST WG) has, since 2004 performed the task of collating and evaluating effort and catch data for fisheries operating under the Annex II A-C regimes. In 2010 the WG 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 SGMOS Effort management 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 effort meetings 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 SGMOS

10-05 meeting. Two new areas of work were requested and developed by the SGMOS effort group 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.

Approach adopted by the Working Group

The data call was issued on 27th April 2010 (corrigendum 12th May 2010).

The Working Group met on two occasions in 2010. Inter-sessional 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 SGMOS effort databases shortly after the final meeting. A decision was taken not to revise all the figures and tables in the effort report.

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 STECF 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 at the November 2010 STECF meeting

The report covering the Annex II effort management regime (part 2) is complete and the review completed at this meeting.

The report covering Deep Sea and western Waters Report (part 3) is incomplete and has not been reviewed at this 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 effort database has been made available on the FTP site for use by the Commission and STECF members and on the STECF website.

Terms of reference

The TORs for STECF-SGMOS WGs in 2010 can be consulted on the meeting's web site (https://stecf.jrc.ec.europa.eu/meetings/2010).

Overall, the TOR were extensive and demanding. STECF notes that the Commission has acknowledged the workload of the group and reduced the TORs for some areas (for example the Western waters and Deep Sea work). While some of the evaluations of effort and catch has been ongoing for a number of years and have established routines associated with them, work associated with new requests are more developmental. For TORs associated with these new requests, some progress was made but the issues could not be tackled comprehensively.

Note that separate reports are prepared for the Baltic Sea and the Deep Water /Western Waters.

STECF was also provided with an additional TOR for Plenary as follows:

When reviewing this STECF EWG report, the STECF plenary will be also asked to discuss a possible endorsement of correction factors established by the STECF EWG by taking into account evaluations of Catch Per Unit of Effort, what would allow the Commission properly implementing several provisions laid down in the Cod plan adopted through R(EC) No 1342/2008.

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 a major correction to the ANNEX IIa data from France was required at the end of November 2010. As a consequence the tables and figures in the 2010 SGMOS Part 2 report (https://stecf.jrc.ec.europa.eu/reports/effort) do not contain the same information as the website, where a complete set of the most recent data is available (SGMOS-10-05 web site on: https://stecf.jrc.ec.europa.eu/meetings/2010). However, STECF considered that the overall descriptions of trends are not expected to have changed.**
- **STECF considered it essential to draw clear attention to this issue at the beginning of the report and decided to include a watermark throughout the report to make clear the need to consult the STECF website for the most up to date data.**
- Given that a new updated data call for 2010 has already been issued and evaluation will commence within 2 months, STECF considers efforts should be directed to ensuring the quality of this process rather than further editing of the 2010 SGMOS report.
- STECF notes that the work of SGMOS is to collate and summarise data provided by member states. In this respect the output is dependent on timely submission of accurate material and STECF SGMOS is 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.
- STECF notes that comprehensive deep sea data has been provided by a number of countries representing a significant new development in the work of SGMOS. 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 and 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. 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/interpretation 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 SGMOS effort group should contain some participants with particular expertise in this area.
- Given the difficulties encountered, 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 e.g. late submission 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 the time allocated to WG 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 its 34th meeting Report (summer 2010) 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 Recommendations

Since 2004, STECF has been requested to compile and analyses catch and effort data and it's effort management WGs have built up a substantial and useful series of data bases of catch and effort data, which are widely consulted especially in the context of long-term management plans. Resources for servicing and maintaining these data bases have to date, been provided on an *ad hoc* basis and it is clear that this is not sustainable or desirable. In this context, the 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 that priority is given to succession planning to ensure continuity and consistency. There is also a need to ensure consistency between the different databases that are in existence. This could be undertaken in the context of the discussions in regional coordination meetings of the DCF.

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

- STECF notes that SGMOS has, during its two meetings, 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. In 2010 French data was supplied from a new database system which is expected to lead to longer term improvements in data quality. However, difficulties with the French data for 2002 and 2009 and an additional late correction mean that a full evaluation of consistency and comparability has not so far been possible. STECF also notes that with the exception of Spanish data supplied for Annex IIB, the limited data supplied by Spain for a number of other areas, especially west of Scotland and Celtic Sea has compromised the ability of the STECF to provide a comprehensive evaluation of the effort regimes in place.

- 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.
- Further effort reductions were estimated from 2008 to 2009 in some areas regarding most of the gears important for catching cod, plaice and sole, particularly trawls 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
- CPUE figures were calculated for regulated gears in most areas but the quality of these estimates depend on the available discard information, some of which is sparse. For some areas and gears, only LPUE summaries were provided.
- Owing to the importance of the CPUE information for informing appropriate conversion factors for between gear effort transfers, STECF conducted some additional analysis in line with the specific request from the Commission. Results of these analyses are presented below (additional TOR).
- STECF agrees with the decision of SGMOS 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 examined by SGMOS 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.
- STECF 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 data provided by Spain and Portugal. STECF considers the more comprehensive review made possible by the data improvements provides a good description of the fisheries covered by this regulation
- Estimates of discards provided by Spain were considered to be unrealistic and STECF-SGMOS instead used discard rates submitted to ICES in order to proceed with catch estimates. For future evaluations it is expected that efforts will be made to supply accurate information the STECF effort management evaluation process.
- STECF notes that in respect of Review of Annex IIC of Council Reg. 40/2008 in the context of the sole management in VIIe 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. Discard data, however, is still limited and this continues to impair the estimation of catches.
- STECF-SGMOS 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 non-regulated gears, while still relatively high, has declined in the last couple of years.
- STECF re-iterates its earlier comments 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, non- regulated otter trawl take about 88% of the total

- STECF notes that for the Celtic Sea, notwithstanding the uncertainties about French effort data, overarching conclusions drawn about the Celtic Sea are broadly the same as in previous years
- In summary, i) there appears to have been a reduction in overall effort (predominantly by trawls) in the area. ii) the VIIfg 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.
- STECF notes that SGMOS was able to provide summaries for two different spatial descriptions. One for the Celtic Sea as a whole and one for ICES areas VIIfg only.
- STECF considers that the process of evaluating whether any extension of the cod recovery plan for the Celtic Sea cod stock should apply to the whole area or would be effective if restricted to VIIfg would benefit from additional information on spawning area or nursery ground in areas outside VIIfg.
- STECF notes that a new review was conducted on the Bay of Biscay. Owing to the specifications 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 non-regulated effort and catches. It is possible this could be addressed in future but would require that the data call be tailored to accommodate the specification and that careful instruction be given to MS administrations.
- STECF notes that the most noticeable feature in the Bay of Biscay is the general rise in fishing effort in recent years, particularly by trawlers. This is unlike almost all other regions where effort has declined

STECF 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.

Additional Term of Reference

When reviewing this STECF WG report, the STECF plenary will be also asked to discuss a possible endorsement of correction factors established by the STECF EWG by taking into account evaluations of Catch Per Unit of Effort, what would allow the Commission properly implementing several provisions laid down in the Cod plan adopted through R(EC) No 1342/2008.

STECF response to additional Term of Reference

STECF notes that the representativeness of CPUE values is crucial for the implementation of the transfer of maximum allowable fishing effort between groups of effort regulated gears, which are defined in Council Reg. 1342/2008. STECF provides a first approach to evaluate the representativeness of the estimated CPUE values based on the data 2010 DCF data call to support STECF's fishing effort regime evaluations, 2003-2009. STECF notes that the representativeness of the overall estimated CPUE data largely depends on two key factors: i) the proportion of member states taking significant catches from an area using a particular gear that have sampled that gear and ii) the quality and extent of sampling by each member state for any particular gear. Although

relevant parameters regarding data quality have been defined and requested in that data call, only few Member States have submitted all the relevant information. The level of coverage and accuracy of the data collected by the Member States affects the reliability of the raised discard estimate submitted by the member state and therefore the quality of its catch estimate. At this stage, STECF can only provide advice relating to the first factor which essentially influences the extent to which discard raising procedures in the SGMOS database are required to be applied. STECF developed two indicators to evaluate the representativeness of the fisheries specific CPUE values.

The first indicator is the number (counts) of cod fisheries across areas, quarters and gears, contributing to the aggregated cod discard figures for the respective landings reported. Such annual counts are listed in Table 5.5.1 for the period 2003 to 2009. It can be seen that the passive gears among the effort regulated gears, i.e. gill nets, trammel nets and longlines are poorly represented across all four management areas 3a (Kattegat), 3b (Skagerrak, North Sea, 2EU and Eastern Channel), 3c (Irish Sea) and 3d (west of Scotland). The numbers of such passive groups with discard information are either very small or the fisheries are not even listed because they haven't been sampled at all. This indicates that the estimated CPUE values of static gear groups can be considered unrepresentative. In area 3a only the TR2 gear group is considered to be covered by a sufficiently high number of discard estimates, which would support estimation of CPUE. In area 3b, the submitted landings of the gears BT2, TR1 and TR2 are regularly accompanied with respective discard figures. The discard information submitted for all regulated gears in the area 3c are appears to be sparse, while the trawl gears TR1 and TR2 in area 3d appear well covered by discard estimations.

Table 5.5.2 provides results for the second indicator which is the annual ratios of cod landings by fisheries with quantitative discard information versus total cod landings by these fisheries. Consistent with the insufficient number of fisheries with respective discard estimates, the immediate conclusion is that the ratio is very low for all the passive gears in all four management areas 3a-d. STECF notes, however, that discard information for the major gear group TR2 in area 3a cover almost all landings reported. Although the ratio of landings with quantitative discard estimates in area 3b of gear groups BT2, TR1 and TR2 are variable, STECF concludes that they appear to be sufficiently high and that the raising procedure applied to estimate the overall discards shall result in representative CPUE values. Coverage of submitted discard estimates in area 3c is generally insufficient to estimate CPUE for all the regulated gear groups. In area 3d, STECF concludes the ratio between landings with discards and the total landings for TR1 and TR2 is high enough and therefore the raising procedure applied to estimate the overall discards is appropriate to estimate representative CPUE.

In summary STECF presents the gear group specific conversion factors for the implementation of the exchange of maximum allowable fishing effort across groups of effort regulated gears in Table 5.5.3, as estimated in accordance with Article 17 of Council Reg. (EC) No 1342/2008. The conversion factors are based on CPUE as estimated by STECF (SGMOS 10-05) and their representativeness in terms of the proportion of the total landings from which CPUE is derived, indicated by a traffic light approach. STECF considers the conversion factors between donor and receiving vessels highlighted green (good) and yellow (fair) are derived from data that are considered representative of the catch rates for the gear groups concerned and can be used. Those highlighted in red should not be used to determine effort transfers between regulated gears.

However, STECF notes that there is often considerable variation in CPUE estimates within gear groups resulting in low precision. While using the approach of representativeness, in terms of proportion of total landings associated with particular gears, as a proxy for the usefulness of the data, it does not provide an indication of the precision of the estimated CPUE. STECF further notes

that the definition for fishing effort may vary between Member States. This may result in the aggregated CPUE to be biased compared to the CPUE estimates by Member States. Similar using aggregated CPUE rates not taking account for the variability may results in CPUE estimates being dominated by one fishery and not representative for other fisheries within the same gear group.

Table 5.5.1. Annual numbers of cod fisheries across areas, quarters and gears with aggregated cod discard figures reported due to the 2010 DCF data call to support STECF's fishing effort regime evaluations, 2003-2009. Note that only fisheries deploying effort regulated gears (Council Reg. 1342/2008) are listed.

