



JRC SCIENTIFIC AND POLICY REPORTS

SCIENTIFIC, TECHNICAL AND
ECONOMIC COMMITTEE FOR
FISHERIES –
53rd PLENARY MEETING REPORT
(PLEN-16-03)

PLENARY MEETING,
24-28 October 2016, Brussels

Edited by Clara Ulrich & Hendrik Doerner

2016

EUR 28359 EN

This publication is a Science for Policy report by the Joint Research Centre (JRC), the European Commission's science and knowledge service. It aims to provide evidence-based scientific support to the European policy-making process. The scientific output expressed does not imply a policy position of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of this publication.

Contact information

Name: STECF secretariat

Address: Unit D.02 Water and Marine Resources, Via Enrico Fermi 2749, 21027 Ispra VA, Italy

E-mail: stecf-secretariat@jrc.ec.europa.eu

Tel.: +39 0332 789343

JRC Science Hub

<https://ec.europa.eu/jrc>

JRC103924

EUR 28359 EN

PDF ISBN 978-92-79-64634-8 ISSN 1831-9424 doi:10.2788/638914

Luxembourg: Publications Office of the European Union, 2016

© European Union, 2016

Reproduction is authorised provided the source is acknowledged.

How to cite: Scientific, Technical and Economic Committee for Fisheries (STECF) – 53rd Plenary Meeting Report (PLEN-16-03); Publications Office of the European Union, Luxembourg; EUR 28359 EN; doi:10.2788/638914

All images © European Union 2016

Abstract

Commission Decision of 25 February 2016 setting up a Scientific, Technical and Economic Committee for Fisheries, C(2016) 1084, OJ C 74, 26.2.2016, p. 4–10. The Commission may consult the group on any matter relating to marine and fisheries biology, fishing gear technology, fisheries economics, fisheries governance, ecosystem effects of fisheries, aquaculture or similar disciplines. The Scientific, Technical and Economic Committee for Fisheries hold its 53rd plenary on 24-28 October 2016 in Brussels (Belgium).

TABLE OF CONTENTS

1.	INTRODUCTION	4
2.	LIST OF PARTICIPANTS	4
3.	INFORMATION TO THE PLENARY.....	4
4.	ASSESSMENT OF STECF EWG REPORTS.....	7
4.1	EWG 16-02: Multiannual plan for demersal fisheries in the Western Med.....	7
4.2	EWG 16-09: Balance fishing capacity-opportunity.....	11
4.3	EWG 16-10: Fisheries Dependent Information.....	12
4.4	EWG 16-12: Economic Report of EU aquaculture sector.....	14
4.5	EWG 16-13: Stock assessments in the Mediterranean Sea - part I.....	17
5.	ADDITIONAL REQUESTS SUBMITTED TO THE STECF PLENARY BY THE COMMISSION	24
5.1	TAC top ups.....	24
5.2	Review of electrofishing for razor clam fisheries	52
5.3	Deep sea stocks in the western waters multiannual management plans	56
5.4	Evaluation of national measures taken under Art 13(6) of the cod plan.....	62
5.5	Exclusion in accordance with Article 11(2) of Regulation (EC) No 1342/2008.....	70
5.6	Fishing effort ceilings allocated in Sole and Plaice fisheries of the North Sea	74
5.7	Management plan for boat seines in the Balearic Islands, Spain.....	80
5.8	Management plan for purse seine fishing in the Republic of Croatia	84
5.9	CPUE for yellowfin tuna stock assessments.....	97
5.10	CFP monitoring	99
6.	ITEMS/DISCUSSION POINTS FOR PREPARATION OF EWGs AND OTHER STECF WORK.....	103
6.1	Evaluation of DCF Work Plans.....	103
6.2	Terms of reference for EWG STECF bio-economic methodology	104
6.3	Coordination meeting between various scientific bodies and users in the Mediterranean and Black Sea	105
6.4	STECF rules of procedures	107
6.5	Overshoot of fishing mortality compared to the target fishing mortality	108
7.	STECF RECOMMENDATIONS FROM STECF-PLEN-16-03	111
8.	BACKGROUND DOCUMENTS.....	112
9.	ANNEXES	113
10.	CONTACT DETAILS OF STECF MEMBERS AND OTHER PARTICIPANTS	115

53rd PLENARY MEETING REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-16-03)

PLENARY MEETING

24-28 OCTOBER 2016, BRUSSELS

1. INTRODUCTION

The STECF plenary took place at the Centre Borschette, rue de Froissart, Brussels, from 24 to 28 October 2016. The chair of the STECF, Clara Ulrich, opened the plenary session at 10:00h. The terms of reference for the meeting were reviewed and discussed with DG MARE focal points before and consequently 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 28 October 2016.

2. LIST OF PARTICIPANTS

The meeting was attended by 28 members of the STECF, two invited experts and four JRC personnel. 12 Directorate General Maritime Affairs and Fisheries (DG MARE) attended parts of the meeting. Section nine of this report provides a detailed participant list with contact details.

The following members of the STECF informed the STECF chair and Secretariat that they were unable to attend the meeting:

Thomas Catchpole

Loretta Malvarosa

Hilario Murua

Jenny Nord

3. INFORMATION TO THE PLENARY

The committee was informed on the current state of planning for meetings in 2016/1st quarter 2017 and on possible upcoming requests for advice by written procedure.

Meetings:

- EWG 16-16: Evaluation of DCF National work plans, 7-11 November, JRC
- EWG 16-17: Stock assessments in the Mediterranean Sea - part II, 19-25 November, Ispra/JRC, The EWG will start with a two day data preparation meeting (19-20 November) where stock coordinators will start preparing input data and resolving potential data problems. On the 21st of November the full meeting will start to end on the 25th.
- EWG-16-20 EWG bio-economic methodology, 23-27 January 2017, JRC
- EWG 16-14: Technical measures, formerly Technical Measures in the Baltic Sea, 6-10 February 2016, Brussels
- EWG 16-19: European data for North Atlantic and Mediterranean Albacore, 13-16 March 2017, JRC

- EWG 16-15: Pelagics and industrial species in the NS and IIIa, moved to after 1st quarter 2017, to be confirmed
- EWG 16-18: External fleet, will probably integrated into the 2017 agenda, to be confirmed

Forthcoming written procedures:

1. Review of work of EWG 16-16: Evaluation of DCF National work plans, deadline for OWP originally set for 14 December, during the plenary meeting discussions it became clear that the OWP is needed earlier
2. Joint recommendations for protection of cod stocks

Background

During the October 2016 AGRIFISH Council meeting, ministers reached political agreement on quota levels in the Baltic Sea for 2017. The quota level for the western cod stock is based on the scientific advice and complies with the requirements of the Baltic multiannual management plan (Regulation (EU) No 2016/1139).

The Baltic multiannual management plan requires adopting further measures in cases when the stock is below certain conservation reference points as laid down in the plan. According to the plan such measures should be adopted with the Commission delegated act following the submission of the Joint Recommendation by the Member States concerned. The Joint Recommendation was submitted to the Commission on 11 October 2016.

The Commission should facilitate the cooperation among the Member States and ensure that measures indicated in the joint recommendations are based on the best scientific advice and shall contribute to the achievement of the objectives of the Baltic multiannual management plan.

Therefore the Commission is seeking the advice and the scientific opinion from the STECF to be provided following the Terms of Reference below.

Terms of Reference

STECF is requested to:

1. Assess and quantify the impact of the measures to establish fisheries closure periods on the effort applied in the cod fisheries and its impact on cod stocks, as well as, to the elimination of discards by avoiding and reducing unwanted catches:
 - a. the fisheries closure period in subdivisions 22, 23 and 24 to be applicable from 1 February to 31 March to vessels fishing for cod;
 - b. the fisheries closure period in subdivisions 24, 25 and 26 to be applicable from 1 July to 31 August to vessels fishing for cod;
 - c. the fisheries closure period in subdivisions 27 and 28 to be applicable from 1 July to 31 August to vessels fishing for cod.
2. Assess the impact of the measure to allow cod fishery in waters shallower than 20 m by vessels with a length overall up to 15 m equipped with VMS (except pair trawling) as derogation from measure indicated in paragraph 1a, 1b and 1c.
3. STECF is requested to provide any additional considerations it may have.

This work is to be prepared under an ad hoc contract as input to a written procedure by end November 2016.

3. Rationale for establishing de minimis exemptions on the basis of Article 15(7) of Regulation (EU) 1380/2013 for certain fisheries in non-Union waters not subject to third countries'

This work is to be prepared under ad hoc contracts as input to a written procedure to take place if possible in December 2016.

4. ASSESSMENT OF STECF EWG REPORTS

4.1 EWG 16-02: Multiannual plan for demersal fisheries in the Western Med

Request to the STECF

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

Background

The Expert Working Group 16-02 (EWG 16-02) convened in September 2016 in Varese (Italy), with the objective of setting the scientific grounds for the assessment of the biological, economic and social effects of a range of possible measures applicable in the context of a multiannual plan (MAP) for the European fisheries exploiting demersal stocks in the Western Mediterranean Sea. The report reflects the work by ten experts, and one observer. The EWG 16-02 was asked to respond to five different terms of reference:

TOR 1. STECF-EWG 16-02 is requested to assess the likely biological and socio-economic benefits of implementing different management options. For each scenario, STECF-EWG 16-02 is requested to run the appropriate forecast models in order to describe the likely situation of the fisheries up to 2035 and using the indicators given below:

Fisheries indicators: catch, fishing mortality relative to FMSY (F/FMSY);

Biological indicators: abundance (SSB and total biomass), recruitment, and mean individual size;

Socio-economic indicators: GVA, salary and employment.

The list of stocks subject to this analysis is also available in table 1.

TOR 2. Discuss pros and cons of the geographical scope of the plan, taking into account the distribution of the stocks, fleet dynamics and the economic link between areas.

TOR 3. Among the stocks listed in Annex I, provide an opinion on the stocks that can be considered as driving demersal fisheries in the Western Mediterranean Sea. The group should take account of the outcomes of STECF EWG 15-14 and EWG 16-04.

TOR 4. STECF-15-09 noted that, although in the long term catches are expected to recover, as a result of the increase in biomass, in the short term the benefits of rebuilding will not be immediate. Having said this, estimate the likely time required to find fishing fleets with the potential to get a positive economic performance.

TOR 5. Describe the quality of the data and the impact on the analysis. The methodology, assumptions, uncertainties and references should be also thoroughly detailed. The use of schemes is advisable.

STECF observations

STECF observes that TORs 2, 3 and 5 were completely addressed, while TOR 1 and TOR 4 were partially addressed.

For TOR 1, STECF notes that the different management options requested in the TORs were tested using a set of scenarios, which reflected the management options and the natural uncertainty, within a management strategy evaluation (MSE) context. Nevertheless, STECF also notes that socio-economic indicators (GVA and wages) were not computed due to inconsistencies in the economic data from the different datasets available to EWG, and also because a mixed-fisheries multi-species bioeconomic model does not currently exist for this region. For the same reason TOR 4 was also not fully addressed.

Regarding the results obtained by the EWG, STECF notes the following:

Regarding ToR 1, STECF underlines the result obtained by the EWG that the status quo scenario (to keep fishing mortality at the most recent level estimated from the observed period), is the worst option from those tested in terms of number of stocks recovering to SSB levels above BPA. This option is unlikely to allow the stocks to recover to levels that are capable of delivering Maximum Sustainable Yield (MSY).

STECF notes that according to the results obtained by the EWG, in 2025 around 75% of the stocks studied are expected to have SSB levels above BPA with a probability of 95%, if option 1 or 2 (fishing at FMSY or within FMSY ranges, respectively) is implemented.

STECF acknowledges that the simulations comparing output-based management (TAC) with input-based management (effort limits) are based on a number of simplifying assumptions that cannot capture the full complexity of the governance process regarding management decisions, implementation and control. The simulations showed that a TAC-based management is less precise for reaching the fishing mortality target due to the uncertainties in the stock assessments. On the other hand an effort-based management is sensitive to the problem of hyperstability¹. STECF notes that the EWG has tested two different solutions to address this issue. STECF concludes that the approach taken is promising, but results are still preliminary and no robust conclusions regarding an effective effort management can yet be taken from these two approaches.

STECF considers that the effect of the measures designed to protect the juvenile fraction are stock/fishery dependant and are significant only for the fisheries inducing large fishing mortalities on juvenile stocks. These measures can only be considered as an additional measure, but do not replace the need to reduce the overall fishing mortality of the stocks.

STECF notes the EWG observation that some of the values obtained for FMSY were very low and others very high. Reference points should be revised and updated when needed. Such revision could also be used to estimate biomass reference points, which currently do not exist.

STECF notes the conclusion of the EWG that in the context of mixed fisheries and species interactions and considering the assessment uncertainty, some stocks' fishing mortalities may exceed the FMSY range upper boundary even when management is implemented at FMSY.

STECF notes that some fleets have been assessed by the EWG to be moderately/highly dependent on the stocks considered, and are also large employers on the region. A monitoring of social conditions in these fleet segments upon implementation of the MAP may provide valuable knowledge on the actual extent of the social impact of the MAP.

STECF observes that the implementation of biomass safeguards at the level of BPA, with a recovery period of 5 or 10 years, will delay the time to achieve FMSY, because the recovery period is longer than the period required to reach the fishing mortality target in 2020 (3 years). Some options to circumvent this issue might be considered.

Regarding TOR 2, STECF agrees with the conclusion from the EWG that having MAPs with a wider scope will limit both the number of stocks that will have to be split across regulations and the potential inconsistencies that may arise from having to make several regulations coherent. Also, having MAPs that focus on more homogenous regions may encourage buy-in by Member States and regional/local bodies and establish a more homogeneous playing field for all the fleets covered. Finally, with regards to this TOR 2, STECF reiterates its previous conclusions from

¹ Non-linear relationship between fishing effort and fishing mortality. Due to fisherman ability to keep high catch rates albeit stock biomass decreases, the relationship between effort and fishing mortality becomes non-linear, with fishing mortality responding slowly to fishing effort restrictions.

STECF-15-02 that the implementation of MAPs by one, two or more regulations still remains largely a policy decision more than a scientific issue.

Regarding TOR 3, STECF agrees with all the conclusions obtained from the EWG-16-02. Most of the stocks included in the MAP can be considered as driving the fishery, with a few exceptions. *Aristomorpha foliacea* in GSAs 7, 9 and 11; and *Lophius* spp in GSAs 10 and 11 are driving the fishery but are not included in the ToRs, while on the other hand the *Parapenaeus longirostris* in GSAs 5 and 6 were included in the ToRs but are not driving the fishery.

Regarding TOR 4, STECF concludes that the TOR was not fully addressed due to data limitations and the lack of a fully operational model to deal with it. The term "economic recovery" defined in this TOR requires further operationalization based on economic indicators (i.e., profits, wages,...). STECF concludes also that the only indicator provided to address this TOR, Value per Unit of Fishing Mortality, provides only limited information on the economic effects of the different scenarios, given that the costs related to effort are not considered in its calculation.

STECF also notes that a number of stock assessments data were not available to the EWG, either because they could not be obtained from GFCM in time for the EWG or because they come from stock assessment models not easily compatible with the format of the evaluation model used by the EWG.

Regarding TOR 5, STECF notes that the EWG found consistencies and discrepancies between the catches in the stock assessments and the landings data from the AER database (Table 4.1.1) These inconsistencies could not be solved during the meeting and prevented the EWG to carry out a mixed-fisheries analysis as well as to compute the economic indicator GVA requested in the ToR.

STECF conclusions

STECF endorses the outcomes of the work performed by the EWG.

STECF considers that the observed data discrepancies should be further explored.

Table 4.1.1- Percentage of difference in catch in numbers by year and stock between official assessment and the Mediterranean data call.

Year	STOCK																							
	HKE 1_7	HKE 9_11	ARA 1	ANK 1	MUT 1	DPS 1	ARA 5	ANK 5	MUT 5	DPS 5	ARA 6	ANK 6	MUT 6	DPS 6	ANK 7	MUT 7	ARS 9	MUT 9	DPS 9	ARS 10	MUT 10	DPS 10	ARS 11	MUT 11
2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2002	NA	NA	NA	NA	NA	NA	NA	NA	-5.92	-50.96	0.00	NA	-28.33	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2003	62.05	NA	0.00	NA	0.00	0.00	NA	11.14	-16.53	-5.94	0.00	NA	-26.05	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004	30.91	NA	0.00	NA	0.00	0.00	NA	-0.91	-18.10	11.52	0.00	0.00	-24.72	0.00	NA	0.00	NA	NA	NA	NA	NA	NA	NA	NA
2005	-61.14	NA	0.00	NA	0.00	0.00	NA	4.87	-20.53	14.39	0.00	0.00	-24.55	0.00	NA	0.02	NA	NA	NA	NA	NA	NA	NA	0.00
2006	-30.32	-16.53	0.00	NA	0.00	0.00	NA	4.86	-75.77	-26.68	0.00	0.00	-25.80	0.00	NA	0.02	0.00	-162.54	-1034.80	1.24	NA	NA	40.66	0.00
2007	-17.65	-155.56	0.00	NA	0.00	0.00	NA	-12.09	2.57	-67.38	0.00	0.00	-24.40	0.00	NA	0.00	0.00	-182.45	-45.35	2.42	NA	NA	40.68	0.00
2008	-20.64	-205.75	0.00	NA	0.00	0.00	NA	6.14	NA	-22.94	0.00	0.00	-24.02	0.00	NA	-0.01	-38.70	-22.59	-37.45	-14.37	NA	NA	6.21	0.00
2009	-0.46	-7.79	0.00	NA	5.96	0.00	NA	-104.29	-43.29	11.91	0.00	-8.05	-27.96	0.00	NA	0.02	0.00	-16.23	-3.57	35.34	NA	NA	15.12	0.00
2010	-36.97	-16.19	0.00	NA	0.36	0.00	NA	-72.85	-6.41	12.45	0.00	-5.33	-5.79	0.00	NA	0.01	-39.67	-6.77	-0.38	52.69	NA	NA	31.26	0.00
2011	-4.62	-14.90	0.00	NA	4.42	0.00	NA	-87.93	-15.16	11.62	0.00	-1.79	-43.97	0.00	NA	4.00	-34.69	1.73	-2.19	75.80	NA	NA	7.04	0.00
2012	-10.86	-2.06	0.00	NA	12.43	0.00	NA	20.90	-5.24	-7.45	0.00	-1.74	-28.66	0.00	NA	0.01	-18.33	-1.43	-5.41	NA	NA	NA	21.53	0.00
2013	32.18	-2.41	0.00	NA	1.55	0.00	NA	12.39	NA	NA	0.00	-1.45	-28.30	NA	NA	7.24	0.00	-18.05	-12.25	NA	NA	NA	37.72	NA
2014	-1.86	-7.00	0.00	NA	NA	0.00	NA	NA	NA	NA	0.00	NA	NA	NA	NA	NA	-3.79	NA	NA	1.24	NA	NA	19.20	NA
MEAN	-4.95	-47.58	0.00	NA	2.25	0.00	NA	-19.80	-20.44	-10.86	0.00	-1.84	-26.05	0.00	NA	1.13	-15.02	-51.04	-142.68	22.05	NA	NA	24.38	0.00

4.2 EWG 16-09: Balance fishing capacity-opportunity

Request to the STECF

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

STECF response

STECF released a separate report on this item on 31 October.

Scientific, Technical and Economic Committee for Fisheries (STECF) - Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities (STECF-16-18).); Publications Office of the European Union, Luxembourg; in press

<https://stecf.jrc.ec.europa.eu/reports/balance>

4.3 EWG 16-10: Fisheries Dependent Information

Request to the STECF

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

Introduction

The report of the Expert Working Group on Evaluation of fishing effort regimes in European Waters (EWG -16-10) was reviewed by the STECF during its 53rd plenary meeting held from 24 to 28 October 2016 in Brussels, Belgium.

The following observations, conclusions and recommendations represent the outcomes of the STECF review.

STECF comments

As in 2015, one meeting of the STECF EWG dealing with FDI was scheduled for 2016. The report of EWG 16-10 has been prepared using the same format as in 2015; all major tables are placed at the end of the report and made available on the STECF website.

STECF notes that the Terms of Reference relating to fishing effort and catches in the following sea areas have been addressed almost fully by the Report of the EWG 16-10:

1. Baltic Sea,
2. Kattegat,
3. Skagerrak, North Sea and the Eastern Channel,
4. West of Scotland,
5. Irish Sea,
6. Celtic Sea,
7. Atlantic waters off the Iberian Peninsula,
8. Western Channel,
9. Western Waters and Deep Sea
10. Bay of Biscay.

All data used by the EWG 16-10 was submitted through a revised upload facility. STECF notes that the data upload facility functioned well STECF also notes the introduction of post-upload data checks on the JRC secure server and that the processed data has been made available to the working group experts through a secure access version of the Data Dissemination Tool. STECF welcomes this progress.

The EWG 16-10 Report is based on data submitted by Member States in response to the 2016 FDI Data Call (Ref. Ares (2016)1708139 - 11/04/2016). Only the data for 2015 were requested but a few member states also resubmitted some historical data to correct data submitted in previous years.

STECF notes that the upload facility has been altered to be more 'strict', i.e. there are more instances where data files are rejected if containing incorrect codes. Even so, with one exception, all data requested in the FDI Data Call were provided by the Member

States in time. STECF also notes a general high standard in Member States' submissions with regard to data completeness, timeliness and quality.

To endorse where possible the data provided by the member states in response to the data call, and/or to comment on quality and to highlight any unexpected evolutions in the estimated parameters which are not in line with the general trend, the EWG 16-10 was asked to prepare a table describing data transmission issues by country. STECF welcomes the EWG 16-10 effort to improve the presentation of the overview of MS response to the Data Call.

STECF notes that for DG MARE the data dissemination tool has become the most valuable outcome of the STECF FDI EWG. It has been suggested by DG MARE that the FDI report itself no longer requires data tables. However, the data dissemination tool is currently an electronic dissemination of STECF report tables, where the report provides the necessary references to data sources and to the analyses performed. If the FDI report no longer contains data tables there must be a clear way to indicate that the data dissemination tool is at the request of DG MARE through STECF and what are the sources. Also it is important to maintain a process by which experts check and verify the processed data, and producing tables and figures is one way to identify possible mistakes.

STECF notes that the effort management regimes which motivated formation and maintenance of the FDI data base are being repealed as the area based multi-annual plans come into effect. With respect to future activities, STECF is of the opinion that fishing effort information from Member States is of high importance both for resource management purposes and for the scientific community. Therefore the annual updates and data checks of member States data should be continued, but it is necessary to consider adjustments to the FDI database and outputs to better reflect new developments in the management applying in European waters. STECF notes thus that there are ongoing discussions between DG MARE and JRC and the EWG leadership to explore possible future scenarios for the work focus of this expert group. STECF considers that the work of the group would benefit from clear objectives arising from the policy requirements and that the EWG TORS should reflect these. There are substantial benefits conferred by further developing the database to allow basic monitoring of trends in key fishery indicators. In addition to this, the more formal requirements for CFP monitoring and the implementation and monitoring of the Landing Obligation are obvious policy areas for which the database potentially has significant utility.

4.4 EWG 16-12: Economic Report of EU aquaculture sector

Background

Following the latest DCF call for economic data on EU aquaculture, EWG 16-12 was requested to analyse and data for 2008-2014 and produce the bi-annual report on Economic Performance of the European Union Aquaculture sector.

The first three editions (2008, 2010 and 2012) of this report were fundamentally descriptive in nature and focused on presenting the data collected under the DCF. The 2014 report took a more analytical approach focusing on drivers and barriers to growth in the EU aquaculture sector. As for the previous reports, the data quality had remained an essential issue for the 2014 report.

In 2016, the Economic Report on EU aquaculture features a special chapter designed to deepen the economic analysis on this sector. This time the experts were asked to evaluate the effect of public support to the aquaculture sector under the EFF programme 2007-2014 using the DCF data collected from 2008-2014.

Request to STECF

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

Introduction

The Expert Working Group 16-12 convened in September 2016 in Gavirate (Italy), to produce the 2016 Economic Performance of the European Union Aquaculture sector report. The report reflects the work by 28 external experts, and 2 experts of JRC that attended the meeting. Furthermore, two external experts were available by correspondence.

This is the fifth report focusing on the performance of the aquaculture sector and providing an overview of the latest available information on the structure, social, economic and competitive performance of the aquaculture sector at national and EU level.

The data used in this publication cover the period from 2008 to 2014, and were collected under the DCF. The call for data was issued by DG MARE on the 30th of May 2016. Member States were requested to submit the data within one month after the call, making the submission deadline the 30th of June 2016.

STECF observations

STECF acknowledges that the EWG addressed all of the Terms of Reference under demanding circumstances and a tight time schedule in order to produce this biannual report about the economic performance of the EU aquaculture sector.

The quality of the data submitted continues to improve, compared to the previous data calls. As previously, data checks were performed by JRC before the meeting and communicated to the Member States for possible corrections. Furthermore, experts at the EWG meeting also checked the submitted data.

The data coverage, compared to earlier data calls, improved for the data collected for 2013 and 2014. This was to some extent driven by the improvements in the Greek, UK and Cypriot data. This allows for an improved analysis of the EU aquaculture sector.

STECF notes that the following issues remained:

- a) Some MSs submitted incomplete data sets with parameters missing (e.g. weight of raw materials, employment), thus limiting the value of the EU wide assessment of economic performance

- b) In addition, there are minor data issues in other countries, as referred to in the report, which prevent analysis of time series data in several cases, especially at segment level.
- c) Inconsistency in including/excluding freshwater aquaculture data from year to year also makes time series analysis at segment, national and EU level difficult.

STECF notes that some member states supplied DCF data for their freshwater aquaculture production, although this was not a mandatory requirement. However, several Member States with a large production from inland freshwater aquaculture did not supply data on this sector (e.g. Poland, Germany), thus limiting the possibilities to give a comprehensive overview of the economic performance of the aquaculture sector.

In order to partly handle this lack of information or to complete some of the incomplete datasets where possible, STECF observes that the EWG used EUROSTAT data in addition to DCF data in order to provide the most comprehensive picture of the contributions in volume and value from aquaculture within the EU28. The EUROSTAT data was used as following:

- To cover the freshwater aquaculture sector in landlocked countries (Austria, Czech Republic, Hungary, Luxemburg and Slovakia) accounting in total for 3.2% of weight and 2.3% of value produced in 2014.
- To include countries without marine aquaculture (Belgium, Latvia and Lithuania) accounted for 0.3% of weight and 0.2% of value of the total EU28 aquaculture production in 2014.
- To estimate freshwater aquaculture production for countries, which supplied data only for the obligatory marine sector (Germany, Slovenia and Estonia), while their aquaculture sector is mainly represented by fresh water aquaculture and accounts for 1.5% of weight and 2% of value of the total EU28 aquaculture production in 2014. Nevertheless the EWG considered that the EUROSTAT data for Germany were not reliable and did not include it in the analysis of EU fresh water aquaculture.
- To complete the overview of the Polish production, which contributes by 2.7% weight and 2.0% value to the total EU28.

STECF observes that the inclusion of EUROSTAT data allows providing a good overview of the EU28 overall production, and helps also mapping out the quality and coverage of the DCF data. Nevertheless, for the aquaculture segments where only EUROSTAT data are available but not DCF data, a full analysis of economic performance indicators cannot be performed.

STECF observes thus that the EWG experienced difficulties in evaluating the effect of public funding supporting sustainable growth in the European aquaculture sector due to these data issues.

STECF observes that the conclusion from the analysis was that public spending, introduced to support the growth of the EU aquaculture sector and overcome the technical problems, does not seem to have a clear and visible effect on production growth. In the period investigated, production weight has been stable, value has been slightly increasing and employment has been slightly decreasing. Hence, the societal impact in terms of jobs creation in coastal communities and of provision of sustainable healthy food for European consumers has been limited. It still seems that providing better legal framework (e.g. licensing, environmental requirements, etc.) for the

aquaculture industry is by far the most important limiting factor to be addressed to lay the foundation for future growth in the European aquaculture sector

With regards to the usefulness of the data collected, STECF observes that assessing the impact of public support has provided a useful stress test for evaluating the expediency of the DCF data. STECF observes that EUROSTAT data on weight and value of production could be more appropriate to use than DCF data for assessing the production growth, as they have a wider coverage by including all aquaculture enterprises. However the data are limited to production weight and value. STECF notes that the DCF data have a lower coverage, but include more detailed economic information on e.g. income, costs, GVA, profit, return on investment etc.

For a complete socio-economic analysis of public support to the sector, the DCF/EUMAP data should ideally be extended to cover the entire sector, including fresh water aquaculture.

STECF observes that introduction of thresholds in economic data collection for aquaculture in the future EUMAP might further reduce the coverage of the DCF data.

STECF observes that making publically available the current aquaculture data set, including public support data used by EWG in a user friendly electronic format, will possibly facilitate further analysis of public support.

Preparing the report on economic performance of aquaculture sector is a biannual activity (as with the report covering the processing industry). Data for the two most recent years (here 2013-2014) are requested in the data call, yet in the report the tables and text concentrated only on the development in last year. STECF suggests that the report make use of both years to display recent trends in a clearer way. STECF suggests thus to adjust the reporting and analytical templates accordingly to allow presentation of the last two years

Conclusions of STECF

STECF concludes that the report provides a good overview of the economic performance of the EU aquaculture sector. It also represents an improvement in terms of quality and coverage compared to previous reports, and the availability of a seven year time series improves the type of analysis that can be undertaken, for instance between various segments and production techniques within and between MS.

STECF concludes that taking into account time and resources available, the EWG analysis produced is of substantial standard.

STECF concludes that the use of EUROSTAT data is a valid approach in order to cover data gaps in the DCF collection of data for the aquaculture sector.

STECF suggests that further initiatives are taken by the Commission with respect to checking data and distributing templates to the participants before the meeting, so the work load and time frame of the analysis can be improved.

STECF suggests that the report display recent trends according to the last two years of data and not to the last year only.

4.5 EWG 16-13: Stock assessments in the Mediterranean Sea - part I

Request to the STECF

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

STECF observations

The working group was held in Ispra, Italy, from 26th to 30th September 2016. The meeting was attended by 14 experts in total, including one STECF member and 3 JRC experts.

The objective of the EWG 16-13 was the stock assessment of small-pelagic species. The ToRs were based on the STECF-16-14 (Methodology for the stock assessments in the Mediterranean Sea) report, where the available information was classified into levels and stock assessments methods were proposed to determine stock status (https://stecf.jrc.ec.europa.eu/documents/43805/1446742/2016-07_STECF+16-14+-+Methods+for+MED+stock+assessments_JRC102680.pdf).

STECF acknowledges the EWG16-13 ToRs were ambitious. These were the following:

ToR 1. Data gathering

For the stocks given in Annexes I and II, the STECF-EWG 16-13 is requested to:

- 1.1. Compile and provide the most updated information on stock identification, age and growth, maturity, feeding, habitat, and natural mortality.
- 1.2. Compile and provide complete sets of annual data on landings and discards for the longest time series available up to and including 2015. This should be presented by fishing gear as well as by size/age structure (see Annex III for more details).
- 1.3. Compile and provide complete sets of annual data on fishing effort for the longest time series available up to and including 2015. This should be described in terms of amount of vessels, time (days at sea, soaking time, or other relevant parameter) and fishing power (gear size, boat size, horse power, etc.) by Member State and fishing gear. Data shall be the most detailed possible to support the establishment of a fishing effort or capacity baseline (see Annex III for more details).
- 1.4. Compile and provide indices of abundances and biomass by year and size/age structure for the longest time series available up to and including 2015 (see Annex III for more details).

ToR 2. Stock assessments (Level 1)

For the stocks given in Annex I-A, or combinations thereof, the STECF-EWG 16-13 is requested to:

- 2.1. Assess trends in fishing mortality, stock biomass, spawning stock biomass, and recruitment. Different assessment models should be applied as appropriate. Models should be compared using model diagnostics including retrospective analyses when the models can produce one. The selection of the most reliable assessment should be justified. Assumptions and uncertainties should be reported.
- 2.2. Propose and evaluate candidate MSY value, range of values and safeguard points in terms of fishing mortality and stock biomass. The proposed values shall be related to long-term high yields and low risk of stock/fishery collapse and ensure that the exploitation levels restore and maintain marine biological resources at least at levels which can produce the maximum sustainable yield.
- 2.3. Provide short and medium¹ term forecasts of spawning stock biomass, stock biomass and catches. The forecasts shall include different management scenarios, *inter alia*: zero catch, the status quo fishing mortality, and target to F_{MSY} or other appropriate proxy by 2018 and 2020 (by means of a proportional reduction of fishing mortality as from 2017). In particular, predict the level of fishing effort exerted by the different fleets which is commensurate with the short- and medium-term forecasts of the proposed scenarios.

¹ Medium term forecast only when an acceptable stock-recruitment relationship is identifiable.

2.4. Make any appropriate comments and recommendations to improve the quality of the assessments. Furthermore, advise on the ideal assessment frequency.

ToR 3. Stock assessments (Levels 2-4)

For the stocks given in Annex I-A, or combinations thereof, the STECF-EWG 16-13 is requested to:

3.1. Assess trends in fishing mortality, stock biomass, spawning stock biomass, and recruitment. Based on the precautionary approach, determine proxies MSY reference points on the exploitation level and the status of the stocks. Different assessment models should be applied as appropriate, including retrospective analyses when the models can produce one. The selection of the most reliable assessment should be explained. Assumptions and uncertainties should be specified.

3.2. Make any appropriate comments and recommendations to improve the quality of the assessment and/or to upgrade the assessment level and/or improve the quality of the data. Furthermore, advise on the ideal assessment frequency.

ToR 4. Length-based analysis

For the stocks given in Annex I-B, the STECF-EWG 16-13 is requested to assess trends in catch length composition, survey indices and catch-per-unit effort, depending on the data availability. In addition, provide size-based indicators (e.g. proportion of mature fish in the catch) to be used as reference points of the population status.

ToR 5. Summary sheets

Provide a synoptic overview of: (i) the fishery; (ii) the most recent state of the stock (spawning stock biomass, stock biomass, recruits, and exploitation level by fishing gear); (iii) the source of data and methods and; (iv) the management advice, including MSY value or proxies, range of values and safeguard points.

ToR 6. Data quality check

Summarize and concisely describe all data quality deficiencies, including possible limitations with the surveys of relevance for stock assessments and fisheries. Such review and description are to be based on the data format of the official DCF data call for the Mediterranean Sea launched on the 28 April 2016. Identify further research studies and data collections which would be required for improved fish stock assessments.

Contents of the EWG report

The basis of advice is dependent on the type and quality of information available. The tables below summarize the assessment work that was attempted, and the basis for advice and stock status that was chosen for each stock.

Table 4.5.1 Requested assessment level, methods tested and methods chosen by stock.

Area	Species	Suggested	Attempted analyses and basis of advice (in bold)
GSA 6	Anchovy	Level 1	Length index, XSA, ASPIC
GSA 6	Sardine	Level 1	Length index, XSA, HR
GSA 7	Anchovy	Level 1	Length index, XSA,a4a, ASPIC,
GSA 7	Sardine	Level 1	Length index, XSA,a4a, ASPIC,
GSAs 17-18	Anchovy	Level 1	Length index, SAM, STF
GSAs 17-18	Sardine	Level 1	Length index, SAM, biomass
GSA 1-5-6-7	Atlantic horse mackerel	Level 2	Length index, XSA, biomass
GSA 9-10-11	Atlantic horse mackerel	Level 2	Length index, XSA, HR
GSA 17-18-19-20	Atlantic horse mackerel	Level 2	Length index, XSA, biomass
GSA 9	Anchovy	Level 3	Length index, XSA, HR
GSA 10	Anchovy	Level 3	Length index, no advice
GSA 10	Sardine	Level 3	Length index, no advice
GSA 5	Sardine	Level 4	Length index, no advice
GSA 5	Anchovy	Level 4	Length index, no advice
GSA 11	Sardine	Length	Length index, no advice
GSA 11	Anchovy	Length	Length index, no advice
GSA 1-5-6-7	Atlantic mackerel	Length	Length index, no advice
GSA 9-10-11	Atlantic mackerel	Length	Insufficient data, no advice
GSA 17-18-19-20	Atlantic mackerel	Length	Length index, no advice

Table 4.5.2 Summary of assessment and F and catch corresponding to E=0.4 by stock. F 2015 is given in brackets for stocks where advice is based on Harvest Rates. Percentage change in F or catch is based on change in catch from 2015 to 2017 divided by catch in 2015.

Area	Species	Method/ basis	F 2015	F corresponding to E=0.4	Change in F	Catch 2015	Catch corresponding to E=0.4	Change in catch
GSA 6	Anchovy	ASPIC						same effort
GSA 6	Sardine	XSA, HR (E=0.4)	(1.77)	0.7		6309	6380	1%
GSA 7	Anchovy	Biomass In. PA Buffer				1108	1764	59%
GSA 7	Sardine	Biomass In. PA Buffer				373	656	76%
GSAs 17-18	Anchovy *	SAM, STF (E=0.4)	1.33	0.48	-64%	39449	9965	-75%
GSAs 17-18	Sardine *	SAM, HR (E=0.4)	(1.95)	0.4		87029	49487	-43%
GSA 1-5-6-7	Atlantic horse mackerel	Biomass In. PA Buffer	assessment not accepted					
GSA 9-10-11	Atlantic horse mackerel	XSA,HR (E=0.4)	assessment not accepted					
GSA 17,18,19,20	Atlantic horse mackerel	Biomass In. PA Buffer	assessment not accepted					
GSA 9	Anchovy	XSA, HR (E=0.4)	(1.1)	0.52		3957	2470	-38%
GSA 10	Anchovy	No method						No advice
GSA 10	Sardine	No method						No advice
GSA 5	Sardine	No method						No advice
GSA 5	Anchovy	No method						No advice
GSA 11	Sardine	No method						No advice
GSA 11	Anchovy	No method						No advice
GSA 1-5-6-7	Atlantic mackerel	No method						No advice
GSA 9-10-11	Atlantic mackerel	No method						No advice
GSA 17-18-19-20	Atlantic mackerel	No method						No advice

* as agreed in the plenary

STECF observes that a total of 19 GSA area/species combinations were evaluated, with most effort allocated to sardine and anchovy. For all these groupings length indicators were calculated, except for mackerel in GSA 9, 10 and 11 where data was insufficient even for this minimal evaluation.