ANNEX	REG AREA	REG GEAR	SPECIES	2003	2004	2005	2006	2007	2008	2009
IIa	3a	TR1	COD	20	8	19	8	11	16	7
IIa	3a	TR2	COD	42	33	46	48	31	32	23
IIa	3b	BT1	COD	4	0	0	3	0	3	0
IIa	3b	BT2	COD	2	17	14	19	19	16	8
IIa	3b	GN1	COD	2	2	2	0	0	1	2
IIa	3b	GT1	COD	0	0	0	0	2	2	2
IIa	3b	TR1	COD	116	102	101	91	114	118	74
IIa	3b	TR2	COD	128	116	124	109	108	115	64
IIa	3b	TR3	COD	0	4	2	0	0	0	0
IIa	3c	BT2	COD	0	0	2	0	4	4	6
IIa	3c	TR1	COD	23	17	7	4	2	1	2
IIa	3c	TR2	COD	23	32	22	8	15	0	0
IIa	3d	TR1	COD	65	54	56	47	49	45	24
IIa	3d	TR2	COD	63	59	51	40	42	33	15

Table 5.5.2. Annual ratios of cod landings by fisheries with quantitative discard information versus total cod landings by these fisheries. Note that only fisheries deploying effort regulated gears (Council Reg. 1342/2008) are listed.

ANNEX	REG AREA	REG GEAR	SPECIES	2003	2004	2005	2006	2007	2008	2009
IIa	3a	TR1	COD	0.43	0.38	0.30	0.35	0.38	0.21	0.05
IIa	3a	TR2	COD	0.77	0.90	0.99	0.99	1.00	0.97	0.97
IIa	3b	BT1	COD	0.01			0.83		0.87	
IIa	3b	BT2	COD	0.00	0.19	0.22	0.81	0.92	0.81	0.24
IIa	3b	GN1	COD	0.01	0.00	0.01			0.00	0.00
IIa	3b	GT1	COD					0.00	0.00	0.00
IIa	3b	TR1	COD	0.87	0.83	0.77	0.68	0.78	0.75	0.74
IIa	3b	TR2	COD	0.54	0.60	0.65	0.65	0.51	0.54	0.48
IIa	3b	TR3	COD		0.04	0.00				
IIa	3c	BT2	COD			0.02		0.51	0.56	0.80
IIa	3c	TR1	COD	0.07	0.14	0.01	0.00	0.01	0.13	0.12
IIa	3c	TR2	COD	0.10	0.14	0.28	0.13	0.07		
IIa	3d	TR1	COD	0.72	0.70	0.69	0.71	0.66	0.60	0.48
IIa	3d	TR2	COD	0.87	0.76	0.78	0.56	0.47	0.66	0.67

Table 5.5.3. Summary of the gear group specific conversion factors for the implementation of the exchange of maximum allowable fishing effort across groups of effort regulated gears. STECF considers the conversion factors between donor and receiving vessels as sufficiently representative when highlighted green (good) and yellow (fair). STECF considers the respective conversion

factors unrepresentative if highlighted in red and therefore recommends that such factors should not be applied for effort transfers between regulated gears.

Area 3a Kattegat:

donor gear	receiving gear: GN1	GT1	LL1	TR1	TR2	TR3
3a GN1		1	0.986	0.61	1	1
3a GT1	0.29		0.286	0.177	0.371	1
3a LL1	1	1		0.618	1	1
3a TR1	1	1	1		1	1
3a TR2	0.783	1	0.773	0.478		1
3a TR3	0.115	0.397	0.114	0.07	0.147	

Area 3b Skagerrak, North Sea, 2EU and Eastern Channel

donor gear	receiving gear: BT1	BT2	GN1	GT1	LL1	TR1	TR2	TR3
3b BT1		1	0.169	1	0.534	0.145	0.5	1
3b BT2	0.444		0.075	0.708	0.237	0.064	0.222	1
3b GN1	1	1		1	1	0.86	1	1
3b GT1	0.627	1	0.106		0.335	0.091	0.313	1
3b LL1	1	1	0.316	1		0.272	0.937	1
3b TR1	1	1	1	1	1		1	1
3b TR2	1	1	0.338	1	1	0.29		1
3b TR3	0.162	0.365	0.027	0.258	0.086	0.024	0.081	

Area 3c Irish Sea

donor gear	receiving gear: BT2	GN1	GT1	LL1	TR1	TR2
3c BT2		0.008	0.125	0.058	0.075	0.757
3c GN1	1		1	1	1	1
3c GT1	1	0.063		0.461	0.598	1
3c LL1	1	0.137	1		1	1
3c TR1	1	0.106	1	0.771		1
3c TR2	1	0.01	0.165	0.076	0.099	

Area 3d West of Scotland

donor gear	receiving gear: BT1	BT2	GN1	LL1	TR1	TR2
3d BT1		1	0.005	0.033	0.001	0.003
3d BT2	1		0.005	0.033	0.001	0.003
3d GN1	1	1		1	0.123	0.528
3d LL1	1	1	0.158		0.019	0.083
3d TR1	1	1	1	1		1
3d TR2	1	1	1	1	0.234	

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

6.1. 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.

Supporting documentation

Supporting documentation provided by the Commission to the STECF can be found on: https://stecf.jrc.ec.europa.eu/web/stecf/plen01.

STECF response

An economic assessment of management options for multi-annual plans – Haddock West of Scotland Via and Vb (EC) was undertaken late in 2010 in the Request for Services Commitment No.SI2.555013

STECF observes that only UK vessels are included in the assessment, but also that 78% of the EU TAC for haddock West of Scotland (WoS) is allocated to UK, while France is allocated 6% and Ireland 16%.

Generally, UK vessels that land this stock are not economically dependent on WoS haddock. The average dependency for the 147 UK vessels landing WoS haddock in 2009 was 7% of earnings. The single most dependent vessel in 2009 had 15% of its earnings from this stock. However, STECF notes that some of the 147 vessels that exploit WoS haddock have also been dependent on fishing opportunities in Faroese waters but in 2011, access to Faroese waters has been curtailed. STECF therefore notes that the assumption of relatively low future dependency of these vessels on WoS haddock may not hold true and the results the economic impact assessment may be erroneous.

Based on the Seafish profit forecast model two scenarios are considered: 1) 2011 fleet economic forecast, and 2) long-range economic impact assessment covering 2011-2031. The model is based on individual vessels, and includes the latest (2009) available information on vessel activity, landings and cost structure. A range of assumptions is necessary to make projections about the future and in this case all other factors affecting economic outcome for the vessels involved (such as costs, sale prices, technical efficiency, fleet size, effort restrictions, catch rate) are held constant to highlight the effect of differences in TAC of this stock. STECF agrees with the assumptions made and the reasoning given for these in the report.

The 2011 economic forecast included a 25% reduction in effort WoS for vessels using TR1 gears which is included in each of the management plan options assessed. The 2011 economic assessment is primarily driven by the effort restrictions resulting from the Cod Recovery Plan, and not the WoS haddock management plan. Only minor differences (<1%) in economic performance are observed for each management plan option.

STECF notes that, as with any such assessment, the long-term economic impact assessment becomes increasingly dependent on the assumptions included. STECF also notes that the landings made by vessels in the economic assessment do not match the predicted ICES landings for each management plan. This is because limitations in available effort and fleet size imposed in the model restrict the uptake of the increasing TACs forecast in the ICES assessment.

STECF conclusions

STECF concludes that the enforcement of the provisions of the Cod Recovery Plan will have much greater impact on economic outcomes for vessels landing WoS haddock than any differences in WoS haddock TAC arising from management plan options considered.

STECF endorses the findings arising from the economic assessment of the WoS haddock management plan options.

6.2. 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.

Supporting documentation

Supporting documentation provided by the Commission to the STECF can be found on: https://stecf.jrc.ec.europa.eu/web/stecf/plen01.

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,h,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

The report provides an assessment of short-term and long-term economic consequences of management plan options for Celtic Sea Herring). STECF notes that the ToR for this assessment had not been adjusted to reflect the advice of STECF made in April 2010 (33rd plenary report).

The ToRs called for an assessment of an option to fish at F msy (F=0.25) but because the MSY option was not included in the biological assessment it could not be included in the economic impact assessment. However the author notes that the previous proxy for Fmsy corresponding to F=0.19 is more conservative than the Fmsy option.

Celtic Sea Herring contributes only an estimated 1.9% of the total revenues of the vessels involved. Due to lack of economic data in this case, it was necessary to use a number of proxies, estimates and assumptions. This leads to several considerations.

Simple modelling approaches were chosen
The model assumes a constant cost structure irrespective of changes in landings and/or effort; all the costs and profit – are a fixed proportion of the revenues.
Changes in effort are not being considered as input for the model.

However, primarily because of the low dependency of these vessels on Celtic sea herring, the modelling approach applied is considered appropriate as the results of the different scenarios would probably not be much different if a more sophisticated modelling was used. Furthermore, changes

in management of this stock would most probably not impact on the fishing effort and employment of the vessels.

STECF conclusions

STECF endorses the findings arising from the economic assessment of the Celtic Sea management plan options.

For the vessels involved the economic consequences of two management options (F=0.17 and F=0.19) were assessed and STECF agrees with the conclusion that the F 0.19 management option is likely to give a slightly better economic outcome for the vessels involved.

STECF reaches this conclusion on the basis that the option giving higher landings opportunity is simply considered most likely to give higher earnings. STECF suggests that an economic analysis was not necessary and considers that due to the very low dependency on the stock in question and the lack of data to use in the assessment, the differences in outcomes between the two management options that are presented in the report cannot be accepted as the basis to draw meaningful conclusions on the two options.

In this context STECF considers that it is important in the Impact Assessment scoping process to identify when studies are likely to give added value and to recommend an appropriate approach.

6.3. Request of a STECF opinion on fish stocks exploited under Fisheries Partnership Agreements (Morocco, Mauritania, Guinea-Bissau)

Background

The Fisheries Partnership Agreements (FPAs) allow the European fleet to have access to surplus resources which the third country is not able to exploit. There are presently three mixed agreements with West African countries which provide access to small pelagic and demersal stocks: Morocco, Mauritania and Guinea-Bissau.

The scientific advice on the stock status and on exploitation levels is provided by the Joint Scientific Committees (JSC) established by the mixed agreements, which include scientists from the EU and the third country. For the agreements with West African countries, the JSC base their advice on available data and information, and also on reports by the FAO Fishery Committee for the Eastern Central Atlantic (CECAF), in particular its Scientific Sub-Committee and the Working Groups.

Terms of Reference

For the FPAs with Morocco, Mauritania and Guinea-Bissau the STECF is requested to provide the following advice on the stocks listed below:

- Stock status and classification of stocks according to biological reference points,

- Whether the EU fleet is presently fishing the surplus of the exploited resources2,
- Level of catches or fishing effort for the EU fleet, corresponding to fishing the surplus of the resources - if possible, with short and medium term projections,
- Closed seasons or closed areas which could be defined,
- Whether management of the stocks concerned is in accordance with the Marine Strategy Framework Directive (environmental pillar of the Integrated Maritime Policy) to reach Good Environmental Status by 20203 ,
- Assessment of present management measures against the MSY strategy4 (catch limit, effort limit, closed seasons or areas),
- Assess the relative impact of the EU fishing fleet considering the overall fishing activity in the area of the FPA,
- Whether the analysis and methods applied to provide scientific advice are adequate to the available data/information (biological and fishery).

STECF should base its advice on the reports of the JSC, on information available from CECAF and on any other available information. In general, the biological and fishery information available to perform analysis and on which to base the scientific advice is limited both in terms of quality and quantity. As an example, fishery-independent information is scarce. Also, it is crucial that not only fishery information from the EU is available, but also from other fleets active in the same area.

Advice to be provided for the stocks listed below. Advice should be provided by management area. The management areas of the species listed below might overlap different EEZ.

Morocco

- Small pelagic:
  - *Engraulis encrasicolus*
  - *Sardina pilchardus*
  - *Sardinella aurita*
  - *Sardinella maderensis*
  - *Trachurus trecae*
  - *Trachurus trachurus*
  - *Scomber japonicus*
- Demersal species:
  - *Merluccius merluccius*
  - *Merluccius* spp. (*M. senegalensis* and *M. polli*)
  - *Raja* spp.
  - Croaker (*Sciaenidae*)

2 Surplus, as defined by UNCLOS - UN, United Nations Convention of the Law of the Sea of December 1982, Part V: Exclusive Economic Zone.

3 DIRECTIVE 2008/56/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive), and COMMISSION DECISION (2010/477/EU) of 1 September 2010 on criteria and methodological standards on good environmental status of marine waters (Descriptor 3, part B, of the Annex).

4 COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT - Implementing sustainability in EU fisheries through maximum sustainable yield -COM(2006) 360 final

    - Sea bream (*Sparidae*)
    - Scabbardfish (*Trichiuridae*)
- Sharks:
    - *Centroscymnus coelolepis*
    - *Centrophorus* spp.
    - Other shark species

Mauritania

- Small pelagic:
    - *Engraulis encrasicolus*
    - *Sardina pilchardus*
    - *Sardinella aurita*
    - *Sardinella maderensis*
    - *Trachurus trecae*
    - *Trachurus trachurus*
    - *Scomber japonicus*
    - *Caranx rhonchus*
- Cephalopods:
    - *Octopus vulgaris*
    - *Sepia* spp.
    - *Loligo vulgaris*
- Crustaceans:
    - *Parapenaeus longirostris*
    - *Farfantepenaeus notialis*
- Other demersal species:
    - *Merluccius* spp. (*M. senegalensis* and *M. polli*)

Guinea-Biseau

- Crustaceans:
    - *Parapenaeus longirostris*
    - *A. varidens*
    - *Farfantepenaeus notialis*
- Cephalopods:
    - *Octopus vulgaris*
    - *Sepia* spp.

- *Loligo vulgaris*

- Other demersal species:
  - *Solea* spp.
  - *Merluccius* spp.
  - *Pagellus* spp.

STECF comments

As agreed with DG MARE, this item has been deferred and a report to the STECF addressing these Terms of Reference will be prepared through individual ad-hoc contracts. The STECF will evaluate the report and provide advice in the report of its summer 2011 plenary meeting.

6.4. Request of a STECF opinion on fish stocks exploited under Fisheries Partnership Agreements (Greenland)

Background

The Fisheries Partnership Agreements (FPAs) allow the European fleet to have access to surplus resources which the third country is not able to exploit. There is presently a FPA with Greenland covering various commercial fish stocks.

The scientific advice on the stock status and on exploitation levels is provided by the

International Council for the Exploration of the Sea (ICES), the Northwest Atlantic Fisheries Organization (NAFO), by the Greenland Institute of Natural Resources (GINR) and by German Institute for Sea Fisheries (GISF).

Terms of Reference

For the FPAs with Greenland the STECF is requested to provide the following advice on the stocks listed below:

- Stock status and classification of stocks according to biological reference points,
- Whether the EU fleet is presently fishing the surplus of the exploited resources5,
- Level of catches or fishing effort for the EU fleet, corresponding to fishing the surplus of the resources - if possible, with short and medium term projections,
- Closed seasons or closed areas which could be defined,

5 Surplus, as defined by UNCLOS - UN, United Nations Convention of the Law of the Sea of December 1982, Part V: Exclusive Economic Zone.

- Whether management of the stocks concerned is in accordance with the Marine Strategy Framework Directive (environmental pillar of the Integrated Maritime Policy) to reach Good Environmental Status by 20206,

- Assessment of present management measures against the MSY strategy7 (catch limit, effort limit, closed seasons or areas),

- Assess the relative impact of the EU fishing fleet considering the overall fishing activity in the area of the FPA,

- Whether the analysis and methods applied to provide scientific advice are adequate to the available data/information (biological and fishery).

- STECF should base its advice on the reports of ICES, NAFO, GINR and GISF and on any other available information.

Stocks

The advice should be provided for the stocks listed below and by management area.

Stock	Area	Source of advice
Cod (*Gadus morhua*)	East (ICES V, XIV) / West (NAFO 0,1) Greenland	ICES, GISF
Pelagic/Oceanic redfish (*Sebastes* spp.)	East (ICES V, XIV) /West (NAFO 0, 1) Greenland	ICES
Greenland halibut (*Reinhardtius hippoglossoides*)	West Greenland (NAFO 0,1)	NAFO
	East Greenland (ICES V, XIV)	ICES
Northern prawn/shrimp (*Pandalus borealis*)	West Greenland (NAFO 0,1)	NAFO
	East Greenland (ICES V, XIV)	GINR, NAFO
Atlantic halibut (*Hippoglossus hippoglossus*)	West Greenland (NAFO 0,1)	GINR
	East Greenland (ICES V, XIV)	GINR
Capelin (*Mallotus villosus*)	East Greenland (ICES V, XIV)	ICES, Icelandic MRI
Snow crab (*Chionoecetes opilio*)	West Greenland (NAFO 0,1)	GINR

6 DIRECTIVE 2008/56/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive), and COMMISSION DECISION (2010/477/EU) of 1 September 2010 on criteria and methodological standards on good environmental status of marine waters (Descriptor 3, part B, of the Annex).

7 COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT - Implementing sustainability in EU fisheries through maximum sustainable yield -COM(2006) 360 final

STECF comments

As agreed with DG MARE, this item has been deferred and a report to the STECF addressing these Terms of Reference will be prepared through individual ad-hoc contracts. The STECF will evaluate the report and provide advice in the report of its summer 2011 plenary meeting.

7. STRATEGIC ISSUES

7.1. Request for an STECF opinion on research needs in support of fisheries management

Terms of Reference

The STECF plenary is requested to identify the research needs which are considered essential to support fisheries management.

The document should present a strategic view which will contribute to the debate on research priorities under the Common Strategic Framework for Research and Innovation ("FP8") 2014-2020.

In the strategic paper on the research needs, all topics identified should be well supported by background information explaining the reasons behind these selections.

The STECF plenary is especially requested to work on and comment on the following items:

1. Gaps in Fisheries Research in support of fisheries management.

    a. European level

    b. Regional level (defining of regions)

2. Discussion on Research needs in order to support the development of the Fisheries policy.

3. Synergies between Fisheries Research and other areas of Maritime Research.

The Commission provided the STECF with supporting documentation:

1. the latest available information in terms of policy development to support the work of the working group.

2. background documents from other organizations such as ICES, GFCM, EFARO, EFTP (European Fisheries Technological Platform) in case they have developed orientation papers on the same topic.

This supporting documentation to the STECF can be found on:
https://stecf.jrc.ec.europa.eu/web/stecf/plen01

STECF comments

Introduction

The ongoing development of fisheries policy and management and its growing role in delivering protection of the marine environment and sustainable fisheries as part of an Integrated Maritime Policy has to be supported by a rigorous evidence base. STECF conducted an analysis of existing gaps in the research and evidence base to support fisheries management and used this to identify research needs to support future development of fisheries policy and management. STECF identified research needs for the period from 2014, taking account of a policy environment where the 2012 CFP reform would be in place and implementation of the Marine Strategy Framework Directive had been advanced in accordance with the agreed timeline. STECF focused on research that would lead to applications that had a direct effect on fisheries management practice. Supporting research to improve understanding of the marine environment that might ultimately influence fisheries management was not considered. The research areas listed below represent STECF's initial proposals in response to the Commission's request and provide a basis for further development.

The most significant gaps identified during the evaluation were that there was not a sufficient research and evidence base to (A) effectively tailor approaches to fisheries management to suit the environmental, social and economic characteristics of management regions (RAC areas and/or MSFD regions or sub-regions), (B) develop and to make better use of emerging and new technologies to support fisheries monitoring, assessment and management and (C) better assess the performance of fisheries management in relation to environmental, economic and social objectives to improve the performance of fisheries management in the context of the Integrated Maritime Policy.

STECF considers that one of the most important aspects of a fisheries oriented research programme will be to ensure the uptake and application of results. This is especially important for the thematic area on 'fisheries in ecosystems' where much of the existing research has not been developed to the extent that supports, or is expected to support, uptake and use by managers.

Themes

Three themes were identified as a high priority, because they provided opportunities for innovation and interdisciplinary science while addressing recognised policy and management needs.

All the themes support innovation, the development of policy and management and are interdisciplinary; linking ecological, physical, social and economic sciences as well as linking to other European initiatives such at the Joint Programming Initiative (JPI). The themes directly address the key challenges that are expected to face fisheries and the environment after 2014, notably the changing environment, rising demand for resources and increased competition for marine space. Although focused on achieving sustainable fisheries, they contribute to the grand challenge of the JPI; to understand and mitigate the pressures on European Seas and Oceans to make the most sustainable use of their resources.

The proposed themes also link to the three pillars of the JPI, because they will develop 'knowledge of the marine system', support 'sustainable utilization of marine resources and space' and deliver 'policy relevant knowledge'.

Theme A: Fisheries in ecosystems (Regional analyses, pan-European synthesis)

Fisheries are embedded in ecosystems that differ in their characteristics and responses to human pressures and climate. Assessment and management practices need to be developed to take account of regional differences and similarities among ecosystems and their responses to fishing pressure. The research needed should seek to define the characteristics of management systems that best meet management objectives in different regions, based on an understanding of the fisheries and the response of the ecosystems to fishing, other human pressures and climate. The research will also define the trade-offs between the economic, ecological and social impacts of fisheries.

Better tailoring fisheries management to the environmental, social and economic characteristics of management regions will require research at the regional scale but also synthetic research at the pan-European scale to assess whether there are systematic relationships between environmental, social and economic characteristics of management regions and the approaches to management that are best adopted. STECF notes that recent global analyses have shown that there is no singular set of management tools that best supports management objectives, but that a range of tools, tailored to the regional characteristics of the environment, fisheries and society, are shown to be successful.

Theme B. New technologies, data and methods (pan European research, drawing on best available expertise)

Innovation in instrumentation, data collection and handling can support existing fisheries monitoring, assessment and management and drive or enable the development of new approaches for monitoring, assessment and management. Technological development can reduce the environmental impacts of fishing gears and alternative monitoring and assessment methods may allow managers to advise on the impacts of fishing on a greater proportion of capture production. Promoting transfer of technology can also contribute to reducing negative impacts on habitats and marine communities without significantly affecting the catch of major commercial species. The work could necessitate a trans-national transfer of knowledge between North-Europe and the Mediterranean and an evaluation of the biological and social implications. All such developments support efficiency in the fisheries sector and improved environmental performance, as well as enabling fishing vessels to contribute to the collection of environmental and fish stock assessment data. The research needed will support the development of instrumentation, data collection and handling, assessment methods and fishing gears to support improved management.