STECF observes that two length indicators were applied for all stocks, chosen among those proposed by ICES WKLife V

(http://ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2015/WKLifeV/wklifeV_2015.pdf). Length indicators are very sensitive to length infinity (L_{inf}) in the growth model, and marked inconsistencies were observed in many of the stocks analyzed, with the reported L_{inf} from DCF data call much lower than largest observed size of individuals and sometimes below mean lengths. The ICES indicators evaluated can be calculated as greater or less than 1 (exploitation above or below F_{MSY}) depending on which L_{inf} is used. Stocks with narrow catch distributions, such as the sardine (PIL) and anchovy (ANE) stocks, are more sensitive to these issues than stocks with a wider range of length in the catch.

Results from length based analyses were compared with the age-based assessments performed during the EWG, to evaluate the utility of the length indicators. While the

length indicators show promising results in terms of trends in exploitation, it was not possible to determine stock exploitation status with regards to F_{MSY} because the absolute values depend on the value of L_{inf} making it difficult to draw conclusions about whether they are overexploited or not.

STECF observes that for many of these stocks this is the first attempt of having an assessment. The EWG is commended for their efforts to find solutions for these stocks. However, there are some concerns that need further exploration.

For the three areas of combined GSAs for Atlantic horse mackerel (cf. table 4.5.1 above), there is no pelagic survey available. There was a concern that demersal trawl surveys may not be suitable, although it is acknowledged that demersal trawl surveys are sometimes used for assessing these species in the Atlantic (e.g. for the ICES stock of southern horse mackerel, found mostly in Iberian waters). The main concern is because demersal trawl surveys may be sensitive to species behaviour, for example time of day. The MEDITS survey used here is a standardized survey with a long time series. This fish behaviour may influence the variance, so the data need to be further evaluated for year-to-year consistency in order to assess whether the long term trends are appropriate. In the case of the GSAs 9-10-11 the data are considered insufficient for an assessment. The biomass index may be applicable but needs to be explored further.

For anchovy in GSA 17-18, the fishing mortality is seen to have been at a relatively low level in the early part of the time series (1995), and has increased in recent years. This signal is clearly seen also in other assessments of that stock previously performed by GFCM or STECF. The fit to the survey data using the combined area information (one unique MEDIAS survey index covering GSA 17 and most of GSA 18) results in greatly improved diagnostics compared to the assessment using multiple survey indices covering different parts of the stock distribution area. This may be an important aspect for future work. Also, merging these surveys is considered methodologically better, as then both the catches and the survey are representing the whole stock. It is though noted that the STECF assessment does not include the eastern survey in GSA 18, as this data was not made available to the group, as well as the period 2004-2008 of the echo-survey carried out in GSA 17 and western side of GSA 18. The impact of this incomplete data set is unknown so the assessment is considered still preliminary and the forecast catches may not be used as a basis for management decisions.

The historic weight at age for the catch and stock for Sardine and Anchovy in GSA 17-18 from the pre-DCF part of data (prior to 2002) was not made available to the STECF EWG, and mean weights from the DCF period were used throughout this earlier period. The effect of this was evaluated by the EWG through SoP (Sums of Products) and found to be minor and not significantly influencing the assessment. It would be preferable to use observed pre-2002 estimates of mean weights at age if they can be made available, but the results presented here do not depend on this aspect.

For sardine in GSAs 17-18 concern was expressed that the confidence intervals of F estimates were rather tight in recent years but not for in last year of the assessment. The reason for this needs further exploration. Also in the case of sardine the same lack of survey and weight data evidenced for anchovy should be taken into consideration.

For anchovy in GSA 6, the advice is based on a surplus production model. STECF acknowledges that this model fits the tuning data, but some aspects of the modelling

were difficult to explore under ASPIC. Alternative models such as SPiCT and C-MSY could be evaluated.

The EWG encountered a number of difficulties in carrying out the work within the time of the workshop, consequence of the late setting of the ToRs, data quality and lack of co-ordination with the GFCM SAC. Among others, the difficulties included inability to commit time in JRC to early data extraction to do early screening; cancellation of the two day data workshop due to lack of available people at short notice; inability to attract sufficient appropriate expertise to do the assessments so some assessments that should have been attempted were not; loss of time in the EWG trying to resolve data issues resulting in insufficient time to try assessments that should have been attempted; several unresolved assessment issues that almost certainly could have been resolved if the time had been available; insufficient time to explore reference points.

In relation to the lack of co-ordination with the GFCM, STECF notes that the next GFCM WG on stock assessment of small-pelagic species will take place from 7 to 12 November, that is, five weeks after EWG-16-13.

STECF conclusions

STECF acknowledges that despite the difficulties encountered the EWG was able to address almost all the terms of reference, completing evaluations of all GSA aggregations requested. However, due to short notice and truncated meeting, evaluation of assessments of combined stock areas was not possible and proper evaluation of reference points for assessed stocks was not undertaken.

STECF also notes that GFCM SAC will assess many of these small pelagic stocks in its meeting on 7-12 November. It is expected that this meeting may provide further exploration of some of these issues. Taking into account this and considering that data used in the EWG 16-13 assessment for sardine and anchovy in the Adriatic are not complete for the echo survey coverage, both in spatial and temporal term, STECF considers that the assessment is still preliminary, and the forecast catches may not be used as a basis for management decisions. For these stocks, STECF recommends that merging of acoustic survey in the Adriatic should be considered for the future, also in the GFCM assessments. The results of doing this have been shown to improve the fit particularly for Anchovy and methodologically it is preferable that indices of parts of populations are combined before use in an assessment, not as separate indices within an assessment.

STECF concludes that apart from the issue above, the results of the accepted assessment in Table 4.5.2 provide reliable information on the status of the stock and the trends in stock biomass and fishing mortality.

STECF notes the acoustic survey includes results for other species in addition to sardine and anchovy evaluated in EWG 16-13. For the future these data should be examined to see if it can be used for assessment purposes.

STECF recommendations

STECF recommends that in the future the complete list of stocks to be considered at each of the MED assessment EWGs be established much earlier in the year. This early warning will allow data screening in advance, and maximise the possibility of participation by experts for each stock. STECF should agree with the Commission a specific date by which the initial stock lists should be made available, ideally six months prior to the EWGs.

STECF notes that such an arrangement is already in place with the Commission and ICES, though STECF also accepts that modifications of this list may be needed later.

STECF reiterates the strong need for a better coordination and full harmonization among the scientific bodies of FAO-GFCM and EU, in order to develop common approaches and make the best use of the human resources.

STECF notes that some unresolved issues remain, in particular relating to the species biological information (such as L_{inf} and catch-at-age). STECF recommends that biological information provided is carefully reviewed and fully documented when submitted.

STECF recommends that merging of acoustic survey in the Adriatic should be considered in future assessments.

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

5.1 TAC top ups

Background

In accordance with article 16(2) of EU Regulation (No) 1380/2013[1], for stocks subject to the landing obligation, fishing opportunities shall be set taking into account the change from setting fishing opportunities based on the landed component of the TAC, to one that reflects catches. This necessitates an increase or "top-up" in TAC's to account for previous discarding patterns.

These TAC adjustments were applied to stocks and in fisheries coming under the landing obligation in 2015 (pelagic stocks in all sea basins and most stocks in The Baltic) and 2016 (some demersal fisheries in the NWW, SWW and North Sea). In 2016, STECF (STECF-15-17) provided useful data that permitted the calculation of TAC top-ups where specific gear groups e.g. TR2 were subject to the landing obligation while others e.g. TR1 were not. For the setting of fishing opportunities for 2017, this work will need to be repeated taking into account the most recently available landings and discard data and any adjustments or additions made to the Joint Recommendations from the regional groups of Member States.

However, the methodology used for calculating TAC adjustments when setting the fishing opportunities for 2016 was the subject of extensive discussion, particularly in cases where available discard data was incomplete or MS chose to use catch thresholds based on historic landings to determine whether a vessel was subject or not to the landing obligation.

Where catch thresholds are applied to define the fleet segments that will be subject to the landing obligation, three potential approaches could be used to determine the proportion of that fleet segment affected and therefore the appropriate discard quantity to apply in the TAC adjustment. These are based on a proportion of landings, number of vessels or by relative effort by gear grouping (e.g. TR1, TR2) of vessels subject and not subject to the landing obligation.

This work is a continuation of ToR 5.4 (PLEN-16-02).

Request to the STECF

STECF is requested to:

1. Analyze the Joint Recommendations for 2017 regional discard plans and update the tables 3-8 contained in the annex of the STECF report (15-17) "TAC adjustments for stocks subject to the landing obligation", using FDI data from

[1] Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC OJ L 354, 28.12.2013, p. 22

2014 and 2015 and taking into account any additional fleets and/or stocks and any revisions to thresholds.

2. For those stocks and fleets where catch thresholds are applied, use the appropriate data received from Member States, to determine whether vessels are subject to the landing obligation or not, and calculate (a) the proportion of landing of species (stocks) for vessels subject to the landing obligation relative to the overall fleet segment; (b) the proportion of vessels subject to the landing obligation relative to the overall fleet segment and; (c) the proportion of effort of the vessels that are subject to the landing obligation, relative to the overall fleet segment. On the basis of these calculations, include an additional column in the tables referred to above which identifies the proportion of fleet subject to the landing obligation by gear and mesh size category.

STECF observations

ToR 1

Joint recommendations for discard plans for 2017 have been submitted by the North Western Waters Member States (NWW), the South Western Waters Member States (SWW) and the North Sea Member States (NS). The discard plans contain the proposed measures for the continued phasing in of the landing obligation in demersal fisheries in 2017.

Draft European Commission Delegated Regulations for the areas considered were made available to STECF. The Delegated Regulations largely followed the Joint Recommendations of the Member States with only a small number of exceptions.

The discards plans for 2017 are an extension of the discard plans for 2016 whereby more fisheries will be affected by the landing obligation. An overview of the discard plans for 2016 and 2017 is presented in tables 5.1.1 (a-c).

ToR 2

For those stocks and fleets where catch thresholds are applied, appropriate data was received from Member States on the effort, number of vessels and catches per species of vessels that were below and above the threshold defined in the Joint Recommendations. The data submitted by member states was aggregated and summarized to deliver overviews of:

- (a) the proportion of landing of species (stocks) for vessels subject to the landing obligation relative to the overall fleet segment;
- (b) the proportion of vessels subject to the landing obligation relative to the overall fleet segment and;
- (c) the proportion of effort of the vessels that are subject to the landing obligation, relative to the overall fleet segment.

An overview of the proportions of landings and discards by fleet and fishery, derived from the FDI data, is presented in tables 5.1.2(a-c).

An overview of the discard rates by fleet and fishery, derived from the FDI data, is presented in tables 5.1.3(a-c).

STECF summarised the data supplied by Member State, region and fishery, as is shown in table 5.1.4 (a-c).

An overview of the proportions of fisheries, targets and thresholds defined in the Joint Recommendations for the North Western Waters, North Sea and South Western Waters as calculated by STECF for effort, landings and number of vessels are shown in tables 5.1.5 (a-c).

Overviews of the reported effort, landings and number of vessels below and above the threshold for inclusion in the landing obligation in 2017 are shown in tables 5.1.6, 5.1.7 and 5.1.8.

The data received from Member States for those stocks and fleets where catch thresholds are applied were compiled and summarized. The information in the tables in this section is presented 'as-is', as requested by DGMARE. STECF is unable to comment on the validity of the data provided by MS. It was noted that not all countries have supplied information for all areas and fisheries. STECF also notes that the units of measurements supplied by the Member States may not have been fully consistent. Specifically, STECF readjusted the UK effort measures supplied for the North Western Waters, as it was perceived to have been submitted in 1000 KWdays.

STECF notes that in many cases, the different metrics show rather different values for specific fisheries and gears (figure 5.1.1).

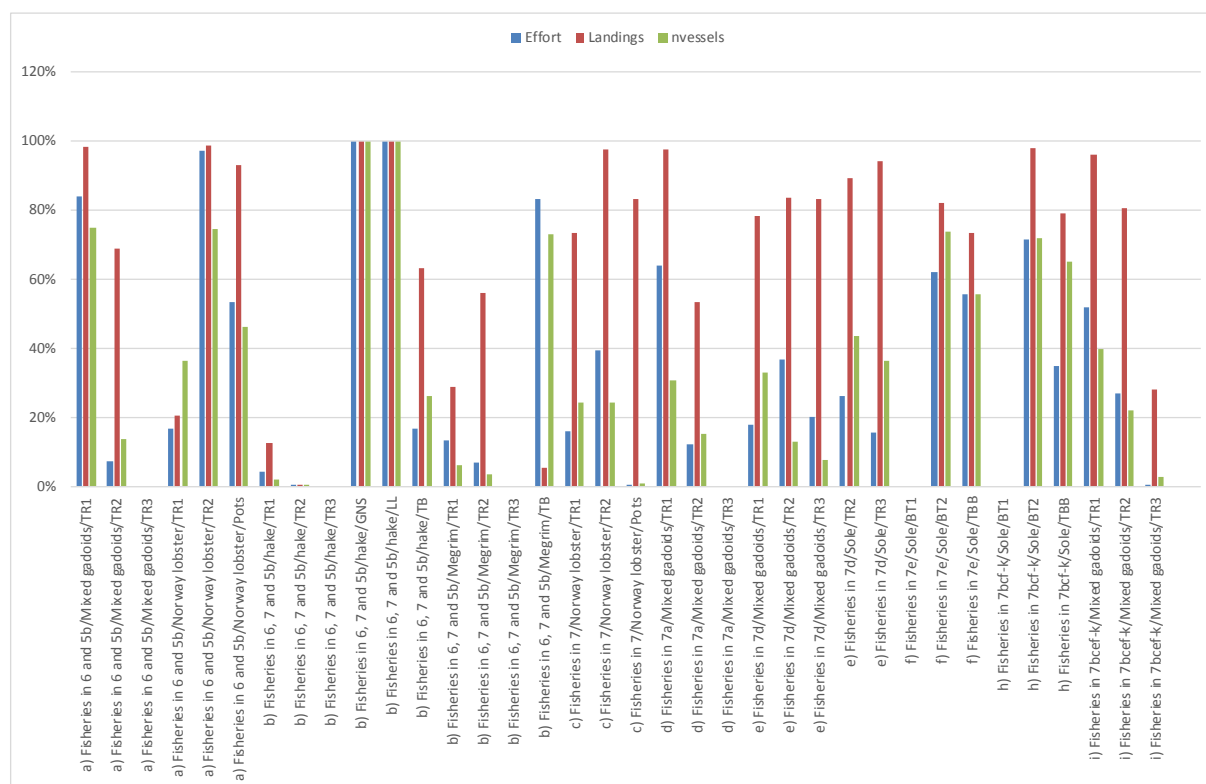


Figure 5.1.1 NWW - comparison of potential metrics (effort, landings and number of vessels) for calculating the proportion of the fleet which are above the defined thresholds for inclusion in the landing obligation in 2017.

In the NWW, catch thresholds are used to determine where vessels within a metric are subject to the Landing Obligation. The proportion of landings from those vessels over the agreed thresholds is generally higher than the proportion of effort associated with these vessels or the number of these vessels relative to the total number of vessels in each metric. Therefore, the catch thresholds can successfully identify vessels that are targeting the implemented species. The thresholds do not necessarily identify vessels with the highest discard rates, however, so it cannot be concluded that the included vessels are those generating most of the overall fishing mortality.

STECF notes that the TAC top-ups were introduced to avoid unintended limitations to fishing activity that could arise due to the obligation of counting against the quotas all the fish caught for specific species. However, in cases where TACs have not been

restrictive i.e. not fully taken (see STECF-14-06), applying a top-up to a non-restrictive TAC has the potential to generate undesirable and unintended increases in fishing mortality.

Additionally, STECF notes that some species considered in the Joint Recommendations are estimated to be within Safe Biological Limits (SBL). This means that in principle any TAC top-ups that would be applied, could be used for inter-species flexibility which may have unintended consequences on other species. (see STECF 2014-19²).

Generic discussions on the potential effects of TAC adjustments are further discussed in section 6.5 of the present report.

STECF conclusions

The requested tables that were based on the FDI data have been updated with data from 2015. Calculations of average contributions of landings by gear and average discard rates have been supplied.

The data received from Member States for those stocks and fleets where catch thresholds are applied were compiled and summarized. STECF concludes that the three different metrics (proportions expressed in landings, in effort and in number of vessels) can provide very different estimates of the percentage of fleet segments covered by the landing obligation.

2 Scientific, Technical and Economic Committee for Fisheries (STECF) – Landing Obligations in EU Fisheries - part 4 (STECF-14-19). 2014. Publications Office of the European Union, Luxembourg, EUR 26943 EN, JRC 93045, 96 pp

Table 5.1.1.a Comparison of the **North Western Waters** Joint Recommendations for the Landing Obligation in 2016 and 2017

Fisheries	ICES area	2016			2017		
		Gear	Mesh	Text in Joint Recommendation	Gear	Mesh	Text in Joint Recommendation
Gadoids	5b & 6a	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Where total landings per vessel of all species in 2013 and 2014 consist of more than 10% of the following gadoids: cod, haddock, whiting and saithe combined, the LO shall apply to haddock	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, OTM, PTM, TB, SX, SV, OT, PT, TX	All	Where total landings per vessel of all species in 2014 and 2015 consist of more than 5% of the following gadoids: cod, haddock, whiting and saithe combined, the landing obligation shall apply to haddock and by-catch of sole, plaice and megrims .
Nephrops	5b & 6a	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX, FPO, FIX	All	Where total landings per vessel of all species in 2013 and 2014 consist of more than 30% of Norway lobster the LO shall apply to Norway lobster	Trawls, Seines, Pots, Traps & Creels: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX, FPO, FIX	All	Where the total landings per vessel of all species in 2014 and 2015 consist of more than 20% of Norway lobster , the landing obligation shall apply to Norway lobster and by-catch of haddock .
Hake	6, 7 & 5b	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Where total landings per vessel of all species in 2013 and 2014 consist of more than 30% of hake, the LO shall apply to hake	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, OTM, PTM, TB, SX, SV, OT, PT, TX	All	Where the total landings per vessel of all species in 2014 and 2015 consist of more than 20% of hake, the landing obligation shall apply to hake .
Hake	6, 7 & 5b	All gillnets: GNS, GN, GND, GNC, GTN	All	All catches of hake shall be subject to the LO	All gillnets: GNS, GN, GND, GNC, GTN, GTR, GEN	All	All catches of hake shall be subject to the landing obligation.
Hake	6, 7 & 5b	Longlines: LL, LLS, LLD, LX, LTL, LHP, LHM	All	All catches of hake shall be subject to the LO	Longlines: LL, LLS, LLD, LX, LTL, LHP, LHM	All	All catches of hake shall be subject to the LO
Megrim	6, 7 & 5b				Trawls & Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, OTM, PTM, TB, SX, SV, OT, PT, TX	<100 mm	Where the total landings per vessel of all species in 2014 and 2015 consist of more than 20% of megrims, the landing obligation shall apply to megrims .
Nephrops	7	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX, FPO, FIX	All	Where total landings per vessel of all species in 2013 and 2014 consist of more than 30% of Norway lobster the LO shall apply to Norway lobster	Trawls, Seines, Pots, Traps & Creels: OTB, SSC, OTT, PTB, SDN, SPR, FPO, TBN, TB, TBS, OTM, PTM, SX, SV, FIX, OT, PT, TX	All	Where the total landings per vessel of all species in 2014 and 2015 consist of more than 20% of Norway lobster, the landing obligation shall apply to Norway lobster .
Gadoids	7a	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Where total landings per vessel of all species in 2013 and 2014 consist of more than 10% of the following gadoids: cod, haddock, whiting and saithe combined, the LO shall apply to haddock	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, OTM, PTM, TB, SX, SV, OT, PT, TX	All	Where total landings per vessel of all species in 2014 and 2015 consist of more than 10% of the following gadoids: cod, haddock, whiting and saithe combined, the landing obligation shall apply to haddock .
Sole	7d	All beam trawls (TBB)	All	All catches of common sole are subject to the LO	All beam trawls (TBB)	All	All catches of common sole are subject to the LO
Sole	7d	Trawls: OTB, OTT, TBS, TBN, TB, PTB, OT, PT, TX	<100mm	Where total landings per vessel of all species in 2013 and 2014 consist of more than 5% of common sole, LO shall apply to common sole .	Trawls: OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX	<100 mm	Where the total landings per vessel of all species in 2014 and 2015 consist of more than 5% of sole, the landing obligation shall apply to sole .
Sole	7d	All gillnets: GNS, GN, GND, GNC, GTN	All	All catches of common sole are subject to LO	All gillnets: GNS, GN, GND, GNC, GTN	All	All catches of common sole are subject to LO

Note: blue shading refers to changes proposed for 2017 compared to 2016. Red text refers to specific changes in gear, percentages or species.

Table 5.1.1.a continued

Fisheries	ICES area	2016			2017		
		Gear	Mesh	Text in Joint Recommendation	Gear	Mesh	Text in Joint Recommendation
Gadoids	7d	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Where total landings per vessel of all species in 2013 and 2014 consist of more than 25% of the following gadoids: cod, haddock, whiting and saithe combined, the LO shall apply to whiting	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, OTM, PTM, TB, SX, SV, OT, PT, TX	All	Where the total landings per vessel of all species in 2014 and 2015 consist of more than 20% of the following gadoids: cod, haddock, whiting and saithe combined, the landing obligation shall apply to whiting .
Sole	7e	All beam trawls (TBB)	All	Where total landings per vessel of all species in 2013 and 2014 consist of more than 10% of common sole, LO shall apply to common sole .	All beam trawls (TBB)	All	Where the total landings per vessel of all species in 2014 and 2015 consist of more than 5% of sole, the landing obligation shall apply to sole .
Sole	7e	All gillnets: GNS, GN, GND, GNC, GTN	All	All catches of common sole are subject to the LO	All trammel nets and gillnets: GNS, GN, GND, GNC, GTN, GTR, GEN	All	All catches of sole shall be subject to the landing obligation.
Pollack	7d, 7e				All trammel nets and gillnets: GNS, GN, GND, GNC, GTN, GTR, GEN	All	All catches of pollack shall be subject to the landing obligation.
Sole	7b,c,f-k	All beam trawls (TBB)	All	Where total landings per vessel of all species in 2013 and 2014 consist of more than 5% of common sole, LO shall apply to common sole .	All beam trawls (TBB)	All	Where the total landings per vessel of all species in 2014 and 2015 consist of more than 5% of common sole, the landing obligation shall apply to sole .
Sole	7b,c,f-k	All gillnets: GNS, GN, GND, GNC, GTN		All catches of common sole are subject to the LO	All trammel nets and gillnets: GNS, GN, GND, GNC, GTN, GTR, GEN	All	All catches of sole shall be subject to the landing obligation.
Gadoids	7b,c,f-k	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Where total landings per vessel of all species in 2013 and 2014 consist of more than 25% of the following gadoids: cod, haddock, whiting and saithe combined, the LO shall apply to whiting	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, OTM, PTM, TB, SX, SV, OT, PT, TX	All	Where the total landings per vessel of all species in 2014 and 2015 consist of more than 20% of the following gadoids: cod, haddock, whiting and saithe combined, the landing obligation shall apply to whiting .

Table 5.1.1.b Comparison of the **North Sea** Joint Recommendations for the Landing Obligation in 2016 and 2017

Fisheries	ICES area	2016			2017		
		Gear	Mesh	Text in Joint Recommendation	Gear	Mesh	Text in Joint Recommendation
Mixed demersal trawl fisheries	3a, 4, 2a EU	Trawls: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>= 100mm	All catches of plaice and haddock to be landed.	Trawls: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>= 100mm	All catches of plaice , haddock , whiting , cod** , Northern prawn , sole and Nephrops to be landed.
Fisheries for saithe	3a, 4, 2a EU	Trawls: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>= 100mm	All catches of saithe to be landed for vessels that have had annual average landings of saithe of >= 50% over 2012-2014	Trawls: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>= 100mm	All catches of saithe to be landed for vessels that have had annual average landings of saithe of >= 50% over 2013-2015
80 mm trawl fisheries	3a, 4, 2a EU	Trawls: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	80-99mm	All catches of Nephrops and sole* to be landed. Any bycatches of Northern prawn to be landed.			
70 mm trawl fisheries in 3a	3a	Trawls: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	70-99mm	All catches of Nephrops and sole* to be landed. All catches of haddock to be landed. Any bycatches of Northern prawn to be landed.			
70/80 mm trawl fisheries	3a, 4, 2a EU				Trawls: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	70-99mm	All catches of Nephrops , haddock , sole and Northern prawn to be landed.
Smaller meshed trawl fisheries	3a, 4, 2a EU	Trawls: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	32-69mm	All catches of Northern Prawn to be landed.	Trawls: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	32-69mm	All catches of Northern Prawn , Nephrops , sole , haddock and whiting to be landed.
120 mm beamtrawl fisheries	3a, 4, 2a EU	Beam trawls: TBB	>= 120mm	All catches of plaice to be landed. Any bycatches of Northern prawn to be landed.	Beam trawls: TBB	>= 120mm	All catches of plaice , Northern prawn , Nephrops , sole , cod** , haddock and whiting to be landed.
80 mm beamtrawl fisheries	3a, 4, 2a EU	Beam trawls: TBB	80-119mm	All catches of sole to be landed. Any bycatches of Northern prawn to be landed.	Beam trawls: TBB	80-119mm	All catches of sole , Northern prawn , Nephrops and haddock to be landed.
Gillnet fisheries	3a, 4, 2a EU	All gillnets and trammelnets: GN, GNS, GND, GNC, GTN, GTR, GEN, GNF	All	All catches of sole to be landed. Any bycatches of Northern prawn to be landed.	All gillnets and trammelnets: GN, GNS, GND, GNC, GTN, GTR, GEN, GNF	All	All catches of sole , Northern prawn , Nephrops , haddock , whiting and cod** to be landed.
Hook and line fisheries	3a, 4, 2a EU	Hooks and lines: LLS, LLD, LL, LTL, LX, LHP, LHM	All	All catches of sole to be landed. Any bycatches of Northern prawn to be landed.	Hooks and lines: LLS, LLD, LL, LTL, LX, LHP, LHM	All	All catches of hake , Northern prawn , Nephrops , sole , haddock , whiting and cod** to be landed.
Trap fisheries	3a, 4, 2a EU	Traps: FPQ, FIX, FYK, FPN	All	All catches of Nephrops to be landed. Any bycatches of Northern prawn to be landed.	Traps: FPQ, FIX, FYK, FPN	All	All catches of Nephrops , Northern prawn , sole , haddock and whiting to be landed.

* Except in IIIa when fishing with trawls with a mesh size of at least 90 mm equipped with a top panel of at least 270 mm mesh size (diamond mesh) or at least 140 mm mesh size (square mesh) or 120 mm square mesh panel placed 6 to 9 meters from the cod end

** The obligation to land catches of cod shall only apply once Regulation (EC) No 1342/2008 is repealed or once that Regulation is amended with a repeal of Chapter III thereof and clarification that the Regulation is without prejudice to article 16(2) of Regulation (EC) No 1380/2013. As a further condition, the landing obligation shall only be introduced in accordance with Table A if the quota adjustment following Art. 16(2) in Regulation (EC) No. 1380/2013, is based on the discard rates for the management areas separately and according to relative stability.

Note: blue shading refers to changes proposed for 2017 compared to 2016. Red text refers to specific changes in gear, percentages or species.

Table 5.1.1.c Comparison of the **South Western Waters** Joint Recommendations for the Landing Obligation in 2016 and 2017

Fishery	Area	2016			2017		
		Gear	Mesh size	Text in Joint Recommendation	Gear	Mesh size	Text in Joint Recommendation
Sole	8a, b, d and e	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	70-100mm	All catches of Sole are subject to the LO	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	70-100mm	All catches of Sole are subject to the LO
		All beam trawls (TBB)	70-100		All beam trawls: TBB	70-100mm	
		All trammel and gill nets	>=100m		All trammel and gill nets: GNS, GN, GND, GNC, GTN, GTR, GEN	>=100m	
Hake	8a, b, d and e	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	>=100	All catches of hake are subject to the LO	All bottom trawls and seines: OTT, OTB, PTB, SDN, OT, PT, TBN, TBS, TX, SSC, SPR, TB, SX, SV	>=100	All catches of hake are subject to the LO
		All longlines : LL, LLS	All		All longlines : LL, LLS	All	
		All trammel and gill nets	>=100m		All gill nets: GNS, GN, GND, GNC, GTN, GEN	>=100m	
Anglerfish	8a, b, d and e				All gill nets: GNS, GN, GND, GNC, GTN, GEN	>=200m	All catches of Anglerfish are subject to the landing obligation.
Nephrops	8a, b, d and e	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	>=70	All catches of Norway lobster are subject to the LO	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	>=70	All catches of Norway lobster are subject to the LO
Anglerfish	8c, 9a				All gill nets: GNS, GN, GND, GNC, GTN, GEN	>=200m	All catches of Anglerfish are subject to the landing obligation.
Nephrops	8c, 9a (inside functional units)	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	>=70	All catches of Norway lobster are subject to the LO	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX, TB	>=70	All catches of Norway lobster are subject to the LO
Hake	8c, 9a	Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>=70mm	Total hake landings in period 2013/2014 consist of: more than 10% of all landed species and more than 10 metric tons.	All bottom trawls: OTT, OTB, PTB, OT, PT, TBN, TBS, TX, SSC, SPR, TB, SDN, SX, SV	>=70mm	All catches of Hake are subject to the landing obligation for vessels that fulfil the following cumulative criteria: 1. Use mesh size larger or equal to 70 mm, 2. Total hake landings in the period 2014/2015 consist of: more than 5% of all landed species and more than 5 metric tons.
		All trammel and gill nets	80-99	All catches of Hake are subject to the landing obligation.	All gill nets: GNS, GN, GND, GNC, GTN, GEN	80-99	All catches of Hake are subject to the landing obligation.
		All longlines (LL, LLS)	Hook size > 3.85+/-1.15 length and 1.6 +/-0.4	All catches of Hake are subject to the landing obligation.	All longlines (LL, LLS)	Hook size > 3.85+/-1.15 length and 1.6 +/-0.4	All catches of Hake are subject to the landing obligation.
Sole	9a	All trammel and gill nets	>=100mm	All catches of Sole are subject to the LO			
Sole and plaice	9a				All Trammel nets & Gillnets: GNS, GN, GND, GNC, GTN, GTR, GEN	>=100	All catches of Sole and plaice are subject to the landing obligation.

Note: blue shading refers to changes proposed for 2017 compared to 2016. Red text refers to specific changes in gear, percentages or species.

Table 5.1.2.a – North Western Waters. The contribution (%) of each fleet segment identified under the Member States' joint recommendations to total catches and discards of the stocks/TACs for relevant stock (EWG 16-10), consistency of fields names with previous, what is grey/blue

Fisheries	Gear	Mesh Size	ICES area	STECF Annex / Area	Gear	2013			2014			2015			Mean contribution (13-14)			Mean contribution (14-15)		
						Landings	Discards	Catch	Landings	Discards	Catch	Landings	Discards	Catch	Landings	Discards	Catch	Landings	Discards	Catch
Gadoids (haddock)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vb and Vla	IIa, 3D	TR1	96.5%	17.9%	82.4%	95.9%	23.6%	83.1%	97.6%	15.8%	75.2%	96.2%	20.7%	82.7%	96.7%	19.7%	79.1%
					TR2	3.4%	82.1%	17.6%	2.4%	76.4%	15.5%	2.0%	84.2%	24.5%	2.9%	79.3%	16.5%	2.2%	80.3%	20.0%
					TR3	0.0%	0.0%	0.0%	--	--	--	--	--	--	0.0%	0.0%	0.0%			
					Subtotal	99.9%	100.0%	99.9%	98.2%	100.0%	98.6%	99.6%	100.0%	99.7%	99.1%	100.0%	99.2%	98.9%	100.0%	99.1%
Gadoids (plaice)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vb and Vla	IIa, 3D	TR1	89.1%	7.2%	25.0%	81.4%	17.6%	31.5%	83.0%	15.4%	28.6%	85.3%	12.4%	28.3%	82.2%	16.5%	30.0%
					TR2	10.0%	92.8%	74.8%	11.1%	82.4%	66.9%	7.0%	84.6%	69.5%	10.6%	87.6%	70.8%	9.1%	83.5%	68.2%
					TR3	0.0%	0.0%	0.0%	--	--	--	--	--	--	0.0%	0.0%	0.0%			
					Subtotal	99.1%	100.0%	99.8%	92.5%	100.0%	98.4%	90.0%	100.0%	98.1%	95.8%	100.0%	99.1%	91.3%	100.0%	98.2%
Gadoids (sole)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vb and Vla	IIa, 3D	TR1	88.3%	100.0%	88.3%	55.2%	0.0%	47.3%	89.5%	8.9%	60.6%	71.7%	50.0%	67.8%	72.3%	4.5%	53.9%
					TR2	9.2%	0.0%	9.1%	40.8%	100.0%	49.3%	9.0%	91.1%	38.5%	25.0%	50.0%	29.2%	24.9%	95.5%	43.9%
					TR3	0.0%	0.0%	0.0%	--	--	--	--	--	--	0.0%	0.0%	0.0%			
					Subtotal	98.0%	100.0%	98.0%	96.0%	100.0%	96.6%	98.5%	100.0%	99.0%	97.0%	100.0%	97.3%	97.2%	100.0%	97.8%
Megrim	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vb and Vla	IIa, 3D	TR1	96.9%	99.6%	97.5%	94.2%	96.7%	94.4%	98.0%	62.7%	95.6%	95.5%	98.1%	95.9%	96.1%	79.7%	95.0%
					TR2	1.3%	0.4%	1.1%	5.4%	3.3%	5.3%	2.0%	37.3%	4.4%	3.3%	1.9%	3.2%	3.7%	20.3%	4.8%
					TR3	0.0%	0.0%	0.0%	--	--	--	--	--	--	0.0%	0.0%	0.0%			
					Subtotal	98.2%	100.0%	98.6%	99.6%	100.0%	99.6%	100.0%	100.0%	100.0%	98.9%	100.0%	99.1%	99.8%	100.0%	99.8%
Nephrops	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX, FPO, FIX	All	Vb and Vla	IIa, 3D	POTS	12%		12%	11%	0%	11%	11%	0%	11%	11.7%	0.0%	11.4%	11.3%	0.0%	10.8%
					TR1	8%		8%	8%	0%	8%	11%	17%	12%	8.2%	0.0%	8.0%	9.9%	8.6%	9.8%
					TR2	80%		80%	80%	100%	82%	77%	83%	77%	80.0%	100.0%	80.5%	78.7%	91.4%	79.4%
					TR3	No STECF data														
Hake	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	VI, VII and Vb	CeI1, 7BCEFGHJK	TR1	13.2%	61.9%	25.6%	10.6%	33.6%	12.8%	10.9%	32.2%	12.4%	11.9%	47.8%	19.2%	10.8%	32.9%	12.6%
					TR2	2.0%	21.4%	6.9%	2.2%	36.6%	5.4%	1.9%	45.0%	4.9%	2.1%	29.0%	6.1%	2.1%	40.8%	5.1%
					TR3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
				IIa, 3B3 (Vild)	TR1	0.0%	0.0%	0.0%	0.0%	--	--	0.0%	--	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					TR2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					TR3	--	--	--	0.0%	0.0%	0.0%	--	--	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
				IIa, 3C (Vila)	TR1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
					TR2	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%
					TR3	No STECF data														
				IIa, 3D (Via+Vb)	TR1	7.5%	10.1%	8.2%	5.4%	20.6%	6.8%	4.9%	4.4%	4.9%	6.4%	15.4%	7.5%	5.1%	12.5%	5.8%
					TR2	0.0%	2.7%	0.7%	0.0%	1.3%	0.1%	0.0%	1.9%	0.1%	0.0%	2.0%	0.4%	0.0%	1.6%	0.1%
					TR3	0.0%	0.0%	0.0%	--	--	--	--	--	--	0.0%	0.0%	0.0%			
				Subtotal		22.9%	96.2%	41.6%	18.3%	92.1%	25.1%	17.9%	83.6%	22.5%	20.6%	94.1%	33.4%	18.1%	87.8%	23.8%
	All gillnets: GNS, GN, GND, GNC, GTN	All	VI, VII and Vb	CeI1, 7BCEFGHJK	GN1	22.2%	0.6%	16.7%	24.7%	3.5%	22.7%	26.2%	5.6%	24.8%	23.4%	2.1%	19.7%	25.4%	4.6%	23.7%
					GT1	0.1%	1.1%	0.4%	0.1%	0.8%	0.2%	0.1%	0.2%	0.1%	0.1%	0.9%	0.3%	0.1%	0.5%	0.1%
					GN1	0.0%	0.0%	0.0%	0.0%	--	--	0.0%	--	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
				IIa, 3B3 (Vild)	GT1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					GN1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					GT1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	--	--	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
				IIa, 3C (Vila)	GN1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					GT1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	--	--	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					GN1	2.3%	0.0%	1.7%	2.2%	0.0%	2.0%	0.3%	0.0%	0.2%	2.2%	0.0%	1.8%	1.2%	0.0%	1.1%
					GT1	No STECF data														
				Subtotal		24.6%	1.7%	18.8%	27.0%	4.3%	24.9%	26.5%	5.8%	25.1%	25.8%	3.0%	21.8%	26.8%	5.0%	25.0%
	Longlines: LL, LLS, LLD, LX, LTL, LHP, LHM	All	VI, VII and Vb	CeI1, 7BCEFGHJK	LL1	39.2%	0.0%	29.2%	38.5%	0.0%	35.0%	40.2%	0.0%	37.4%	38.9%	0.0%	32.1%	39.4%	0.0%	36.2%
				IIa, 3B3 (Vild)	LL1	0.0%	0.0%	0.0%	0.0%	0.0%	--	--	--	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
				IIa, 3D (Via+Vb)	LL1	12.0%	0.0%	8.9%	15.2%	0.1%	13.8%	14.0%	0.6%	13.1%	13.6%	0.0%	11.4%	14.6%	0.3%	13.4%
				Subtotal		51.2%	0.0%	38.1%	53.7%	0.1%	48.8%	54.2%	0.6%	50.5%	52.4%	0.0%	43.5%	54.0%	0.3%	49.6%

Table 5.1.2.a– cont.