To develop and to make better use of emerging and new technologies to support fisheries monitoring, assessment and management, research will be required at a pan-European scale, drawing on the best available expertise and the capacity of SMEs (Small and Medium Size Enterprises). However, once new technologies have been developed they will likely be trialled in those regions where they are expected to make the most significant contribution to improving management.

Theme C. Performance of management (Regional analysis, pan-European synthesis)

Continuous improvement of fisheries policy and management, including moves towards the effective integration of policies, needs to be supported by the assessment of existing performance and the development of approaches to improve future performance. The research needed will assess the performance of the management system, including the complementarity between fishing and other sectors; as influenced by the Integrated Maritime Policy. The research needed will also identify Governance structures, policies and incentives that can be used to influence the performance of management in future. There is a general perception that fisheries regulations may create the wrong incentives for a sustainable exploitation of the resources and that the natural

potential for moral and social incentives is underutilized. Research is needed to gain more empirical evidence on this and on how to design practical settings creating these incentives.

To improve the performance of fisheries management in the context of the Integrated Maritime Policy, analyses of the performance of management would be required at regional (e.g. RAC area) scales with pan-European synthesis. The development of methods to assess and improve the performance of management, such as value chain analysis, would draw on pan-European expertise, but STECF would encourage regional representation in such projects to ensure wide-ranging applicability of any tools and methods that are developed.

Sub-themes

Within each theme the following sub-themes were considered a priority by STECF. Sub-themes were prioritised on the basis of the extent to which they were expected to support future fisheries management and innovation. However, STECF wishes to stress that the sub-themes listed and their prioritisation should be considered preliminary at present. There is a need to justify the current prioritisation and to consider whether the list should be extended.

Theme A: Fisheries in ecosystems

1. Comparative analysis of the responses of ecosystems to fishing, other human pressures and climate, to tailor fisheries management and assessment methods to characteristics of the regional environment.

2. Tradeoffs between the economic and social benefits of fisheries and the ecological, economic and social benefits of biodiversity and associated ecosystem services.

3. Response of fishers to changes in the ecosystem and their ecological, social and economic consequences.

Theme B. New technologies, data and methods

1. Development of new methods for collecting data on fisheries and the physical and biological environment, to provide integrated and highly spatially resolved information on fishing activity and fishing impacts.

2. Development of monitoring, assessment and management methods that use new types and new sources of fisheries and environmental data, with an emphasis on making best use of the increasing spatial and temporal resolution of data.

3. Reducing the environmental impact and increasing the performance of fishing gears

4. Development of methods for providing management advice for a greater proportion of available or realised fish production

5. Development and application of technologies to enable fishing vessels to contribute to environmental and fish stock monitoring.

6. Promotion of technology transfer between Northern-Europe and the Mediterranean to contribute to reducing negative impacts on marine habitats.

Theme C. Performance of management

1. Development of methods for engaging with stakeholders that reduce barriers to inclusion and improve the performance of management (in relation to objectives).

2. Assessing the performance of fisheries management in the context of the Integrated Maritime Policy and developing recommendations for improving performance.

3. Identifying and developing and recommending processes for adopting economic and social incentives that improve the performance of management.

4. Tradeoffs between environmental costs and economic and social benefits of supply chains in fisheries and aquaculture

5. Social and economic value of fisheries in regions, their vulnerability to financial and environmental shocks and development of policies and management methods to improve resilience. Responses of fishers to changes in the management system.

6. Cost: benefit ratios for existing and proposed fisheries management systems and the development of approaches to improve their cost efficiency.

Links to other research initiatives

The research proposed by STECF complements and aligns with research that is under consideration in other fora. For example, the Draft Strategy for the European Fisheries Technology Platform (EFTP) includes themes on energy efficiency, fishing vessel technology and fishing gear technology that complement the research proposed by STECF. The combined emphasis technological development (EFTP proposals) and reducing environmental impacts (STECF proposals) would support interaction and joint innovation.

The themes proposed by STECF also link to the three pillars of the JPI, in that they will develop 'knowledge of the marine system', support 'sustainable utilization of marine resources and space' and deliver 'policy relevant knowledge'. However, the proposals add to what might be achieved through the JPI because our recommendations for applied projects focus on delivery of tools and evidence that will directly influence the way fisheries are managed. As a consequence, JPI may provide efficiencies by helping to directly leverage member state resources in related areas of research.

The STECF proposals align with some of the FEUFAR (Future of European Fisheries and Aquaculture) recommendations for research on gear and operational technology and on management and Governance. They are also linked to some of the priorities identified in the 'Workplan that could lead to an improved science base for the implementation of an Ecosystem Approach to Management of Biotic Ocean Resources' in the 'Science dimensions of an Ecosystem Approach to Management of Biotic Ocean Resources (SEAMBOR)' report of ESF, ICES and EFARO.

STECF recommendations

Based on a review of existing gaps in data, evidence, tools and policies to support fisheries management, STECF recommends that there should be three priority themes for fisheries research

post 2014. These are 'Fisheries in ecosystems', 'New technologies, data and methods' and 'Performance of management'.

STECF recommends that research on 'Fisheries in ecosystems' should define the characteristics of management systems that best meet management objectives in different regions, based on an understanding of the response of the ecosystems to fishing, other human pressures and climate. The research will also define the trade-offs between the economic, ecological and social impacts of fisheries.

STECF recommends that research on 'New technologies, data and methods' should support the development of instrumentation, data collection and handling, assessment methods and fishing gears to support improved management.

STECF recommends that research on 'Performance of management' should assess the performance of the management system, including the complementarities between fishing and other sectors; as influenced by the Integrated Maritime Policy. The research should also identify Governance structures, policies and incentives that can be used to influence the performance of management in future.

STECF recommends that research on 'Fisheries in ecosystems' and 'Performance of management' should focus on regional studies followed by a pan-European synthesis. STECF recommends that research on 'New technologies, data and methods' should draw on the best available pan-European expertise, with a view to regional and pan-European application.

STECF recommends that one of the most important aspects of a fisheries oriented research programme will be to ensure the uptake and application of results.

STECF recommends that research should support the shifting gears and technology transfer among fisheries, under which various interrelated components of fishing technology (materials, technique, know-how, information), human ability, organizational and management aspects and the final product are rendered accessible to the end-user.

Documents consulted:

Anon (2008) FEUFAR: The future of European Fisheries and Aquaculture Research. Summary Leaflet (and associated final reports at www. feufar.eu)

EC (2011) From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation funding COM 2011 (48) 14pp

Marine Board-ESF (2010) Science dimensions of an Ecosystem Approach to Management of Biotic Ocean Resources (SEAMBOR). Marine Board-ESF Position Paper 14, 92pp

Scholten, C. Th. (2011) What are the research priorities from the science managers point of view? EFARO (presentation)

Initiative Task Force (2009) European Fisheries Technology Platform (EFTP) The European initiative for sustainable fisheries technology. Draft Strategy and Roadmap, 21pp.

Anon (2010) Healthy and Productive Seas and Oceans: A Joint Programming Initiative to meet the Grand Challenge regarding European Seas and Oceans. GPC submission to meeting of 4th of May 2010, 21pp

8. GENERAL ISSUES

8.1. Request for an STECF opinion on update of a Marine Scotland Science survey

Background

Due to budgetary constraints, Marine Scotland Science (MSS) is unable to fund a charter vessel to undertake its annual west coast herring acoustic survey (the DCF reference is UK VIa 3rd quarter Spawning/pre-spawning herring acoustic survey).

Consequently, MSS proposes to carry out the west coast survey in conjunction with the UK 3rd quarter North Sea herring acoustic survey using the same vessel (FRV Scotia) that is currently scheduled to conduct the North Sea survey. The above mentioned survey is part of the UK National Programme (NP) proposal for 2011-2013 which has already been evaluated by STECF.

Terms of Reference

As the submitted changed west coast herring survey is implicating a change of the NP, the Commission therefore asks the STECF to evaluate the proposal. Depending on the outcome of the evaluation the Commission services will then integrate the proposed changes into the UK NP 2011-2013 which is still in its adoption phase.

Supporting documentation

Supporting documentation provided by the Commission to the STECF can be found on: https://stecf.jrc.ec.europa.eu/web/stecf/plen01

STECF response

STECF has reviewed the request from Marine Scotland and has the following comments based on the documents provided and additional personal communication with the scientists involved in the survey design:

- STECF notes that a short description for a new survey design was provided by Marine Scotland Science. The combined survey will last 21 days which is comparable to the typical length of the previous North Sea RV Scotia survey. The proposal suggests an ambitious design covering the combined area with an overall track length of 2826nm. The distance is +13.5% greater than the North sea survey of 2010 although in that year the survey was of only 20 days duration. The design still allows a contingency for some down time.

- STECF considers that the evaluation of the effect on precision of the North Sea survey is instructive and utilises relevant robust analysis. STECF notes that the potential loss of information arising from the shorter distance proposed in this area is unlikely to reduce the precision to the extent it moves outside acceptable limits. STECF welcomes the suggestions in the documentation that there will be additional efforts to mitigate the reduction in precision through i) the development of new stratification methods and ii) the establishment of a new commercial vessel survey interlaced with the proposed RV one. STECF is, however, unable to comment further on the merits of these measures in the absence of greater detail.

- The information provided in support of the request states that "it was essential that both surveys were carried out at the same time to minimise any problems associated with movement of fish between the two adjacent areas", and it was the reason why a commercial vessel was chartered in West of Scotland simultaneously with R/V Scotia survey in the North Sea. The documentation does not state whether the new proposal exacerbates problems of stock size estimation arising from fish movement, Communication with the biologists involved in the survey consider that this is not a cause for concern.

- STECF notes that the comments in the supporting information on the effects on west coast precision are more speculative. The discussion, however, indicates that the abundance of herring in the area concerned is generally lower and that the extension of the Irish RV survey will contribute positively in increasing the survey precision.

- Although the supporting information provides no description of the standardisation approach to be used on the West of Scotland, it is anticipated that procedures set out in the ICES PGIPS will be followed. STECF supports this approach which should ensure consistency between the previous time series (conducted by a single commercial vessel) and the new data, generated by the Scottish and Irish RV surveys. Data arising from any additional commercial vessel survey work (currently under discussion) should be dealt with in the same way.

- STECF notes the ongoing discussions about a new commercial vessel survey utilising scientific quota. Ideally a survey designed in a similar way to the charter based surveys of previous years would be preferable. However, STECF was advised by the scientists planning the survey that scientific quota available in VIa for herring was insufficient to permit this since scientific quota amounts to 2.5% of national quota. In the case of West coast herring, the value of the UK amount is insufficient on its own to fund a survey delivering meaningful results.

- STECF concludes that on the basis of the information provided the effect on the North Sea stock survey will be minimal. Furthermore, STECF considers that the effect on the West coast survey, while not quantifiable, is unlikely to seriously compromise its ability to

provide useful data for stock assessment provided that the Irish survey is extended to the north.

8.2. Request for STECF support on possible ToRs for ad hoc contracts and on supporting information to be requested to MS to allow the assessment of some Technical Conservation Measures

Background

Following the Commission proposal for an extension to the end of 2012 of R(EC) No 1288/2009 establishing transitional Technical Conservation Measures and with the aim to develop a proposal for a new framework for Technical Conservation Measures in the context of a reformed Common Fisheries Policy, the Commission has agreed to carry out an impact assessment of possible modifications to the framework currently implemented according to the R(EC) No 850/98, as well as carrying out scientific assessment of measures that maybe included in the new regulations.