Fisheries	Gear	Mesh Size	ICES area	STECF Annex / Area	Gear	2013			2014			2015			Mean contribution (13-14)			Mean contribution (14-15)		
						Landings	Discards	Catch	Landings	Discards	Catch	Landings	Discards	Catch	Landings	Discards	Catch	Landings	Discards	Catch
Megrim	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX, FPO, FIX	<100mm	Vi, VII and Vb	Cel1, 7BCEFGHJK	TR2	21.1%	29.3%	24.1%	25.9%	66.0%	33.9%	17.4%	49.5%	23.5%	23.5%	47.7%	29.0%	21.7%	57.8%	28.7%
					TR3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					Ila, 3B3 (VIIId)	TR2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					TR3	No STECF data														
					Ila, 3C (VIIa)	TR2	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%
					TR3	No STECF data														
					Ila, 3D	TR2	0.1%	0.0%	0.1%	0.4%	0.1%	0.3%	0.2%	1.0%	0.3%	0.2%	0.0%	0.3%	0.5%	0.3%
					TR3	0.0%	0.0%	0.0%	--	--	--	--	--	--	0.0%	0.0%	0.0%			
Nephrops	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX, FPO, FIX	All	VII	Cel1, 7BCEFGHJK	TR1	14.1%	16.1%	14.4%	17.9%	21.0%	18.3%	17.6%	50.5%	23.8%	23.8%	47.8%	29.2%	22.0%	58.3%	29.1%
					TR2	27.9%	21.5%	26.8%	24.8%	17.3%	23.7%	24.1%	7.6%	21.7%	26.3%	19.4%	25.2%	24.5%	12.4%	22.7%
					TR3	0.0%	0.0%	0.0%	--	--	--	--	--	--	0.0%	0.0%	0.0%			
					POTS	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
				Ila, 3B3 (VIIId)	TR1	0.0%	--	--	0.0%	--	--	--	--	--	0.0%	--	--	0.0%	--	--
					TR2	0.0%	--	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					TR3	No STECF data														
					POTS	0.0%	--	--	--	--	--	--	--	--	0.0%					
				Ila, 3C (VIIa)	TR1	0.5%	0.6%	0.5%	0.2%	0.1%	0.2%	0.4%	0.8%	0.4%	0.3%	0.4%	0.3%	0.3%	0.5%	0.3%
					TR2	55.5%	61.8%	56.5%	55.3%	61.6%	56.2%	56.4%	84.2%	60.5%	55.4%	61.7%	56.4%	55.8%	72.9%	58.4%
					TR3	--	--	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					POTS	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%
				Subtotal		98.1%	100.0%	98.4%	98.2%	100.0%	98.5%	99.5%	100.0%	99.6%	98.1%	100.0%	98.4%	98.9%	100.0%	99.0%
Gadoids (haddock)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	VIIa	Ila, 3C (VIIa)	TR1	40.2%	2.0%	18.4%	80.3%	1.7%	37.7%	74.4%	28.6%	51.4%	60.2%	1.8%	28.1%	77.3%	15.1%	44.6%
					TR2	55.9%	93.7%	77.5%	17.6%	96.2%	60.1%	23.8%	66.9%	45.5%	36.8%	94.9%	68.8%	20.7%	81.6%	52.8%
					TR3	No STECF data														
				Subtotal		96.1%	95.6%	95.8%	97.9%	97.9%	97.9%	98.2%	95.5%	96.9%	97.0%	96.8%	96.9%	98.0%	96.7%	97.4%
Common sole	All beam trawls (TBB)	All	VIIId	Ila, 3B3 (VIIId)	BT1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.2%	0.0%	0.2%	0.0%	0.0%	0.0%
					BT2	30%	15%	27%	35%	26%	34%	34%	48%	35%	32.4%	20.4%	30.5%	34.4%	37.1%	34.4%
				Subtotal		30%	15%	27%	35%	26%	34%	34%	48%	35%	32.4%	20.4%	30.5%	34.4%	37.1%	34.4%
	Trawls: OTB, OTT, TBS, TBN, TB, PTB, OT, PT, TX	<100mm	VIIId	Ila, 3B3 (VIIId)	TR2	13%	78%	26%	12%	66%	17%	13%	39%	15%	12.5%	72.3%	21.7%	12.5%	52.6%	16.2%
					TR3	0%	0%	0%	0%	1%	0%	0%	0%	0%	0.1%	0.3%	0.1%	0.1%	0.4%	0.1%
				Subtotal		13%	78%	26%	12%	67%	18%	13%	39%	15%	12.6%	72.6%	21.7%	12.6%	53.0%	16.3%
	All gillnets: GNS, GN, GND, GNC, GTN	All	VIIId	Ila, 3B3 (VIIId)	GN1	5.0%	0.0%	4.1%	5.2%	0.1%	4.6%	5.6%	0.1%	5.3%	5.1%	0.0%	4.3%	5.4%	0.1%	4.9%
					GT1	46.8%	6.4%	39.0%	41.6%	4.2%	37.7%	40.0%	11.4%	38.2%	44.2%	5.3%	38.4%	40.8%	7.8%	37.9%
				Subtotal		51.8%	6.5%	43.1%	46.8%	4.2%	42.3%	45.6%	11.5%	43.5%	49.3%	5.3%	42.7%	46.2%	7.9%	42.9%
Gadoids (whiting)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	VIIId	Ila, 3B3 (VIIId)	TR1	2.9%	1.1%	2.1%	0.7%	0.3%	0.4%	0.3%	0.0%	0.2%	1.8%	0.7%	1.2%	0.5%	0.2%	0.3%
					TR2	93.8%	96.5%	95.1%	91.8%	96.9%	95.8%	92.1%	89.7%	91.1%	92.8%	96.7%	95.4%	92.0%	93.3%	93.5%
					TR3	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.2%	0.0%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
					DEM_SEINE	0.0%	0.0%	0.0%	0.0%	0.0%	--	--	--	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
				Subtotal		96.8%	97.7%	97.2%	92.9%	97.5%	96.5%	92.6%	89.7%	91.4%	94.8%	97.6%	96.8%	92.7%	93.6%	93.9%
Pollack	All trammel & gillnets: GNS, GN, GND, GNC, GTN, GTR, GEN	All	VIIId, VIIe	Ila, 3B3 (VIIId)	GN1	2.0%	0.0%	1.9%	0.8%	0.0%	0.8%	1.0%	0.0%	1.0%	1.4%	0.0%	1.4%	0.9%	0.0%	0.9%
					GT1	0.9%	0.1%	0.9%	0.5%	0.9%	0.5%	0.6%	0.0%	0.6%	0.7%	0.5%	0.7%	0.6%	0.5%	0.6%
				Ila, 7E	3b (GN+GT)	36.7%	56.6%	38.0%	44.6%	67.3%	44.7%	40.0%	29.5%	39.9%	40.6%	61.9%	41.3%	42.3%	48.4%	42.3%
					Subtotal	39.6%	56.6%	40.8%	45.9%	68.2%	46.0%	41.6%	29.5%	41.5%	42.8%	62.4%	43.4%	43.8%	48.9%	43.7%
Common Sole	All beam trawls (TBB)	All	VIIe	Ila, 7E	3a (TBB>=80mm)	59%	3%	56%	53%	6%	47%	60%	4%	56%	55.9%	4.4%	51.5%	56.6%	4.9%	51.5%
					BEAM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%
	All gillnets: GNS, GN, GND, GNC, GTN	All	VIIe	Ila, 7E	3b (GN+GT)	11%	0%	11%	9%	0%	8%	8%	0%	7%	10.0%	0.2%	9.2%	8.3%	0.0%	7.4%
					Subtotal	59%	3%	56%	53%	6%	47%	60%	4%	56%	56.0%	4.4%	51.6%	56.7%	4.9%	51.6%
Common Sole	All beam trawls (TBB)	All	VIIb, c and f-k	Cel1, 7BCEFGHJK (1)	BT1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					BT2	69%	35%	68%	68%	17%	64%	69%	23%	66%	68.4%	26.3%	66.0%	68.2%	20.0%	65.1%
				Subtotal		69%	35%	68%	68%	17%	69%	23%	66%	68.4%	26.3%	66.0%	68.2%	20.0%	65.1%	30.6%
	All gillnets: GNS, GN, GND, GNC, GTN	All	VIIb, c and f-k	Cel1, 7BCEFGHJK (1)	GN1	3%	0%	3%	2%	0%	2%	2%	0%	1%	2.2%	0.1%	2.1%	1.7%	0.0%	1.6%
					GT1	2%	0%	2%	2%	0%	2%	2%	0%	2%	2.4%	0.0%	2.3%	2.3%	0.0%	2.1%
				Subtotal		5%	0%	5%	4%	0%	4%	4%	0%	4%	4.6%	0.1%	2.7%	4.0%	0.0%	0.0%
Gadoids (whiting)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	VIIb, c, e and f-k	Cel1, 7BCEFGHJK	TR1	57.6%	42.8%	54.6%	59.6%	50.5%	56.9%	49.2%	47.2%	48.5%	58.6%	46.7%	55.7%	54.4%	48.9%	52.7%
					TR2	36.5%	37.7%	36.8%	33.2%	38.3%	34.8%	45.2%	47.6%	46.1%	34.9%	38.0%	35.8%	39.2%	43.0%	40.4%
					TR3	0.0%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%
				Subtotal		94.1%	81.0%	91.5%	92.9%	88.9%	91.7%	94.5%	94.9%	94.6%	93.5%	85.0%	91.6%	93.7%	91.9%	93.2%

Table 5.1.2.b – **North Sea.** The contribution (%) of each fleet segment identified under the Member States' joint recommendations to total catches and discards of the stocks/TACs for relevant stock.

Gear	Mesh size	ICES area	STECF Annex / Area	Gear	Stock/species	2013			2014			2015			Mean contribution (13-14)			Mean contribution (14-15)		
						Landings	Disc	Catch	Landings	Disc	Catch	Landings	Disc	Catch	Landings	Disc	Catch	Landings	Disc	Catch
Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>100	IV	IIA, 3B2	TR1	Plaice	29.3%	5.3%	22.0%	29.8%	4.2%	20.0%	33.1%	2.9%	17.8%	29.5%	4.7%	21.0%	31.4%	3.6%	18.9%
					Haddock	95.8%	94.6%	95.8%	96.8%	70.5%	94.0%	98.1%	48.1%	90.9%	96.3%	82.6%	94.9%	97.4%	59.3%	92.4%
					Saithe	98.3%	99.2%	98.5%	98.4%	98.8%	98.5%	98.9%	96.3%	98.6%	98.4%	99.0%	98.5%	98.6%	97.6%	98.5%
					Northern prawn	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%
					cod	81.2%	81.9%	81.4%	80.1%	60.2%	76.2%	82.4%	60.8%	77.2%	80.7%	71.0%	78.8%	81.3%	60.5%	76.7%
					whiting	67.0%	15.3%	43.1%	63.1%	15.1%	40.0%	65.1%	26.4%	41.2%	65.1%	15.2%	41.6%	64.1%	20.7%	40.6%
Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>100	IIIIa	IIA, 3B1	TR1	Plaice	71.8%	67.0%	71.2%	73.8%	61.9%	72.7%	77.4%	67.1%	76.9%	72.8%	64.5%	72.0%	75.6%	64.5%	74.8%
					Haddock	58.1%	34.2%	56.4%	59.8%	40.4%	59.0%	57.5%	54.6%	57.3%	58.9%	37.3%	57.7%	58.6%	47.5%	58.2%
					Saithe	51.0%	40.4%	50.5%	26.2%	13.7%	25.3%	15.9%	22.4%	16.9%	38.6%	27.1%	37.9%	21.1%	18.1%	21.1%
					Northern prawn	No STECF data														
					cod	38.2%	35.6%	37.5%	38.2%	37.7%	38.1%	39.5%	48.6%	42.9%	38.2%	36.6%	37.8%	38.9%	43.1%	40.5%
					whiting	4.4%	26.6%	20.8%	4.4%	22.8%	12.5%	6.1%	25.8%	16.9%	4.4%	24.7%	16.7%	5.3%	24.3%	14.7%
Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	70-99	IV	IIA, 3B2	TR2	Sole	2.1%	0.0%	0.9%	2.2%	0.8%	2.0%	2.5%	3.6%	2.8%	2.2%	0.4%	1.5%	2.4%	2.2%	2.4%
	>100			TR1	Sole	0.3%	0.0%	0.1%	0.3%	0.2%	0.3%	0.4%	0.2%	0.3%	0.3%	0.1%	0.2%	0.3%	0.2%	0.3%
	Subtotal				Sole	2.4%	0.0%	1.0%	2.5%	1.0%	2.3%	2.9%	3.8%	3.1%	2.5%	0.5%	1.7%	2.7%	2.4%	2.7%
	80-99	VI	IIA, 3D	TR2	Sole	9.2%	0.0%	9.1%	40.8%	100.0%	49.3%	9.0%	91.1%	38.5%	25.0%	50.0%	29.2%	24.9%	95.5%	43.9%
	80-99	IIa		TR2	Sole	No STECF data														
	70-99	IIIIa	IIA, 3B1	TR2	Sole	41.9%	82.9%	43.7%	41.1%	87.5%	41.8%	41.5%	42.9%	41.5%	41.5%	85.2%	42.7%	41.3%	65.2%	41.7%
	>100			TR1	sole	8.8%	17.1%	9.1%	8.8%	0.0%	8.6%	27.0%	28.6%	27.0%	8.8%	8.6%	8.9%	17.9%	14.3%	17.8%
	Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	70-99	IV	IIA, 3B2	TR2	Northern prawn	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80-99		VI	TR2		Northern prawn	No STECF data														
32-69		IV	IIA, 3B2	TR3	Northern prawn	41.9%	0.3%	37.9%	31.1%	0.0%	24.7%	2.9%	0.0%	2.5%	36.5%	0.1%	31.3%	17.0%	0.0%	13.6%
70-99		IV	IIA, 3B2	TR2	Nephrops	86.2%	95.7%	87.2%	76.4%	94.2%	77.0%	77.1%	98.0%	84.1%	81.3%	94.9%	82.1%	76.8%	96.1%	80.5%
>100		IV	IIA, 3B2	TR1	Nephrops	12.4%	4.1%	11.5%	23.0%	5.4%	22.4%	21.4%	0.6%	14.5%	17.7%	4.7%	16.9%	22.2%	3.0%	18.4%
Subtotal				Nephrops	98.6%	99.8%	98.7%	99.4%	99.6%	99.4%	98.5%	98.6%	98.6%	99.0%	99.7%	99.1%	99.0%	99.1%	99.0%	
80-99		VI	IIA, 3D	TR2	Nephrops	79.5%		79.5%	80.5%	100.0%	81.5%	77.0%	82.7%	77.2%	80.0%	100.0%	80.5%	78.7%	91.4%	79.4%
80-99		IIa		TR2	Nephrops	No STECF data														
80-99		IIa		TR2	Northern prawn	No STECF data														
70-99		IIIIa	IIA, 3B1	TR2	Nephrops	84.5%	98.0%	90.6%	86.4%	93.9%	88.5%	80.9%	91.3%	83.0%	85.5%	95.9%	89.5%	83.6%	92.6%	85.7%
				TR2	sole	41.9%	82.9%	43.7%	41.1%	87.5%	41.8%	41.5%	42.9%	41.5%	41.5%	85.2%	42.7%	41.3%	65.2%	41.7%
70-99		IIIIa	IIA, 3B1	TR2	Haddock	33.3%	63.6%	35.4%	37.0%	58.5%	37.8%	39.6%	43.4%	39.8%	35.1%	61.0%	36.6%	38.3%	50.9%	38.8%
70-99		IIIIa	IIA, 3B1	TR2	Northern prawn	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
70-99		IIIIa	IIA, 3B1	OTTER	Northern prawn	92.5%	100.0%	93.3%	94.8%	100.0%	95.9%	87.0%	99.9%	88.6%	93.6%	100.0%	94.6%	90.9%	100.0%	92.2%
Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	32-69	IV	IIA, 3B2	TR3	haddock	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%
					Nephrops	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					Northern prawn	41.9%	0.3%	37.9%	31.1%	0.0%	24.7%	2.9%	0.0%	2.5%	36.5%	0.1%	31.3%	17.0%	0.0%	13.6%
					sole	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					whiting	3.9%	0.0%	2.1%	3.6%	0.0%	1.9%	3.4%	0.4%	1.5%	3.8%	0.0%	2.0%	3.5%	0.2%	1.7%
Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	32-69	IIIIa	IIA, 3B1	TR3	haddock	3.1%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	1.4%	0.0%	0.0%	0.0%
					Nephrops	No STECF data														
					Northern prawn	No STECF data														
					sole	No STECF data														
					whitine	47.5%	0.0%	12.3%	6.8%	0.0%	3.8%	6.6%	0.0%	3.0%	27.2%	0.0%	8.1%	6.7%	0.0%	3.4%

Table 5.1.2.b North Sea – cont.

Gear	Mesh size	ICES area	STECF Annex / Area	Gear	Stock/species	2013			2014			2015			Mean contribution (13-14)			Mean contribution (14-15)			
						Landings	Disc	Catch	Landings	Disc	Catch	Landings	Disc	Catch	Landings	Disc	Catch	Landings	Disc	Catch	
Beam trawlers	>120	IV	IIA, 3B2	BT1	Plaice	12.2%	0.4%	8.6%	13.5%	0.0%	8.3%	8.3%	0.4%	4.3%	12.8%	0.2%	8.5%	10.9%	0.2%	6.3%	
					Northern prawn	No STECF data															
					cod	4.2%	6.6%	4.8%	4.3%	0.0%	3.5%	3.6%	0.7%	2.9%	4.3%	3.3%	4.1%	3.9%	0.3%	3.2%	
					haddock	0.2%	0.0%	0.2%	0.2%	0.0%	0.2%	0.1%	0.0%	0.1%	0.2%	0.0%	0.2%	0.2%	0.0%	0.2%	
					Nephrops	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
					sole	0.2%	0.0%	0.1%	0.6%	0.0%	0.5%	1.0%	0.0%	0.7%	0.4%	0.0%	0.3%	0.8%	0.0%	0.6%	
Beam trawlers	>120	IIIa	IIA, 3B1	BT1	whiting	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
					Plaice	9.3%	0.0%	8.2%	10.0%	0.0%	9.1%	7.9%	0.0%	7.5%	9.7%	0.0%	8.6%	9.0%	0.0%	8.3%	
					Northern prawn	No STECF data															
					cod	0.2%	0.0%	0.1%	0.3%	0.0%	0.2%	0.2%	0.0%	0.1%	0.2%	0.0%	0.2%	0.3%	0.0%	0.2%	
					haddock	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
					Nephrops	No STECF data															
Beam trawlers	80-119	IV	IIA, 3B2	BT2	sole	3.2%	0.0%	3.0%	2.8%	0.0%	2.7%	11.7%	0.0%	11.6%	3.0%	0.0%	2.9%	7.2%	0.0%	7.2%	
					whiting	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
					Sole	84.9%	11.1%	41.7%	85.0%	87.5%	85.3%	85.9%	77.2%	83.8%	84.9%	49.3%	63.5%	85.5%	82.3%	84.5%	
					Northern prawn	No STECF data															
					haddock	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
					Nephrops	0.4%	0.2%	0.4%	0.2%	0.4%	0.2%	0.7%	1.4%	1.0%	0.3%	0.3%	0.3%	0.5%	0.9%	0.6%	
Beam trawlers	80-119	IIIa	IIA, 3B1	BT2	Sole	No STECF data															
					Northern prawn	No STECF data															
					haddock	No STECF data															
					Nephrops	No STECF data															
					GN1	Sole	7.3%	0.0%	3.0%	5.7%	0.0%	5.0%	4.2%	0.0%	3.1%	6.5%	0.0%	4.0%	4.9%	0.0%	4.1%
					GT1	Sole	4.9%	0.1%	2.1%	6.0%	0.6%	5.3%	5.5%	0.3%	4.2%	5.4%	0.3%	3.7%	5.7%	0.4%	4.8%
Gillnets, trammel nets and entangling nets: GN, GNS, GND, GNC, GTN, GTR, GEN, GNF	All	IV	IIA, 3B2		Subtotal	Sole	12.2%	0.1%	5.1%	11.7%	0.6%	10.3%	9.7%	0.3%	7.4%	11.9%	0.4%	7.7%	10.7%	0.5%	8.8%
					Northern prawn	No STECF data															
			IIA, 3B2		GN1	cod	6.5%	2.6%	5.6%	6.1%	0.6%	5.0%	4.8%	0.2%	3.7%	6.3%	1.6%	5.3%	5.5%	0.4%	4.4%
					GT1	cod	1.1%	0.7%	1.0%	1.3%	0.1%	1.1%	1.5%	0.1%	1.2%	1.2%	0.4%	1.0%	1.4%	0.1%	1.1%
					GN1	haddock	0.2%	0.9%	0.2%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%	0.2%	0.5%	0.2%	0.1%	0.0%	0.1%
					GT1	haddock	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					GN1	Nephrops	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					GT1	Nephrops	No STECF data														
					GN1	whiting	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	1.3%	0.8%	0.0%	0.1%	0.1%	0.0%	0.8%	0.5%
					GT1	whiting	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.3%	0.2%	0.0%	0.1%	0.1%	0.0%	0.2%	0.1%
					GN1	Sole	16.2%	0.0%	15.5%	18.2%	6.3%	18.0%	6.6%	0.0%	6.5%	17.2%	3.1%	16.7%	12.4%	3.1%	12.3%
					GT1	Sole	2.3%	0.0%	2.2%	7.6%	0.0%	7.5%	1.0%	0.0%	1.0%	4.9%	0.0%	4.8%	4.3%	0.0%	4.2%
					Subtotal	Sole	18.5%	0.0%	17.7%	25.7%	6.3%	25.5%	7.6%	0.0%	7.5%	22.1%	3.1%	21.6%	16.7%	3.1%	16.5%
			IIA, 3B1		Northern prawn	No STECF data															
GN1	cod	18.1%			1.2%	13.8%	15.4%	1.1%	11.2%	17.4%	3.4%	12.2%	16.7%	1.1%	12.5%	16.4%	2.2%	11.7%			
GT1	cod	2.1%			0.1%	1.6%	1.7%	0.1%	1.2%	1.5%	0.6%	1.2%	1.9%	0.1%	1.4%	1.6%	0.3%	1.2%			
GN1	haddock	1.8%			0.0%	1.7%	0.6%	0.0%	0.6%	0.9%	0.7%	0.8%	1.2%	0.0%	1.1%	0.7%	0.4%	0.7%			
GT1	haddock	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
GN1	Nephrops	--			--	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
GT1	Nephrops	No STECF data																			
GN1	whiting	0.1%			0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%			
GT1	whiting	0.0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
GN1	Sole	16.2%			0.0%	15.5%	18.2%	6.3%	18.0%	6.6%	0.0%	6.5%	17.2%	3.1%	16.7%	12.4%	3.1%	12.3%			
GT1	Sole	2.3%			0.0%	2.2%	7.6%	0.0%	7.5%	1.0%	0.0%	1.0%	4.9%	0.0%	4.8%	4.3%	0.0%	4.2%			

Table 5.1.2.b North Sea – cont.

Gear	Mesh size	ICES area	STECF Annex / Area	Gear	Stock/species	2013			2014			2015			Mean contribution (13-14)			Mean contribution (14-15)		
						Landings	Disc	Catch	Landings	Disc	Catch	Landings	Disc	Catch	Landings	Disc	Catch	Landings	Disc	Catch
Hooks and lines: LLS, LLD, LL, LTL, LX, LHP, LHM		IV	IIA, 3B2	LL1	Hake	6.2%	0.0%	4.4%	13.8%	0.0%	10.1%	9.5%	0.0%	7.3%	10.0%	0.0%	7.2%	11.6%	0.0%	8.7%
					Northern prawn	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					cod	0.7%	0.0%	0.5%	0.8%	0.0%	0.6%	0.9%	0.0%	0.7%	0.7%	0.0%	0.6%	0.8%	0.0%	0.6%
					haddock	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					Nephrops	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					sole	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hooks and lines: LLS, LLD, LL, LTL, LX, LHP, LHM		IIIa	IIA, 3B1	LL1	whiting	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					Hake	--	--	--	0.0%	--	--	0.0%	--	--	0.0%	#DIV/0!	#DIV/0!	0.0%	#DIV/0!	#DIV/0!
					Northern prawn	No STECF data														
					cod	0.3%	0.0%	0.2%	0.4%	0.0%	0.3%	0.4%	0.0%	0.3%	0.4%	0.0%	0.3%	0.4%	0.0%	0.3%
					haddock	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					Nephrops	No STECF data														
Traps: FPO, FIX, FYK, FPN		IV	IIA, 3B2	POTS	sole	No STECF data														
					whiting	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					Nephrops	0.8%	0.0%	0.7%	0.2%	0.0%	0.2%	0.6%	0.0%	0.4%	0.5%	0.0%	0.5%	0.4%	0.0%	0.3%
					Northern prawn	No STECF data														
					Haddock	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					sole	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Traps: FPO, FIX, FYK, FPN		IIIa	IIA, 3B1	POTS	whiting	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
					Nephrops	13.5%	0.0%	7.4%	11.0%	3.4%	8.9%	15.9%	3.3%	13.4%	12.3%	1.7%	8.2%	13.5%	3.3%	11.1%
					Northern prawn	No STECF data														
					Haddock	0.8%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%	0.4%	0.0%	0.0%	0.0%
					sole	0.0%	0.0%	0.0%	0.0%	6.3%	0.1%	0.0%	28.6%	0.3%	0.0%	3.1%	0.0%	0.0%	17.4%	0.2%
					whiting	12.8%	0.0%	3.3%	0.0%	0.6%	0.2%	0.0%	0.8%	0.4%	6.4%	0.3%	1.8%	0.0%	0.7%	0.3%

Table 5.1.2.c **South Western Waters.** The contribution (%) of each fleet segment identified under the Member States' joint recommendations to total catches and discards of the stocks/TACs for relevant stock.

Fishery	Gear	Mesh size	ICES area	STECF Annex/area	STECF gear	2013			2014			2015			Mean DR (13-14)	Mean DR (14-15)
						Land (t)	Disc (t)	DR (%)	Land (t)	Disc (t)	DR (%)	Land (t)	Disc (t)	DR (%)		
Common Sole	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	70-100mm	VIIIa, b, d and e	BoB, 8A-B	OTTER	886.1	55.4	6%	1222.1	170.6	12%	908.0	30.3	3%	10%	9%
	All beam trawls (TBB)	70-100		BoB, 8A-B	BEAM	312.1	0.7	0%	328.8	14	4%	301.9	10.1	3%	2%	4%
	All trammel and gill nets	>=100m		BoB, 8A-B	GILL	149	0.1	0%	65.2	2	3%	61.9	0.0	0%	1%	2%
					TRAMMEL	2284.9	19.6	1%	2580	37	1%	2493.3	54.3	2%	1%	2%
Hake	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	>=100		BoB, 8A-B	OTTER	3784.9	2094.4	36%	4577.6	1799.2	28%	4905.5	1116.9	19%	32%	24%
		All longlines : LL, LLS		All	BoB, 8A-B	LONGLINE	3603.9	190.2	5%	4433.1	0.8	0%	4740.3	0.0	0%	2%
	All trammel and gill nets	>=100m		BoB, 8A-B	GILL	8819.4	653.5	7%	9982.9	457.9	4%	11073.4	1852.1	14%	6%	10%
					TRAMMEL	188.7	89.8	32%	322.8	134.3	29%	278.1	253.2	48%	30%	39%
					Overall netters	9008.1	743.3	8%	10305.7	592.2	5%	11351.5	2105.3	16%	6%	11%
	Nephrops	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX		>=70	BoB, 8A-B	OTTER	1773	961.7	35%	2801.5	1563.4	36%	3610.7	1478.8	29%	36%
Anglerfish	All GILL nets	>=200mm		VIIIa, b, d and e	BoB, 8A-B	GILL	490.4	28.8	6%	492.5	0	0%	519.9	10.4	2%	3%
Nephrops	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	>=70	VIIIc and IXa	IIb, 8C-9A	3a (OTTER>=32mm)	176.2	3.1	2%	166.2	0	0%	200.1	0.0	0%	1%	0%
Hake	Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>=70mm		IIb, 8C-9A	3a (OTTER>=32mm)	4308.2	4259.4	50%	3930.2	2689.3	41%	4527.4	1320.5	23%	46%	32%
	All trammel and gill nets	80-99			3B (Gillnets >=60mm)	2646.7	23.2	1%	2153.6	72.5	3%	2061.0		0%	2%	2%
					3T (Trammel nets)	589.4		0%	179		0%	90.5		0%	0%	0%
					Overall netters	3236.1	23.2	1%	2332.6	72.5	3%	2151.5	0	0%	2%	2%
All longlines (LL, LLS)	Hook size > 3.85+/- 1.15 length and 1.6 +/-0.4			3C (Longlines)	931		0%	1244.9	0	0%	1065.8		0%	0%	0%	
Anglerfish	All GILL nets	>=200mm	VIIIc and IXa	IIb, 8C-9A	3B (Gillnets >=60mm)	645.5		0%	827		0%	765.3		0%	0%	0%
Common sole	All trammel and gill nets	>=100mm	IXa	WW, 9EU	GILL	7.5		0%	10.5	0	0%	14.4		0%	0%	0%
					TRAMMEL	155.8		0%	147.2		0%	179.4		0%	0%	0%
					Overall netters	163.3	0	0%	157.7	0	0%	193.8	0.0	0%	0%	0%
Plaice	All trammel and gill nets	>=100mm	IXa	WW, 9EU	GILL	0.5		0%	0.1	0	0%	0.4		0%	0%	0%
					TRAMMEL	1		0%	0.6		0%	0.5		0%	0%	0%
					Overall netters	1.5	0	0%	0.7	0	0%	0.9	0.0	0%	0%	0%

Table 5.1.3.a **North Western Waters.** Landings and discards (in tonnes) and discard rates for the fisheries and species subject to the landing obligation.

Fisheries	Gear	Mesh Size	ICES area	STECF Annex / Area	Gear	2013			2014			2015			Mean DR (13-14)	Mean DR (14-15)
						Landings	Discards	DR	Landings	Discards	DR	Landings	Discards	DR		
Gadoids (haddock)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vb and Vla	Ila, 3D	TR1	4521.9	184	4%	3858.8	204.3	5%	3790.2	231.6	6%	4%	5%
					TR2	159.6	844.2	84%	95	661.6	87%	76.7	1232.5	94%	86%	92%
					TR3	0.3	0	0%	--	--	--	--	--	--	0%	
					Subtotal	4681.8	1028.2	18%	3953.8	865.9	18%	3866.9	1464.1	27%	18%	23%
Gadoids (plaice)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vb and Vla	Ila, 3D	TR1	58	16.9	23%	62.2	48.6	44%	70.9	54.2	43%	35%	44%
					TR2	6.5	217.1	97%	8.5	226.8	96%	6	298.1	98%	97%	97%
					TR3	0	0									
					Subtotal	64.5	234	78%	70.7	275.4	80%	76.9	352.3	82%	79%	81%
Gadoids (sole)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vb and Vla	Ila, 3D	TR1	17.3	0.1	1%	9.6	0	0%	17.9	1	5%	0%	4%
					TR2	1.8	0	0%	7.1	2.9	29%	1.8	10.2	85%	25%	60%
					TR3	0.1		0%								
					Subtotal	19.2	0.1	1%	16.7	2.9	15%	19.7	11.2	36%	8%	28%
Megrim	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vb and Vla	Ila, 3D	TR1	916.1	275.4	23%	893.6	61.9	6%	1090	51.4	5%	16%	5%
					TR2	12.2	1.2	9%	51.3	2.1	4%	22.1	30.6	58%	5%	31%
					TR3	0.1		0%							0%	
					Subtotal	928.4	276.6	23%	944.9	64	6%	1112.1	82	7%	15%	7%
Nephrops	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX, FPO, FIX	All	Vb and Vla	Ila, 3D	POTS	1573.4		0%	1431.3		0%	1360.2		0%	0%	0%
					TR1	1041.5	0	0%	1057.9		0%	1363.7	98.8	7%	0%	4%
					TR2	10231.8	0	0%	10301.5	713.6	6%	9129.5	472.5	5%	3%	6%
					TR3	No STECF data										
Hake	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vi, VII and Vb	Cell1, 7BCEFGHJK	TR1	4994.8	7987.7	62%	5388.8	1721.3	24%	5839.3	1286.2	18%	48%	21%
					TR2	737.1	2755.1	79%	1131	1872.9	62%	1025.8	1799.7	64%	71%	63%
					TR3	0	2.3	100%	0.5		0%	0.4		0%	82%	0%
				Ila, 3B3 (Vlid)	TR1	2.8		0%	0		0%	0	--		0%	
					TR2	0.5		0%	1.5	0	0%	0.7		0%	0%	0%
					TR3	--	--	0%	0.2		0%	--			0%	0%
				Ila, 3C (Vlla)	TR1	7.8	0.6	7%	6.3	0	0%	102.3	0.6	1%	4%	1%
					TR2	54.5	3.4	6%	21.9	0.9	4%	11.7	1.1	9%	5%	6%
					TR3	No STECF data										
				Ila, 3D (Vla+Vb)	TR1	2832.3	1308.2	32%	2719.6	1052.7	28%	2628	176.1	6%	30%	19%
					TR2	18.8	351.1	95%	12.9	66.5	84%	7.9	76.3	91%	93%	87%
					TR3	0	0.1	100%							100%	
	All gillnets: GNS, GN, GND, GNC, GTN	All	Vi, VII and Vb	Cell1, 7BCEFGHJK	GN1	8371	83.1	1%	12486.8	178.3	1%	14057.1	224.7	2%	1%	1%
					GT1	45.1	142.7	76%	60.5	39.3	39%	50.9	8.4	14%	63%	30%
					GN1	3.2		0%	0	--	0%	0	--		0%	
				Ila, 3B3 (Vlid)	GT1	0.1		0%	0.4		0%	0		#DIV/0!	0%	0%
					GN1	0.5		0%	1.5		0%	1.9		0%	0%	0%
					GT1	0.9		0%	0.1		0%	--			0%	0%
				Ila, 3C (Vlla)	GN1	855.3		0%	1105.2		0%	140.1		0%	0%	0%
					GT1	No STECF data										
					Subtotal	9276.1	225.8	2%	13654.5	217.6	2%	14250	233.1	2%	2%	2%
	Longlines: LL, LLS, LLD, LX, LTL, LHP, LHM	All	Vi, VII and Vb	Cell1, 7BCEFGHJK	LL1	14782.6		0%	19499.4		0%	21596.3		0%	0%	0%
					Ila, 3B3 (Vlid)	LL1	1.1		4.8		0%	--			0%	0%
					Ila, 3D (Vla+Vb)	LL1	4524.2	0.5	0%	7680.9	3.7	0%	7508.1	23.2	0%	0%
					Subtotal	19307.9	0.5	0%	27185.1	3.7	0%	29104.4	23.2	0%	0%	0%

Table 5.1.3.a **North Western Waters.** Continued

Fisheries	Gear	Mesh Size	ICES area	STECF Annex / Area	Gear	2013			2014			2015			Mean DR (13 14)	Mean DR (14-15)					
						Landings	Discards	DR	Landings	Discards	DR	Landings	Discards	DR							
Megrim	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX, FPO, FIX	<100mm	VI, VII and Vb	Cel1, 7BCEFGHIK	TR2	3344.8	2601.5	44%	3451	2197.7	39%	2358.4	1569.1	40%	41%	39%					
					TR3	0	0.7	100%	0.2	0	3.8	0	78%	0							
					TR2	2.2	--	0%	0.9	0	0	0	0	0							
					TR3	No STECF data			--	--	--	--	--	--							
					TR2	3.8	5.4	59%	2.2	2.8	56%	1.1	0.7	39%	58%	51%					
					TR3	No STECF data			--	--	--	--	--	--							
					TR2	12.2	1.2	9%	51.3	2.1	4%	22.1	30.6	58%	5%	31%					
					TR3	0.1	--	0%	--	--	--	--	--	0%							
					Subtotal	3363.1	2608.8	44%	3505.6	2202.6	39%	2385.6	1600.4	40%	41%	39%					
					TR1	2428.3	573.7	19%	3025.1	628.1	17%	2945.9	201.1	6%	18%	12%					
Nephrops	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX, FPO, FIX	All	VII	Cel1, 7BCEFGHIK	TR2	4805.7	769.8	14%	4197.7	517.9	11%	3833	205.2	5%	13%	8%					
					TR3	1.5	0.2	12%	--	--	--	--	--	12%	--						
					POTS	10.2	--	0%	5.2	--	0%	2	--	0%	0%	0%					
					TR1	0	--	--	0	--	--	--	--	--	0%	0%					
					TR2	0	--	--	0.2	--	0%	0.1	--	0%	0%	0%					
					TR3	No STECF data			--	--	--	--	--	--	--						
					POTS	0	--	--	--	--	--	--	--	--	--						
					TR1	85.2	21.4	20%	26.3	3.8	13%	56	21.9	28%	18%	24%					
					TR2	9549.3	2207.2	19%	9362	1844.6	16%	8961.9	2286.6	20%	18%	18%					
					TR3	--	--	--	0.3	0	0%	2.9	0.9	24%	--	22%					
Gadoids (haddock)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vila	Ila, 3C (Vila)	TR1	78.5	5.1	6%	384.4	9.4	2%	536.5	208.2	28%	3%	19%					
					TR2	109.3	243.5	69%	84.3	543.2	87%	171.4	487.1	74%	80%	80%					
					TR3	No STECF data			--	--	--	--	--	--	--						
					Subtotal	187.8	248.6	57%	468.7	552.6	54%	707.9	695.3	50%	55%	51%					
					BT1	14.2	--	0%	3	--	0%	--	--	0%	0%	0%					
					BT2	1250.3	148.6	11%	1610	141.8	8%	1165.8	110.1	9%	9%	8%					
					Subtotal	1264.5	148.6	11%	1613	141.8	8%	1165.8	110.1	9%	9%	8%					
					Ila, 3B3 (Vild)	TR2	556.8	774.3	58%	540.8	365.2	40%	455.3	88.4	16%	51%	31%				
					TR3	2.4	0	0%	4.5	3.1	41%	3.5	0.5	13%	31%	31%					
					Subtotal	559.2	774.3	58%	545.3	368.3	40%	458.8	88.9	16%	51%	31%					
Common sole	All beam trawls (TBB)	<100mm	Vild	Ila, 3B3 (Vild)	GN1	208.9	0.4	0%	239.5	0.3	0%	192.2	0.3	0%	0%	0%					
					GT1	1949.3	63.6	3%	1928.6	22.9	1%	1371.5	25.9	2%	2%	1%					
					Subtotal	2158.2	64	3%	2168.1	23.2	1%	1563.7	26.2	2%	2%	1%					
					TR1	118.4	38.9	25%	21.9	36.6	63%	11.8	--	0%	35%	52%					
					TR2	3815.8	3377	47%	2903.3	11613.6	80%	3855.1	2671.9	41%	69%	68%					
					TR3	0.7	0	0%	9.1	36	80%	7.4	0.6	8%	79%	69%					
					DEM_SEINE	0.5	--	0%	1.4	--	0%	--	--	--	0%	--					
					Subtotal	3935.4	3415.9	46%	2935.7	11686.2	80%	3874.3	2672.5	41%	69%	68%					
					GN1	36.2	--	0%	19.6	--	0%	13.7	--	0%	0%	0%					
					GT1	16.8	0.1	1%	11.7	0.1	1%	8.1	0	0%	1%	1%					
Pollack	All trammel & gillnets: GNS, GN, GND, GNC, GTN, GTR, GEN	All	Vild, Vile	Ila, 3B3 (Vild)	IIC, 7E	3b (GN+GT)	657.7	70.7	10%	1033.5	7.2	1%	532.7	4.1	1%	4%	1%				
					Subtotal	710.7	70.8	9%	1064.8	7.3	1%	554.5	4.1	1%	4%	1%					
					IIC, 7E	3a (TBB)=80m	473.5	1.1	0%	463.4	7.7	2%	468.5	2.4	1%	1%	1%				
					BEAM	0.5	--	0%	1.1	--	0%	0.3	--	0%	0%	0%					
					Subtotal	474	1.1	0%	464.5	7.7	2%	468.8	2.4	1%	1%	1%					
					GN1	36.2	--	0%	19.6	--	0%	13.7	--	0%	0%	0%					
					GT1	16.8	0.1	1%	11.7	0.1	1%	8.1	0	0%	1%	1%					
					IIC, 7E	3b (GN+GT)	657.7	70.7	10%	1033.5	7.2	1%	532.7	4.1	1%	4%	1%				
					Subtotal	710.7	70.8	9%	1064.8	7.3	1%	554.5	4.1	1%	4%	1%					
					IIC, 7E	3a (TBB)=80m	473.5	1.1	0%	463.4	7.7	2%	468.5	2.4	1%	1%	1%				
Common Sole	All beam trawls (TBB)	All	Vile	Ila, 3B3 (Vild)	GN1	36.2	--	0%	19.6	--	0%	13.7	--	0%	0%	0%					
					GT1	16.8	0.1	1%	11.7	0.1	1%	8.1	0	0%	1%	1%					
					IIC, 7E	3b (GN+GT)	657.7	70.7	10%	1033.5	7.2	1%	532.7	4.1	1%	4%	1%				
					Subtotal	710.7	70.8	9%	1064.8	7.3	1%	554.5	4.1	1%	4%	1%					
					IIC, 7E	3a (TBB)=80m	473.5	1.1	0%	463.4	7.7	2%	468.5	2.4	1%	1%	1%				
					BEAM	0.5	--	0%	1.1	--	0%	0.3	--	0%	0%	0%					
					Subtotal	474	1.1	0%	464.5	7.7	2%	468.8	2.4	1%	1%	1%					
					GN1	36.2	--	0%	19.6	--	0%	13.7	--	0%	0%	0%					
					GT1	16.8	0.1	1%	11.7	0.1	1%	8.1	0	0%	1%	1%					
					IIC, 7E	3b (GN+GT)	657.7	70.7	10%	1033.5	7.2	1%	532.7	4.1	1%	4%	1%				
Common Sole	All beam trawls (TBB)	All	Vilb, c and f-k	Cel1, 7BCEFGHIK (1)	BT1	1.5	--	0%	0.2	--	0%	--	--	0%	0%	0%					
					BT2	1470.3	26.9	2%	1475.4	28.7	2%	1296.1	25.2	2%	2%	2%					
					Subtotal	1461.8	26.9	2%	1475.6	28.7	2%	1296.1	25.2	2%	2%	2%					
					GN1	56.6	0.2	0%	39.6	0	0%	29.4	0.0	0%	0%	0%					
					GT1	49.3	0	0%	53.6	0	0%	40.1	0.0	0%	0%	0%					
					Subtotal	105.9	0.2	0%	93.2	0	0%	69.5	0.0	0%	0%	0%					
					Gadoids (whiting)	Trawls and Seines: OTB, SSC, OTT, PTB, SDN, SPR, TBN, TBS, TB, SX, SV, OT,PT, TX	All	Vilb, c, e and f-k	Cel1, 7BCEFGHIK	TR1	6699.1	1272.5	16%	7906.2	2886.3	27%	6472.9	3441.9	35%	22%	31%
										TR2	4254	1120.6	21%	4405.4	2189.2	33%	5943.4	3470.7	37%	28%	35%
										TR3	4.6	14.6	76%	0.4	0	4.3	--	0%	74%	0%	
										Subtotal	10957.7	2407.7	18%	12312	5075.5	29%	12420.6	6912.6	36%	24%	33%

Table 5.1.3.b **North Sea.** Landings and discards (in tonnes) and discard rates for the fisheries and species subject to the landing obligation.

Gear	Mesh size	ICES area	STECF Annex / Area	Gear	Stock/species	2013			2014			2015			Mean DR (13-14)	Mean DR (14-15)	
						Landings	Disc	DR	Landings	Disc	DR	Landings	Disc	DR			
Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>100	IV	IIA, 3B2	TR1	Plaice	22911.9	1776.4	7%	20344.3	1808.6	8%	23447.0	2154.2	8%	8%	8%	
					Haddock	34014.5	1905.6	5%	31233.3	2723.1	8%	28063.1	2323.8	8%	7%	8%	
					Saithe	34534.6	6676	16%	30965.8	5666.8	15%	33406.7	4221.5	11%	16%	13%	
					Northern prawn	0.4	0	0%	--	--	--	--	--	--	--	--	
					cod	17999.8	5564	24%	20031.8	3697.8	16%	22569.2	5258.9	19%	20%	17%	
Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>100	IIIA	IIA, 3B1	TR1	whiting	9554.6	1879.7	16%	9180.7	2036.6	18%	9236.5	6039.6	40%	17%	30%	
					Plaice	4798.6	640.1	12%	6448.9	546.4	8%	7285.6	359.9	5%	10%	6%	
					Haddock	1154.1	50.2	4%	1270.7	36.3	3%	783.4	51.4	6%	3%	4%	
					Saithe	1770.1	78.1	4%	446.1	18.8	4%	207.2	49.5	19%	4%	9%	
					Northern prawn	No STECF data											
Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	70-99	IV	IIA, 3B2	TR2	cod	1592.2	503.8	24%	1616.9	655.7	29%	1697.5	1206.1	42%	27%	36%	
	>100				Sole	6	105	95%	9.1	36.8	80%	16.1	82.7	84%	90%	83%	
	TR1				Sole	273	6.4	2%	272.1	13.1	5%	280.9	132.8	32%	3%	21%	
	Subtotal				Sole	43.9	0	0%	31.8	3.9	11%	39.6	8.3	17%	5%	15%	
	80-99				IIa	TR2	Sole	316.9	6.4	2%	303.9	17	5%	320.5	141.1	31%	4%
	80-99	IIa	TR2	Sole	1.8	0	0%	7.1	2.9	29%	1.8	10.2	85%	25%	60%		
	80-99	IIa	TR2	Sole	No STECF data												
	70-99	IIIA	TR2	Sole	32.9	2.9	8%	44.6	1.4	3%	31.6	0.3	1%	5%	2%		
	>100	TR1	sole	6.9	0.6	8%	9.5	0	0%	20.6	0.2	1%	4%	1%			
	70-99	IV	IIA, 3B2	TR2	Northern prawn	--	--	--	0.1		0%	--	--	--			
	80-99	VI	TR2	Northern prawn	No STECF data												
	32-69	IV	IIA, 3B2	TR3	Northern prawn	134.4	0.4	0%	82.4		0%	9.2	0.0	0%	0%	0%	
Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	70-99	IV	IIA, 3B2	TR2	Nephrops	9273.8	1265.9	12%	10569.1	460.7	4%	7275.3	4629.4	39%	8%	22%	
	>100	IV	IIA, 3B2	TR1	Nephrops	1331.5	54.2	4%	3179.8	26.3	1%	2019.2	28.9	1%	2%	1%	
	Subtotal	Nephrops	10605.3	1320.1	11%	13748.9	487	3%	9294.5	4658.3	33%	7%	18%	1%			
	80-99	VI	IIA, 3D	TR2	Nephrops	10231.8	0	0%	10301.5	713.6	6%	9129.5	472.5	5%	3%	6%	
	80-99	IIa	TR2	Nephrops	No STECF data												
	80-99	IIa	TR2	Northern prawn	No STECF data												
	70-99	IIIA	IIA, 3B1	TR2	Nephrops	1761.2	1665	49%	2391	1011.5	30%	1656.4	472.0	22%	39%	27%	
	70-99	IV	IIA, 3B2	TR2	Haddock	1265.7	88.8	7%	791.2	1136.9	59%	376.6	2502.5	87%	37%	76%	
	70-99	IIIA	IIA, 3B1	TR2	Haddock	661.9	93.4	12%	784.8	52.6	6%	539.5	40.8	7%	9%	7%	
	70-99	IIIA	IIA, 3B1	TR2	Northern prawn	1.1	0	0%	0.5	0	0%	1.6	0.4	20%	0%	16%	
	70-99	IIIA	IIA, 3B1	OTTER	Northern prawn	2695.9	346.7	11%	3322.1	927.1	22%	3453.4	550.0	14%	17%	18%	
	Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	32-69	IV	IIA, 3B2	TR3	haddock	1.1		0%	46.6		0%	12.9	0.0	0%	0%	0%
Nephrops						2.7		0%	3.8		0%	0.1	0.0	0%	0%	0%	
Northern prawn						131.1	0.1	0%	82.1		0%	9.2	0.0	0%	0%	0%	
sole						0.4	0	0%	0.7	0.4	36%	0.0	--	--	27%	36%	
whiting						561.5	0	0%	529.5	0	0%	484.2	89.9	16%	0%	8%	
Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	32-69	IIIA	IIA, 3B1	TR3	haddock	61.6		0%	0	--	--	0.5		0%	0%	0%	
					Nephrops	No STECF data											
					Northern prawn	No STECF data											
					sole	No STECF data											
					whiting	65.5		0%	13.9		0%	17.4		0%	0%	0%	
Beam trawlers	>120	IV	IIA, 3B2	BT1	Plaice	9543.3	121.7	1%	9193.2		0%	5868.3	302.1	5%	1%	2%	
					Northern prawn	No STECF data											
					cod	935.3	450.9	33%	1075.6		0%	983.2	56.7	5%	18%	3%	
					haddock	70.9	0.2	0%	78.4		0%	38.4	1.3	3%	0%	1%	
					Nephrops	0.1		0%	0.1		0%	--	--	--	0%	0%	
Beam trawlers	>120	IIIA	IIA, 3B1	BT1	sole	28.9	0	0%	74.4		0%	107.0	0.0	0%	0%	0%	
					whiting	1.6	1.8	53%	4.5		0%	4.4	1.1	20%	23%	11%	
					Plaice	623.1		0%	876.9		0%	746.4		0%	0%	0%	
					Northern prawn	No STECF data											
					cod	6.7		0%	13.6		0%	8.2		0%	0%	0%	
Beam trawlers	80-119	IV	IIA, 3B2	BT2	haddock	0.5		0%	0.2		0%	0.9		0%	0%	0%	
					Nephrops	No STECF data											
					sole	2.5		0%	3		0%	8.9		0%	0%	0%	
					whiting	--	--	--	0	--	--	0.0	--	--	--	--	
					Sole	11045.3	2041.1	16%	10401	1497.1	13%	9605.6	2849.0	23%	14%	18%	
Beam trawlers	80-119	IIIA	IIA, 3B1	BT2	Northern prawn	No STECF data											
					haddock	4.7		0%	5.8		0%	4.3		0%	0%	0%	
					Nephrops	41.9	3.1	7%	32.2	2.2	6%	67.3	67.8	50%	7%	41%	
					Sole	No STECF data											
					Northern prawn	No STECF data											
Gillnets, trammel nets and entangling nets: GN, GNS, GND, GNC, GTN, GTR, GEN, GNF	All	IV	IIA, 3B2	GN1	Sole	945.4	0.3	0%	699.6	0.2	0%	465.9	0.0	0%	0%	0%	
					GT1	Sole	641.3	12.2	2%	728	10.8	1%	619.5	9.5	2%	2%	1%
					Subtotal	Sole	1586.7	12.5	1%	1427.6	11	1%	1085.4	9.5	1%	1%	1%
					Northern prawn	No STECF data											
					GN1	cod	1447.4	174.6	11%	1534.9	35.3	2%	1304.6	15.8	1%	7%	2%
					GT1	cod	232.8	47.6	17%	337.4	7.6	2%	424.2	4.6	1%	9%	2%
					GN1	haddock	69.3	17.9	21%	41.3	0.7	2%	31.7	0.5	2%	14%	2%
					GT1	haddock	2.4	1.9	44%	4.2	0	0%	3.8	0.6	14%	22%	7%
					GN1	Nephrops	0.5	0	0	0.1	0	0%	1.4	0.0	0%	0%	0%
					GT1	Nephrops	No STECF data										
Gillnets, trammel nets and entangling nets: GN, GNS, GND, GNC, GTN, GTR, GEN, GNF	All	IV	IIA, 3B2	GN1	whiting	5.6	6	52%	2.6	29.6	92%	5.3	296.6	98%	81%	98%	
					GT1	whiting	2.4	1.5	38%	2.4	24.3	91%	2.6	72.7	97%	84%	95%

Table 5.1.3.b **North Sea.** Continued

Gear	Mesh size	ICES area	STECF Annex / Area	Gear	Stock/species	2013			2014			2015			Mean DR (13-14)	Mean DR (14-15)
						Landings	Disc	DR	Landings	Disc	DR	Landings	Disc	DR		
Gillnets, trammel nets and entangling nets: GN, GNS, GND, GNC, GTN, GTR, GEN, GNF	All	IIIa	IIA, 3B1	GN1	Sole	12.7	0	0%	19.7	0.1	1%	5.0	0.0	0%	0%	0%
				GT1	Sole	1.8	0	0%	8.2	0	0%	0.8	0.0	0%	0%	0%
				Subtotal	Sole	14.5	0	0%	27.9	0.1	0%	5.8	0.0	0%	0%	0%
					Northern prawn	No STECF data										
				GN1	cod	754.1	17.2	2%	650.4	18.8	3%	746.2	83.5	10%	2%	7%
				GT1	cod	89.4	2.1	2%	70.6	1.7	2%	64.3	14.3	18%	2%	11%
				GN1	haddock	35.9	0	0%	12.5	0	0%	11.6	0.7	6%	0%	3%
				GT1	haddock	0.1	0	0%	0	0	--	0.1	0.0	0%	0%	0%
				GN1	Nephrops	--	--	--	0.1	--	0%	0.4	--	0%	0%	0%
				GT1	Nephrops	No STECF data										
				GN1	whiting	0.2	1.3	87%	0	0	--	0.0	0.0	--	87%	
				GT1	whiting	0	--	--	0	0	--	0.0	0.0	--		
Hooks and lines: LLS, LLD, LL, LTL, LX, LHP, LHM		IV	IIA, 3B2	Hake		489.6		0%	1265		0%	1139.0		0%	0%	0%
				Northern prawn		0.1		0%	--	--	--	--	--	--	0%	0%
				cod		150.6		0%	194.3		0%	238.9	0.0	0%	0%	0%
				haddock		11.2		0%	6.3		0%	5.3		0%	0%	0%
				Nephrops		0.7		0%	4		0%	1.9		0%	0%	0%
				sole		0.4		0%	0.8		0%	0.7		0%	0%	0%
				whiting		0.5		0%	4		0%	2.4		0%	0%	0%
Hooks and lines: LLS, LLD, LL, LTL, LX, LHP, LHM		IIIa	IIA, 3B1	Hake		--	--	--	0	--	--	0.0	--	--		
				Northern prawn		No STECF data										
				cod		13.9	0	0%	18.2	0	0%	17.9		0%	0%	0%
				haddock		0.4	0	0%	0.1	0	0%	1.0		0%	0%	0%
				Nephrops		No STECF data										
				sole		No STECF data										
				whiting		--	--	--	--	--	--	0.0	--	--		
Traps: FPO, FIX, FYK, FPN		IV	IIA, 3B2	Nephrops		85.8		0%	31.3		0%	60.6		0%	0%	0%
				Northern prawn		No STECF data										
				Haddock		1.5		0%	0.3		0%	0.8		0%	0%	0%
				sole		2.8		0%	1.7		0%	4.1		0%	0%	0%
				whiting		3.8		0%	1.5		0%	3.4		0%	0%	0%
Traps: FPO, FIX, FYK, FPN		IIIa	IIA, 3B1	Nephrops		280.6		0%	305.7	36.2	11%	326.7	17.2	5%	6%	8%
				Northern prawn		No STECF data										
				Haddock		16.2		0%	--	--	--	--	--	--	0%	
				sole		--	--	--	0	0.1	100%	0.0	0.2	100%		100%
				whiting		17.6		0%	0	0.9	100%	0.0	2.6	100%	5%	100%

Table 5.1.3.c **South Western Waters.** Landings and discards (in tonnes) and discard rates for the fisheries and species subject to the landing obligation

Fishery	Gear	Mesh size	ICES area	STECF Annex/area	STECF gear	2013			2014			2015			Average (13-14)			Average (14-15)		
						Landings (t)	Discards (t)	Catch (t)	Landings (t)	Discards (t)	Catch (t)	Landings (t)	Discards (t)	Catch (t)	Landings (t)	Discards (t)	Catch (t)	Landings (t)	Discards (t)	Catch (t)
Common Sole	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	70-100mm	Villa, b, d and e	BoB, 8A-B	OTTER	24.3%	73.1%	25.3%	28.9%	76.3%	31.3%	23.9%	32.0%	24.1%	26.6%	74.7%	28%	26.4%	54.1%	28%
	All beam trawls (TBB)	70-100		BoB, 8A-B	BEAM	8.6%	0.9%	8.4%	7.8%	6.3%	7.7%	8.0%	10.7%	8.0%	8.2%	3.6%	8%	7.9%	8.5%	8%
	All trammel and gill nets	>=100m		BoB, 8A-B	GILL	4.1%	0.1%	4.0%	1.5%	0.9%	1.5%	1.6%	0.0%	1.6%	2.8%	0.5%	3%	1.6%	0.4%	2%
					TRAMMEL	62.6%	25.9%	61.9%	61.0%	16.5%	58.8%	65.7%	57.3%	65.5%	61.8%	21.2%	60%	63.4%	36.9%	62%
Hake	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	>=100		BoB, 8A-B	OTTER	66.7%	26.0%	65.9%	62.6%	17.4%	60.3%	67.4%	57.3%	67.1%	64.6%	21.7%	63%	65.0%	37.4%	64%
	All longlines : LL, LLS	All		BoB, 8A-B	LONGLINE	21.4%	62.8%	28.0%	20.2%	51.5%	24.4%	19.6%	34.1%	21.3%	20.8%	57.2%	26%	19.9%	42.8%	23%
	All trammel and gill nets	>=100m		BoB, 8A-B	GILL	20.4%	5.7%	18.1%	19.5%	0.0%	16.9%	18.9%	0.0%	16.7%	20.0%	2.9%	17%	19.2%	0.0%	17%
					TRAMMEL	49.9%	19.6%	45.1%	44.0%	13.1%	39.9%	44.2%	56.5%	45.6%	47.0%	16.4%	42%	44.1%	34.8%	43%
					Overall netters	1.1%	2.7%	1.3%	1.4%	3.8%	1.7%	1.1%	7.7%	1.9%	1.2%	3.3%	2%	1.3%	5.8%	2%
						51.0%	22.3%	46.4%	45.4%	17.0%	41.6%	45.3%	64.2%	47.5%	48.2%	19.6%	44%	45.4%	40.6%	45%
Nephrops	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	>=70		BoB, 8A-B	OTTER	99.0%	100.0%	99.4%	99.8%	100.0%	99.8%	99.8%	100.0%	99.8%	99.4%	100.0%	100%	99.8%	100.0%	100%
Anglerfish	All GILL nets	>=200mm	VIIIIa, b, d and e	BoB, 8A-B	GILL	9.0%	7.1%	8.9%	6.4%	0.0%	5.6%	7.1%	0.8%	6.1%	7.7%	3.6%	7%	6.8%	0.4%	6%
Nephrops	All bottom trawls: OTB, OTT, PTB, TBN, TBS, TB, OT, PT, TX	>=70	VIIIc and IXa	IIb, 8C-9A	3a (OTTER>=32mm)	90.8%	91.2%	90.8%	97.1%	-	97.1%	99.3%	-	99.3%	94.0%	91.2%	94%	98.2%	-	98%
Hake	Trawls and Seines: OTB, OTT, OT, PTB, PT, TBN, TBS, OTM, PTM, TMS, TM, TX, SDN, SSC, SPR, TB, SX, SV	>=70mm		IIb, 8C-9A	3a (OTTER>=32mm)	48.5%	98.9%	65.0%	50.7%	96.9%	62.9%	56.8%	98.4%	62.8%	49.6%	97.9%	64%	53.7%	97.6%	63%
	All trammel and gill nets	80-99			3B (Gillnets >=60mm)	29.8%	0.5%	20.2%	27.8%	2.6%	21.1%	25.8%	0.0%	22.1%	28.8%	1.6%	21%	26.8%	1.3%	22%
					3T (Trammel nets)	6.6%	0.0%	4.5%	2.3%	0.0%	1.7%	1.1%	0.0%	1.0%	4.5%	0.0%	3%	1.7%	0.0%	1%
					Overall netters	36.5%	0.5%	24.7%	30.1%	2.6%	22.8%	27.0%	0.0%	23.1%	33.3%	1.6%	24%	28.5%	1.3%	23%
	All longlines (LL, LLS)	Hook size > 3.85+/- 1.15 length and 1.6 +/-0.4			3C (Longlines)	10.5%	0.0%	7.1%	16.1%	0.0%	11.8%	13.4%	0.0%	11.4%	13.3%	0.0%	9%	14.7%	0.0%	12%
Anglerfish	All GILL nets	>=200mm	VIIIc and IXa	IIb, 8C-9A	3B (Gillnets >=60mm)	33.8%	0.0%	31.9%	39.7%	-	39.7%	37.6%	-	37.6%	36.8%	0.0%	36%	38.6%	-	39%
Common sole	All trammel and gill nets	>=100mm	IXa	WW, 9EU	GILL	3.0%	-	3.0%	4.4%	0.0%	4.4%	5.7%	-	5.7%	3.7%	0.0%	4%	5.0%	0.0%	5%
					TRAMMEL	62.5%	-	49.1%	62.0%	0.0%	61.5%	70.4%	-	70.4%	62.2%	0.0%	55%	66.2%	0.0%	66%
					Overall netters	65.6%	-	65.6%	66.4%	0.0%	65.9%	76.1%	-	76.1%	66.0%	0.0%	66%	71.2%	0.0%	71%
Plaice	All trammel and gill nets	>=100mm	IXa	WW, 9EU	GILL	20.8%	-	20.8%	10.0%	-	10.0%	23.5%	-	23.5%	15.4%	-	15%	16.8%	-	17%
					TRAMMEL	41.7%	-	41.7%	60.0%	-	60.0%	29.4%	-	29.4%	50.8%	-	51%	44.7%	-	45%
					Overall netters	62.5%	-	62.5%	70.0%	-	70.0%	52.9%	-	52.9%	66.3%	-	66%	61.5%	-	61%

Table 5.1.4 Summary of data submitted by the Member States for NWW, NS and SWW regions. Numbers shown refer to the number of observations for which data was received (e.g. for different gears and species)

				Effort								Landings								nvessels											
Region	Fisheries	Target	Type	BEL	DEN	ESP	FRA	GBR	GER	IRE	POR	SWE	BEL	DEN	ESP	FRA	GBR	GER	IRE	POR	SWE	BEL	DEN	ESP	FRA	GBR	GER	IRE	POR	SWE	
NWW	a) Fisheries in 6 and 5b	Mixed gadoids	0-5% of 4 gadoids				3	4		3						12	16		12						3	4		3			
			>5% of 4 gadoids				3	4		3						12	16		12						3	4		3			
		Norway lobster	0-20% of Nephrops				3	3		3						6	6		3						3	3		3			
			>20% of Nephrops				3	3		3						6	6		3						3	3		3			
	b) Fisheries in 6, 7 and 5b	hake	0-20% of hake	5		3	6	2		6			5		3	6	2		6				5		3	6	2		6		
			>20% of hake	5		3	6	2		6			5		3	6	2		6				5		3	6	2		6		
		Megrim	0-20% of megrims			2	4			6						2	4			6					2	4			6		
			>20% of megrims			2	4			6						2	4			6					2	4			6		
	c) Fisheries in 7	Norway lobster	0-20% of Nephrops				3	3		3						3	3		3						3	3		3			
			>20% of Nephrops				3	3		3						3	3		3						3	3		3			
	d) Fisheries in 7a	Mixed gadoids	0-10% of 4 gadoids	3			3	2		3			3			3	2		3				3			3	2		3		
			>10% of 4 gadoids	3			3	2		3			3			3	2		3				3			3	2		3		
	e) Fisheries in 7d	Mixed gadoids	0-20% of 4 gadoids	3			3	2		3			3			3	2		3				3			3	2		3		
			>20% of 4 gadoids	3			3	2		3			3			3	2		3				3			3	2		3		
		Sole	0-5% of sole	2			2	1		2			2			2	1		2				2			2	1		2		
			>5% of sole	2			2	1		2			2			2	1		2				2			2	1		2		
	f) Fisheries in 7e	Sole	0-5% of sole	2			2	1		2			2			2	1		2				2			2	1		2		
			>5% of sole	2			2	1		2			2			2	1		2				2			2	1		2		
	h) Fisheries in 7bcf-k	Sole	0-5% of sole	2			2	2		2			2			2	2		2				2			2	2		2		
			>5% of sole	2			2	2		2			2			2	2		2				2			2	2		2		
i) Fisheries in 7bcfe-k	Mixed gadoids	0-20% of 4 gadoids	3			3	2		3			3			3	2		3				3			3	2		3			
		>20% of 4 gadoids	3			3	2		3			3			3	2		3				3			3	2		3			
NS	All trawls with mesh >= 100mm	Saithe	>50% saithe				1	1		1						1	1		1						1	1		1			
			<50% saithe	1			1	1		1		2	1			1	1		1		2		1			1	1		1		2
SWW	Fisheries in ??	Anglerfish	mesh>=200mm			1									1									1							
			mesh<200mm			1									1									1							
	Fisheries in 8abde	hake	(blank)			2								2									2								
			mesh>=100mm												1									1							
	Fisheries in 8c,9a	hake	mesh<100mm											1										1							
			(blank)			2									2									2							
			>5% total catch , >5 ton			1					1				1					1				1					1		
			<=5% total catch , <=5 ton			1				1			1					1				1					1				

Table 5.1.5.a **North Western Waters.** Summary of the proportions of the fleets below and above the threshold for inclusion in the landing obligation in 2017.

Fisheries	Target	Gear	Species	Effort		Landings		nvessels		
				below	above	below	above	below	above	
a) Fisheries in 6 and 5b	Mixed gadoids	TR1	haddock			0%	100%			
			megrims			9%	91%			
			plaice			4%	96%			
			sole			11%	89%			
			(blank)	16%	84%			25%	75%	
		TR2	haddock			25%	75%			
	megrims				43%	57%				
	plaice				36%	64%				
	sole				21%	79%				
			(blank)	93%	7%			87%	13%	
		TR3								
		Mixed gadoids Sum		56%	44%	3%	97%	65%	35%	
		Norway lobster	TR1	haddock			97%	3%		
	nephrops					9%	91%			
	(blank)			83%	17%			64%	36%	
	TR2			haddock			3%	97%		
nephrops				1%	99%					
(blank)		3%	97%			25%	75%			
		Pots	haddock							
nephrops				7%	93%					
(blank)	47%		53%			54%	46%			
	Norway lobster Sum		44%	56%	29%	71%	46%	54%		
b) Fisheries in 6, 7 and 5b	hake	TR1	hake			87%	13%			
			(blank)	96%	4%			98%	2%	
		TR2	hake			100%	0%			
			megrims			100%	0%			
			(blank)	100%	0%			99%	1%	
		TR3	hake			100%	0%	100%	0%	
	GNS				0%	100%				
		LL	hake			0%	100%			
	(blank)		0%	100%			0%	100%		
		TB	hake			37%	63%			
	(blank)		83%	17%			74%	26%		
			hake Sum	85%	15%	22%	78%	97%	3%	
		Megrims	TR1	megrims			71%	29%		
	(blank)			87%	13%			94%	6%	
	TR2		megrims			44%	56%			
(blank)			93%	7%			97%	3%		
	TR3	megrims			100%	0%	100%	0%		
TB		megrims			95%	5%				
		(blank)	17%	83%			27%	73%		
		Megrims Sum	81%	19%	77%	23%	95%	5%		
c) Fisheries in 7	Norway lobster	TR1	nephrops			26%	74%			
			(blank)	84%	16%			76%	24%	
		TR2	nephrops			2%	98%			
			(blank)	61%	39%			76%	24%	
		Pots	nephrops			17%	83%			
		(blank)	99%	1%			99%	1%		
		Norway lobster Sum	76%	24%	5%	95%	87%	13%		
d) Fisheries in 7a	Mixed gadoids	TR1	haddock			2%	98%			
			(blank)	36%	64%			69%	31%	
		TR2	haddock			47%	53%			
			(blank)	88%	12%			85%	15%	
	TR3									
		Mixed gadoids Sum	84%	16%	11%	89%	80%	20%		
e) Fisheries in 7d	Mixed gadoids	TR1	whiting			22%	78%			
			(blank)	82%	18%			67%	33%	
		TR2	whiting			17%	83%			
			(blank)	63%	37%			87%	13%	
		TR3				17%	83%	92%	8%	
					80%	20%				
		Mixed gadoids Sum	64%	36%	17%	83%	85%	15%		
		Sole	TR2	sole			11%	89%		
(blank)	74%			26%			57%	43%		
TR3					6%	94%	64%	36%		
					85%	15%				
		Sole Sum	74%	26%	11%	89%	58%	42%		

Table 5.1.5.a **North Western Waters.** Continued

Fisheries	Target	Gear	Species	Effort		Landings		nvessels	
				below	above	below	above	below	above
f) Fisheries in 7e	Sole	BT1	sole						
			(blank)						
		BT2	sole			18%	82%		
			(blank)	38%	62%			26%	74%
		TBB	sole			27%	73%		
			(blank)	44%	56%			44%	56%
				44%	56%	26%	74%	36%	64%
h) Fisheries in 7bcf-k	Sole	BT1	sole			100%	0%		
			(blank)	100%	0%			100%	0%
		BT2	sole			2%	98%		
			(blank)	29%	71%			28%	72%
		TBB	sole			21%	79%		
			(blank)	65%	35%			35%	65%
				44%	56%	7%	93%	39%	61%
i) Fisheries in 7bcfe-k	Mixed gadoids	TR1	whiting			4%	96%		
			(blank)	48%	52%			60%	40%
		TR2	whiting			20%	80%		
			(blank)	73%	27%			78%	22%
		TR3		99%	1%	72%	28%	97%	3%
				60%	40%	10%	90%	72%	28%

Table 5.1.5.b **North Sea.** Summary of the proportions of the fleets below and above the threshold for inclusion in the landing obligation in 2017.

Fisheries	Target	Gear	Species	Effort		Landings		nvessels	
				below	above	below	above	below	above
All trawls with mesh >= 100m	Saithe	All	(blank)	85%	15%			95%	5%
			Saithe			41%	59%		
				85%	15%	41%	59%	95%	5%

Table 5.1.5.c **South Western Waters.** Summary of the proportions of the fleets below and above the threshold for inclusion in the landing obligation in 2017.

Fisheries	Target	Gear	Species	Effort		Landings		nvessels	
				below	above	below	above	below	above
Fisheries in ??	Anglerfish	All gillnets	(blank)			0%	100%	0%	100%
			anglerfish			0%	100%	0%	100%
Fisheries in 8c,9a	hake	All bottom tr hake				60%	40%		
			(blank)	74%	26%			64%	36%
				74%	26%	60%	40%	64%	36%

Table 5.1.6.a **North Western Waters.** Reported effort (KWdays, 2014-2015 averaged) below and above the threshold for inclusion in the landing obligation in 2017.

Fisheries	Target	Gear	KWdays		Proportions		Total KWdays	
			below	above	below	above		
a) Fisheries in 6 and 5b	Mixed gadoids	TR1	1,411,985	7,437,665	16%	84%	8,849,650	
		TR2	8,763,941	677,909	93%	7%	9,441,850	
		TR3	0	0			0	
	Mixed gadoids Sum		10,175,926	8,115,574	56%	44%	18,291,500	
	Norway lobster	TR1	7,310,406	1,454,500	83%	17%	8,764,906	
		TR2	274,150	9,167,600	3%	97%	9,441,750	
		Pots	5,512,600	6,265,200	47%	53%	11,777,800	
	Norway lobster Sum		13,097,156	16,887,300	44%	56%	29,984,456	
	b) Fisheries in 6, 7 and 5b	hake	TR1	19,012,550	804,270	96%	4%	19,816,820
			TR2	23,600,158	118,046	100%	0%	23,718,204
TR3			102,716	0	100%	0%	102,716	
GNS			0	98,813	0%	100%	98,813	
LL			0	6,616,784	0%	100%	6,616,784	
hake Sum		4,323,859	863,857	83%	17%	5,187,716		
hake Sum		47,039,283	8,501,770	85%	15%	55,541,052		
Megrin		TR1	7,773,219	1,204,325	87%	13%	8,977,544	
		TR2	20,977,167	1,550,970	93%	7%	22,528,137	
		TR3	102,716	0	100%	0%	102,716	
Megrin Sum		863,857	4,323,859	17%	83%	5,187,716		
Megrin Sum		29,716,959	7,079,154	81%	19%	36,796,113		
c) Fisheries in 7	Norway lobster	TR1	17,981,550	3,359,136	84%	16%	21,340,686	
		TR2	20,572,544	13,400,544	61%	39%	33,973,087	
		Pots	14,686,581	86,000	99%	1%	14,772,581	
	Norway lobster Sum		53,240,674	16,845,680	76%	24%	70,086,353	
d) Fisheries in 7a	Mixed gadoids	TR1	214,517	377,748	36%	64%	592,265	
		TR2	6,785,179	951,422	88%	12%	7,736,600	
		TR3	0	0			0	
	Mixed gadoids Sum		6,999,695	1,329,170	84%	16%	8,328,865	
e) Fisheries in 7d	Mixed gadoids	TR1	110,421	23,926	82%	18%	134,346	
		TR2	4,830,967	2,794,375	63%	37%	7,625,341	
		TR3	62,046	15,425	80%	20%	77,471	
	Mixed gadoids Sum		5,003,433	2,833,725	64%	36%	7,837,158	
	Sole	TR2	5,375,207	1,894,240	74%	26%	7,269,446	
		TR3	65,517	11,955	85%	15%	77,471	
Sole Sum		5,440,723	1,906,194	74%	26%	7,346,917		
f) Fisheries in 7e	Sole	BT1	0	0			0	
		BT2	255,661	416,829	38%	62%	672,490	
		TBB	2,127,100	2,677,800	44%	56%	4,804,900	
	Sole Sum		2,382,761	3,094,629	44%	56%	5,477,390	
h) Fisheries in 7bcf-k	Sole	BT1	350,717	0	100%	0%	350,717	
		BT2	1,349,915	3,375,219	29%	71%	4,725,134	
		TBB	1,746,400	926,900	65%	35%	2,673,300	
	Sole Sum		3,447,032	4,302,119	44%	56%	7,749,151	
i) Fisheries in 7bcef-k	Mixed gadoids	TR1	9,916,692	10,703,234	48%	52%	20,619,926	
		TR2	14,347,087	5,258,301	73%	27%	19,605,388	
		TR3	26,954	165	99%	1%	27,119	
	Mixed gadoids Sum		24,290,732	15,961,700	60%	40%	40,252,432	

Table 5.1.6.b **North Sea.** Reported effort (KWdays, 2014-2015 averaged) below and above the threshold for inclusion in the landing obligation in 2017.