As a consequence, some Member States have already requested possible changes to be taken into account by the Commission when drafting its proposal on a new framework for Technical Conservation Measures. These requests have largely arisen during discussions on the transitional Technical Conservation measures regulation.

Terms of Reference

To allow the Commission to deal with such requests as quickly as possible, the STECF is requested

- to discuss and to suggest possible updates to the Terms of Reference drafted by the Commission, and
- to specify the type of data and the spatial and temporal coverage which would be needed by scientists to carry out proper assessments of these requests.

STECF comments

The STECF prepared a draft response to the request. However, other agenda items were given higher priority and the details of the supporting data and information required to provide an comprehensive response require further discussion. STECF will finalise its response by correspondence and provide its advice to DG MARE by 20 May 2011.

8.3. Request for an STECF opinion on a possible division of the whole EU area into regions having coherence as an ecosystem to make EAFM operable

Background

Conclusions of the SG-MOS 10-03 working group on the development of the Ecosystem Approach to Fisheries Management (EAFM) in European waters and of the last STECF plenary meeting on the associated report have highlighted the priority need for defining a reference list of European Marine Ecosystems, which would be considered as functional units used in EAFM.

As underlined by the STECF plenary, such lists of ecosystems have already been established, sometimes for very specific purposes. ICES adopted the concept of eco-regions and the Marine Strategy Framework Directive also describes marine regions and subdivisions.

Terms of Reference

By taking into account the existing lists and following both previous conclusions of discussions held by the STECF expert working groups and plenary, the STECF plenary is asked

- to open a first discussion on what could be considered as relevant European Marine Ecosystems
- to establish a first list of such EAFM functional units,

with the specific purpose of making operational and operable the EAFM.

STECF comments

The STECF discussed initial ideas and a first draft text was prepared. However, given the limited amount of time for the plenary meeting and because the Commission did not set a high level of priority for this Item, STECF did not fully discuss and agree a final text. Recognising the importance of the subject in the development of an EAFM, STECF proposes to continue discussion and provide advice in its summer 2011 plenary meeting report.

9. WESTERN WATERS AND THE NORTH SEA

9.1. Request for an STECF opinion on a request for exclusion from the cod plan effort regime in accordance with Article 11(2) of Regulation (EC) No 1342/2008

Background

Article 11(2) of Council Regulation 1342/2008 establishing a long-term plan for cod stocks and the fisheries exploiting those stocks lays down the conditions under which the Council, acting on a Commission proposal and on the basis of the information provided by Member States and the STECF advice, may exclude certain groups of vessels from the effort regime.

Following a number of requests by Member States to the European Commission, the STECF assessed in 2009 and 2010 the activity of groups of vessels against the criteria mentioned in Article 11(2) of the cod plan, in particular based on the concept of technical or biological decoupling. The Commission's approach to vessel exclusions under the cod plan has taken into account the STECF's concept of technical and/or biological decoupling and also accepts vessel exclusions based on distinct vessel group activities or characteristics that result in current cod catch rates below 1,5% within the vessel group concerned, provided that:

a) the Member States provide appropriate information to the Commission and STECF in order to establish that the conditions are and remain fulfilled in accordance with the detailed rules adopted by the Commission and;

b) the Member States concerned put in place a monitoring system that provide representative catch data enabling the Commission to assess whether the fulfilment of the exclusion criterion at the group or vessel level continues to be met.

Member States exclusion requests sent to the Commission after 11 April 2010 should follow the requirements prescribed by Commission Regulation (EU) No 237/2010 laying down detailed rules for the application of Council Regulation (EC) No 1342/2008.

Terms of References

The STECF is requested to evaluate the following requests for exclusions of groups of vessels from the cod effort regime, as laid down in Article 11(2) of Regulation (EC) No 1342/2008 establishing a long-term plan for cod stocks:

(i) submission of a request accompanied by information and data sent to the European Commission by Belgium;

(ii) submission of a request accompanied by information and data sent to the European Commission by Ireland for exclusion from the cod plan effort regime of a group of five vessels operating in the southern part of ICES Division VIa in the TR1 gear category.

Following the approach described in the background and taking into account the information and data provided by Belgium and Ireland to the Commission, the STECF is requested to advise on the following:

1) To what extent does the data on catches and landings submitted by the Member State support the conclusion that during the reference period for which the data have been collected, the vessel group has (annually on average) caught less than or equal to 1.5% of cod from the total catches of the vessels concerned?

2) In cases of scientific uncertainty with regard to question 1), please specify the information and data that have to be improved; in particular concerning the sampling strategy including sampling precision levels and intensities in relation to catch and discards data and, where relevant, the description of gear properties and its effect.

3) In cases of scientific uncertainty with regard to question 1), please specify whether the information presented gives indications that the non-fulfilment of the assessment criterion is due to a specific activity of the vessel group, e.g. when the group fishes in a particular area.

In carrying out its assessment, the STECF should consider the rules on vessel group reporting established in Article 3 of Commission Regulation (EU) No 237/2010 laying down detailed rules for the application of Council Regulation (EC) No 1342/2008.

The STECF is requested to complete the table below summarising its findings in relation to the present request.

Table: Summary of STECF findings in relation to vessels groups requests for exclusion.

Country	Description of vessel group	Data submitted	STECF advice in April 2011

Supporting documentation

Supporting documentation provided by the Commission to the STECF can be found on: https://stecf.jrc.ec.europa.eu/web/stecf/plen01

STECF response

Request by Belgium on trawlers using TR3 gear for brown shrimp fisheries in the North Sea

The Belgian submission to the Commission is a request for exempt from the effort regime, a group of vessels that usually fish with passive gears but aim to use trawl (TR3) gear to exploit brown shrimp for a few weeks in autumn, to bridge a period with low catches in passive gears. They would apply sieve nets with 70mm mesh size to avoid any cod by-catches. A working document on the selection properties of the 70mm sieve net was attached to the submission, however, relating to beam trawls and not TR3 gear.

STECF was requested to advise on the following:

1) To what extent does the data on catches and landings submitted by the Member State support the conclusion that during the reference period for which the data have been collected, the vessel group has (annually on average) caught less than or equal to 1.5% of cod from the total catches of the vessels concerned?

STECF notes that no catch or landings data were submitted in support of the Belgian request.

2) In cases of scientific uncertainty with regard to question 1), please specify the information and data that have to be improved; in particular concerning the sampling strategy including sampling precision levels and intensities in relation to catch and discards data and, where relevant, the description of gear properties and its effect.

STECF notes that information and data should be submitted in accordance with the provisions of Council Regulation (EC) 237/2010.

3) In cases of scientific uncertainty with regard to question 1), please specify whether the information presented gives indications that the non-fulfilment of the assessment criterion is due to a specific activity of the vessel group, e.g. when the group fishes in a particular area.

STECF notes that no data were submitted to address this question.

STECF concludes that in the Belgian submission, the rules on vessel group reporting established in Article 3 of Commission Regulation (EU) No 237/2010, laying down detailed rules for the application of Council Regulation (EC) 1342/2008, were not addressed.

Request by Ireland on five vessels targeting whitefish and other demersal fish using TR1 gear in the southern part of ICES Div. VIa

In the Irish request, a supporting document linked to several data files was submitted, including background, vessel details and effort data, gear specifications, maps of aggregated VMS data, catch and landings compositions, as well as observer data from recent years.

The information submitted shows that the five vessels listed in the request are part of a cod avoidance scheme, in which vessels were not allowed to fish in a small area with historically high cod catches. They were fishing in a defined area in the southern part of ICES Division VIa (Shelf break and Stanton Bank), using TR1 gear with 120mm mesh size and square mesh panels. These

vessels were subject to enhanced coverage by scientific observer sampling through the Irish Sea Fisheries Board and Marine Institute. The observer data show on average 0.7% cod in the total catches. STECF acknowledges that the spatial distribution of the observer data matches the activity of the five vessels based on the VMS data provided.

STECF was requested to advise on the following:

1) To what extent does the data on catches and landings submitted by the Member State support the conclusion that during the reference period for which the data have been collected, the vessel group has (annually on average) caught less than or equal to 1.5% of cod from the total catches of the vessels concerned?

STECF notes that the observer data 2009-2011, shows annually on average the cod catch was 0.7% (SD 0.56) of the total catches of the vessels concerned.

2) In cases of scientific uncertainty with regard to question 1), please specify the information and data that have to be improved; in particular concerning the sampling strategy including sampling precision levels and intensities in relation to catch and discards data and, where relevant, the description of gear properties and its effect.

STECF concludes that no further action is required. The submission of information and data is sufficient for addressing uncertainty in the catch composition estimates.

3) In cases of scientific uncertainty with regard to question 1), please specify whether the information presented gives indications that the non-fulfilment of the assessment criterion is due to a specific activity of the vessel group, e.g. when the group fishes in a particular area.

STECF advises that if fishing by the group of vessels listed continues in the area specified in the submission, catches will have to be monitored closely for cod fractions of equal or less than 1.5% in the light of changing stock size. STECF also advises that monitoring of VMS data from these vessels should be carried out in order to record fine-scale effort distribution in the polygon area specified in the submission.

While the submission by the Irish authorities did not fully confirm to the data format specified in Article 3 of Commission Regulation (EU) No 237/2010, there was sufficient and additional information to allow STECF to fully assess the request.

The STECF findings in relation to the requests to the Commission for exclusion from the cod plan effort regime in accordance with Article 11(2) of Regulation (EC) No 1342/2008 are summarised in Table 9.1.1.

Table 9.1.1: Summary of STECF findings in relation to vessels groups requests for exclusion from the cod plan effort regime in accordance with Article 11(2) of Regulation (EC) No 1342/2008.

Country	Description of vessel group	Data submitted	STECF advice in April 2011
Belgium	Vessels that usually fish with passive gear, but aim at fishing for brown shrimp in the North Sea using TR3 gear with sieve nets of 70mm mesh size	No data submitted. Working document submitted, showing high selectivity of 70mm sieve nets mounted to beam trawls, reducing cod by-catches to a very low amount. No information on TR3 selectivity given, though.	Request data according to Reg. 237/2010.
Ireland	Five trawlers using TR1 gear to target whitefish and other demersal species in a defined area in the southern part of ICES Div. VIa (Stanton Bank & Shelf Break)	Vessel and gear characteristics, effort by statistical rectangle, landings, catches (observer data), fishing depth. Data presented confirms that cod catches were below 1.5% (0.7% [SD 0.56%]).	Monitoring of catches of the five trawlers in the specified area in accordance with the provisions of Article 11.3 of Council Regulation 1342/2008. Monitoring of VMS data from these vessels in order to record fine-scale effort distribution in the polygon area specified in the submission.

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

Background

Article 11(2) of Council Regulation 1342/2008 establishing a long-term plan for cod stocks and the fisheries exploiting those stocks (the cod plan) lays down the conditions under which the Council, acting on a Commission proposal and on the basis of the information provided by Member States and the STECF advice, may exclude certain groups of vessels from the effort regime.

In 2009 and 2010 Swedish, German, Spanish, Polish, the United Kingdom and Ireland groups of vessel were excluded from the fishing effort regime of the cod plan. The conditions for exclusion for Sweden and Spain are described in the Council Regulation (EC) No 754/20099, for Poland and United Kingdom in the Council Regulation (EC) No 53/201010, but for Germany and Ireland in the Council Regulation (EU) No 712/2010.