Fisheries	Target	Gear	KWdays		Proportions		Total KWdays
			below	above	below	above	
All trawls with mesh >= 100m	Saithe	All	33,627,439	5,768,902	85%	15%	39,396,341
	Saithe Sum		33,627,439	5,768,902	85%	15%	39,396,341

Table 5.1.6.c **South Western Waters.** Reported effort (KWdays or Days at Sea, 2014-2015 averaged) below and above the threshold for inclusion in the landing obligation in 2017. Note: different effort metrics used (days, KWdays). Anglerfish fishery not specified by area.

Fisheries	Unit	Target	Gear	Effort		Proportions		Total Effort
				below	above	below	above	
Fisheries in ??	days	Anglerfish	All gillnets					
	days Sum							
Fisheries in 8c,9a	days	hake	All bottom trawls	25,474	21,201	55%	45%	46,675
	days Sum			25,474	21,201	55%	45%	46,675
	KWdays	hake	All bottom trawls	4,884,315	1,705,200	74%	26%	6,589,516
	KWdays Sum			4,884,315	1,705,200	74%	26%	6,589,516

Table 5.1.7.a **North Western Waters.** Reported landings by species (tonnes, 2014-2015 averaged) below and above the threshold for inclusion in the landing obligation in 2017.

Fisheries	Target	Gear	Species	Landings		Proportions		Total Landings
				below	above	below	above	
a) Fisheries in 6 and 5b	Mixed gadoids	TR1	haddock	44	10,657	0%	100%	10,701
			megrims	171	1,641	9%	91%	1,812
			plaice	5	125	4%	96%	130
			sole	3	25	11%	89%	28
		TR2	haddock	53	161	25%	75%	214
			megrims	52	70	43%	57%	122
			plaice	6	10	36%	64%	15
			sole	2	7	21%	79%	9
		TR3	haddock	0	0			0
			megrims	0	0			0
			plaice	0	0			0
			sole	0	0			0
	Mixed gadoids Sum			335	12,696	3%	97%	13,031
	Norway lobster	TR1	haddock	9,038	278	97%	3%	9,316
			nephrops	203	2,075	9%	91%	2,277
		TR2	haddock	4	124	3%	97%	129
			nephrops	207	18,491	1%	99%	18,698
		Pots	haddock	0	0			0
			nephrops	189	2,585	7%	93%	2,774
	Norway lobster Sum			9,640	23,553	29%	71%	33,194
b) Fisheries in 6, 7 and 5b	hake	TR1	hake	6,940	992	87%	13%	7,932
		TR2	hake	1,331	2	100%	0%	1,333
			megrims	31	0	100%	0%	31
		TR3	hake	0	0	100%	0%	0
			megrims	0	0			0
		GNS	hake	0	611	0%	100%	611
		LL	hake	0	30,174	0%	100%	30,174
		TB	hake	1,096	1,889	37%	63%	2,985
	hake Sum			9,399	33,668	22%	78%	43,067
	Megrim	TR1	megrims	2,261	909	71%	29%	3,170
		TR2	megrims	1,083	1,370	44%	56%	2,453
		TR3	megrims	0	0			0
		TB	megrims	5,489	317	95%	5%	5,806
	Megrim Sum			8,833	2,596	77%	23%	11,429
c) Fisheries in 7	Norway lobster	TR1	nephrops	866	2,402	26%	74%	3,268
		TR2	nephrops	502	21,579	2%	98%	22,081
		Pots	nephrops	3	15	17%	83%	18
	Norway lobster Sum			1,371	23,996	5%	95%	25,367
d) Fisheries in 7a	Mixed gadoids	TR1	haddock	36	1,518	2%	98%	1,554
		TR2	haddock	185	210	47%	53%	395
		TR3	haddock	0	0			0
	Mixed gadoids Sum			221	1,728	11%	89%	1,949
e) Fisheries in 7d	Mixed gadoids	TR1	whiting	3	11	22%	78%	14
		TR2	whiting	541	2,733	17%	83%	3,273
		TR3	whiting	1	3	17%	83%	4
	Mixed gadoids Sum			544	2,747	17%	83%	3,291
	Sole	TR2	sole	52	434	11%	89%	485
		TR3	sole	0	3	6%	94%	4
	Sole Sum			52	437	11%	89%	489
f) Fisheries in 7e	Sole	BT1	sole	0	0			0
		BT2	sole	14	64	18%	82%	78
		TBB	sole	216	596	27%	73%	812
	Sole Sum			230	660	26%	74%	890
h) Fisheries in 7bcf-k	Sole	BT1	sole	1	0	100%	0%	1
		BT2	sole	29	1,334	2%	98%	1,363
		TBB	sole	90	340	21%	79%	430
	Sole Sum			120	1,674	7%	93%	1,794
i) Fisheries in 7bcfe-k	Mixed gadoids	TR1	whiting	438	10,621	4%	96%	11,058
		TR2	whiting	1,552	6,366	20%	80%	7,919
		TR3	whiting	0	0	72%	28%	0
	Mixed gadoids Sum			1,990	16,987	10%	90%	18,977

Table 5.1.7.b **North Sea**. Reported landings by species (tonnes, 2014-2015 averaged) below and above the threshold for inclusion in the landing obligation in 2017.

Fisheries	Target	Gear	Species	Landings		Proportions		Total Landings
				below	above	below	above	
All trawls with mesh \geq 100m	Saithe	All	Saithe	27,533	39,502	41%	59%	67,035
	Saithe Sum			27,533	39,502	41%	59%	67,035

Table 5.1.7.c **South Western Waters**. Reported landings by species (tonnes, 2014-2015 averaged) below and above the threshold for inclusion in the landing obligation in 2017.

Fisheries	Target	Gear	Species	Landings		Proportions		Total Landings
				below	above	below	above	
Fisheries in ??	Anglerfish	All gilln	anglerfish	0	671	0%	100%	671
	Anglerfish Sum			0	671	0%	100%	671
Fisheries in 8c,9a	hake	All bott	hake	1,017,763	668,753	60%	40%	1,686,516
	hake Sum			1,017,763	668,753	60%	40%	1,686,516

Table 5.1.8.a **North Western Waters.** Reported number of vessels (2014-2015 averaged) below and above the threshold for inclusion in the landing obligation in 2017.

Fisheries	Target	Gear	N vessels		Proportions		Total N vessels
			below	above	below	above	
a) Fisheries in 6 and 5b	Mixed gadoids	TR1	52	155	25%	75%	207
		TR2	334	52	87%	13%	386
		TR3	0	0			0
	Mixed gadoids Sum		386	207	65%	35%	593
	Norway lobster	TR1	114	65	64%	36%	179
		TR2	97	286	25%	75%	383
		Pots	314	268	54%	46%	582
	Norway lobster Sum		525	619	46%	54%	1,144
b) Fisheries in 6, 7 and 5b	hake	TR1	787	17	98%	2%	804
		TR2	1,505	9	99%	1%	1,514
		TR3	100	0	100%	0%	100
		GNS	0	2	0%	100%	2
		LL	0	42	0%	100%	42
		TB	14	5	74%	26%	19
	hake Sum		2,406	75	97%	3%	2,481
	Megrim	TR1	234	15	94%	6%	249
		TR2	710	24	97%	3%	734
		TR3	100	0	100%	0%	100
		TB	7	19	27%	73%	26
	Megrim Sum		1,051	58	95%	5%	1,109
c) Fisheries in 7	Norway lobster	TR1	485	154	76%	24%	639
		TR2	947	306	76%	24%	1,253
		Pots	1,739	13	99%	1%	1,752
	Norway lobster Sum		3,171	473	87%	13%	3,644
d) Fisheries in 7a	Mixed gadoids	TR1	115	51	69%	31%	166
		TR2	274	49	85%	15%	323
		TR3	0	0			0
	Mixed gadoids Sum		389	100	80%	20%	489
e) Fisheries in 7d	Mixed gadoids	TR1	43	21	67%	33%	64
		TR2	309	46	87%	13%	355
		TR3	61	5	92%	8%	66
	Mixed gadoids Sum		413	72	85%	15%	485
	Sole	TR2	199	153	57%	43%	352
		TR3	42	24	64%	36%	66
	Sole Sum		241	177	58%	42%	418
f) Fisheries in 7e	Sole	BT1	0	0			0
		BT2	11	31	26%	74%	42
		TBB	24	30	44%	56%	54
	Sole Sum		35	61	36%	64%	96
h) Fisheries in 7bcf-k	Sole	BT1	13	0	100%	0%	13
		BT2	14	36	28%	72%	50
		TBB	23	43	35%	65%	66
	Sole Sum		50	79	39%	61%	129
i) Fisheries in 7bcef-k	Mixed gadoids	TR1	316	207	60%	40%	523
		TR2	649	182	78%	22%	831
		TR3	38	1	97%	3%	39
	Mixed gadoids Sum		1,003	390	72%	28%	1,393

Table 5.1.8.b **North Sea.** Reported number of vessels (2014-2015 averaged) below and above the threshold for inclusion in the landing obligation in 2017.

Fisheries	Target	Gear	N vessels		Proportions		Total N vessels
			below	above	below	above	
All trawls with mesh ≥ 100 m	Saithe	All	445	22	95%	5%	467
	Saithe Sum		445	22	95%	5%	467

Table 5.1.8.c **South Western Waters.** Reported number of vessels (2014-2015 averaged) below and above the threshold for inclusion in the landing obligation in 2017.

Region	Fisheries	Target	Gear	N vessels		Proportions		Total N vessels
				below	above	below	above	
SWW	Fisheries in ??	Anglerfish	All gillnets	0	17	0%	100%	17
		Anglerfish Sum		0	17	0%	100%	17
	Fisheries in 8c,9a	hake	All bottom	123	68	64%	36%	191
		hake Sum		123	68	64%	36%	191

5.2 Review of electrofishing for razor clam fisheries

Background

The UK is undertaking a consultation on the use of electrofishing as a permitted method for the harvesting of razor clams. The basis for this consultation³ is a published report and as associated scientific paper⁴

The Technical Conservation Measures (TCM), Council Regulation (EC) No 850/98, prohibits the catching of marine organisms using methods incorporating electric currents; with the exemption of the electric pulse trawl in ICES division IVc and IVb. This exemption specifies permitted operational ranges, caps the number of vessels that can use this technique, setting maximum electrical power, effective voltage limits and automatic management systems. However the TCM is currently under review including the use of electrical fishing methods.

Currently Razor clams are not regulated at European level and may be harvested with a number of methods, including by hand or suction/pump dredges depending on local regulation.

The results of the research suggest that electrofishing for razor clams does not have immediate or short term lethal effects, nor prolonged behavioural effects on target and non-target species exposed to the electric field generated. The report also concluded that electrofishing has a very low short term impact on non-target species and it warrants consideration as a viable fishing method for the commercial razor clam fishery in Scotland within sustainable limits.

Request to the STECF

On the basis of the report provided by the UK authorities and other relevant material STECF are asked to identify if the operation of this electrofishing system, under the conditions described, would be likely to result in a more negative impact on non-target species or on any related sensitive habitats (such as currently protected areas or known juvenile or nursery areas) as compared to the traditional fishing gears used for this fishery so far, which have included the use of mechanical and suction dredges in combination with collection by divers.

STECF is asked to recommend any operational constraints that should be examined in the management of this fishery to avoid impacts that would potentially be more negative than the impacts from the fishing method mentioned above. These could include equipment constraints (power levels or autonomous recording/ management systems) or environmental constraints (frequency of fishing / access to particular areas, fishing in known juvenile / nursery areas).

STECF is asked to identify what additional material would be needed in support of an exemption to the use of this gear under the current TCM. As it is likely that there will be increasing interest in developing electrofishing methods STECF is asked to provide guidance on the additional information that should be provided to support future evaluations.

STECF response

ToR 1. Impact on non-target species or sensitive habitats compared to the traditional gears

³ <http://www.gov.scot/Publications/2014/10/8462>

⁴ Murray, F., Copland, P., Boulcott, P. Robertson, M. and Bailey, N. 2016. Impacts of electrofishing for razor clams (*Ensis* spp.) on benthic fauna. Fisheries Research Volume 174, February 2016, pages 40–46.

STECF notes that the main findings reported by the Marine Scotland Science report and the paper by Murray et al. (2016) can be summarized as follows:

- a) Razor clams (*Ensis* spp). were the only invertebrates observed emerging from the seabed;
- b) other burrowing species may be stunned, but not stimulated to emerge;
- c) electrofishing is a low impact method of harvesting razor clams. The impact on the seabed is minimal in comparison to conventional dredging;
- d) the immediate effects on non-target species are non-lethal and effects on invertebrate behaviour are short term;
- e) no mortalities were recorded as a direct result of the fishing equipment or electric field generated and any induced behavioural responses in non-target species were exhibited for a maximum of 10 minutes following exposure.

The report mentions that in 2014, the Scottish Natural Heritage reported that because of the low effects on non-target species and benthic habitat, electrofishing is more environmentally friendly method than dredging.

The report and the paper submitted by Marine Scotland highlighted that further research is required to establish the medium to long term implications (survivability) and if there are any effects of electrofishing on fertility and fecundity of both razor clams and non-target species.

STECF notes that the report provides relevant information regarding the short-term effects on the target and non-target species.

STECF notes that historical studies have reported major detrimental effects on habitats of the conventional gear, and that the short-term impacts of the new gear on the seabed habitat are less than the conventional gears.

STECF notes however that the long-term effects of electrofishing on the ecosystem and on the targeted and non-targeted species remain unknown. Hence, at present it is not possible to determine whether the overall long-term effects of electrofishing would be greater or less than those arising through the use of conventional gears.

ToR 2. Management operational constraints (frequency of fishing / access to particular areas, fishing nursery areas)

The fishing efficiency of the electrofishing is unknown, as no systematic comparison of catch rate (e.g. catch per hour) with the traditional gear has been conducted. Nevertheless, STECF notes that electrofishing appears a very selective and efficient fishing method for razor clams with a high catchability of the marketable size of razor clams. This, in combination with a relatively slow growth rate and late maturity, makes them potentially vulnerable to overexploitation.

STECF notes however that there are no mechanisms in place to control exploitation rates in the fisheries for razor clams. In such circumstances, there is a risk that fishing mortality rates will exceed those that are consistent with the objective of achieving MSY. Hence, STECF considers that in an attempt to control exploitation rates, any exemptions to permit electrofishing for razor clams should require that such fisheries are closely monitored and be subject to agreed management plans for the sustainable harvesting of razor clams. Given the patchy distribution of razor clams, regulatory measures would best be tailored to the specific environmental conditions of the different areas and fisheries.

Similar to the derogation for electric pulse trawl in ICES IVbc (cf. ICES, 2016), any potential exemption to permit electrofishing for razor clams should specify the operational settings to ensure that the characteristics of the gear remain in a range that has been evaluated. The trials described in the Marine Scotland report have all used comparable settings for electric currents (e.g. voltage 24, current ~80 A). No experiments have been carried out with different voltages

or currents. It is therefore not possible to evaluate the environmental effects of alternative settings. Additionally, STECF underlines that it is necessary to insure the controllability of the electric system with regards to these operational settings.

ToR 3. Additional material needed in support of an exemption / provide guidance in support of future evaluations

When a new technology is introduced into a fishery, scientific initial trials conducted in a structured way are required to examine the differences between two gears fished in the same way. This should be followed by a period when the commercial fishery is observed to understand how the changes in technology affect fishing practices.

As a general guidance, STECF suggests therefore that the following additional information are provided:

- a) the biological characteristics and the state of exploited resources with reference to long-term yields and low risk of stock collapse;
- b) the description of the fishing pressure and the measures to accomplish a sustainable exploitation of the main target stocks;
- c) the data on catches, effort and catches per unit of effort (CPUE), as well as the biological reference points ensuring the conservation of the concerned stocks;
- d) the catch composition in terms of size distribution (both for the conventional gear and for the new gear);
- e) species and size selectivity comparison between the conventional gears and electrofishing;
- f) the potential impact of electrofishing on the marine environment with particular interest on sensitive habitats (i.e. protected areas or known juvenile or nursery areas);
- g) the social and economic impact of the gear proposed; and
- h) the scientific monitoring of the razor clams stock status.

Furthermore, STECF considers that the electrical characteristics of electrofishing gears should be strictly controlled so that in practice they are used to stimulate the target organisms rather than kill indiscriminately.

STECF notes that some of the elements listed above are to some extent already covered in the report from Marine Scotland. In particular, the report recognises i) the need for controls on the nature of the gear used; ii) the need for sustainable harvesting of the stocks in each of the areas they are found; iii) the need for stock surveys to estimate the size of the different populations using appropriate survey techniques and protocols.

These elements should inform the development of management plans.

STECF conclusions

STECF concludes that although fishing with electricity is prohibited in the current Technical Measures Regulation (Council Regulation (EC) No 850/98, art. 31), a temporary exemption has already been granted to the pulse trawl in the Southern North Sea. The EC proposal for the new Technical Measures Regulation (COM(2016) 134) includes a specific allowance for the pulse trawl in the Southern North Sea and a general consideration (nr. 32) that innovative gears could be included in joint recommendations from regional groups of Member States if they are shown to improve selectivity and not to have negative impacts on sensitive habitats and non-target species. STECF therefore concludes that any proposals for derogations to fish with electricity should be evaluated in the light of the overall ambition to improve selectivity without jeopardizing sensitive habitats and non-target species and in comparison with gears that are currently in use in the respective fisheries. Any plan to apply electrofishing should be accompanied by a framework to monitor short-term and long-term impacts and by a management process that will assure that the application of the technology stays within agreed bounds. Additionally, this also

means that if the new gear is more efficient than the gear currently in use, mechanisms should be put in place to ensure that fishing mortality remains in line with the MSY objective.

References

ICES. 2016. Second Interim Report of the Working Group on Electrical Trawling (WGELECTRA), 10-12 November 2015, IJmuiden, the Netherlands. ICES CM 2015/SSGIEOM:29. 44 pp.

5.3 Deep sea stocks in the western waters multiannual management plans

Background

The Commission is developing multiannual management plans (MAPs) for different sea basins, and is finalising the Impact Assessment report for the MAPs for North and South Western waters.

The work done by STECF for this impact assessment (STECF-15-08) made a number of conclusions which the Commission is summarising in its report. In its work, STECF used a list of stocks supplied by DG MARE, which includes main commercial demersal stocks, and a few stocks associated with so-called deep sea fisheries (ling, blue ling, saithe).

Every two years, Council adopts fishing opportunities for a number of deep sea stocks (deep-sea sharks, black scabbardfish, alfonsinos, roundnose grenadier and roughhead grenadier, orange roughy, red seabream and greater forkbeard). For several of these species, ICES in its scientific advice recommends a long term management perspective and for some species, like red seabream in the Atlantic, ICES recommends urgent recovery plans. The Commission therefore plans to include deep sea species in the future MAPs for western waters.

Request to the STECF

STECF is asked whether (a) the current lack of analytical assessments for the majority of deep sea species in western waters would preclude the addition of these species to the type of modelling work done by STECF 15-08 ; (b); based on STECF knowledge on these stocks and expert opinion of the modelling framework used, whether their inclusion, (assuming the availability of an analytical assessment) would alter the general conclusions of STECF 15-08 and c) that including deep sea species in the south and north western waters management plans would contribute to long the term management of these species.

STECF response

Some background on STECF-15-08

(STECF-15-08) carried out an evaluation of the multiannual management plans (MAPs). In conducting that assessment, it was not possible to incorporate all fleets and stocks that exist in each of the management areas of the Western Waters into the simulation models. In particular, a number of deep sea stocks were not considered during STECF-15-08.

Based on the results of simulations carried out during STECF-15-08, the main conclusions were as follows:

- setting fishing opportunities in line with single-species F_{MSY} ranges will provide managers with additional flexibility compared to the basic provisions of the 2013 CFP. Such flexibility is likely to help alleviate to some extent the problem of mismatches in quota availability in mixed-species fisheries thereby reducing the risk of early closure of some fisheries due to choke species.
- It is crucial that managers take note that persistent fishing at the upper limits of the F_{MSY} ranges across all or most stocks simultaneously negates the flexibility introduced by the F_{MSY} ranges and greatly increases the risk of overfishing. Such an approach will also increase the risk that the objectives of the CFP will not be achieved.
- single species biomass safeguards for all stocks should be maintained to provide a basic level of protection.

STECF observations and conclusions

The list of deep sea species considered below are from annex 1 and 2 of EU regulation COM(2012) 371 final. They are listed in tables 5.3.1 and 5.3.2.

TOR a) whether the current lack of analytical assessments for the majority of deep sea species in western waters would preclude the addition of these species to the type of modelling work done by STECF 15-08

In order to evaluate the multi-species management plans proposals, the modelling work carried out by STECF-15-08 was based on simulation tools (FLBEIA, IAM, Fcube) which took into account both the dynamics of the stocks and mixed fisheries interactions. For the description of the stocks' dynamics however, all current versions of the models are built on outputs from analytical (age-structured) stock assessments. STECF notes that, as shown in Table 6.3.1, among the 36 deep-sea stocks assessed by ICES, only five are assessed using analytical assessment (ICES category 1) which would allow their inclusion in the simulation frameworks used during STECF-15-08. For the remaining stocks, STECF considers that it is not currently possible to incorporate them into such an analysis. STECF also notes that for the modelling work carried out by the EWG, the availability of reference points is required and those have only been defined for 7 stocks.

STECF notes however that work is currently ongoing which in the future may allow an assessment of management plan strategies for mixed fisheries including both, the stocks with analytical assessment and the so-called "data-poor stocks" for which no such assessments are available:

- The ICES workshop WKProxy (ICES, 2016) has developed MSY and precautionary reference point proxies based on available data and expert judgement for a selection of stocks in ICES categories 3 and 4 in Western Waters. Several approaches were used to provide appropriate proxies for F_{MSY} and $MSY_{B_{trigger}}$ including, life history indicators, stochastic production model or length-based methods. Several deep sea species were included in the analysis: greater silver smelt (*Argentina silus*), tusk (*Brosme brosme*) and ling (*Molva molva*).
- The ICES workshop WKLIFE (ICES, 2015, 2016⁵) is also developing quantitative assessment methods based on life-history traits and exploitation characteristics for data-limited stocks. Although this workshop has not yet looked at deep-sea species, the methods developed could potentially be extended to such stocks.
- The "DRuMFISH" DG-Mare project (Study on approaches to management for data-poor stocks in mixed fisheries, Tender no MARE/2014/44, 2016-2017) is specifically developing mixed fisheries simulation frameworks incorporating data-poor stocks which could also be used for deep-sea stocks.

STECF thus concludes that it would not be possible, at present, to provide a quantitative assessment of the implications of the MAPs on deep-water species. Pending the outcome of the on-going investigations mentioned above, such assessments may be possible in the future.

TOR b) whether based on STECF knowledge on these stocks and expert opinion of the modelling framework used, whether their inclusion, (assuming the availability of an analytical assessment) would alter the general conclusions of STECF 15-08

STECF considers that the general conclusions of STECF 15-08, relating to F_{MSY} ranges and biomass safeguards, would not be altered. However, the model outcomes are likely to be different if the deep sea stocks included in the analysis interact with the stocks already included during the

5 Report not published at the time of STECF plenary

EWG, especially if the deep sea stocks are protected species or are likely to limit the fisheries in terms of catch advice/fishing mortality level (i.e. in the case of a 0 catch advice).

In order to assess the level of interaction between stocks, a preliminary approach would be to analyse the catch species assemblages by fleet and/or metier and determine the level of correlation between species. As it was not possible to carry out such analysis during the plenary meeting, a pragmatic approach was followed and levels of potential interaction between deep sea stocks and the stocks included in the STECF 15-08 were qualitatively defined based on empirical information on stock distributions and catch of deep sea species by fisheries provided in ICES Working Group reports where deep sea stocks are evaluated (WGEF and WGDEEP). Three levels of potential interactions were defined: 0 (= no interaction), 1 (=little potential interaction) and 2 (= some potential interactions) (Table 5.3.1).

The stronger potential interactions (category 2 in Table 5.3.1) occur for stocks whose part of the spatial distribution extends on the shelf edge and thus can be caught by fleets targeting hake, megrim, anglerfish and saithe and using various gears (trawl, gillnets and longline). This includes stocks of blue ling, ling, greater silver melt, red seabream, greater forkbeard and several stocks of deep sea sharks. Among those stocks, red seabream in Subareas 6-8 is under a "zero catch" advice while the stocks of blue ling in Subareas 1, 2, 8, 9 and 12 and Divisions 3a and 4a and several stocks of deep sea shark are under a "no targeted fishery" advice. For the deep sea sharks, several species, some of them without assessment are included in a single global TAC (Table 5.3.2).

However, for the majority of those category 2 stocks, the spatial overlap with stocks included in the STECF-15-08 analysis remain rather limited compared with the overall distribution of the stock and associated fishery. STECF considers that except for red seabream, such interactions may not be sufficient to potentially alter the general conclusion of STECF-15-08. It can thus be anticipated that once it is under the landing obligation, this stock would become a "choke species" which could alter the result of the analysis conducted at STECF-15-08.

STECF concludes that, if the deep sea species which could potentially interact with fisheries considered during STECF 15-08 were included, the general conclusions of the EWG, related to F_{MSY} ranges and biomass safeguards, would not be altered. However, if red seabream in Subareas 6-8 was included in the analysis, assuming that an analytical assessment is available, the model outcomes may be different.

ToR c) that including deep sea species in the south and north western waters management plans would contribute to long term management of these species.

Despite the fact that for the majority of deep-sea species, the status of the stocks is unknown and no analytical assessment and reference points are available (Table 5.3.1), STECF considers that their inclusion in south and north western waters management plans under development may contribute to the long term management of those species, provided that specific management measures are implemented/adopted.

Due to the distinct spatial distribution of the deep sea stocks and their fisheries, it can be anticipated that any measures aiming at improving their stocks status and managing the associated fisheries may have a limited impact on the fisheries operating in shallower waters.

Table 5.3.1. Stock assessment, stock status, advice, and catch information for the deep sea stocks assessed by ICES (ICES, 2016b and c). The levels of potential interaction with stocks caught by the fisheries included in the STECF-2015-08 simulation analysis is empirically categorised by STECF (0=no potential interaction, 1=little potential interaction and 2=potential interaction) and presented in the "Potential interaction category" column. IUCN red list classification is also presented (N=not listed, CR=critically endangered, EN=endangered, VU=vulnerable).

Stock name	ICES Data Category	Reference point Y/N	Recent catch (t)	Potential interaction "category"	Comments	Status	Advice	IUCN red list
Alfonsinos/Golden eye perch (<i>Beryx</i> spp.) in the Northeast Atlantic	5.20	N	280	0	No spatial overlap / different fisheries	Unknown	PA landing based	N
Greater silver smelt (<i>Argentina silus</i>) in Subareas 1, 2, 4 and Division 3a (Northeast Arctic, North Sea, Skagerrak and Kattegat)	3.20	N	13500	0	No spatial overlap / different fisheries	Unknown	PA index based	N
Greater silver smelt (<i>Argentina silus</i>) in Divisions 5b and 6a (Faroes grounds, West of Scotland)	3.20	N	15600	0	No spatial overlap / different fisheries	Unknown	PA index based	N
Greater silver smelt (<i>Argentina silus</i>) in Subarea 14 and Division 5a (East Greenland, Iceland Grounds)	3.30	Y	6000	0	No spatial overlap / different fisheries	F<Fmsy	PA index based	N
Greater silver smelt (<i>Argentina silus</i>) in Subareas 7-10, 12 and Division 6b (other areas)	3.20	N	13	2	Very low landings but discards and potential interaction with demersal fisheries on the slope	Unknown	PA index based	N
Blue ling (<i>Molva dypterygia</i>) in Subarea 14 and Division 5a (East Greenland, Iceland grounds)	3.30	N	2500	0	No spatial overlap / different fisheries	Unknown	PA index based	N
Blue ling (<i>Molva dypterygia</i>) in Subareas 6-7 and Division 5b (Celtic Seas, English Channel and Faroes Grounds)	1.00	Y	2800	2	With demersal fisheries on the slope	F<<Fmsy	MSY Model based	N
Blue ling (<i>Molva dypterygia</i>) in Subareas 1, 2, 8, 9 and 12 and Divisions 3a and 4a (other areas)	5.30	N	240	2	With demersal fisheries on the slope	Unknown	No targeted fishery	N
Black scabbardfish (<i>Aphanopus carbo</i>) in Subareas 1, 2, 4, 6-8, 10, 14 and Divisions 3a, 5a, 5b, 9a and 12b	3.00	N	5000	0	No spatial overlap / different fisheries	Unknown	PA index based	N
Greater forkbeard (<i>Phycis blennoides</i>) in the Northeast Atlantic	3.20	N	4000	2	Bycatch in the demersal trawl and longline fisheries hake, megrim, monkfish, ling, and deep-water fish.	Unknown	PA landing based	N
Ling (<i>Molva molva</i>) in Subareas 1 and 2 (Northeast Arctic)	3.20	N	9000	0	No spatial overlap / different fisheries	Unknown	PA index based	N
Ling (<i>Molva molva</i>) in Division 5b (Faroes Grounds)	3.20	N	6000	0	No spatial overlap / different fisheries	Unknown	PA index based	N
Ling (<i>Molva molva</i>) in Division 5a (Iceland Grounds)	1.00	Y	1200	0	No spatial overlap / different fisheries	F<Fmsy	MSY model based	N
Ling (<i>Molva molva</i>) in Subareas 6-9, 12, and 14, and in Divisions 3a and 4a (other areas)	3.20	N	1700	2	With demersal fisheries on the slope	Unknown	PA index based	N
Orange roughy (<i>Hoplostethus atlanticus</i>) in the Northeast Atlantic	6.30	N	0	0	No spatial overlap / different fisheries	Depleted	0 catch	VU
Roughhead grenadier (<i>Macrourus berglax</i>) in the Northeast Atlantic	6.30	N	1000	0	No spatial overlap / different fisheries	Unknown	No targeted fishery	N
Roundnose grenadier (<i>Coryphaenoides rupestris</i>) in Divisions 10b and 12c, and Subdivisions 12a1, 14b1 and 5a1 (Oceanic Northeast Atlantic and Northern Reykjanes Ridge)	5.20	N	3400	0	No spatial overlap / different fisheries	Unknown	PA landing based	EN
Roundnose grenadier (<i>Coryphaenoides rupestris</i>) in Subareas 6-12, and Divisions Vb and XIb (Celtic Seas and the English Channel, Faroes Grounds and Western Hatton Bank)	1.00	Y	1400	1	Possible but limited	F<Fmsy	MSY model based	EN
Roundnose grenadier (<i>Coryphaenoides rupestris</i>) in Division 3a (Skagerrak and Kattegat)	6.30	N	fishery stopped	0	No spatial overlap / different fisheries	Unknown	0 catch	EN
Roundnose grenadier (<i>Coryphaenoides rupestris</i>) in Subareas 1, 2, 4, 8, 9 and Division 14a, and Subdivisions 14b2 and 5a2 (Northeast Atlantic)	6.20	N	51	0	No spatial overlap / different fisheries	Unknown	PA landing based	EN
Red (=blackspot) seabream (<i>Pagellus bogaraveo</i>) in Subareas 6-8 (Celtic Seas and the English Channel, Bay of Biscay)	6.30	N	177	2	Adults distributed on the slope and juveniles in coastal areas	Depleted	0 catch	N
Red (=blackspot) seabream (<i>Pagellus bogaraveo</i>) in Subarea 9 (Atlantic Iberian Waters)	3.20	N	295	2	Adults distributed on the slope and juveniles in coastal areas	Unknown	PA index based	N
Red (=blackspot) seabream (<i>Pagellus bogaraveo</i>) in Subarea 10 (Azores grounds)	3.20	N	700	2	Adults distributed on the slope and juveniles in coastal areas	Unknown	PA landing based	N
Roughsnout grenadier (<i>Trachyrincus scabrus</i>) in the Northeast Atlantic	6.20	N	0	1	Possible but limited	Unknown	No targeted fishery	N
Tusk (<i>Brosme brosme</i>) in Subareas 1 and 2 (Northeast Arctic)	3.20	N	8000	0	No spatial overlap / different fisheries	Unknown	PA index based	N
Tusk (<i>Brosme brosme</i>) in Subarea 14 and Division 5a (East Greenland, Iceland Grounds)	1.00	Y FMSY	6000	0	No spatial overlap / different fisheries	F>Fmsy	MSY model based	N
Tusk (<i>Brosme brosme</i>) in Subarea 12, excluding Division 12b (Southern mid-Atlantic Ridge)	6.30	N	0	0	No spatial overlap / different fisheries	Unknown	0 catch	N
Tusk (<i>Brosme brosme</i>) in Subareas 4, 7-9 and Divisions 3a, 5b, 6a, and 12b (Northeast Atlantic)	3.20	N	4000	1	Possible but limited	Unknown	PA index based	N
Tusk (<i>Brosme brosme</i>) in Division 6b (Rockall)	3.20	Y Length based indicator	250	1	Possible but limited	Unknown	PA landing based	N
Portuguese dogfish (<i>Centroscyminus coelestis</i>) in the Northeast Atlantic	6.30	N	5	1	Wide distribution of the stock up to 250m depth on the slope	Unknown	No targeted fishery	EN
Tope (<i>Galeorhinus galeus</i>) in the Northeast Atlantic	5.20	N	300	1	Bycatch species in longline, gillnet, and trawl fisheries	Unknown	PA landing based	VU
Leafscale gulper shark (<i>Centrophorus squamosus</i>) in the Northeast Atlantic	6.30	N	33	1	Wide distribution of the stock up to 250m depth on the slope	Unknown	No targeted fishery	EN
Black-mouth dogfish (<i>Galeus melastomus</i>) in Subarea 8 and Division 9a (Bay of Biscay, Atlantic Iberian waters)	3.20	N	unknown landings	1	Bycatch species in longline, gillnet, and trawl fisheries	Unknown	PA index based	N
Black-mouth dogfish (<i>Galeus melastomus</i>) in Subareas 6 and 7 (West of Scotland, Southern Celtic Seas and English Channel)	3.20	N	unknown landings	1	Bycatch species in longline, gillnet, and trawl fisheries	Unknown	PA index based	N
Kitefin shark (<i>Dalatias licha</i>) in the Northeast Atlantic	6.3.0	N	0	0	No spatial overlap / different fisheries	Unknown	No targeted fishery	N
Spurdog (<i>Squalus acanthias</i>) in the Northeast Atlantic	1	Y	2300	1	Bycatch in the trawl, gillnet and longline fisheries	F<Fmsy	No targeted fishery	EN

Table 5.3.2 List of deep sea species not assessed by ICES. For the deep-sea shark's species, greyed species are included in a single global TAC for deep-sea sharks (set to 0 for 2015 and 2016, COUNCIL REGULATION (EU) 2016/72). IUCN red list classification is also presented (N=not listed, CR=critically endangered, EN=endangered).

Species	IUCN red list
Deep-water catsharks (<i>Apristurus</i> spp.)	N
Friiled shark (<i>Chlamydoselachus anguineus</i>)	N
Gulper shark (<i>Centrophorus granulosus</i>)	CR
Longnose velvet dogfish (<i>Centroscymnus crepidater</i>)	N
Black dogfish (<i>Centroscyllium fabricii</i>)	N
Birdbeak dogfish (<i>Deania calcea</i>)	EN
Greater lanternshark (<i>Etmopterus princeps</i>)	N
Smooth lanternshark (<i>Etmopterus pusillus</i>)	N
Velvet belly (<i>Etmopterus spinax</i>)	N
blurred smooth lanternshark (<i>Etmopterus bigelowi</i>)	N
Mouse catshark (<i>Galeus murinus</i>)	N
Bluntnose six-gill shark (<i>Hexanchus griseus</i>)	N
Sailfin roughshark (Sharpback shark) (<i>Oxynotus paradoxus</i>)	N
Knifetooth dogfish (<i>Scymnodon ringens</i>)	N
Velvet dogfish(<i>Scymnodon squamulosus</i>)	N
Greenland shark (<i>Somniosus microcephalus</i>)	n
Rabbit fish (Rattail) (<i>Chimaera monstrosa</i>)	N
Common mora (<i>Mora moro</i>)	N
Blue antimora (Blue hake) (<i>Antimora rostrata</i>)	N
Black (Deep-water) cardinal fish (<i>Epigonus telescopus</i>)	N
Bluemouth (Blue mouth redfish) (<i>Helicolenus dactylopterus</i>)	N
Conger eel (<i>Conger conger</i>)	N
Silver scabbard fish (Cutlass fish) (<i>Lepidopus caudatus</i>)	N
Baird's smoothhead (<i>Alepocephalus bairdii</i>)	N
Eelpout (<i>Lycodes esmarkii</i>)	N
Arctic skate (<i>Raja hyperborea</i>)	N
Small redfish (Norway haddock) (<i>Sebastes viviparus</i>)	N
Silver roughy (Pink) (<i>Hoplostethus mediterraneus</i>)	N
Spiny (Deep-sea) scorpionfish (<i>Trachyscorpia cristulata</i>)	N
Norwegian skate (<i>Raja nidarosiensis</i>)	N
Deep-water red crab (<i>Chaecon (Geryon) affinis</i>)	N
Round skate (<i>Raja fyllae</i>)	N
Large-eyed rabbit fish (Ratfish) (<i>Hydrolagus mirabilis</i>)	N
Straightnose rabbitfish (<i>Rhinochimaera atlantica</i>)	N
Risso's smoothhead (<i>Alepocephalus rostratus</i>)	N
Wreckfish (<i>Polyprion americanus</i>)	N

References

- ICES. 2015. Report of the Fifth Workshop on the Development of Quantitative Assessment Methodologies based on Life-history Traits, Exploitation Characteristics and other Relevant Parameters for Data-limited Stocks (WKLIFE V), 5–9 October 2015, Lisbon, Portugal. ICES CM 2015/ACOM:56.157 pp.
- ICES. 2016a. Report of the Workshop to consider MSY proxies for stocks in ICES cate-gory 3 and 4 stocks in Western Waters (WKProxy), 3–6 November 2015, ICES Head-quarters, Copenhagen. ICES CM 2015/ACOM:61. 183 pp.
- ICES. 2016b. Report of the Working Group on Biology and Assessment of Deep-sea Fisheries Resources (WGDEEP), 20–27 April 2016, ICES HQ, Copenhagen, Denmark. ICES CM 2016/ACOM:18. 616 pp.