In accordance with Article 11(3) Member States have to submit annual reports showing that the conditions on exclusion have been complied with during the preceding fishing season. Requirements to the format and substance of the annual reports are set out in Article 4 of the Commission Regulation 237/2010 laying down detailed rules for the application of Council regulation (EC) No 1342/2008.

These reports have to be assessed by the Commission and STECF to establish whether conditions on exclusion remain fulfilled.

Terms of References

Based on the information provided by Member States concerned in their annual reports, the STECF is requested to assess whether the groups of vessels concerned have been complying with the conditions set out in the decision on exclusion. In carrying out its assessment, the STECF is requested to:

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

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

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

Supporting documentation

Supporting documentation provided by the Commission to the STECF can be found on: https://stecf.jrc.ec.europa.eu/web/stecf/plen01

STECF response

Germany, France, U.K.

No data were provided on the fishing season of 1 February 2010 to 31 January 2011.

Spain

Data is provided for 10 vessels, belonging to the TR1 group, fishing with mesh size of 100 mm in VIa. According to the Table, only 4 of these vessels actively fished (Gure Kantabriko 26895, Intxorta mendi 25137, Kalamendi 25788, and Kirrixki 24806), mostly at depths deeper than 300 meters with a minimum depth of 234 m. The 10 vessels' total effort was 218677 kWdays. Their reported cod catches including discards are 0. Of 7 of these 10 vessels (including the 4 actively fishing) VMS positions were provided in Excel sheets as well as on maps; this makes it possible to verify that the 3 non-fishing vessels were indeed in transit at higher speeds (> 5 knots) but it also seems that 3 of the 4 fishing vessels (Gure Kantabriko 26895, Intxorta mendi 25137, and Kalamendi 25788) were actually a few times present at fishing speeds (<5 knots) at positions just to the east of the 200 m isobath, i.e. at depths shallower than 200 m, although the vast majority of their fishing positions were deeper than 200 m. Only two trips, both in May and both of the same vessel (Gure Kantabriko 26895), were sampled by on-board observers, amounting to 2.6% of the total effort in kWdays; cod catches during the sampled trips were 0. The Table of sampling information presents one depth per trip rather than a depth range; these depths are within the range of the fishing activity of the relevant vessels.

STECF considers that the sampling intensity by on-board observers is rather low and narrow (one vessel, one month). In the future, sampling should cover more months and more vessels, and the fishing depth range (rather than one single depth) of each sampled trip should be provided. Furthermore, since STECF noted that some vessels have a few VMS positions, with speeds <5 knots, at depths shallower than 200 m where the possibility of catching cod is present, the exempted vessels should be more strongly discouraged to fish at depths shallower than 200 m or provide justification for cruising there at speeds <5 knots. Moreover, since STECF considers that the distribution of cod may extend beyond 200 m, the exempted vessels should be discouraged to fish at depths shallower than 300 m. Nevertheless, STECF considers that the information provided indicates that the vessels concerned generally fish in an area outside of the distribution of cod and have <<1.5% of cod in their catches.

In addition to the ToR, STECF was asked to review the information provided by the Spanish authorities on the 2009 fishing season. Based on the information available to STECF in the summer plenary in 2010, STECF had advised that the sampling by on-board observers did not cover the depth range of the fishing activity, and that it could therefore not ascertain whether that the vessels had fulfilled the conditions. However, in their communication of 15 March 2011, the Spanish authorities pointed out that the information on the depth range of the fishing activity in 2009 was in fathoms instead of in meters, where 1 fathom = 1.82 meter. Based on this, STECF concludes that the sampling by on-board observers in 2009 did cover the depth range of fishing activity and that the information provided indicate that the relevant Spanish vessels caught <<1.5% cod during their activity in 2009.

Poland

Only 1 vessel is concerned: the POLONUS GDY-36, 3375 kW, belonging to the TR1 group, fishing with mesh size 120 mm, in total 121500 kWdays in 2010, targeting saithe. Information on 144 tows is provided, conducted in February and March 2010, in IVa (all but 4 tows in EU waters,

the other 4 in NOR South 62), at depths of 127 to 352 meters. In one of these tows 81 kg of haddock was caught, and in one 45 kg of cod (in NOR South 62); the rest of the catches consisted only of saithe, in total 680430 kg. No data are provided for January 2011. The sampling intensity by on-board observers is 100%, according to an email in which clarification on this was asked.

STECF considers that the information provided indicates that the vessel caught <1.5% of cod. .

Ireland

The Irish information, which was not in the format prescribed in Regulation 237/2010, concerns 3 vessels using a rigid sorting grid, of respectively 423 kW, 392 kW, and 441 kW, belonging to the TR2 groups, fishing with mesh size 70-99 mm, in VIIa. Of these vessels respectively 3 out of 63 (4.8%), 2 out of 47 (4.3%), and 5 out of 66 (7.6%) trips conducted in 2010 were observed by on-board observers. No data are provided for January 2011. The cod catches in these 10 observed trips varied from 0.0% to 0.29% and averaged 0.07%. The landings data from February 2010 to December 2010 show that from April onwards – when the decision of exemption had been made – landings consisted almost exclusively of Nephrops.

STECF considers the information provided indicates that the vessels concerned use selective gear during their fishing activities, resulting in <<1.5% cod in their catches.

Sweden

The Swedish data concern 112 vessels, targeting Nephrops, fishing in Kattegat and Skagerrak, most with mesh size 70 mm, but some with 74 mm, 75 mm, 80 mm, and 89 mm, with a Nephrops grid. They report a total of 247 kg of cod in the landings (no discards) from February 2010 to January 2011. In 39 of the 5106 vessel-day records (0.76%), concerning 10 different vessels, cod catches are reported of 1-25 kg of cod, representing up to 15.6% of the total catch of that vessel-day; all other vessel-days had 0 cod catches. On average the 5106 records have reported 0.03% (SD = 0.4) of cod in their catches. In a clarifying email the Swedish authorities stated that in the cases where the cod by-catch exceeded 1.5% for a single ship, this resulted in a greater focus in the control context, both at sea and on landing. Of the 5106 vessel-days 29 (0.57%) were sampled by on-board observers, representing 0.65% of kWdays; in only one of the sampled vessel-days any cod was caught (in this case, 1 kg).

STECF considers that, although the sampling intensity by on-board observers is rather low, the information provided indicates that the vessels concerned use selective gear during their fishing activities, resulting in <<1.5% cod in their catches.

9.3. Request for an STECF opinion on the implementation of cod avoidance measures in accordance with article 13.2(c) Regulation (EC) No 1342/2008

Background

Under article 13.2(c) of Council Regulation (EC) No 1342/2008 establishing a long-term plan for cod stocks and the fisheries exploiting those stocks, the Member States may allocate additional fishing effort to those effort groups subject to effort adjustments in which the fishing activity of one or more vessel(s) is conducted in accordance with a cod avoidance or discard reduction plan.

In April 2010 UK, Ireland and Denmark notified the Commission increases of the fishing effort allocation carried out by those Member States as a result of low cod catches in accordance with article 13.2of Regulation (EC) No 1342/2008, in particular in relation to point (c) on cod avoidance measures. In March 2011 Ireland and Denmark reported to the Commission the amounts of effort used within the cod avoidance measures undertaken in 2010. To date the Commission did not receive a similar report from the UK authorities.

In addition Denmark notified the Commission about introduction of the long term plan for the cod avoidance in the Kattegat and fishing effort increases in accordance with article 13.2 of Regulation (EC) No 1342/2008. The plan foresees number of cod avoidance measures with the aim to protect cod stocks, reduce impact of their fleet segment on the cod mortality in this area and recover the effort annually reduced for that fleet segment.

The Commission shall request STECF to compare annually the reduction in the cod mortality which would result from the application of Article13(2)(c) with the reduction it would have expected to occur as a result of the effort adjustment referred to in Article 12(4).

Terms of References

Based on the information provided by UK, Ireland and Denmark in April 2010 and March 2011 justifying fishing effort increases for certain groups of vessels operating in the Kattegat (area "a"), the North Sea, the Skagerrak and Eastern Channel (area "b"), the West of Scotland (area "d") and the Irish Sea (area "c"), and on any other relevant information (e.g. discards, effort, observer and VMS data as well as gear technical attributes, among others), the STECF is requested to assess the effectiveness of the cod avoidance measures undertaken by the Member States in question. In carrying out its assessment, the STECF is requested to compare the reduction in cod mortality which results from the implementation of national cod avoidance or discard reduction plans under article 13.2(c) of Council Regulation (EC) No 1342/2008, with the effort reduction for the areas and gears in question that occurred from 2009 to 2010 as a consequence of the effort adjustment referred to in article 12.4 of the same Regulation. It is expected that the STECF advises the Commission on appropriate adjustments in effort that may be applied for the relevant areas and gear groupings as laid down in article 13.7 of Council Regulation (EC) No 1342/2008.

In addition, because the Danish long term plan for the cod avoidance in the Kattegat is foreseen for the time period from 2009-2013, STECF is requested to assess, to extent possible, the impact of the measures foreseen in the Danish plan on the cod mortality for the whole period of the plan.

Supporting documentation

Supporting documentation provided by the Commission to the STECF can be found on: https://stecf.jrc.ec.europa.eu/web/stecf/plen01

General comments in relation to Article 13(2) of Council Regulation (EC) No 1342/2008.

STECF notes that under the provision of article 13.2(c) member states are requested to provide estimates of the reductions in fishing mortality achieved through the actions of national cod avoidance and discard reduction measures. These estimates are then used to adjust the amount of additional effort that can be deployed on a pro rata basis assuming linearity between fishing effort and fishing mortality. STECF notes that it is problematic to evaluate the impact of cod avoidance measures in terms of reductions in fishing mortality, particularly in situations where estimates of fishing mortality are uncertain, unstable or absent. Due to these issues, the ability to detect even moderate changes in fishing mortality that may arise due to cod avoidance or discard reduction actions is compromised because of uncertainties in the assessment (if one is available). Notwithstanding these problems of using fishing mortality as a measure of success, STECF supports the principals of article 13. It promotes the development and deployment of measures that can be tailored to local conditions; the application of results based management (RBM) principals and provides incentives to the industry to act to reduce cod catches. However, disentangling the effects of spatial measures or other actions to reduce cod catches needs appropriate metrics that are sympathetic to the initiatives deployed by member states to encourage the avoidance of cod. STECF (PLEN 10-2) identified a range of metrics that should be considered to allow for such evaluations. Considering this, member states have provided supporting data as proxy metrics for reductions in fishing mortality. STECF notes that in order to use annual cod assessments to support the evaluation of individual cod avoidance plans, it is necessary that any future evaluations undertaken by STECF should be conducted following the release of the ICES assessment in May each year. STECF also notes that due to the variety of approaches taken by member states including permanent and temporary area closures, gear measures and the quality of the available scientific advice for the cod stocks concerned, STECF notes that each case must be evaluated using a range of appropriate methods.

Request from the Danish Authorities provided to STECF by the Commission

In its letter to the Commission in April 2010, Denmark notified in accordance with article 13 (5) of Council Regulation (EC) No 1342/2008 of 18 December 2008 that Denmark for 2010 with reference to article 13.2 (c) in the same Regulation would increase the effort for TR2 in area (a) Kattegat with 25 % from 1.475.629 kW-days to 1.967.506 kW-days.

In the event, during 2010 133 Danish vessels used a total of 1.923.006 kW-days in TR2 in Kattegat in the management period (1 February 2010 to 31. January 2011).

The increase in Danish effort was based on foreseen reductions in fishing mortality associated with the following initiatives:

a) All Danish vessels fishing in Kattegat with TR2 are for the whole of 2010 obliged to use trawl or Danish seines with a minimum mesh size of 90 mm in combination with a 120 mm square mesh window as defined in appendix 1 to annex IIA in Council Regulation (EC) No 40/2008 of 16 January 2008.

b) All Danish vessels fishing in Kattegat with TR2 gear are subject to the joint Danish and Swedish seasonal and permanent area closures in Kattegat and the Northern part of the Sound.

An analysis presented by the Danish authorities estimates that actual reductions in fishing mortality of 1.2% were realised, based on estimates of reductions in cod catches via the application of point a).

An analysis of the impact on closed areas (point b. above) concludes that these closure have resulted in a realized reduction in cod mortality of 24% during 2009, a 12% reduction associated with the closure in the Kattegat and 12% associated with the closure of the Kelin Sound, no similar analysis for 2010 has been presented.

Assuming full implementation of the two measures identified, Denmark considers that this would result in a 25.2% cumulative reduction in fishing mortality.

STECF response

STECF welcomes the development and the application of the measures introduced by Denmark to reduce cod catches. Regarding the impact on cod catches associated with the mandatory introduction of the 120mm square mesh panel. STECF considers that the assumption that cod catches have been reduced by 6% through the introduction of the square mesh should be considered as an upper estimate. In the supporting information, the Danish Authorities note that "the increases in L50 and selection ranges were not statistically significant and the results must be taken with caution." While STECF acknowledges that there may be some minor reductions are possible, given the lack of statistical significance, the conclusion that "The trials.….indicate that in this size range the square mesh panel reduces the catches of cod by between 5 and 30% with an average of approximately 15%." is not well founded. STECF concludes that there is insufficient evidence to show that the use of the square mesh panel has contributed to a reduction in cod mortality.

STECF welcomes the approach taken by the Danish authorities to evaluate the potential impact of the two closed areas. The analysis is well documented and the analytical approach is novel and considered appropriate. Estimating the impact of closed areas in terms of reductions in fishing mortality is complex, given that trying to disentangle what vessels would have caught in the absence of the area closure and estimates the impacts associated with effort displacement is very difficult. The modeling approach, through the definition of CPUE contours across the entire area and overlaying the effort data based on VMS 'pings' appears to be a robust approach and provides a reasonable basis to estimate the potential impact that the closed areas have had on fishing mortality. STECF notes that this is not predictive but estimates a relative change in cod catches from a situation if the closure had not been in place. The analysis shows that that fishing effort has been redistributed into areas of lower CPUE (based on modeled survey data). STECF concludes that the closures are likely to have resulted in redeployment of effort from areas with relaribvely high catch rates to areas with relatively lower catch rates. STECF also concludes that such redeployment of

effort is likely to have resulted in a lower fishing mortality on cod in the Kattegat than would otherwise have occurred. STECF considers that the estimated reductions in fishing pressure of 24%, defined as the product of cod density and effort, provide the best proxy estimate for the expected local removals of vessels monitored with VMS.

Request from the Irish Authorities provided to STECF by the Commission

Since 2009, Ireland has initiated a seasonal closure in statistical rectangle 39E3. Historically, over 40% of the Irish cod landings have been attributed to this area. In its submission to the Commission in 2009, Ireland anticipated that the closure would result in a reduction in cod catches of approximately 17% during 2010. Given the lack of analytical assessment in ICES division VIa, STECF notes that it is problematic to estimate with any precision what the effect of this measure has had on fishing mortality associated with the Irish fleet. STECF notes that based on the observer data presented that the CPUE inside the closed area is considerably higher (26.8kg/hr) than outside the closed area (0.015kg/hr).

The following text table summaries the details of: Irish catches (caught mostly from the fleet concerned) based on reported landings and observer estimates; removals estimated by the 2010 ICES assessment; the Irish quota uptake given in the submission; and the total estimated mortality due to the removals also from the 2010 ICES assessment.

Year	Estimated Total Removals (t)	Irish Catch (t)	Irish Quota uptake (%)	Mortality due to Estimated Removals	Partial Mortality due to Irish catch
2008	4626	58	66%	0.90	0.0113
2009	4505	24	37%	0.89	0.0047
2010		35	67%		

Using these values the ratio of Irish catch to total removals is used to estimate the partial mortality due to the Irish catch for 2008 and 2009. This shows that the partial mortality due to the Irish fleet has been estimated to have reduced by 68% between 2008 and 2009. While the values absolute values are very uncertain the relative changes can be estimated more reliably. Accepting that although these values are uncertain STECF considers it likely that the mortality due to the Irish fleet has reduced by at least the 17% required reduction.

Data provided by UK

A summary of measures employed by the UK was provided to STECF, however this referred only to 2009 activities and the same information was reviewed at the 2010 STECF summer plenary. During that meeting an evaluation of the impact of the measures applied in Scotland was also presented and reviewed by STECF.

No formal assessment of the measures implemented by the UK authorities under the provisions of article 13.2(c) was presented for activities relating to cod avoidance and discard reduction measures implemented in 2010. STECF notes that an evaluation of the 2010 measures employed in Scotland is currently underway and will be available ahead of the 2011 summer STECF plenary meeting.

STECF Response - Danish long term plan for the cod avoidance in the Kattegat

STECF welcomes the Danish Cod Avoidance Plan and has commented on the effectiveness of the plan from 2009 to 2010 above. The Danish authorities have requested STECF to evaluate the potential impact that the measures taken and future measures will have (or will have) had on fishing mortality associated with Danish vessels operating in the Kattegat. The Danish authorities consider that the cumulative effects of the measures that will be taken over the entire period (2009-2013) will be sufficient so as to maintain fishing effort opportunities at the original 2009 levels. This is based on the assumption that any measures taken above the maximum effort adjustment (25%) for any given year should be considered in addition to additional measures taken in the following year. For example, if the measures taken in year one amount to a fishing mortality reduction of 30%, and measures taken in the following year amount to 20%, then the combined effect would be 50% over the two year period and therefore the available effort should be maintained at the original starting level. STECF notes that whether the 'carry over' of excess reductions in effort is possible under the annual conditions specified in article 13.7. is an issue for legal not scientific interpretation and outside the competence of the STECF. However, STECF considers that such approach may be beneficial because it could potentially encourage reductions greater than 25% in fishing mortality earlier in the cod avoidance plan. Such an earlier increased reduction (even if followed by subsequent lower reductions) results in cumulative benefits, as more of the current cod population would be allowed to survive than would be achieved with linear, year on year, reductions of 25%. Notwithstanding any legal obstacles, STECF considers that provided the 'carry over' of excess reductions in effort achieves the overall objective of reducing the fishing mortality to the intended level, such an approach would be appropriate.

The Danish plan is based on two spatial closures (in the Kattegat and the Sound), technical modifications to otter trawls (the use of a 120mm square mesh panel and a large square mesh [180mm] panel and finally a quota pooling system. The Danish authorities consider that the cumulative effect of all these measures combined, will by the end of the plan (2013) will have resulted in a fishing mortality reduction of 57% if fully implemented.

While STECF concluded that the existing measures are likely to have resulted in reductions in local cod removals by vessels equipped with VMS, future developments in terms of further reductions in cod removals associated with the plan are based on the introduction (from July 2011) of a new technical measure for TR2 vessels. DTU Aqua has developed and tested a SELTRA 180 mm panel to reduce the catch of cod in demersal trawl fisheries.

STECF notes that the estimates of reductions in cod catches are based on experimental data collected from research trials conducted in the North Sea. These demonstrated reductions in the order of 67% in number. The Danish authorities estimate that the mandatory introduction of this gear year round will result in a 44.2 reduction in the Danish partial fishing mortality for cod. This is based on the fact that the TR2 gear accounts for 66% of the catches and if the SELTRA 180 mm is applied year round the reduction in fishery impact (a proxy for fishing mortality) will be the proportion of cod fished by SELTRA times the effect of using SELTRA (66% out of 67% equal 44.2%). However, to maintain a viable flatfish fishery during the last quarter, it is proposed to use the SELTRA during the period January to September, where 78% of the cod landings from the TR2 segment take place. The estimated reduction in fishing impact is adjusted by 0.78 resulting in an estimated reduction in fishing pressure of 34.5%. This is based on the assumption that because the cod population structure in the North Sea comprises of more fish >85cm, the effect of the gear when used in the Kattegat will be greater because catches from the Kattegat population comprises

mostly of fish in the range 20-40cm, the impact will be greater as the selective efficiency of the gear is greater on 'smaller' fish. STECF notes that due to the absence of length frequency data from the two areas it is not possible to confirm that this is likely to be the case. STECF considers that the use of the SELTRA trawl is potentially a a efficient tool to reduce fishing mortality on cod. However, for future evaluation of the effectiveness of the gear, STECF recommends that population independent selectivity parameters are obtained for both the current gear and SELTRA gear. This will allow for the estimation of what the catches of cod would have been without the SELTRA gear by comparing the catch at length and the difference in the proportion at length between the current and new SELTRA trawl. Given that the use of the SELTRA trawl provides the basis of the majority of fishing mortality reductions for the future development of the plan, STECF considers that it is important that the use of the gear is fully implemented. The Danish plan intends that the new SELTRA gear will be implemented from July 1 2011 and in subsequent years from January 1 to September 30, coinciding with 78% of the cod landings associated with the TR2 fleet. During the period October 1 to December 31, the plan envisages the use of the 120mm square mesh panel. STECF reiterates that the 120mm square mesh panel is unlikely to have any significant effect on cod catches.

The plan also includes a 'quota pooling' system which allows fishermen to purchase cod if they exceed their quota. The Danish authorities note that The Danish Fishermen's Association has regularly demonstrated that there are fish in pools to acquire at reasonable prices, so that within the pools the participating vessels are not forced to discard fish. The scheme is followed closely by the Directorate of Fisheries. Data on discards also shows that discards for TR2 in the Kattegat has declined substantially in 2008 and 2009 compared with 2007. It is estimated that the introduction of the system of pools have helped to reduce discards and therefore also had a positive effect on the cod mortality rate equivalent to 2 %. STECF notes that there is insufficient data available to confirm the estimated reductions in fishing mortality, but that initiatives of this type clearly offer opportunities to avoid the necessary discarding of over quota fish through internal trading within the pool.

STECF concludes that the range of measures already in place and those to be introduced in the future clearly demonstrate that the Danish authorities and industry have made significant operational and structural changes to Danish fisheries in the spirit of the provisions of article 13.2(c) and STECF acknowledges and commends these initiatives. STECF considers that it is premature at this stage to quantify the effectiveness of these measures in terms of reducing cod mortality, but with proper implementation and enforcement, notes that they are likely to have a significant impact. STECF notes that the Danish authorities are required to submit annually a report that provides details on the estimated changes in fishing mortality.

9.4. Request for an STECF opinion on protection of the Atlantic Halibut stock in the Skagerrak

Background

The stock of Atlantic halibut as been considered depleted in the Skagerrak for a number of years but recent spawning aggregations have been identified signalling that the stock has reappeared in the area.

As this stock is classified as an endangered species it would be a matter of urgency to protect the stock through coordinated actions.