ICES. 2016c. Report of the Working Group on Elasmobranch Fishes (WGEF), 15–24 June 2016, Lisbon, Portugal. ICES CM/ACOM:20. 126 pp.

5.4 Evaluation of national measures taken under Art 13(6) of the cod plan

Background

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

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

Member States are required to submit by March each year a report on the amounts of effort used within the actions during the previous year.

Information on the respective measures has now been submitted by the United Kingdom, Ireland, Denmark and Germany.

Request to the STECF

Based on information provided by the United Kingdom, Ireland, Denmark and Germany justifying fishing effort increases for 2015 under the conditions laid down in article 13.2 (c) of the cod plan (Council Regulation (EC) No 1342/2008), and the reports of effort allocated under these measures, STECF is requested to assess the effectiveness of the relevant cod avoidance measures undertaken pursuant to Article 13.2 (c). In carrying out its assessment, the STECF is requested to compare the impact on cod mortality which results from the application of this provision (cod avoidance or discard reduction plan) with the reduction it would have expected to occur as a result of the fishing effort adjustment referred to in article 12.4 of the cod plan.

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

STECF response

STECF has commented previously (see PLEN-13-02) on the difficulties of comparing the annual reduction in F achieved under adjusted effort levels for specific fleet segments fishing under cod avoidance or discard reduction plans, with the planned annual reduction in F that would have been expected to occur if fishing had been done under the effort restrictions detailed in the cod plan, as required in Article 13.7.

STECF PLEN-13-02 wrote the following: "Previous STECF comments regarding the difficulties associated with the evaluation of the effects of the Article 13[.2.]c provisions remain relevant. The requirement to compare reductions in fishing mortality (F) achieved through the use of Article 13[.2.]c provisions with expected reductions arising from the effort reductions prescribed by the cod plan is confounded by a number of factors. For example, in the Kattegat there is no estimate of F on which to base any comparison and in the Irish Sea the stock assessment is based on landings only so that the true F (related to catch) is unknown. Furthermore, the wording of the regulation implies an underlying assumption that there is a direct (1:1) relationship between effort and fishing mortality whereas in practice this is not always clear-cut – this clearly affects the understanding of what is meant by 'would be expected'."

It remains the case that STECF cannot make the exact comparisons requested in the ToR (observed annual reduction in F for the stocks compared to “what would have been expected under the plan” annual reduction in F for the stocks) however, STECF has again contributed alternative assessments based on annual reductions in observed fleet segment partial F.

In recent years (see PLEN-15-02 and PLEN-14-03), in response to the same ToR, STECF compared the partial F values (as computed by EWG-15-08 and EWG-14-13) resulting from fishing activities by fleets that used cod avoidance measures with i) the required annual reductions in F under the cod plan and ii) the observed annual change in overall F for the stock concerned (based on ICES assessment). STECF has used the same approach this year, using partial F values computed by EWG-16-10 (Fisheries Dependent Information) for the affected fleets that were available during the plenary meeting, except for the Kattegat due to the absence of an ICES assessment for this area. Although France had not submitted a report, partial F values for French fleets were available and therefore have been included in this assessment.

The assessment here compares the annual change in partial F of exempted fleet segments to the observed annual change in F for the stock, and to the required annual reduction in F under the cod recovery plan. The comparison shows whether annual changes in mortality caused by the exempted fleets are in line with the annual changes in overall mortality rate of the stock and with the annual changes required by the plan. Although this is not exactly what was asked in the ToR, STECF considers that this comparison shows whether the fishing of the exempted fleets has resulted in increases or decreases in partial F and may be considered useful by the Commission.

In the ToR STECF is requested to assess the effects of only condition c from Article 13.2. When preparing the tables, STECF has included the others conditions a, b and d from Article 13.2 in order to evaluate the relative importance of condition c for each area concerned. As the assessment of cod in ICES 3aS is based on relative changes in F rather than in terms of absolute values, the changes year-on-year changes in partial F are relative to a starting value of 1 for the first year of implementation (2008). This then permits for an evaluation of the impacts of Article 13.2 in a relative sense from the first year of the cod plan. All subsequent changes are relative to that value so the values presented in Table 6.4.2 should not be interpreted as absolute values of F.

Information supplied by Member States

Information on applications of Article 13.2 provisions was available from four member states, Denmark, Germany, Ireland and UK, and for convenience is summarised below. The material supplied by MS does not include the data used in the assessments made by STECF plenary and presented below.

The material supplied included i) a letter from Germany along with data tables on effort use, (provided in German and translated to English within STECF plenary meeting); ii) from Ireland, tabular summaries of vessels utilising Article 13 provisions and iii) from Denmark and UK, more substantive submissions including data, analysis and descriptive narrative.

Denmark

Denmark applied a cod avoidance plan (under the terms of Article 13.2c) in the Kattegat (ICES area 3a) TR2 fleet. Reports from Denmark were provided to STECF describing the spatial approach and gear measures in place to reduce cod mortality. In addition to effort reduction, Denmark reports that its cod mortality reduction activities included the following cod avoidance measures:

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

STECF used information produced by EWG-16-10 to evaluate the effectiveness of the Danish Cod Avoidance Plan. Information from EWG-16-10 shows that all the Danish TR2 effort was assigned to activities under the Cod Avoidance plan under the terms of Article 13.2c.

Germany

Germany utilised Article 13.2a, b and d for fishing activities in Kattegat, Skagerrak, North Sea and West of Scotland and provided effort data in summary by area and at vessel level for 2015. Information was also taken from the Appendices produced by EWG-16-10.

In the Skagerrak (ICES area 3aN), Germany utilised Article 13.2b of the cod plan for part of its TR1 fleet. The available information (EWG-16-10) suggests there is almost no fishing mortality on cod associated with this group of vessels.

In the North Sea (ICES area 4a), Germany utilised Article 13.2b of the cod plan for part of its TR1 fleet and part of its TR2 fleet. The available information (EWG-16-10) suggests there is no fishing mortality on cod associated with the TR2 group of vessels fishing under the terms of Article 13 of the cod plan.

The overall conclusion based on information available in EWG-16-10 is that additional effort used by Germany in various areas was compatible with the objectives of the cod plan.

STECF notes, however, that in the absence of a detailed report from Germany, there was no indication of the extent of observer sampling covering vessels operating under the Article 13.2b (<5% cod in catches). In order to provide some assurance that the available figures truly represent catches made, relevant observer information should be provided by Germany.

Ireland

The Irish Department of Agriculture, Fisheries and Food provided vessel-level information on kW days at sea in 2015 for 53 vessels using an Inclined Separator Panel or 300mm Square Mesh Panel with TR2 gear in ICES Area 7A. These vessels' total effort reported under this definition for 2015 was 713,113 kW days, compared to 965,441 in 2014, a 26% reduction.

The Irish approach is to recoup all effort expended by the TR2 (*nephrops* trawl) vessels on the basis that they are using a selective gear (as part of their avoidance / discard reduction plan).

UK

UK fisheries administrations provided substantive submissions including descriptive narratives, effort data, and gear descriptions. There are separate documents on gear descriptions by Marine Scotland, DARD (Northern Ireland) and MMO (England).

The table below offers a summary of the amounts of effort used under each action undertaken by the UK fleet. Effort was used only by vessels carrying regulated gear categories TR1 and TR2 in the North Sea and Eastern England Channel, West of Scotland and the Irish Sea.

Table 5.4.1 Summary of effort used (KW days) (from the UK report)

		Sea area / category					
		North Sea		Irish sea		West of Scotland	
		TR1	TR2	TR1	TR2	TR1	TR2
Actions	13(a)	-	-	-	-	-	-
	13(b)	1,107,833	370,495	-	227	80,468	12,419
	13(c)	5,401,500	4,956,837	31,737	1,737,885	1,499,728	593,568
	13(d)	-	-	-	-	506,163	-
	TOTAL	6,509,333	5,327,331	31,737	1,738,112	2,086,358	605,988

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

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

- No fishing within mandatory seasonal closures and Real Time Closures;
- Fishing trips where fishing took place exclusively beyond a specified 'deep water line' in Areas IIa and IVa;
- Fishing trips where fishing took place exclusively south of 59 degree latitude in Area VIa and exclusively south of 58 degree latitude in Area IVa;
- Fishing trips where the area of capture was exclusively within Area IVa and where landings constituted of not less than 40 percent of Monkfish and/or Megrim;
- The exclusive use of specified selective gears while fishing with a category of regulated gear; and,
- Participation in a trial of fully documented cod fisheries (Catch Quotas).

In Northern Ireland, there were two categories of action under Article 13.2.(c) that resulted in the use of additional effort:

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

In England, three measures attracted additional days for vessels under this category in 2015;

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

Partial F for MS fleet segments fishing under the terms of Article 13.2

In Tables 5.4.2, 5.4.3, 5.4.4, and 5.4.5 for each of the four management areas, the observed partial F values of the fleets that fished under effort exemptions and the annual changes in partial F are reported, and compared with (i) the required reduction in F for the stocks under the cod plans, and (ii) the observed change in overall F for the stock concerned. STECF comments are

included in those tables. It must be noted information is only supplied for years where discard data has been supplied.

STECF estimated the average (mean) values of partial F for each fleet segment across the time period and indexed the values such that the 2008 value was equivalent to 1.0. The values of partial F in subsequent years were then shown relative to this level.

Table 5.4.2. Relative Partial F values of fleets fishing under the terms of Article 13 of the Cod Plan in 2015 in ICES area 3a South (Kattegat). 2008 partial F is equated to 1.0 and subsequent year values are presented as values relative to 1.0.

ICES 3aSouth								
Year	2008	2009	2010	2011	2012	2013	2014	2015
Plan F (2008 F set =1)	1	0.75	0.56	0.42	0.32	0.24	0.20	0.15
F reduction F plan		-0.250	-0.250	-0.250	-0.250	-0.250	-0.150	-0.150
ICES assessment (2008 F set = 1)	1	0.92	0.78	0.57	0.49	0.38	0.29	0.30
F reduction assess		-0.076	-0.158	-0.265	-0.148	-0.223	-0.234	0.037
DNK- TR2 "none" as proportion of cod catch	0.47817	0.26346	0.00000	0.00000	0.00000	0.00000	0.00000	0.23239
DNK- TR2 13.2 (c) as proportion of cod catch	0.00000	0.00000	0.62970	0.44968	0.65658	0.47416	0.70532	0.46039
Standardised ICES F * (proportion of cod catch)	0.47817	0.24340	0.48971	0.25701	0.31971	0.17945	0.20454	0.20837

Table 5.4.3 Partial F values of fleets fishing under the terms of Article 13 of the Cod Plan in 2015 in ICES area 3a North (Skagerrak), area 4 and area 7d.

ICES 3aNorth, 4 and 7d								
Year	2008	2009	2010	2011	2012	2013	2014	2015
Plan	0.64	0.42	0.40	0.40	0.40	0.40	0.40	0.40
F reduction F plan		-0.349	-0.041	0.000	0.000	0.000	0.000	0.000
ICES assessment	0.64	0.63	0.54	0.44	0.40	0.39	0.40	0.39
F reduction assess		-0.020	-0.140	-0.180	-0.090	-0.030	0.010	-0.030
DEU _ TR1 (13B)		0.00167	0.00173	0.00194	0.00141	0.00140	0.00157	0.00110
DEU _ TR2 (13B)		0.00002	0.00027	0.00011	0.00001	0.00002		
ENG _ BT2 (13B)			0.00138	0.00000	0.00001	0.00028	0.00004	---
ENG _ TR1 (13B)		0.00079	0.00071	0.00082	0.00053	0.00031	0.00028	0.00035
ENG _ TR1 (13C)		0.01393	0.01331	0.00576	0.00214	0.00114	0.00086	0.00026
ENG _ TR2 (13B)		0.00049	0.00141	0.00155	0.00058	0.00035	0.00069	0.00034
ENG _ TR2 (13C)		0.00695	0.00224	0.00202	0.00176	0.00065	0.00168	0.00070
FRA _ TR1 (13B)					0.00004	0.00089	0.00156	0.00175
FRA _ TR2 (13B)					0.00001		0.00001	0.00001
NIR _ TR1 (13B)		0.00006	0.00002	0.00000	0.00000	0.00001		
NIR _ TR1 (13C)		0.00001	0.00000					
NIR _ TR2 (13B)		0.00011	0.00000	0.00001	0.00000			0.00000
NIR _ TR2 (13C)		0.00161	0.00043	0.00011			0.00013	0.00018
SCO _ TR1 (13B)		0.00658	0.00691	0.00114				
SCO _ TR1 (13C)		0.16063	0.14954	0.10954	0.12716	0.14371	0.11440	0.11326
SCO _ TR2 (13B)		0.00398	0.01449	0.00589				
SCO _ TR2 (13C)		0.01042	0.00103	0.00547	0.01123	0.00391	0.01397	0.01750

Table 5.4.4 Partial F values of fleets fishing under the terms of Article 13 of the Cod Plan in 2015 in ICES area 7a (Irish Sea)

ICES 7a (Irish Sea)								
Year	2008	2009	2010	2011	2012	2013	2014	2015
Plan	1.25	0.94	0.70	0.53	0.40	0.30	0.22	0.17
F reduction F plan		-0.250	-0.250	-0.250	-0.250	-0.250	-0.250	-0.250
ICES assessment	1.25	1.22	1.18	1.14	1.12	1.10	1.08	1.08
F reduction assess		-0.020	-0.030	-0.030	-0.020	-0.020	-0.010	0.000
ENG_TR1 (13B)					0.00856			
ENG_TR1 (13C)				0.01559	0.00766			0.00001
ENG_TR2 (13B)			0.00886	0.00173	0.03344			
ENG_TR2 (13C)			0.00347	0.00201	0.01470		0.00140	0.00800
IRL_TR2 (13A)			0.10131	0.13869	0.33276	0.24064	0.51792	0.34814
NIR_TR1 (13A)						0.22128		
NIR_TR1 (13B)					0.11873			
NIR_TR1 (13C)				0.27551	0.10508	0.00132	0.11169	0.04737
NIR_TR2 (13A)					0.01167	1.06101		
NIR_TR2 (13B)		0.05154	0.14295	0.05249	2.18790		0.00207	
NIR_TR2 (13C)			0.38729	0.12708	0.21871		0.50732	0.82482
SCO_TR1 (13C)					0.00560			
SCO_TR2 (13B)		0.00971	0.00196	0.00312	0.05033			
SCO_TR2 (13C)					0.00158		0.02136	0.02025

Table 5.4.5 Partial F values of fleets fishing under the terms of Article 13 of the Cod Plan in 2015 in ICES area 6a (West of Scotland)

ICES 6a (West of Scotland)								
Year	2008	2009	2010	2011	2012	2013	2014	2015
Plan	0.99	0.74	0.56	0.42	0.31	0.23	0.18	0.13
F reduction F plan		-0.250	-0.250	-0.250	-0.250	-0.250	-0.250	-0.250
ICES assessment	0.99	0.88	0.83	1.17	0.91	0.96	0.89	0.88
F reduction assess		-0.110	-0.050	0.420	-0.230	0.060	-0.070	-0.010
DEU_TR1(13B)			0.00002		0.00043			
FRA_TR1(13B)					0.01343		0.01494	0.03873
IRL_TR1(13C)		0.01271	0.00705	0.00267	0.00001	0.00027	0.00007	
IRL_TR1(13D)		0.06046	0.08746	0.19643	0.00043	0.00088	0.00118	0.00059
SCO_TR1(13B)		0.01712	0.01208	0.08957				
SCO_TR1(13C)		0.03025	0.03597	0.05364	0.07199	0.16443	0.07398	0.05642
SCO_TR1(13D)		0.38091	0.27929	0.68427	0.53504	0.43671	0.73264	0.37301
SCO_TR2(13B)		0.02395			0.01649			
SCO_TR2(13C)		0.00893			0.05723	0.20869	0.05553	0.09209

STECF conclusions

Previous STECF comments (see PLEN-13-02) regarding the difficulties associated with the evaluation of the effects of the Article 13.2(c) provisions remain relevant but will not be reiterated here.

In area 3a South (Kattegat) only Denmark used condition 13.2 (c) and no other condition through Article 13 is utilized. STECF notes that the partial F as proportioned of cod catches was about 120% higher in 2015 then the ICES standardised F as proportioned of cod catches in 2015.

In 3a North (Skagerrak), area 4 and area 7d, the plan F (0.4) has been reached in 2012. The sum of partial F used under the different conditions from Article 13.2 is 0.135 in 2015. STECF notes that the main contributor is the TR1 Scottish fleet operating under condition 13.2(c) which has a partial F of 0.113 which represent 84% of the sum of partial F for all fleet segments using Article 13.2 in 2015 and 29% of (total) F; for that fleet a decrease of partial F of 1% has been assessed between 2014 and 2015. TR1 and TR2 fleets operating under condition 13.2(c) which together have a partial F of 0.132 represent 34% of F in 2015.

In area 7a (Irish Sea), the plan F (0.17) in 2015 has not been reached. Assessed F is 1.08 in 2015. The sum of partial F used under the different conditions from Article 13.2 is estimated at 1.25 in 2015, which is even 16% higher than the total estimated F (1.08) by ICES in 2015. STECF notes that the main contributor is the TR2 Irish fleet operating under condition 13.2(c) which has a partial F of 0.828 which represent 66% of the sum of partial F for all fleet segments using Article 13.2 in 2015 and 77% of (total) F; for that fleet an increase of partial F of 63% has been assessed between 2014 and 2015. TR1 and TR2 fleets operating under condition 13.2(c) which together have a partial F of 0.900 represent 84% of F in 2015.

In area 6a (West of Scotland) plan F (0.13) in 2015 has not been reached. Assessed F is 0.88 in 2015. The sum of partial F used under the different conditions from Article 13.2 is 0.56. STECF notes that the main contributor is the TR1 Scottish fleet operating under condition 13.2(d) operating east of the "line" which has a partial F of 0.37 which represent 67% of the sum of partial F for all fleet segments using article 13.2 and 43% of (total) F in 2015. TR1 and TR2 Scottish fleets operating under condition 13.2(c) which together have a partial F of 0.15 represent 17% of F in 2015.

5.5 Exclusion in accordance with Article 11(2) of Regulation (EC) No 1342/2008

Background

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

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

Background documentation can be found on: <https://stecf.jrc.ec.europa.eu/plen1603>

Request to the STECF

Based on the information provided by the Member States in support of the continuing exclusions granted under Article 11 in their annual reports, the STECF is requested to assess whether the groups of vessels concerned have been complying with the conditions set out in the decision on exclusion. In carrying out its assessment, the STECF is requested to:

- a) advise whether the data on catches and landings submitted by the Member State support the conclusion that during the preceding fishing season (from the date of the exclusion), the vessel group has (on average) caught less than or equal to 1,5% of cod from the total catches of the vessels concerned;
- b) specify the reasons, if the information presented gives indications on the non-fulfilment of the conditions for exclusion.

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

STECF observations

Article 4 of Regulation 237/2010 requires Member States to report on activities carried out by the group or groups of vessels which have been excluded from the effort regime in accordance with Article 11(2)(b) of Regulation 1342/2008. Reports should include details of the vessels involved and their activities or technical characteristics leading to cod catches of less than 1.5% of their total catch, and the monitoring procedures used to ensure that these vessels comply with the condition for exclusion.

Observer schemes should collect a range of fisheries data concentrating on vessels that have been excluded from the effort regime. The report shall be sent in accordance with the requirements set out in Tables 1 and 3 of Annex I.

Submissions of information in tabular form were received from the Ireland, United Kingdom and Sweden. A descriptive report was not received from Sweden and Scotland, while the submission from Ireland was accompanied by an incomplete description of the group of vessels. The submission from the Isle of Man included a more detailed report of 2015 activities with an indication of intentions for 2016.

With the exception of the Isle of Man report, none of the submissions provided information on the monitoring procedures or the systems for controlling the group of vessels excluded from the application of the effort regime. Furthermore, the requests were mostly not accompanied by detailed information on the technical attributes of the gear.

In previous years France submitted information on two groups of exempted vessels but has not done so in 2016. No information was provided by Poland although it is not clear that the exemptions were actually used by that country.

Irish TR1 (120 mm) vessels operating in Division VIa

A short text was provided briefly describing the characteristics of the exempted vessels. The text was accompanied by an EXCEL spreadsheet providing details of observed trips in a format similar to the required Table 3, but lacking certain information. Table 1 was not provided.

The group of vessels concerned comprises 5 vessels (between roughly 19m and 33m overall length). The sampling intensity was not specified. A total of 18 observer trips were carried out distributed mainly across three vessels with one additional vessel observed on a single occasion. Data show some variability between vessels in the proportion of cod in their catches. Overall the vessels maintained their cod catch proportion at 1.1%, i.e. below the specified 1.5% threshold.

STECF conclusion

STECF notes that the data submitted by constitutes evidence suggesting the overall cod catch proportion in the Irish TR1 vessels operating in VIa in 2015 was less than 1.5%. STECF notes, however, that while there was information on amount of effort expended during the sampled trips, the total amount of effort expended by the exempted group was not provided, so it is not possible to determine the sampling intensity.

Irish TR2 vessels in VIIa

The introductory text from Ireland also draws attention to a second group of exempted vessels operating TR2 gear in VIIa but no detail was provided for these. Similarly, the EXCEL file included a specific VIIa data sheet but this contained no information. Information provided in previous years suggested that 14 vessels were included in this group.

STECF conclusion

STECF notes that in the absence of any information it is not possible to comment on the scale of 2015 activity by this exempted group or to say anything about the level of observer coverage or the proportion of cod in the overall catch.

Scottish TR2 vessels

Marine Scotland submitted the explanatory tables according to the Article 4(3) (Table 1 and 3). These tables were provided in the worksheets of an Excel file accompanying a covering letter. There was no annual report submitted to provide explanations of the detail in the worksheets or to describe the activities and performance of the exempted fleet.

STECF conclusions

Despite the lack of an explanatory report, STECF was able to calculate cod sampling intensity and catch proportions for the exempted vessels by area and also overall.

The data concern 89 vessels (Table 1), fishing with TR2 in areas (b)(ii) Firth of Forth and (d) Firth of Clyde and Minches. STECF notes that some activity by the exempted vessels took place in parts of area d) outside of the two named locations. STECF found a discrepancy in the effort data in (b) (ii) Firth of Forth (i.e. according to Table 1, the total effort in (b) (ii), is 262420 and not 260928 as used in Table 3). STECF also identified some mis-assigned data in Table 1, namely that rectangles 39E4 and 40E4 should be included in (d) Firth of Clyde not (d) Other. Corrected values were used in the STECF calculations.

According to the following table, 262 trips were monitored, which results in 1.8% sampling intensity. An overall catch of 573 kg of cod was reported during the observed trips in a total catch of just over 300 tonnes representing a cod catch proportion of 0.19%. The data submitted by Marine Scotland constitutes evidence suggesting that the vessels in 2014 maintained cod catches below 1.5%.

Gear	Mesh size [mm]	Area	Sub Area	No Observed trips	Sample intensity%	observed catch kg		% cod
						cod	Total	
TR2	80	(b) (ii)	F Forth	212	8.50%	299	270376	0.11%
		(d)	F Clyde	24	0.62%	86	14201	0.61%
		(d)	Minches	26	1.10%	188	15939	1.18%
Total				262	1.79	573	300516	0.19%

Isle of Man Queen scallop vessels

A text was provided describing the characteristics of the exempted vessels and the implementation of the exemption. The text was accompanied by an EXCEL spreadsheet providing details of the exempted vessels and observed trips in the required Table 1 and Table 3 formats.

The group of vessels concerned comprised 22 vessels in 2015. Observations of catches was provided from 243 trips. The sampling intensity was 16.98%. The overall cod catch was low and the vessels maintained their cod catch proportion at 0.073%, i.e. below the specified 1.5% threshold.

STECF conclusion

STECF notes that the data submitted constitutes evidence suggesting the overall cod catch proportion in the Isle of Man Queen scallop vessels operating in VIIa in 2015 was less than 1.5%.

Swedish TR2 with grid (mesh size 70 mm) vessels

Sweden communicated with DG MARE by email submitting just the explanatory tables according to the Article 4(3) (Table 1 and Table 3). These tables were provided in individual worksheets in an accompanying Excel file. There was no written report to describe the material supplied or the characteristics and performance of the exempted vessels.

STECF conclusions

Information provided in the Excel worksheets have not been properly detailed in a report, however STECF was able to calculate cod catch rates by area. The data concern 90 vessels targeting *Nephrops* (Table 1), fishing with the grid and 70 mm in areas (a) and (bi).

According to the following table, 23 trips were observed. The Table indicates that the overall sampling intensity was 0.45%. No cod were caught during the observed trips.

The data submitted by Sweden constitutes evidence that the vessels in 2015 maintained cod catches below 1.5%.

Gear	Mesh size	Area	No	Sample intensity	observed catch kg		% cod
	mm		Observed trips		%	cod	
TR2+Grid	70	a)	10	0.43%	0	1295	0.00%
		bi)	13	0.46%	0	1652	0.00%
Total			23	0.45%	0	2947	0.00%

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

Background

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

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

Request to the STECF

STECF is requested:

- to advise on the maximum level of fishing effort necessary to take catches of the plaice and sole equal to the EU share of the TACs adopted according to the multi-annual plan for plaice and sole in the North Sea (R (EC) No 676/2007);
- to report on the annual level of fishing effort deployed by vessels catching plaice and sole, and to report on the types of fishing gear used in such fisheries.

STECF response

Maximum level of fishing effort necessary to take catches of the plaice and sole equal to the EU share of the TACs adopted according to the multi-annual plan for plaice and sole in the North Sea (R (EC) No 676/2007)

STECF notes that similar advice has been requested since 2007 (see STECF winter plenary reports from 2007 up to and including 2011 and the STECF summer plenary report of 2012 to 2015; STECF review of scientific advice reports from 2007 up to and including 2014). STECF follows the same approach for the current request.

ICES advice for sole in Subarea 4 - ICES has advised that when the second stage of the EU management plan (Council Regulation No. 676/2007) is applied, catches ("wanted" and "unwanted catches") in 2017 should be no more than 15 251 tonnes. Such catches imply a 4% increase in F on sole in 2017 relative to F in 2016 corresponding to 15% increase compared to the 2016 TAC for sole.

ICES advice for plaice in Subarea 4 and Division 3.a.20. - ICES advises that when the MSY approach is applied, catches in 2017 should be no more than 158 201 tonnes in Subarea 4 and Subdivision 3.a.20 combined.

Since this stock is only partially under the EU landing obligation, ICES is not in a position to advice on landings corresponding to the advised catch.

STECF notes that following the regulation [R (EC) No 676/2007], the predicted catches for North Sea plaice are based on a 15% increase on the agreed 2016 TACs for Subarea 4 and Division 3.a.20 (131 714 tonnes and 11 766 tonnes respectively), and implies a 56% increase in F on plaice in these areas in 2017 compared to F in 2016.

Assuming a proportional relationship between fishing mortality and effort in kW*days and a constant EU share of the TAC for plaice, if the 2017 TACs for plaice and sole are set in line with the management plan (R (EC) No 676/2007), the maximum level of fishing effort necessary to take catches would be equal to the EU shares of the TACs, corresponding to a 4% increase in effort in 2017 relative to 2016 when considering sole in isolation and a 56% increase in effort when considering plaice in isolation.

Plaice is mainly caught together with sole in a mixed beam trawl fishery. Therefore, the **maximum** level of fishing effort necessary to take catches of **both species** equal to the respective EU shares of their TACs, would be equivalent to an increase in effort in 2017 relative to 2016 of 56%. STECF notes that this amount of effort would likely lead to a mismatch between effort and the sole TAC adopted according to the flatfish plan [R (EC) No 676/2007], potentially leading to overquota sole catches. Assuming the same proportional change in F on sole as that required to take the TAC for plaice, the sole TAC would be overshoot by around 6.75 kilo tonnes, or around 44% (Table 5.6.1. Option 1a,b).

Additional considerations

The Commission requested STECF to advise on alternative options for sole and plaice fishing opportunities in 2017 under the following different management assumptions.

- i) The 2017 TACs are set in accordance with F_{MSY}
- ii) The 2017 TACs are set in accordance with the management plan
- iii) The 2017 TACs are set at the level of the 2016 TACs

In each of the above assumptions, the implications for one species assuming the same relative change in F needed to take the TAC for the other species are estimated (Table 6.6.1. Options 3a,b, and 4a,b).

STECF notes that at present the ICES advice for sole is based on “total catch” which includes about 7% “unwanted catch”, i.e. the estimated of the total catch that would be discarded if sole were not subject to the landing obligation. For plaice, the ICES advice is based on the “wanted catch” only as plaice is not fully subject to the landing obligation.

Table 5.6.1. provides the predicted catches and associated effort and expresses them relative to those advised by ICES. All effort estimates, assume a proportional relationship with F.

- Options 1 and 2 give an overview of the maximum effort levels needed to take the TACs of sole and plaice in 2017 if the TACs are set 1) according to the provisions of the management plan and 2) according to stock-specific estimates of F_{MSY} .
- Option 3 gives the predicted catches and associated effort for sole and place assuming that effort deployed is determined by three alternative management options for sole ($F_{2017} = F_{MSY}$; $F_{2017} = MP$; TAC 2017 = TAC 2016 (Stable TAC)).
- Option 4 gives the predicted catches and associated effort for sole and place assuming that effort deployed is determined by three alternative management options for plaice ($F_{2017} = F_{MSY}$; $F_{2017} = MP$; TAC 2017 = TAC 2016 (Stable TAC)).

Table 5.6.1 – Predicted catches and associated effort and expresses them relative to the relative changes to those advised by ICES. All effort estimates, assume a constant relationship between fishing effort and fishing mortality. Table on the left side (a) provide single-species calculation. Tables on the right side (b) provide the corresponding estimations with maximum effort (for option 1 and 2) or when applying on one stock the changes in F from the other stock (Option 3 and 4): (see STECF observations below)

Advice for 2017	Sole (MP)	15251	Total Catches (t)
	Plaice (FMSY)	121523	Wanted catches (t)

Option 1a: Predicted catches according the ICES provisions of the MP

Basis	F Total	Change F	Catches	Difference in catches compared to ICES advice	Rel. difference in catches compared to ICES advice
	2017	2016-2017	2017	2017	2017
MP-sole	0.166	+4%	15251*	0	0%
MP-plaice	0.265	+56%	165142**	43619	36%

Max. effort =>

Option 1b: Predicted catches corresponding to the maximum change in effort equal to take the full potential share of the 2017 TAC for both species

to take the full potential share of the 2017 TAC for both species					
	F Total	Maximum Change F	Catches	Difference in catches compared to ICES advice	Rel. difference in catches compared to ICES advice
	2017	2016-2017	2017	2017	2017
Sole	0.250	+56%	22001*	6750	44%
Plaice	0.265	+56%	165142**	43619	36%

Max. effort =>

Option 2a: Predicted catches corresponding to fish at FMSY in 2017

Basis	F Total	Change F	Catches	Difference in catches compared to ICES advice	Rel. difference in catches compared to ICES advice
	2017	2016-2017	2017	2017	2017
FMSY-sole	0.2	+25%	18064*	2813	18%
FMSY-plaice	0.19	+12%	121523**	0	0%

Max. effort =>

Option 2b: Predicted catches corresponding to the maximum change in effort equal to take the full potential share of the 2017 TAC for both species

to take the full potential share of the 2017 TAC for both species					
	F Total	Maximum Change F	Catches	Difference in catches compared to ICES advice	Rel. difference in catches compared to ICES advice
	2017	2016-2017	2017	2017	2017
Sole	0.2	+25%	18064*	2813	18%
Plaice	0.213	+25%	134825**	13303	11%

Max. effort =>

Option 3a: Predicted catches of sole, following different options for F in 2017

Basis	Sole F Total	Change F	Catches*	Difference in catches compared to ICES advice	Rel. difference in catches compared to ICES advice
	2017	2016-2017	2017	2017	2017
FMSY	0.2	+25%	18064	2813	18%
MP	0.166	+4%	15251	0	0%
Stable TAC	0.14	-12.5%	13262	-1989	-13%

Option 3b: Implications for plaice catches assuming the same relative changes in F as applied to sole

Plaice F Total	Change F	Catches**	Difference in catches compared to ICES advice	Rel. difference in catches compared to ICES advice
	2016-2017	2017	2017	2017
0.213	+25%	134826	13303	11%
0.177	+4%	113600	-7923	-7%
0.149	-12.5%	96497	-25026	-21%

Option 4a: Predicted catches of plaice, following different options for F in 2017

Basis	Plaice F Total	Change F	Catches**	Difference in catches compared to ICES advice	Rel. difference in catches compared to ICES advice
		2016-2017	2017	2017	2017
FMSY	0.19	+12%	121523	0	0%
MP	0.265	+56%	165142	43619	36%
Stable TAC	0.23	+35%	143480	21957	18%

Option 4b: Implications for sole catches assuming the same relative changes in F as applied to plaice

Sole F Total	Change F	Catches*	Difference in catches compared to ICES advice	Rel. difference in catches compared to ICES advice
	2016-2017	2017	2017	2017
0.179	+12%	15597	346	2%
0.250	+56%	22001	6750	44%
0.216	+35%	18868	3617	24%

* Total Catch

** Wanted Catch

Bold = basis for advice

Note 1: Sole advice is based on "total catch" which include about 7% "unwanted catch", whereas plaice advice is based on "wanted catch"

Note 2: Plaice is a combined assessment of subarea 4 and subdivision 3.a.20. The MP option was calculated assuming a 15% TAC increase of the 2016 TAC's for both areas.

STECF notes that the 2017 ICES advice for plaice is based on F_{MSY} (0.19) and not on the provisions of the Management Plan (= +15% TAC). The increase of fishing mortality/effort in 2017 (0.19) compared to 2016 (0.17) is 12%.

STECF notes that the catches of sole in 2017 when fishing at F_{MSY} ($F = 0.2$; catches = 18 064 tonnes) are higher than those expected according to the provisions of the management plan (15 251 tonnes) and imply an increase of 25% in F in 2016 and a 18% increase in sole catches compared to the 2017 advice for sole (Table 5.6.1. Option 2 a).

STECF observations

- If the TAC's for sole and plaice in 2017 are set in accordance with the provisions of the **Management Plan**, the **maximum** level of fishing effort necessary to take catches of **both species** equal to the respective EU shares of their TACs, would be equivalent to a 56% increase in effort in 2017 relative to 2016. Assuming a proportional relationship between fishing mortality and fishing effort, such an increase in effort implies that fishing mortality on sole in 2017 would be $F = 0.25$ and catches of sole are predicted to be 22 000 tonnes. Such a level of catch represents an increase of 44% over and above the

catches corresponding to the ICES advice for sole for 2017. Similarly, to take the EU share of the TAC for plaice implies that F on plaice in 2017 would be $F = 0.265$ an increase in F on plaice of about 40% compared to the ICES advice ($F = 0.19$). Such an increase in F implies that catches will be 36% over and above the catches corresponding to fishing at F_{MSY} (Table 5.6.1. Option 1a, b).