Terms of References

The STECF is asked to give an opinion on

- the need to protect Atlantic halibut in fishing grounds located in the Skagerrak;
- the proposal drafted by the Swedish Institute of Marine Research for the protection of the Atlantic halibut stock in the Kattegat, based on a ban of metiers targeting Atlantic halibut and an seasonal closures to be applied by all metiers catching Atlantic halibut.

The STECF is also requested to identify and to discuss possible alternative measures which would contribute to the protection of Atlantic halibut, if the need for protection was confirmed.

Supporting documentation

Supporting documentation provided by the Commission to the STECF can be found on: https://stecf.jrc.ec.europa.eu/web/stecf/plen01

STECF observation

TOR 1: the need to protect Atlantic halibut in fishing grounds located in the Skagerrak.

The Atlantic halibut in the North Atlantic is distributed along the Norwegian coast in Norwegian Sea, the Faroe Islands, Iceland, Greenland, North Sea and Skagerrak. It is especially abundant along the Norwegian coast in the Norwegian Sea, in the North Sea and the Skagerrak (ICES Div. IIa, IVa and IIIa).

Early tagging experiments demonstrated that mature Atlantic halibut return to the same spawning site over repeated spawning seasons (Jakupsstovu and Haug, 1988), which suggested that the species may display population genetic structuring (McCraken, 1958). On the other hand, various studies have suggested either a lack of or only weak evidence of population genetic differentiation between geographically distinct samples in the North East Atlantic (Mork and Haug, 1983; Haug and Fevolden, 1986; Fevolden and Haug 1988; Foss et al. 1998). However, due to the small sample sizes and limited geographical area investigated by most of the studies no firm conclusion on the population structure can be drawn from the studies.

The spawning season of Atlantic halibut has been described to occur between December and March with a peak season between January/February in Norway (Houg, 1990); although seasonal variation on spawning timing (i.e. earlier spawning in northern Norway compared to southern Norway) can be observed (Glover et al., 2007). However, except a few eggs observation early in the early 90s (Bergstad and Gordon, 1993), there are no observations of spawning in the Skagerrak. No spawning or spent females appear to have been caught in the Norwegian deep water shrimp surveys, and investigations by Liljeborg (1891) point out at observation of mature fish only.

Based on the information available to STECF the Committee was not in the position to assess whether there is a separate spawning aggregation of Atlantic halibut in the Skagerrak or the halibut found in the area is part of a larger population. Therefore, considering the lack of knowledge about the stock structure it would be sensible that any management measure aimed to protect the population should considered the whole population in the Norwegian coast, North Sea, and Skagerrak.

The only information available to STECF on the abundance of Atlantic halibut was landings data. The landing statistics indicate that the whole population in the Atlantic, including the Skagerrak, has decreased substantially since the early 60s. During recent years, a slight increase in landings has been observed especially in the Norwegian Sea.(Bjelland et al., www.artsdatabanken.no)

Following the information presented, STECF advises that there is no basis to judge the status of the Atlantic halibut in the Skagerrak in relation to biological reference points or whether they are suffering from reduced reproductive capacity. However, STECF considers that landings statistics are sufficient to provide signals of a depleted population.

Thus, the STECF concluded that the stocks of Atlantic halibut is at very low levels, and that any protection of the species, including the population in Skagerrak, will contribute to the prospects of recovery of the Atlantic halibut.

TOR 2: the proposal drafted by the Swedish Institute of Marine Research for the protection of the Atlantic halibut stock in the Kattegat, based on a ban of metiers targeting Atlantic halibut and an seasonal closures to be applied by all metiers catching Atlantic halibut.

The Swedish proposal for a management plan for the conservation of Atlantic halibut includes (i) a ban on fishery for Atlantic halibut and (ii) a seasonal closure (20th December to 31st March) for all fisheries catching Atlantic halibut in areas in the Skagerrak with depths between 200 – 400m.

The ban on fishery for Atlantic halibut is proposed to be implemented as a ban on landings of Atlantic halibut

In its response to the request, STECF has considered the proposal drafted by the Swedish Institute of Marine Research as background document together with additional information made available to STECF by DTU Aqua.

The Swedish fishery data showed that landings increased to around 14 tons in 2010 (a 350 % increased from 2009) with most of the landings occurring in January (around 10 tones). With the information provided, it is not clear whether the reason for these high landings in January 2010 correspond to an increase in catchability due to spawning aggregations, an increase in abundance or in a fishing strategy change (e.g from a bycatch fishery to a fishery targeting Atlantic halibut). With regard to Danish fishery, the landings have been stable during the last 10 years at around 15-20 tones and were taken throughout the year without any clear seasonal pattern. Landings during January and March have been around 4 tonnes in recent years accounting for around 25 % of total annual Danish landings. This could indicate that the large increase in catches observed in the Swedish fishery in January 2010 may be due to a target fishery.

The STECF considers that a ban on landing of Atlantic halibut in practice will result in a stop for possible target fisheries on the species. STECF notes that the majority of the landings of Atlantic halibut are bycatches taken in demersal fisheries targeting other species. The only indication of a

possible target fishery is the increase in the Swedish landings in January 2010. The impact of a ban on landings in terms of reduced catches may therefore be very limited.

A ban on landings also means that all catches of Atlantic halibut in fisheries targeting other species will have to be discarded. Depend on the survival rate of the discarded fish this may result in a reduction in the fishing mortality. So, to be an effective measure to decrease the fishing mortality, the survival rate would need to be high; which may not be the case as shown by Neilson et al. 1989 who reported a mortality rate of 65 % for otter trawl fisheries for Atlantic halibut in the Northwest Atlantic. Thus, STECF considers that it is unlikely that the proposed ban on landings will significantly affect the fishing mortality on Atlantic halibut in the Skagerrak.

In relation to the seasonal closure, the STECF notes that the Swedish proposal did not include a full seasonal/spatial description of total catches and length distribution of the catches of the various fisheries/metiers involved in the Atlantic halibut fishery. Therefore, STECF is not in a position to give a full response to the request on the seasonal closure.

The fishery statistics of the Danish fleet presented during the STECF meeting shows that the Danish landings during the proposed closure period are around 25 % of the total Danish landings of Atlantic halibut in the Skagerrak. No detailed information on the spatial and temporal distribution of the Danish landings was available in relation to the area closure proposed. However, it is most likely that some of the landings of Atlantic halibut taken during the closed season are from areas not covered by the closures. The closed season is therefore likely to affect less than 25% of the total Danish catches of Atlantic halibut. Moreover, there is no information about the possible effect of the effort redistribution to shallower waters on Atlantic halibut catches. With the data available, STECF notes that if the proposed ban on landings is implemented, the additional management measure of a seasonal closure is unlikely to provide much additional protection.

Table 9.4.1. The distribution of fishing effort of the Danish demersal fisheries in 2009 and 2010 is given in the tables below. Other demersal trawl fishery covers mixed fisheries for roundfish and flatfish.

Fishery	**No of VMS records with a vessel speed indication fishing at depths between:**					
	0- -200 m		**200 – 400 m**		**> 400 m**	
	1st Q	**Whole year**	**1st Q**	**Whole year**	**1st Q**	**Whole year**
2009						
Gill net	1012	2664	0	7	0	0
Nephrops trawl	7104	36951	644	3529	5	5
Pandalus trawl	680	4674	4905	21783	498	925
Other demersal trawl fisheries	18756	76169	10279	16742	714	934
2010						
Gill net	991	2326	0	0	0	0
Nephrops trawl	11961	41149	685	1960	4	4
Pandalus trawl	643	2882	4912	18714	466	1519
Other demersal trawl fisheries	25223	76884	9792	13650	518	764

Most of the Danish landings of Atlantic halibut are taken by the *Nephrops* and demersal mixed trawl fisheries (around 95 %) followed by the shrimp Danish fisheries (around 5 %). The Swedish proposal includes a derogation for the deepwater shrimp (pandalus borealis) fleet, provided it uses a sorting grid. In that case the fleet would remain unaffected by the proposed closure. For the category other demersal trawl fisheries the figures are 30% and 10%, respectively. Taking into account that the most of the catch is taken by the other demersal trawl fisheries and that in relation to total effort a reduction of around 10% is expected, the proposed area\ closure is likely to deliver a reduction in catches of the same order of magnitude.

Considering the whole population along Norwegian coast, North Sea and Skagerrak, the total landings of Skagerrak Atlantic halibut represents around 2% (table below). Thus, considering a reduction of around 25 % of Skagerrak landings following the seasonal closure, this corresponds to less than 0.05 % of the total landings from the whole area.

Table 9.4.2. Landings proportion (in %) taken in ICES Div. IIIA in relation to total Atlantic halibut landings in ICES Div. Ia, IIa, IIIa and IVa.

EU STAT	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
Denmark	1.26	0.99	1.11	1.67	2.31	2.75	2.62	2.67	2.86	3.76	2.53	3.04
Sweden	0.38	0.29	0.20	0.23	0.60	0.79	1.08	1.43	1.43	1.78	1.05	1.41
Norway	0.44	0.41	0.33	0.61	0.50	0.52	0.62	1.07	1.23	1.39	2.11	2.11

STECF conclusions

The STECF considers that a ban on landing of Atlantic halibut in practise will result in a stop for possible target fisheries on the species. However, as the majority of the catches of Atlantic halibut are bycatches taken in demersal fisheries targeting other species, the impact of a ban on landings in terms of reduced catches may therefore be very limited as the mortality rate of discarded halibut from otter trawl fisheries is estimated around 65 % (Neilson eta al., 1989). Thus, STECF considers that it is unlikely that the proposed ban on landings of Atlantic halibut from the Skagerrak will significantly affect the fishing mortality on Atlantic halibut in the northeast Atlantic.

In relation to the seasonal closure, the STECF concluded that the proposed closure may have moderate impact in the reduction of the total catches of Atlantic halibut in Skagerrak, and an insignificant effect on the total catches for the whole area including North Sea and Norwegian coast. However, to fully evaluate the proposal STECF noted that a full seasonal/spatial description of total effort/catches and length distribution of the catches of the various fisheries/metiers involved in the Atlantic halibut fishery is needed. Therefore, STECF is not in a position to give a full response to the request on the seasonal closure.

STECF is not in the position to determine which of the proposed management actions is likely to be the most effective for protecting Atlantic halibut in the Skaggerak and North Sea. However, considering that the stock in these areas is depleted and with the aim to protect the remaining stock, the implementation of any measures likely to reduce fishing mortality on the Atlantic halibut in the Skagerrak would be beneficial. STECF therefore advises that there is a need to closely monitor those fisheries that catch Atlantic halibut, the stock size, its spatial structure and the level of exploitation, and to protect the stock through prompt management actions.

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European Commission

EUR 24806 EN – Joint Research Centre – Institute for the Protection and Security of the Citizen
Title: 36rh PLENARY MEETING REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-10-03)

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Luxembourg: Publications Office of the European Union
2011 – 77 pp. – 21 x 29.7 cm
EUR – Scientific and Technical Research series – ISSN 1831-9424
ISBN 978-92-79-20170-7
doi:10.2788/15586

Abstract

The Scientific, Technical and Economic Committee for Fisheries hold its 36th plenary on 11-15 April 2011 in Barza d'Ispra (Italy). The terms of reference included both issues assessments of STECF Expert Working Group reports and additional requests submitted to the STECF by the Commission. Topics dealt with ranged from fisheries economics to management plan evaluation issues.

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LB-NA-24806-EN-N

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Publications Office

ISBN 978-92-79-13388-6

9 789279 133886