- If the 2017 TACs for sole and plaice are set in accordance with the catches that correspond with their respective F_{MSY} , the **maximum** level of fishing effort necessary to take catches of **both species** equal to the respective EU shares of their TACs, would be equivalent to a 25% increase in effort in 2017 relative to 2016. Assuming a proportional relationship between fishing mortality and fishing effort, such an increase in effort implies that fishing mortality on sole in 2017 would be $F = 0.20$ and catches of sole are predicted to be 18 064 tonnes. Such a level of catch represents an increase of 18% over and above the catches corresponding to the ICES advice for sole for 2017. Similarly, to take the EU share of the TAC for plaice implies that F on plaice in 2017 would be $F = 0.213$ an increase in F on plaice of about 12% compared to the ICES advice ($F = 0.19$). Such an increase in F implies that catches will be 11% increase on the catches corresponding to fishing at F_{MSY} (Table 5.6.1. Option 2a, b).
- If the TACs for sole and plaice are set according to the relative change in F required to fish at **F_{MSY} for sole**, catches of plaice in 2017 are predicted to be 134 826 tonnes, which represents an 11% increase on the catches corresponding to ICES advice (Table 5.6.1. Option 3a, b – row 1 = F_{MSY})
- If the TACs for sole and plaice are set according to the relative change in F required to fish at **F_{MSY} for plaice**, catches of sole in 2017 are predicted to be 15 597 tonnes, which represents a 2% increase on the catches corresponding to ICES advice (Table 5.6.1. Option 4a, b – row 1 = F_{MSY}).
- If the 2017 TACs for sole is set according to the provisions of the management plan, and the TAC for plaice is set according to the relative change in F required to take the sole TAC, catches of plaice in 2017 are predicted to be 113 600 tonnes, which represents a 7% decrease on the catches corresponding to ICES advice. (Table 5.6.1. Option 3a, b – row 2 = MP).
- If the 2017 TACs for plaice is set according to the provisions of the management plan, and the TAC for sole is set according to the relative change in F required to take the plaice TAC, catches of sole in 2017 are predicted to be 22 001 tonnes, which represents a 44% increase on the catches corresponding to ICES advice (Table 5.6.1. Option 4a, b – row 2 = MP).
- If the 2017 TACs for sole is set at the level agreed for 2016, and the TAC for plaice is set according to the relative change in F required to take the sole TAC, catches of plaice in 2017 are predicted to be 96 497 tonnes, which represents a 21% decrease on the catches corresponding to ICES advice (Table 5.6.1. Option 3a, b – row 3 = Stable TAC).
- If the 2017 TACs for plaice is set at the level agreed for 2016, and the TAC for sole is set according to the relative change in F required to take the plaice TAC, catches of sole in 2017 are predicted to be 18 868 tonnes, which represents a 24% increase on the catches corresponding to ICES advice (Table 5.6.1. Option 4a, b – row 3 = Stable TAC).
- Options 3a,b and 4,ab (Table 5.6.1) indicate that the management option that most **closely matches the ICES advice** for sole and plaice is to set the TAC for plaice in accordance with F_{MSY} (121 523 tonnes). Doing so implies a 12% increase in F on plaice compared to 2016. A 12% increase in F on sole is predicted to result in catches of sole of 15 597 tonnes which represent a 2% increase over and above that advised by ICES (Table 5.6.1. Option 4a, b – row 1 = F_{MSY}).

Report on the annual level of fishing effort deployed by vessels catching plaice and sole, and to report on the types of fishing gear used in such fisheries.

The deployed level of effort (kW*days) in the North Sea for the gears catching sole and plaice over the period 2003-2015 are presented in Table 5.6.2 and 5.6.4 and Figure 5.6.1-2 below. The 2015 catches of plaice and sole for the North Sea gears are presented in the last column of Table 5.6.2 and Table 5.6.3 respectively.

The meaning of the gear groupings is as follows:

- BT1: beam trawls with mesh size equal to or larger than 120 mm
- BT2: beam trawls with mesh size equal to or larger than 80 mm and less than 120 mm
- GN1: gill nets
- GT1: trammel nets
- LL1: longlines
- TR1: bottom trawl with mesh size equal to or larger than 100 mm
- TR2: bottom trawls with mesh size equal to or larger than 70 mm and less than 100 mm
- TR3: bottom trawls with mesh size equal to or larger than 16 mm and less than 32 mm

- BEAM: beam trawls with mesh size smaller than 80 mm or missing mesh size
- DEM_SEINE: Danish Seine with mesh size equal to or larger than 32 mm and less than 70 mm or missing mesh size
- DREDGE : dredges
- OTTER : otter trawls with mesh size equal to or larger than 32 mm and less than 70 mm or missing mesh size
- PEL_SEINE : pelagic seine (all mesh sizes)
- PEL_TRAWL : pelagic trawl (all mesh sizes)
- POTS: pots
- NONE : unspecified gear type

Table 5.6-2. Effort ('000 kWdays) of the gear catching sole and plaice in the North Sea (2003-2015). Gears presented in order of ranking for 2015 plaice catches. The right columns provide the catches of plaice and sole (tonnes) in 2015.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Catches of plaice (t) 2015	Catches of sole (t) 2015
BT2	60349	59376	58961	50362	48377	36065	36878	36256	31574	27374	29458	27270	26946	89987	12455
TR1	31758	25468	24788	25285	21776	24506	24354	21690	20800	20357	19150	20138	22434	25601	48
TR2	20285	19656	18214	17164	17425	17498	15807	14439	12721	10630	8250	9044	7393	16951	414
BT1	5675	4968	4613	5347	3254	2039	1673	1631	1525	2797	3331	3283	2266	6170	107
GT1	1070	1149	1198	2217	1872	1266	1361	962	1156	1184	1281	1443	1381	2592	629
BEAM	13801	13426	13172	12933	13809	13400	14059	12548	9038	12561	11554	13159	12478	1637	738
GN1	3652	3794	3669	3778	2898	3125	3029	3110	3208	2899	2560	2487	2020	953	466
NONE	481	488	385	315	315	311	454	412	463	439	538	574	524	152	6
OTTER	10931	10269	5499	5712	3291	5366	6115	6422	6678	2677	5835	4737	4867	65	0
POTS	4322	4399	4143	6130	6334	6480	6705	6411	6615	6627	6796	8121	8790	24	4
PEL_TRAWL	18787	19796	15598	13622	11998	7185	7599	7772	8781	13074	14020	17135	17205	14	0
TR3	3173	3089	2437	1797	836	929	615	1142	369	887	1316	1000	1865	11	0
DREDGE	2979	3388	2615	2182	2608	2302	2621	2221	2504	2713	3659	3721	4139	0	0
LL1	372	319	374	241	268	678	958	690	486	396	372	553	754	0	1
DEM_SEINE	23	10	23	2	13	5	14	18	0	27	6	0	0	0	0
PEL_SEINE	1983	2055	1968	1528	1092	947	1239	999	819	662	830	666	794	0	0

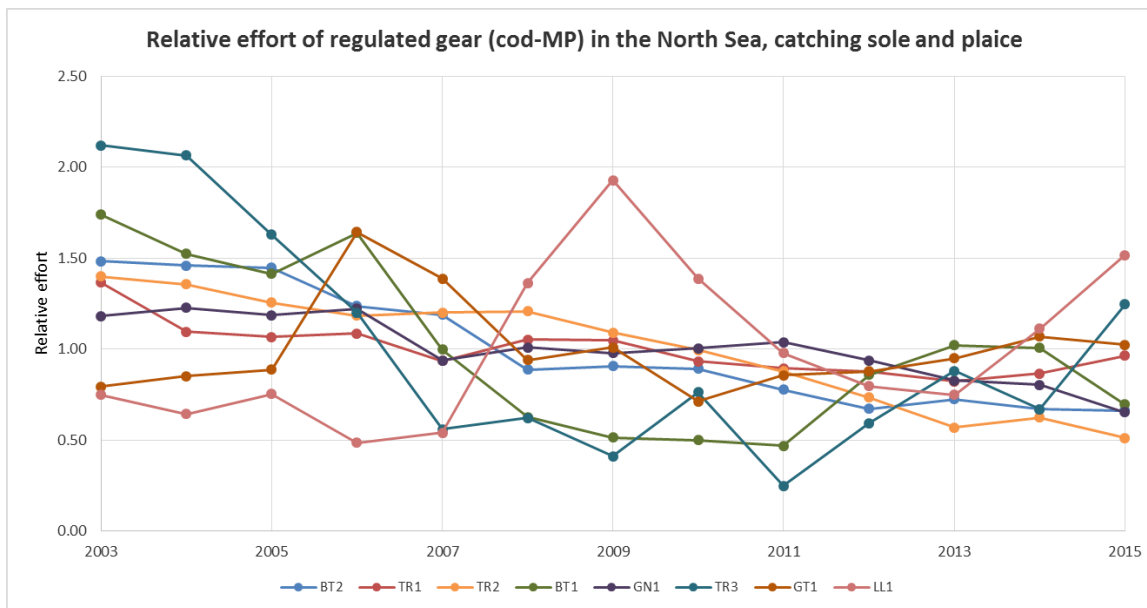


Figure 5.6.1 – Trends in effort for the regulated gear (cod-Management Plan) in the North Sea (2003-2015) catching sole and plaice. Each line is relative to the average of the time series.

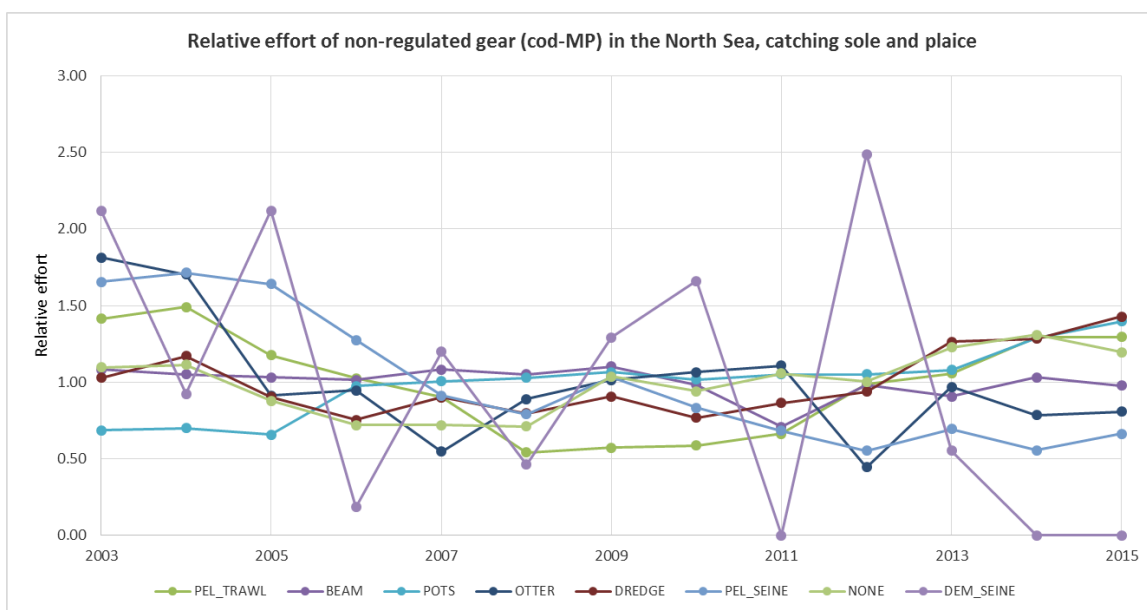


Figure 5.6.2 – Trends in effort for the non-regulated gear (cod-MP) in the North Sea (2003-2015) catching sole and plaice. Each line is relative to the average of the time series.

STECF conclusions

STECF has previously evaluated the current multiannual plan for sole and plaice (Council Regulation (EC) No 676/2007) (STECF 14-03), noting that a re-evaluation of the biological objectives and introduction of economic and social objectives was foreseen. The targets to achieve MSY for sole and plaice in the current plan need to be revised. Such revisions may take place in the North Sea mixed-fisheries management plan that is currently in preparation.

5.7 Management plan for boat seines in the Balearic Islands, Spain

Request to the STECF

STECF is requested to review the final report of the ad-hoc contract (Ref. Ares(2016)5164196), evaluate the findings and make any appropriate comments and recommendations.

Background documents

[1] Term of References of the ad-hoc contract; **[2]** Final report of the ad-hoc contract (expected by Friday 30 September 2016) and; **[3]** Draft Management plan for boat seines in the Balearic Islands (Spanish version available/English version expected by Friday 21 October 2016).

Background documents can be found on: <https://stecf.jrc.ec.europa.eu/plen1603>

STECF response

Summary of report of ad hoc contract (Ref. Ares(2016)5164196)

The ad hoc contract required reporting on the four following Terms of reference (TOR):

TOR 1. Advice and assess whether the management plan contains adequate elements in terms of:

1.1. The description of the fisheries

- Recent and historical data on catches (landings and discards) of the species concerned, fishing effort and abundance indices such as catch-per-unit-effort (or CPUE).
- Data on length-frequency distribution of the catches, with particular reference to the species subject to minimum sizes in accordance with Annex III of the MEDREG.
- An updated state of the exploited resources.
- Information on economic indicators, including the profitability of the fisheries.

1.2. Objectives, safeguards and conservation/technical measures

- Objectives consistent with article 2 of the CFP and quantifiable targets, such as fishing mortality rates and total biomass.
- Measures proportionate to the objectives, the targets and the expected time frame.
- Safeguards to ensure that quantifiable targets are met, as well as remedial actions, where needed, including situations where the deteriorating quality of data or non-availability places the sustainability of the main stocks of the fishery at risk.
- Other conservation measures, in particular measures to fully monitor catches of the target species, to gradually eliminate discards and to minimise the negative impact of fishing on the ecosystem.

1.3. Other aspects

- Information on the possible impact of the fishing gears on the protected habitats: seagrass beds (particularly *Posidonia oceanica*), coralligenous habitats and maerl beds.
- Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan.

TOR 2. Advice whether the proposed modifications of the plan would: (i) ensure a sustainable exploitation of transparent goby (*Aphia minuta*) and picarei (*Spicara smaris*) and a minimised negative impact on the marine ecosystem; (ii) not undermine the socioeconomic sustainability; and (iii) ensure a good controllability of the fishing fleets involved. The proposed modifications (pages 39-42, 49-54) consist in:

- a) Dividing the waters around the Mallorca Island in two different management areas;
- b) Increasing the flexibility of the census of the fleet;
- c) Revising upwards the maximum allowed seasonal TAC for picarel (due to undeclared catches prior to the setting up of the plan in 2013);
- d) Increasing by around 30 days the picarel fishing season (past: from 16/10 to 15/04; current proposal: from 1/10 to 29/04).
- e) Setting a more flexible working time;
- f) Allowing the possibility to share the daily quota between vessels of the same port;
- g) Allowing the possibility to land up to 5 kg of by-catch species such as big-scale sand smelt;

h) Allowing fishing activities above *Posidonia oceanica* seagrass meadows;

TOR 3. Evaluate whether the plan provides adequate and up-to-date scientific and technical justifications to support the request for derogations on protected habitats (Article 4), minimum mesh sizes (Article 9) and minimum distance and depths for the use of fishing gears (Article 13), as set by the MEDREG. In the event that a condition is not entirely supported, the contractor shall provide recommendations on the additional information needed. In answering this TOR, it shall be considered the tables provided in Annex.

TOR 4. If deemed necessary, provide any recommendations and guidance on how to obtain improved scientific/technical supporting material for the plan. This could be done in terms of collection of data, evaluation of the status of the target stocks, evaluation of conservation measures, impact on the marine ecosystem and monitoring programme.

Information presented in the ad-hoc report

The report of the contract is divided into three sections. First one gives a brief description of the fisheries in the Balearic Islands conducted by two types of boat seines. The first boat seine is called *jonquillera*, and it mainly targets transparent goby (*Aphia minuta*) locally called *jonquillo* and other small gobids, principally *Pseudoaphia ferreri* and a minor fraction of *Crystallogobius linearis*. The second one is called *gerretera* and targets exclusively picarel (*Spicara smaris*), which is locally called *gerret*. Within this section gears and fishing activity are described, as well as their catches, catch limits fishing effort and fishing effort limitations.

The second section gives comments on the Management plan where all the TORs are addressed. The conclusions of the report of the contract are given within third section. Regarding ToR 1, the contract report concludes that the new Management plan is an improvement of the previous one. It is much more comprehensive and contains relevant information derived from the monitoring program enforced during the past 3 years. In particular, several aspects of the fisheries and biological aspects of the target species are better defined.

Regarding ToR 2, the contract report notes that some of the new requests such as census flexibility and quota sharing, do not seem in line with a precautionary approach. It is noted that such measures will likely produce an increase of fishing effort and thus of fishing mortality. No stock assessment and management strategy evaluation (MSE) has been conducted, and therefore the consequences on the stocks and the ecosystem are unknown. The contract report concludes that if such requests would be granted, their effects on catches, effort, stock status and economy of the activity should be monitored carefully.

Regarding ToR 3, the report considers that the information provided in the MP, even though it does not adequately cover all requirements, supports the fishers' perception of a limited negative impact on the *Posidonia* beds due to both the gears characteristics and on how they are operated. The contract report includes an Annex detailing whether each of conditions required for granting derogations is assessed and appropriately addressed.

Regarding ToR 4 the report considers that although the new MP provides more reliable information on the fisheries, biology of the species, catch, effort, etc., such information is still not adequate nor enough precise for attempting a more sound assessment on the status of the stocks. Thus, the report considers that the limit reference point used based on mean monthly CPUEs can be the only feasible approach at this moment.

STECF comments

STECF reviewed the report of the ad hoc contract and considered it to be a useful document for evaluating the Management plan for boat seines in the Balearic Islands, Spain. STECF supports the view in the contract report that the new MP is an improvement of the previous one and that it contains relevant information derived from the monitoring program over the past three years.

STECF identified several additional points which should be taken into account during the evaluation process.

With regards to the description of the fisheries (ToR 1) the main technical characteristics of the *jonquillera* are presented, but information on *gerretera* are insufficient, especially on mesh size

used. Thus, it is not possible to evaluate the request for derogation on minimum mesh size for *gerretera*.

STECF notes also that new information has just been made available regarding the state of the stock of transparent goby. A study published by Quetglas et al in September 2016 has estimated the stock to have a fishing mortality fluctuating above F_{MSY} and with a low biomass (Figure 5.7.1)

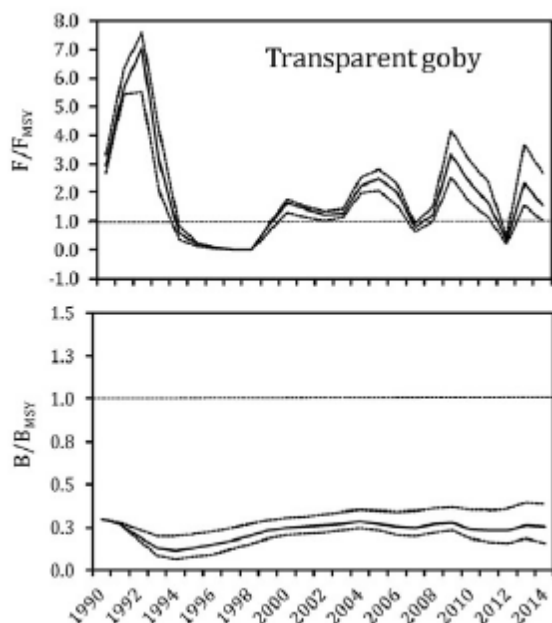


Figure 5.7.1: Time trajectories of the mean (middle line) and 80% bias-corrected confidence intervals relative fishing mortality rate (F/F_{MSY}) and relative population biomass (B/B_{MSY}) estimated using non-equilibrium surplus production models for transparent goby in the Balearic Islands) during 1990-2014. (Quetglas et al., 2016).

STECF notes also that stock assessment of transparent goby in Balearic waters is feasible and has been undertaken in the past using acoustic surveys (Iglesias and Miguel, 1998).

Regarding some of the proposed modifications of the MP (ToR 2), STECF makes the following additional comments:

- The request for dividing the waters around the Mallorca Island in two different management areas intends to avoid reductions in TACs or fishery closures when CPUEs become low in one area. STECF notes that the minimum monthly average CPUE (catch/day/boat) thresholds and the maximum annual TACs have been calculated on the basis of data covering the whole region of the island of Mallorca, and not separately by sub-areas. Thus, splitting the region into sub-areas cannot be justified if both areas are exploiting the same biological stocks. Biological information on stock identity in the area should be clarified.
- The request for revising upwards the maximum seasonal TAC for picarel is argued on the basis of an underestimation based on undeclared catches prior to the setting up of the plan in 2013. While STECF welcomes the improvement of the quality of catch statistics following the implementation of the plans, STECF considers that on the basis of the absence of knowledge on the status of the picarel stock, an increase of the TAC would not be consistent with the precautionary approach.
- On the same basis, the request for extending a fishing season using *gerretera* (past: from 16/10 to 15/04; current proposal: from 1/10 to 29/04) would not be consistent with the precautionary approach as this may imply a direct increase in the fishing mortality.
- STECF notes that the new request for including the big scale sand smelt (*Atherina boyeri*) as a non-target species for *gerretera* fishing and consequent allowance to land

up to 5 kg daily, highlights the need for more detailed information on the technical characteristics of the *gerretera*, especially regarding the minimum mesh size used. In many other Mediterranean areas the boat seine fisheries targeting picarel are highly selective for big scale sand smelt, which is a smaller fish than picarel. So, the request for landing bycatch may be indicative that the fishery operates with very small mesh size and does not only target picarel. An estimation of the corresponding catches of big scale sand smelt that this request would represent in proportion of the total current catches for that stock should be provided. STECF notes furthermore that no measures are provided that are specifically identified or designed to reduce and avoid unwanted catches.

- Regarding the request for allowing fishing activities above *Posidonia oceanica* seagrass meadows, STECF notes that the legal provisions of MEDREG regarding derogations for fishing on *Posidonia* beds exist for vessels up to 12 m overall length and engine power up to 85 kW. However, STECF points out that according to the decree authorising vessels to fish with the traditional boat seines *jonquillera* and *gerretera* in the waters of the Balearic Islands, these vessels may be considerably larger: although their total length should not exceed 12 m, their tonnage may be up to 12 GRT and their engine power up to 198.5 kW, which is not in accordance with the maximum allowable requirements in the MEDREG. STECF also notes that although it is confirmed that fishing activities are pursued over and on the sensitive habitats, particularly *Posidonia* beds, there are no detailed quantitative information on the size of the *Posidonia* area impacted by this fishing activities, which is requested by Article 4(5) of the MEDREG.

STECF conclusions

It is not possible to determine whether the new MP strictly ensures the sustainable exploitation of transparent gobies and Ferrer's gobies (*Aphia minuta* and *Pseudaphya ferreri*) and lowbody picarel (*Spicara smaris*) in accordance with the MSY objective of the EU Common Fishery Policy, due to a lack of knowledge on the status of the stocks. STECF notes however that the Balearic MP contains some elements that are capable of limiting the level of exploitation of these species in the Balearic Islands.

STECF considers that most of the requested modifications are not in accordance with the precautionary approach and/or with the MEDREG. Some of them may lead to a direct increase of fishing effort, hence of fishing mortality of target and bycatch species, the consequences of which are unknown.

References

- Iglesias, M., Miquel, J., 1998. Assessment of the *Aphia minuta* stock (Pisces : Gobiidae) by acoustic methods from the Bay of Alcudia (Mallorca , Western Mediterranean). Sci. Mar. 62, 19–25. doi:10.3989/scimar.1998.62n1-219
- Quetglas A., Merino G, Ordines F., Guijarro B., Garau A., Grau A.M., Oliver P., Massutí E., 2016. Assessment and management of western Mediterranean small-scale fisheries, Ocean & Coastal Management, 133, 95-104, doi 10.1016/j.ocecoaman.2016.09.013.

5.8 Management plan for purse seine fishing in the Republic of Croatia

Background

Under Article 19 of Council Regulation (EC) No 1967/2006 (hereafter referred to as "MEDREG"⁶), Member States are expected to adopt management plans for fisheries conducted by trawl nets, boats seines, shore seines, surrounding nets and dredges within their territorial waters.

In 2013, the Common Fisheries Policy (CFP)⁷ introduced new elements for conservation such as the target of maximum sustainable yield (MSY) for all the stocks by 2020 at the latest, the landing obligation and the regionalisation approach.

In line with these two regulations, the plans shall be based on scientific, technical and economic advice, and shall contain conservation measures to restore and maintain fish stocks above levels capable of producing maximum sustainable yield or MSY. Where targets relating to the MSY (e.g. fishing mortality at MSY) cannot be determined, owing to insufficient data, the plans shall provide for measures based on the precautionary approach, ensuring at least a comparable degree of conservation of the relevant stocks.

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

During recent years, Croatia has submitted various draft management plans to the European Commission (EC). The STECF has provided advice in two occasions.

Timeline

2012 A management plan for certain purse seines (Srdelara, Tunara, Palamidara, Igličara, Ciplarica and Oližnica) was submitted to the EC.

2013 The plan was reviewed by the STECF at its 43rd Plenary Meeting⁸.

2014 A management plan exclusively for Srdelara purse seine was revised and adopted.

6 Council Regulation (EC) No 1967/2006 of 21 December 2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, amending Regulation (EEC) No 2847/93 and repealing Regulation (EC) No 1626/94. [OJ L 409, 30.12.2006, p. 11–85.](#)

7 Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC. [OJ L 354, 28.12.2013, p. 22–61.](#)

8 Scientific, Technical and Economic Committee for Fisheries (STECF) – 43rd Plenary Meeting Report (PLEN-13-02). 2013. Publications Office of the European Union, Luxembourg, EUR 26904 EN, [JRC 83565](#), 120 pp.

2016 A management plan for certain shore seines (Girarica, Migavica, Šabakun, Oližnica, Igličara, and Srdelara) was submitted to the EC in January. This plan was reviewed by the STECF at its 51st Plenary Meeting⁹.

2016 A new version of the management plan for purse seines (Ciplarica, Igličara, Lokardara, Oližnica and Palamidara) was submitted to the EC in July. A technical advice on this plan is currently needed.

Request to the STECF

The STECF is requested to:

TOR 1. Assess the technical characteristics of the fishing gears Ciplarica, Girarica, Igličara, Lokardara, Oližnica, Palamidara, Migavica, Šabakun, Srdelara and Tunolovka. Furthermore, provide for each fishing gear the alpha-3 code, as defined in Annex XI of Commission Implementing Regulation (EU) No 404/2011¹⁰.

TOR 2. Assess whether the latest management plan for purse seines (version May 2016) contains adequate elements in terms of:

2.1. The description of the fisheries

Recent and historical data on catches (landings and discards) of the species concerned, fishing effort and abundance indices such as catch-per-unit-effort (or CPUE).

Data on length-frequency distribution of the catches, with particular reference to the species subject to minimum sizes in accordance with Annex III of the MEDREG.

An updated state of the exploited resources.

Information on economic indicators, including the profitability of the fisheries.

2.2. Objectives, safeguards and conservation/technical measures

Objectives consistent with article 2 of the CFP and quantifiable targets, such as fishing mortality rates and total biomass.

Measures proportionate to the objectives, the targets and the expected time frame.

Safeguards to ensure that quantifiable targets are met, as well as remedial actions, where needed, including situations where the deteriorating quality of data or non-availability places the sustainability of the main stocks of the fishery at risk.

- Other conservation measures, in particular measures to fully monitor catches of the target species, to gradually eliminate discards and to minimise the negative impact of fishing on the ecosystem.

2.3. Other aspects

⁹ Reports of the Scientific, Technical and Economic Committee for Fisheries (STECF) – 51st Plenary Meeting Report (PLEN-16-01). 2016. Publications Office of the European Union, Luxembourg, EUR 27917 EN, JRC 101442, 95 pp.

¹⁰ Commission Implementing Regulation (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy.

- Information on the possible impact of the fishing gears subject to the management plan in the marine environment.
- Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan.

TOR 3. Evaluate whether the plan provides adequate and up-to-date scientific and technical justifications to support the request for derogation on the minimum distance and depths for the use of the fishing gears *Igličara* and *Olišnica*¹¹, as set by the MEDREG (Article 13). In the event that a condition is not entirely supported, the expert shall provide recommendations on the additional information needed. In answering this TOR, it shall be considered the table provided in Annex I.

TOR 4. If deemed necessary, provide any recommendations and guidance on how to obtain improved scientific/technical supporting material for the plan. This could be done in terms of collection of data, evaluation of the status of the target stocks, evaluation of conservation measures, impact on the marine ecosystem and monitoring programme.

Background documents

[1] Draft Management Plan for Purse Seines (version Feb 2012); [2] Scientific, Technical and Economic Committee for Fisheries (STECF) - 43rd Plenary Meeting Report (PLEN-13-02). 2013. Publications Office of the European Union, Luxembourg, EUR 26904 EN, JRC 83565, 120 pp; [3] Adopted Management Plan for *Srdelara* Purse Seine (2014); [4] Draft Management Plan for Shore Seines (version Jan 2016); [5] Scientific, Technical and Economic Committee for Fisheries (STECF) - 51st Plenary Meeting Report (PLEN-16-01). 2016. Publications Office of the European Union, Luxembourg, EUR 27917 EN, JRC 101442, 95 pp and; [6] Draft Management Plan for Purse Seines (version May 2016).

Background documents can be found on: <https://stecf.jrc.ec.europa.eu/plen1603>

STECF response

TOR 1. Technical characteristics of the fishing gears

The STECF examined in detail the background documents no 1, 3, 4 and 6 and noted that the traditional name of the gears (e.g. "*igličara*", "*oližnica*") denotes the target species rather than the type of gear (purse seine or boat seine). Both purse seine and boat seine gears exist that target garfish (both named "*igličara*"), sand smelts ("*oližnica*") and sardine ("*srdelara*"). The most recent information concerning the technical characteristics of the gears covered by the management plans (documents no 1, 3, 4 and 6), is summarized in the following table:

¹¹ Note that the fishing gears *Lokardara* (L), *Ciplarica* (C) and *Palamidara* (P) have not been included in TOR 3. According to their technical characteristics (i.e. the drop of the net: 80, 85 and 120 metres, respectively for (L), (C) and (P)) and the requirements sets under the MEDREG (70% of the overall drop), they shall operate in waters deeper than 56, 59 and 84 metres, respectively for (L), (C) and (P). Therefore, these fishing gears are not entitled to derogate from Article 13(3). Idem for the request to derogate the minimum mesh size of *Olišnica* purse seine (Article 9). For further information, see summary table in Annex II of this report.

Traditional name of gear	Target species	Gear type	Code	Total number of licences	Mesh size (mm)	Length (m)	Height (m)
Ciplarica	Mugilidae, <i>Sarpa salpa</i> , <i>Oblada melanura</i>	Gray mullet purse seine	PS	126	52 (cod end: 67)	600	85
Girarica	<i>Spicara smaris</i> and other picarels	Picarel boat seine	SV	150	24	250 - 300	40
Igličara	<i>Belone belone</i>	Garfish purse seine	PS	35	20 (cod end: 30)	250	50
Igličara	<i>Belone belone</i>	Garfish boat seine	SV	38	16 - 20	100 - 200	
Lokardara	Mackerels, horse mackerels, <i>Belone belone</i> , <i>Sardinella aurita</i>	Mackerel purse seine	PS	20	20 (cod end: 30)	250	80
Migavica	<i>Spicara smaris</i> and other picarels	Picarel boat seine	SV	348	24	250 - 300	40
Oližnica	<i>Atherina hepsetus</i> and <i>A. boyeri</i>	Sand smelt purse seine	PS	56	10 (cod end: 14)	100 - 200	50
Oližnica	<i>Atherina boyeri</i> and <i>A. hepsetus</i>	Sand smelt boat seine	SV	20	10 - 14 or 16 - 20 (depending on species)	100 - 200	
Palamidara	<i>Seriola dumerili</i> , <i>Sarda sarda</i> , <i>Euthynnus alletteratus</i> , <i>Auxis rochei</i>	Bonito purse seine	PS	88	68 (cod end: 79)	800	120
Šabakun	<i>Seriola dumerili</i>	Amberjack boat seine	SV	69	56	300 - 500	
Srdelara	<i>Sardina pilchardus</i> , other small pelagics	Sardine purse seine	PS	488	14		120
Srdelara	<i>Sardina pilchardus</i> , <i>Engraulis encrasicolus</i>	Sardine boat seine	SV	124	16 - 20	100 - 200	

Tunara or Tunolovka	<i>Thunnus thynnus</i> , other large pelagics	Bluefin tuna purse seine	PS	50	40		
---------------------	---	--------------------------	----	----	----	--	--

TOR 2.1. Description of the fisheries

Elements included in the plan

Biological, economic and catch data are presented for only "ciplarica", "igličara", "oližnica" and "palamidara". No data are provided for "lokardara".

The information presented for each of the four purse seines ("ciplarica", "palamidara", "oližnica" and "igličara") is the following: Total catch and catch per Croatian fishing zone in 2014; Species composition of the total catch for 2014 (occasionally also for 2013); Monthly catches with percentages of target and by-catch species for 2014; Number of vessels actually having fished with each purse seine during 2013, the characteristics of these vessels (average length, power, tonnage) and the corresponding catch.

According to the 2014 data presented, the annual catch of "ciplarica" was 32 t with 51% by-catch; The catch of "igličara" was 3.5 tonnes with 37.5% bycatch; The catch of "oližnica" was 20.5 tonnes with 27% bycatch; the catch of "palamidara" was 99 tonnes, with 1.9% by-catch. The gilthead seabream (*Sparus aurata*) species included in Annex III of the MEDREG was an important by-catch of "ciplarica" and "igličara".

For 2015, length frequency distributions and length-weight relationships are provided for the following target species: *Atherina hepsetus*, *Belone belone*, *Seriola dumerili*, *Sarda sarda* and three mugilids (*Liza aurata*, *Liza ramada* and *Chelon labrosus*).

Results of an experimental survey onboard commercial vessels fishing with "ciplarica", "igličara", "oližnica" and "palamidara" are presented for the periods April-September and October-March 2015. During this survey an effort was made to fish in the zone outside the 300 m from the coast / the isobath of 50 m, as well inside this zone (prohibited zone according to the MEDREG). No catch could be achieved outside the prohibited area with "ciplarica" and "igličara". The success of "oližnica" and "palamidara" was also very limited outside the prohibited area and resulted in low percentages for target species in the catch. The results of the experimental survey for the zone inside the 300 m from the coast / the isobath of 50 m are summarized in the following table:

Traditional name of purse seine	Target species	Season	% target species	% discards	Main catch	Main bycatch
Ciplarica	<i>Mugilidae</i> , <i>Sarpa salpa</i> , <i>Oblada melanura</i>	April-September	34	2.2	<i>Sparus aurata</i> (63%)	<i>Sparus aurata</i>
		October-March	90	1.3	<i>Sarpa salpa</i> (83%)	<i>Sparus aurata</i>
Igličara	<i>Belone belone</i>	April-September	8	0	<i>Sparus aurata</i> (83%)	<i>Sparus aurata</i>

		October-March	4	NA	<i>Spicara smaris</i> (70%)	<i>Spicara smaris</i>
Oližnica	<i>Atherina hepsetus</i> and <i>A. boyeri</i>	April-September	75	0	<i>Atherina hepsetus</i> (75%)	<i>Trachurus</i> spp.
		October-March	91	0	<i>Atherina hepsetus</i> (91%)	<i>Liza</i> spp.
Palamidara	<i>Seriola dumerili</i> , <i>Sarda sarda</i> , <i>Euthynnus alletteratus</i> , <i>Auxis rochei</i>	April-September	88	4.8	<i>Seriola dumerili</i> (88%)	<i>Oblada melanura</i>
		October-March	98	1	<i>Seriola dumerili</i> (92%)	NA

The percentages of target species were high for "oližnica" and "palamidara" (above 75%). Discards were generally low for all nets. The "ciplarica" and "igličara" showed higher percentages of by-catch species, with gilthead seabream (*Sparus aurata*) being an important bycatch.

For these experimental samplings, the length ranges of species caught are provided except for "oližnica" with the small mesh (10-14 mm). For the other three nets (with larger mesh sizes), the catch of undersized specimens of species subject to minimum sizes, in accordance with Annex III of the MEDREG, was negligible (few specimens of *Diplodus vulgaris* <18 cm caught in winter by "ciplarica" and "igličara").

Apart from general and descriptive justifications of the social and economic importance of the small purse seiners, quantitative information on the economic performance and the expected impacts of rejecting the derogations requested in the MP is very limited. The use of the small purse seines is combined along the year with the use of gill-nets, traps and long-lines. Income generated individually by each gear used is not sufficient to support the fishermen. Among the purse seine nets, the highest annual income is generated by "palamidara" (average: 13 000 €), followed by "oližnica" (8900 €), "ciplarica" (7 100 €) and "igličara" (4 000 €). Daily fuel cost is higher for "palamidara" (average: 137 €/day), followed by "ciplarica" (117 €/day), "oližnica" (48 €/day), "igličara" (20 €/day).

The MP stipulates a significant change in the number of vessels authorized to fish with each of the five purse seines:

Purse seine	Total number of licensed vessels	Estimated number of authorized vessels
Ciplarica	126	33
Igličara	35	5
Oližnica	56	14
Palamidara	88	28

Lokardara	20 (first license issued in 2015)	up to 250
Total	325	~330

This change will bring an increase of >1 000% of the vessels authorized to fish with "lokardara" (the "mackerel" purse seine) with no change in the total number of purse seine licenses. According to the information provided in the plan, licenses for "lokardara" were first issued in 2015. It is unclear if the later net (fishing activity) is a new one or has been used traditionally in the Croatian fisheries.

STECF comments

STECF notes that no data are provided to assess the impact of "lokardara" to fish stocks and the ecosystem and the outcomes of a potential re-allocation of fishing pressure from other gears to this net (due to the radical increase of the respective fishing licenses) cannot be evaluated. The increase of vessels authorised to use "lokardara" should be considered with caution.

Landings data are presented in the MP for 2014 but more detailed information including historical time series of catches (landings and discards), fishing effort and abundance indices, such as catch-per-unit-effort (CPUE) are not provided for any of the purse seines.

STECF notes that the results of the experimental on board survey carried out in 2015 are difficult to evaluate because sample sizes are not provided. The information presented (limited or no success to catch the target species outside the zone of 300 m from the coast / 50 m isobath) suggests that the traditional use of the nets "ciplarica", "palamidara", "oližnica" and "igličara" may be impaired outside the coastal zone prohibited by the MEDREG. As described in the document, the fishing gear is only lowered into the sea when a school of the target species appears, which rarely happened in the non-prohibited zone during the experimental survey.

No information is provided in the MP concerning the length compositions of bycatches of "oližnica" (10-14 mm mesh) for which derogation from minimum mesh size is requested.

No assessment of stock status is provided for any of the target species.

STECF has limited information on the stocks fished by the Croatian purse seines. None of these stocks have analytical assessments. However, STECF notes that both Atlantic horse mackerel and Atlantic mackerel were recently evaluated by STECF EWG 16-13 for the combined area GSA 17, 18, 19 and 20. Based on the analyses carried out at the EWG, the exploitation status and biomass of horse mackerel is unknown but biomass has been slightly increasing over the last five years (Figure 5.8.1). Taken together the length indicators show slight reduction in exploitation rate of horse mackerel over the last 10 years, and in contrast both indicators show a slight increase in exploitation rate on Atlantic mackerel over the same period (Figure 2). Since 2009 catches of horse mackerel have been very variable without significant change, though they have declined over the last 3 years from a high in 2013.

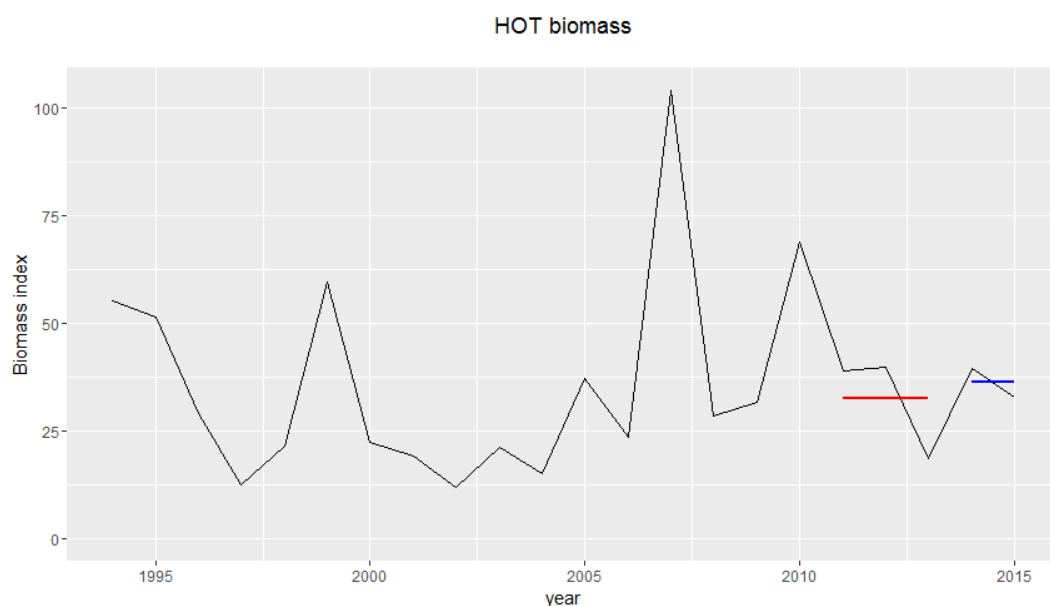


Figure 5.8.1. Biomass index (black) of Atlantic horse mackerel biomass for GSA 17, 18, 19 and 20, estimated from MEDITS survey. The mean of the last two years (in blue) compared with that of the previous three years (in red) shows a slight increase in biomass over the last five years (from STECF EWG 16-13).

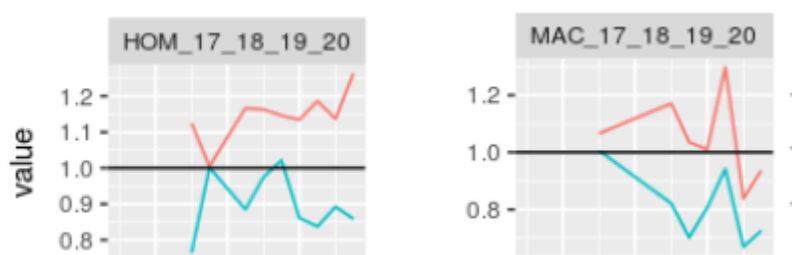


Figure 5.8.2. Length indicators of horse mackerel (HOM) and mackerel (MAC): Lmean/LFeM (red) and Lmean/Lopt (blue). Only trend information should be inferred from these graphs. Taken together the length indicators show slight reduction in exploitation rate of horse mackerel over the last 10 years, and in contrast both indicators show a slight increase in exploitation rate on Atlantic mackerel over the same period (STECF EWG 16-13)

TOR 2.2. Objectives, safeguards and conservation/technical measures

Elements included in the plan

The current exploitation status of target stocks in terms of F and biomass is unknown. Reference points and harvest control rules are not specified for any of the target species.

The MP stipulates that during the first three years of its implementation, the Republic of Croatia will collect the data needed in order to assess the status of the targeted species and will use these findings for the revision of the plan.

It is stated that, every year, in cases that deterioration in the quality of data needed for the assessments is realised, 'a corrective plan to achieve the necessary quality of data or the manner in which they become available will be prepared within 3 months'.

A number of measures to control fishing effort are included in the plan (in case of an alarming status of targeted stocks): permanent cessation of fishing activities; temporary suspension of fishing activities; temporal and spatial closures to protect spawners and recruits; extension of spatio-temporal closures. However, the exact way that these measures will be implemented when required, is not specified in the plan.

Specific spatiotemporal closures are only determined for the purse seine net for sand smelt "oližnica": Fishing with this net can only be conducted in the period from 30 June to 1 May, in Istria (west of Cape Crna punta), the Novigrad Sea and the fishing area of subzone F2.

The MP contains measures to fully monitor the purse seine catches: A prerequisite for the authorisation of a vessel to fish with purse seine will be the installation of a VMS; Vessels involved in fishing with purse seine nets shall keep a logbook of catches and complete a landing declaration, regardless of the vessel length; All species from the catch shall be entered into the logbook regardless of quantity; Each license holder shall submit the logbook no later than 48 hours after the landing; All vessels shall land their catches in designated landing ports.

STECF comments

According to the time frame described in the plan, the first assessments of stock status for the target species of the concerned purse seines and the revision of the MP will become available in three years (possibly by 2020). This time frame is not consistent with the requirements of article 2 of CFP.

The data needed for the assessment of the purse seine target stocks should be readily available to the relevant stock assessment working groups.

STECF notes that the exact way, including the expected time frame, that the measures included in the MP will be implemented is not specified.

TOR 2.3. Other aspects

-Possible impacts on the marine environment

STECF comments

From the information provided in the MP, STECF is unable to evaluate whether fishing with each of the five purse seines affects the *Posidonia oceanica* or other marine phanerogams. Maps of the distribution of marine phanerogams in the eastern side of the Adriatic are not provided.

The purse seine net for smelt "oližnica" is probably not affecting phanerogams, if used exclusively over muddy bottoms as described in the plan.

According to the results of the experimental onboard survey carried out in 2015 (see above, ToR 2.1), discards are generally low for "oližnica", "palamidara", "ciplarica" and "igličara" and the catches of undersized specimens, especially of species subject to minimum sizes, in accordance with Annex III of the MEDREG, are also low.

-Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan

STECF comments

According to the MP, the data collected within the National Fisheries Data Collection Programme will be the basis for the analyses needed for the evaluation of the plan. Detailed reports on achieving the goals and values of measurable indicators will be submitted every 3 years. STECF notes that such measurable indicators and their associated reference points are not now defined in the plan.

None of the target species of the purse seines included in the MP (except bonito) is currently covered by the EU DCF. Data must therefore be collected specifically for them in the frame of this management plan.

TOR 3. Derogations on the minimum distance and depths for the use of the fishing gears *Igličara* and *Oližnica*

For the evaluation of these derogations, STECF used the Table provided in Annex I.

Request for Derogation: Minimum distances and depths for the use of the fishing gears *Igličara* and *Oližnica*, Article 13

Conditions	STECF assessment of their fulfilment	
	<u>Oližnica</u> (purse seine for sand smelts)	Igličara (purse seine for garfish)
<i>Paragraph 5</i>		
There are particular geographical constraints	Yes. Presence of species over shallow, muddy bottoms.	Yes. Garfish can be effectively caught in spring and autumn when fish gather into schools in the vicinity of the coast.
The fisheries have no significant impact on the marine environment and affect a limited number of vessels.	<p>-This purse seine is probably not affecting phanerogams if used exclusively over muddy bottoms.</p> <p>-According to the information presented (see results of experimental survey summarized above), discards and catches of undersized fish are low and the fishery is highly selective.</p> <p>-Number of authorized vessels: 14</p>	<p>-Unknown effects on phanerogams. Such effects are likely low due to small number of vessels and fishing taking place in only two fishing zones.</p> <p>-According to the information presented (see results of experimental survey summarized above), discards and catches of undersized fish are low.</p> <p>-Number of authorized vessels: 5</p>
Those fisheries cannot be undertaken with another gear and are subject to a management plan.	The target species can also be caught by the sand smelt boat seine (also called "oližnica"). A MP for the Croatian shore seines (including the sand smelt boat seine) was submitted in January 2016	The target species can also be caught by the garfish boat seine (also called "igličara"). A MP for the Croatian shore seines (including the garfish boat seine) was submitted in January 2016 (document no 4)

	(document no 4) and evaluated by STECF in PLEN-16-01 (document no 5).	and evaluated by STECF in PLEN-16-01 (document no 5).
<i>Paragraph 9</i>		
Vessels have a track record in the fishery of more than five years.	Yes. Authorisation to using this gear will only be given to licence holders having a historical record of catch (although not specified if this record is of more than five years). The number of licences will therefore decrease from 56 to 14.	Yes. Authorisation to using this gear will only be given to licence holders having a historical record of catch (although not specified if this record is of more than five years). The number of licences will therefore decrease from 35 to 5.
Not involve any future increase in fishing effort provided.	Yes. The number of authorized vessels will not increase in the future.	Yes. The number of authorized vessels will not increase in the future.
Fishing activities fulfil the requirements of Article 4, Article 8(1)(h), Article 9(3)(2) and Article 23;	<p>-Effects on protected habitats are most likely low due to the species habitat (muddy bottoms), low number of vessels involved in the fishery and small height of the net.</p> <p>-Article 8(1)(h) and Article 9(3)(2) not applicable for purse seines.</p> <p>-All species caught have to be recorded in the logbook regardless of quantity.</p>	<p>-Effects on protected habitats are most likely low due to low number of vessels involved in the fishery and small height of the net.</p> <p>-Article 8(1)(h) and Article 9(3)(2) not applicable for purse seines.</p> <p>-All species caught have to be recorded in the logbook regardless of quantity.</p>
Fisheries do not interfere with the activities of vessels using gears other than trawls, seines or similar towed nets.	The MP states that "given the fact that fishing with purse seine nets is in practice performed only locally when fish appears or it is attracted by light, this type of fishing is not a direct competitor to other fishing gears (mainly gillnets, traps and angling gears) since it targets different species and in different fishing conditions"	The MP states that "given the fact that fishing with purse seine nets is in practice performed only locally when fish appears or it is attracted by light, this type of fishing is not a direct competitor to other fishing gears (mainly gillnets, traps and angling gears) since it targets different species and in different fishing conditions"
Fisheries are regulated in order to ensure that catches of species mentioned in Annex III, with the exception of mollusc bivalves, are minimal.	According to the information presented, catches of species mentioned in Annex III are very low.	According to the information presented, catches of species mentioned in Annex III are very low, except for gilthead seabream (<i>Sparus aurata</i>) which can be a significant bycatch.
Fisheries do not target cephalopods.	Yes. According to the results of the experimental survey carried out in 2015, the by-	Yes. According to the results of the experimental survey in 2015, the by-catch of

	catch of cephalopods was 0-3%.	cephalopods was 0.6-1.5%.
Fisheries are subject to a monitoring plan.	Yes. The plan includes scientific as well as monitoring of fishing, catch and trade. The target species of " <u>oližnica</u> " (<i>Atherina</i> spp) are not covered by the DCF. Data must therefore be collected specifically for them in the frame of the management plan.	Yes. The plan includes scientific as well as monitoring of fishing, catch and trade. The target species of " <u>igličara</u> " (<i>Belone belone</i>) is not covered by the DCF. Data must therefore be collected specifically for it in the frame of the management plan.

STECF comments

See STECF response to TOR 2.3 and TOR 4.

STECF considers, based on the previous Table, that the purse seines "igličara" and "oližnica" fulfil the requirements for granting the derogations on the minimum distance and depths, although some of the conditions specified in the MEDREG cannot be fully quantified.

Data should be collected for the target species of these purse seines (*Atherina* spp., *Belone belone*) in the frame of the present plan (the species are not covered by the DCF).

TOR 4. Recommendations and guidance on how to obtain improved scientific/technical supporting material for the plan

STECF comments

The MP should incorporate data for the evaluation of the ecological and economic impacts of the "lokardara" fishery, especially as the plan proposes an important increase in the number of fishing licences authorised for using this net.

The assessments of highly migratory species (carangids, scombrids, *Belone*) targeted by certain Croatian purse seines should be made at a regional (Adriatic) level.

The overlap of phanerogam beds with fishing grounds of each of the purse seines should be estimated.

Length frequencies rather than length ranges should be recorded for catches, separated into landings and discards.

STECF conclusions

The present MP is improved compared to the first plan submitted by the Croatian authorities in 2012 (document no 1) which also included the purse seines "ciplarica", "igličara", "oližnica" and "palamidara". New information is now presented regarding catches and discards (experimental on board survey), as well as new data concerning the profitability and costs of using each of the four purse seines.

The MP has the following main weaknesses:

It does not provide sufficient information on assessments of the status of the target species, defined MSY targets, harvest control rules and time frame consistent with the new CFP.

some elements in the description of the fisheries are missing or unclear, and the impact of the major reallocation of effort into the "lokardara" cannot be evaluated

It does not contain any evaluation of the effect of the different purse seines, especially those with big net height, on protected coastal habitats.

With regards to the first point, STECF considers that the assessment and management of the shared species, and particularly the highly migratory species (e.g., *Scomber* spp, *Trachurus* spp, *Sarda sarda*, *Seriola dumerili*, *Belone belone*) targeted by certain Croatian purse seines should be made at a regional (Adriatic) level covering all countries and fleets exploiting the species

5.9 CPUE for yellowfin tuna stock assessments

Background

The relationship between catch per unit effort (CPUE) and abundance is central to stock assessment models and thus, changes in this relationship will ultimately result in changes in scientific diagnostic and associated management advice. In tuna fisheries, commercial data are traditionally used to compute CPUE and to derive indices of abundance for stock assessments, due to the lack of fishery-independent information. Nominal efforts are usually standardized to account for difference among vessels, areas, seasons, and years. Changes in catchability related with improvements of fishing technology over time are difficult to capture because relevant information on non-conventional fisheries is rarely collected.

Tuna RFMOs have requested European scientists to define the fishing effort units for drifting fishing aggregative devices (DFAD) and free school sets in order to standardize European purse-seiner CPUEs. Standardized indices of abundance from the purse seine fishery are valuable because they refer to species or parts of the tropical tuna populations that are not targeted by longlines (longline CPUEs are currently used in assessments). The European Workshop on CPUE standardization held in July 2016 in Fuengirola, Spain, has initiated a “data rescue” of non-conventional fisheries data¹²; the development of a framework for CPUE standardization analyses, with the assistance of an external European expert in statistical modeling.

In 2016 yellowfin tuna stock assessments in the Indian and Atlantic oceans are due. Following the work of the aforementioned workshop, the EU aims to provide tuna RFMOs with standardized CPUEs from the European purse seine fleet for yellowfin tuna in the Indian and Atlantic oceans, to be used as input in corresponding assessments.

To prepare STECF opinion, an ad-hoc contract was carried out in order to:

- a) develop a general template for standardizing tropical tuna CPUE caught by purse seiners targeting (1) free schools and (2) drifting fishing aggregative devices (dFADs).
- b) If the application of the CPUE standardization framework to large yellowfin tuna caught in free schools shows realistic results, the methodology would be extended to juvenile yellowfin caught under drifting FADs.

The work has been conducted in collaboration under the overall guidance of the EU tuna scientists who participated at the tropical tuna CPUE¹³ workshop held in IEO Fuengirola, July 19th-22nd, 2016.

The report consists of

12 non-conventional fisheries datas refers to data that are not obtained from the current data sources (e.g. logbooks, sampling, observers data, etc.), such as type of buoys, Info on supply vessels (association PS-Supply vessels), Ratio number of FADs deployed /number of buoys activated, etc. The data rescue refers to the fact that these non-conventional datasets are often lost, kept in peoples laptops, remain unused and are not as available as logbooks, so the participants in the July WG had to dig a little deeper to obtain them.

13 The scientists who participated in the meeting already provided the available information and would clarify any doubt that the contractor would raise. All results will be shared and discussed with the WG, and all suggestions will be taken into account when producing the final report.

1. A scientific document on purse seiner CPUE standardization that contributes to the next IOTC yellowfin stock assessment working Group.
2. Software script (in R or similar programming language), fully documented, for diffusion among tropical tuna scientists.

Request to the STECF

STECF is requested to review the report of the ad-hoc contract.

STECF response

STECF released a separate report on this item during the October plenary meeting.

Scientific, Technical and Economic Committee for Fisheries (STECF) - CPUE for yellowfin tuna stock assessments (STECF-16-17); Publications Office of the European Union, Luxembourg; EUR 27758 EN; doi:10.2788/308305

5.10 CFP monitoring

Background

DG MARE intends to request STECF in 2017 to continue the monitoring of fish stocks with respect to the CFP objectives relevant to exploitation of the stocks with respect to maximum sustainable yield (see STECF-16-05). This should continue reporting on the level of fishing mortality relative to F_{MSY} , or alternative proxies and stock status relative to safe biological limits including B_{PA} and $MSY B_{trigger}$. Extension of the analysis to cover proxies for MSY parameters for data-limited stocks is also encouraged.

While STECF is encouraged to maintain as much stability in the analysis as possible, DG MARE would welcome further methodological development with respect to the reporting of the above-mentioned parameters, and also with respect to monitoring Mediterranean fish stocks.

DG MARE understands that JRC and possibly others have been working on these topics. Such work should be reviewed and any methodological conclusions should be drawn by STECF before the next reporting iteration. For 2017, the evaluation report should be finalised after the Mediterranean assessments have been adopted. EEA, ESTAT and GFCM secretariat should be kept informed of methodological developments.

Request to the STECF

- 1) On the basis of intersessional work by JRC and any other relevant material, make any appropriate methodological recommendation for the monitoring of fish stocks in relation to the MSY objectives of the CFP.
- 2) As far as practicable, STECF should use the same indicators to report on progress in all sea basins.

STECF comments

According to Article 50 of the Common Fisheries Policy (CFP Regulation (EU) No 1380/2013), the European Commission is requested to “report annually on progress in achieving MSY objectives and on the situation of fish stocks in Union waters and in certain non-Union waters, where Union vessels are operating”. In 2016, an STECF ad hoc Expert Group was convened to prepare this report, which was reviewed and adopted by STECF by writing procedure (STECF-16-03).

The protocol used in this process was discussed during the spring STECF plenary meeting, leading to a first set of methodological recommendations (STECF-16-05). On this basis and using the intersessional work by JRC and other relevant material, the protocol was discussed again during the current plenary meeting of STECF. Following this discussion, some new methodological recommendations and guidance for the monitoring of fish stocks in relation to the MSY objectives of the CFP, can be formulated regarding four key aspects: i. the indicators to use; ii. the stocks to consider; iii. the coverage of the scientific advice; iv. and the timing of the yearly monitoring.

Indicators used

STECF notes that the objective of the annual report on the CFP monitoring is to focus on two aspects: the progress made in achieving maximum sustainable yield, and the situation of stocks status. This implies not only monitoring the ability of the management measures taken by the EU to achieve the MSY objective, at the latest in 2020, but also to draw an overall synthesis on stocks status and trends in European seas.

In that perspective, STECF advises to calculate the following indicators:

Indicators of stocks status

- The proportion (or numbers) of stocks for which the fishing mortality is smaller than or equal to F_{MSY} ,
- The proportion (or numbers) of stocks inside safe biological limits (SBL, jointly defined as $F < F_{PA}$ and $B > B_{PA}$)
- The proportion (or numbers) of stocks inside or outside the CFP targets (jointly defined as $F \leq F_{MSY}$ and $B > B_{PA}$, i.e. stocks not overfished and not depleted)

Indicators of trends

- Trend in the fishing pressure (F / F_{MSY})
- Trend in the stocks biomass (B / B_{MSY}) and/or B / B_{PA} ,
- and a biomass index, calculated from time series of SSB (for stocks with analytical assessment) and CPUEs or surveys index (for other stocks), using GLM technics (with a year effect, and stocks as a random effect)
- Trend in recruitment: a recruitment index, calculated from R time series (for stocks with analytical assessment), using the same GLM technics (year effect, and stocks as a random effect)

Due to data availability, it is recommended to calculate (at least in a first exploratory period of monitoring), three different indicators related to the biomass trends. It is expected that the stock number considered in the B/B_{MSY} indicator will be limited for the coming years, increasing in the future when new B_{MSY} estimates or appropriate proxies become available from the relevant assessment working groups. In contrast, the third biomass index will aggregate a larger number of stocks, providing a broader view on stocks trends in European waters. In the next plenary, STECF will decide which indicators should be reported for the next few years to avoid redundancy and contradicting messages. Such decision should be kept for the next five years.

Each indicator will be calculated yearly, over a time period (starting in 2003), provided that the number of stocks included in each indicator remains reasonably stable. The computation will consider all stocks from the selection list (see below) where the required data are available, using outputs of the most recent assessment released by the competent bodies (see below) over the last three years. For each time series of indicator, the stock number considered in the computation will be provided (or at least the range over the period).

Indicators will be provided separately for the European Atlantic waters, on one hand, and for the Mediterranean and Black Sea, on the other hand, and per Ecoregion as follows:

- . European Atlantic waters: Baltic Sea, Greater North Sea, Celtic Sea, Bay of Biscay and Iberian coast, widely distributed stocks (including some deep sea stocks),
- . Mediterranean Sea (pending that there are enough stocks assessed in each sub-region): Western Med., Central Med., Eastern Med., Black Sea.

Following STECF-16-05, JRC experts are also encouraged to explore other aggregations in order to provide indicators by stock categories (e.g. pelagics versus demersals), as well as synthetic and easy-to-read graphs.

Selection of stocks to consider

Stock units, as they are defined by relevant bodies in charge of assessment and scientific advice (ICES, STECF, GFCM...) will constitute the functional units considered in the CFP monitoring and thus in all computation of indicators. Indicators will be calculated on a large set of stocks, taking

into account as many as possible stocks, provided that they are of interest for the EU. Thus, STECF advice to select a list of stocks as follows:

- In ICES area: all stocks advised by ICES will be considered, on the condition of being subject to a TAC regulation and being distributed in EU waters, at least partially. STECF expects that, even if updated each year according to changes occurring in the TACs regulation, such list will remain sufficiently stable to ensure the year to year consistency of the CFP monitoring.
- In MED.: the ten most important stocks in term of tonnage landed and the ten most important in term of value landed (when different) will be selected within each GSA of the northern MED and black sea (GSA 1, 5-11, 15-20, 22, 23, 25 and 29). Then, the list will be reduced considering that some stocks are covering several GSAs (according to stocks assessments). STECF advises that such list should be revised only periodically (i.e. on a multi-annual basis) in order to maintain consistency of the monitoring.

The report will provide an additional list of stocks advised by ICES but not included in the list of selected stocks in ICES area. The same applies for the MED area subject to a MLS regulation and not included in the MED list.

STECF acknowledges that there are no unique scientific criteria for choosing the list of stocks. Several issues have been considered regarding e.g. the shared stocks, the stocks that are mainly distributed outside EU waters (such as Greenland halibut) or the Atlantic stocks of major economic importance but managed by other means than TACs (such as sea bass or sardine in the Iberian waters). STECF suggests that the criteria explained above are used to select stocks inside European waters over the next few years to ensure some stability in the analysis from one year to the next, and that the criteria could be reconsidered when the protocol is being benchmarked after a few years.

In the ICES area, all the above mentioned indicators will be calculated for stocks belonging to DLS (Data Limited Stocks) category 1, provided that the required parameters (F_{PA} , B_{PA} , B_{MSY}) are available. The GLM biomass index is exception and will be calculated jointly on all stocks of DLS categories 1 to 3. In MED, indicators will be computed for all stocks assessed by STECF or GFCM (over the three years' time window mentioned above), provided that the parameters required for each indicator are available.

Regarding stocks from non EU waters, STECF notes that Article 50 of the CFP regulation refers explicitly to "non-Union waters" where Union vessels are operating. As a first step, JRC experts will try to consider stocks from the non-Union waters advised by ICES and subject to a TAC regulation set up jointly by the EU and third parties (namely in Northeast Atlantic and Greenland, i.e. ICES subarea I, II, V, XII, XIV).

STECF underlines that taking into account other stocks from non UE waters, especially tunas and species exploited by EU vessels in the frame of SFPA, would not be easy and is a very time consuming task, while trends in the status of these stocks depend only partially from the UE policy. Thus, STECF considers that monitoring the CFP for these stocks may not be a priority at the moment. If required, an exhaustive analysis of the situation of these stocks exploited by Union vessels outside EU waters could be the subject of an ad hoc contract, considering all the fishing opportunities endorsed by the EU (see Table 7.4.2 in STECF-16-05), and stocks listed in the Sustainable Fisheries Partnership Agreements approved by the EU (see the reports edited by the task force set up by DG MARE for long distance fisheries, under Framework Contract No. MARE/2012/21).

Coverage of the scientific advice on stocks status and trends

In its last spring plenary report, STECF noted that ICES provided scientific advice for 183 stocks (mainly) located in European waters, among which about two thirds had an unknown status in the 2015 assessments. At the same time, STECF underlined that many of the poorly-known stocks are small, thus concluding that analyses based both on stock numbers and catches, could be usefully included in the annual report on the CFP monitoring, in order to assess the coverage of the scientific advice and the progress made in the knowledge we have on stocks status.

According to the above detailed methods, STECF will continue exploring and developing indicators for coverage of the scientific advice, e.g.:

- . the proportion of stocks whose targets (F_{MSY} , or F_{PA} , or B_{MSY}) are known, relatively to the total number of stocks included in the list of selected stocks,
- . the ratio of landings coming from stocks whose targets are known, relatively to the total landings of all stocks included in the list,
- . the ratio of EU landings coming from stocks whose targets are known, relatively to the total landings of EU vessels in ICES area and in MED (respectively).

Timing of the reporting by STECF

STECF considers that only parameters issued from assessments validated by the relevant bodies can be used in the CFP monitoring. This means that stock assessment outputs have to be released by the ACOM in the ICES area (which usually happens in early December each year), and either by the STECF plenary (usually in March/April) or by the SAC of GFCM (currently in May) for Mediterranean stocks, depending on the WG in charge.

STECF also considers that the report on the CFP monitoring prepared by experts from JRC requires a reviewing process which cannot be properly conducted by correspondence (at least until the method is not stabilized and routinely conducted).

Thus, STECF suggests this review and the validation of the CFP monitoring should take place each year Y, during the spring plenary. The related report would be prepared from January until early March of the same year Y, by JRC's experts, based on the assessments:

- conducted and released in year Y-1 by ICES,
- conducted by STECF in year Y-1 and formally approved during the October Y-1 plenary meeting or the spring plenary in year Y,
- conducted by GFCM in year Y-2 and formally approved by the SAC in May of year Y-1.

STECF recently engaged direct discussions with GFCM in order to improve the cooperation and synergies between the two bodies (cf section 6.3). In that frame, it should be discussed if the formal approval of assessments results by SAC could be organized earlier in the year, thus allowing JRC experts to take into account results of year Y-1 in the CFP monitoring of year Y.

STECF conclusion

STECF concludes that the protocol previously defined, completed by the above recommendations and details, provides a useful methodological guidance for monitoring the progresses made in achieving MSY objectives and the situation of fish stocks.

6. ITEMS/DISCUSSION POINTS FOR PREPARATION OF EWGs AND OTHER STECF WORK

6.1 Evaluation of DCF Work Plans

Background

Based on Article 6 of Council Regulation (EC) No 199/2008, STECF is responsible for evaluating the National Programmes of Member States, in terms of conformity to content set by this Regulation, scientific relevance of the data to be covered and quality of proposed methods and procedures. The National Programmes will be replaced by the Work Plans. According to the DCF recast proposal, STECF will be requested to evaluate the Work Plans of Member States, based on the same criteria, as before: conformity with EU multi annual programme, scientific relevance and quality. This year, Member States will submit their Work Plans for the first time (31st of October 2016) and STECF EWG 16-16 will be requested to evaluate them. The Commission shall adopt these work plans by the end of 2016. The tight deadlines imposed on all involved parties (MSs, STECF and Commission), make it essential to streamline the process as much as possible. On the STECF side, there is a need for clear guidance on the evaluation of the Work Plans, to help EWG deliver concrete assessment to the Commission, in order to meet the tight deadlines.

The process for the evaluation of the Work Plans was discussed in STECF Plenary 16-02 (point 5.13) and a timeline for the evaluation procedure was proposed. According to this timeline, the evaluation criteria and form should be prepared and discussed at the relevant meetings on data collection taking place between August and October (Regional Coordination Meetings, Liaison Meeting). A number of ad hoc contracts are foreseen to compile all input received and draft evaluation guidelines and templates for the WP evaluation. The output of these ad hoc contracts will be discussed at the STECF plenary.

Request to the STECF

The STECF is requested to:

1. Revise the evaluation criteria and evaluation form for the DCF Work Plans, in line with the requirements as set in the EU MAP and Work Plan template. In case of disagreement with the proposed criteria, suggest alternative solutions.
2. STECF is requested to conclude its work on this topic during the plenary. The guidelines will be made available to pre-screeners in the week after the plenary, in preparation for the EWG-16-16 (7-11 November).

STECF response

STECF released a separate report on this item during the October plenary meeting.

Scientific, Technical and Economic Committee for Fisheries (STECF) - Procedure for evaluation of DCF Work Plans (STECF-16-16); Publications Office of the European Union, Luxembourg; in press (<https://stecf.jrc.ec.europa.eu/reports/dcf-dcr>)

6.2 Terms of reference for EWG STECF bio-economic methodology

Terms of Reference

An EWG is planned on the bio-economic methodology in 2017. STECF is asked to discuss and reflect on the draft TOR with the MARE focal point in order to finalize the TOR.

STECF notes

In the past STECF used the EIAA model to do a limited assessment of the economic impacts of the ICES stock advice for the upcoming year. DG Mare requested STECF now to review methods and models, which can be applied for a short-term assessment of social and economic impacts of the TAC and quota proposal. It was decided to assemble a working group to conduct this review,. As the TAC and quota proposal is part of a longer-term policy to achieve MSY, DG Mare asked additionally to look at models, which can be applied to analyse the longer-term MSY policy while taking the short-term effects of the TAC and quota proposal into account. As this group of models can also be employed for the assessment of impacts of long-term management plans (e.g. in STECF EWG), STECF shall also look at the availability of models for the assessment of LTMP.

STECF conclusions

STECF discussed possible TOR with the DG Mare focal point and came up with the following proposal:

The Expert Working Group of STECF is requested with the following tasks:

- 1) Assessment of social and economic impacts of TAC and quota proposals:
 - a) Review methods (e.g. the dependency analysis) and models for the short-term assessment of social and economic impacts on the fleets of the TAC and quota proposal. Part of these assessments shall be the testing of assumptions provided by DG Mare. The models should allow a straightforward, easily applicable assessment.
 - b) As the TAC and quota proposal is part of a longer-term approach to reach MSY assess under the same group of assumptions how a longer-term analysis can be performed.
- 2) Assessment of social and economic impacts of Long Term Management Plans: Identify bio-economic models, which are available for social and economic impact assessments (especially of long-term management plans) and list the fisheries for which they are applicable. Additionally, the EWG shall highlight important gaps.
- 3) For the AER: Following STECF advice of the July plenary of 2016, please analyse the way the economic projections (economic data is two years old and the projection shall give some information on the current year) are done in the AER against other approaches in order to propose a standard methodology to be used by STECF in the future.

6.3 Coordination meeting between various scientific bodies and users in the Mediterranean and Black Sea

The main goal of this coordination meeting was to launch a dialogue on data collection, stock assessments and planning with a view to foster synergies, make best use of the available resources and lastly improve knowledge about the status of the stocks. The meeting focused on overcome current limitations in a constructive and pragmatic manner and to reveal the technical constraints to work together in a more efficient way. Next steps agreed at technical level:

1. Make publicly available results of the stock assessments (as the Data base presented by the Joint Research Centre during the meeting).
2. Identify together stock assessment priorities (STECF and SAC of GFCM). It was agreed sharing working programmes (STECF and SAC) as from 2017.
3. Schedule a Joint meeting for methodology/benchmark/data quality, including the definition of stock boundaries.

Systematically convey a meeting after the relevant working groups (STECF and SAC) and before the final acceptance of the advice to address a common validation of the stock assessments.

STECF observations and conclusions

STECF acknowledges the relevance of the coordination meeting in setting up a more straightforward process for providing timing and robust stock assessment in the Mediterranean. At present this process allowed to significantly increase the level of knowledge on the status of resources but it could be further improved. In particular, STECF highlights two major issues:

- the timing and calendar of STECF and GFCM/SAC should be streamlined to avoid duplication of work and a better planning of meetings
- the overall assessment process has two important steps that could be improved:
 - review of stock assessments which is currently done within EWGs and GFCM Sub-Regional committees without external reviewers
 - drafting of management advice based on the assessments and short term forecasts.

Planning of activities

STECF observes that a stronger coordination is required to ensure that where possible overlap in stock responsibility between the different groups is eliminated. This could be achieved by a common planning of activities between DGMARE and GFCM to identify what work will be covered by GFCM and then allocate any additional work to STECF following the normal ToR procedures. STECF would considers also very useful to set a calendar for stocks to be benchmarked and for those that should only be updated, based on priority and on degree of development of assessment models (i.e. issues related to data or to models).

STECF notes that GFCM has already published and distributed its planning of activities for 2016-2017.

The planning of activities must also take into account the other needs such as the publishing of the CFP Monitoring (cf. ToR 5.10)

This coordination could include actions related to exchange of information on methodologies, to set up common dissemination of the assessments and to develop common databases on data and on stock assessments.

Review of stock assessment

STECF considers that review of new or significantly revised stock assessments is an important part of quality assurance and should be carried out by external experts for relevant working groups (STECF and SAC).

The first step should be identifying which assessments require review (others being just update assessments). Then the review process could be carried out after EWGs or during EWGs, inviting

suitable external expert reviewers (including non-EU experts) to participate in the EWG. STECF considers this second option as more efficient.

STECF considers that the assessment process of a stock would benefit from the responsibility of certain stock coordinator (*sensu* ICES) appointed by the joint WG, having the specific duty to follow the steps of the evaluation process from the data collection to the review procedure.

Provision of management advice

STECF discussed the need for providing short terms management advice in terms of catch forecast or biomass estimation.

Even if these short terms forecasts for the moment are not needed to set up TAC or fishing opportunities, they are requested in the dialogue with MS to provide evidence in quantitative terms of the urgency to put in place adequate management measures. In addition, it has to be considered that for certain stocks the introduction of a TAC is already under discussion as a possible management measure to be included in LTMP.

However, STECF considers that most if not all the short terms forecasts are impacted by uncertainties in stock assessments. In general, most models for short terms forecast are robust but the outcomes are affected by the quality of the assessments and by the availability of very short time series for most of the Mediterranean stocks.

Under this situation, STECF considers essential to clearly define what are the priorities when time and human resources are limited. For some stocks it might be more important to estimate robust F_{MSY} and Biomass reference points rather than to provide short term forecasts.

This prioritization cannot be generalized and, on the contrary, should be identified case by case. The first focus should be on identifying few priority stocks and, then, for each of them, to select the priority work to be implemented.

STECF considers that this approach would generate many progresses in the first years in terms of the overall assessment process. These improvements could then be applied to enlarge the coverage to other stocks.

6.4 STECF rules of procedures

Following the 2016 STECF Decision on STECF, the STECF rules of procedure need to be updated and adopted by STECF.

The draft STECF rules of procedure were discussed, updated, and aligned with the 2016 Commission Decision on STECF by the bureau during the July 2016 plenary meeting. The draft was made available to the committee members and circulated by the secretariat during the October 2016 plenary meeting. Only a few comments of editorial nature were provided to the secretariat and subsequently incorporated.

The STECF Rules of Procedure were adopted by the committee when finalizing the present plenary report and will subsequently be published on the STECF website (<https://stecf.jrc.ec.europa.eu/about-stecf>).

6.5 Overshoot of fishing mortality compared to the target fishing mortality

Background (as provided in TORs)

For 2016 and 2017, TAC "top ups" were calculated assuming that discard practices would change in conformity with the CFP landings obligations. If this assumption does not hold true, an overshoot of fishing mortality could occur compared to the target fishing mortality. STECF is requested to advise on the work needed (and its planning) to estimate by the March 2017 Plenary Meeting the maximum possible such overshoot compared with the MSY objective.

STECF response

The implementation of CFP landing obligation assumes that discard will be eliminated and therefore landings in the future will be equal to the catches. Therefore, for 2016 and 2017, TAC "top ups" were calculated by STECF assuming that discarding practices would change in conformity with the CFP landings obligation for relevant fleet segments. That means that fish that would previously have been discarded are assumed to be landed under the top upped TACs, except where exemptions are in place that allow discarding to continue, but these catches should be recorded and deducted from quota allocations.

However, where discard and catch reporting practices are not compliant with the LO following the introduction of TAC top ups (i.e. discard rates remain the same as before and the top up is only for landing more marketable fish), an overshoot of the realized fishing mortality compared to the predicted TAC target fishing mortality will occur. In order to be able to estimate how much fishing mortality targets could be overshoot, stock assessment or short term forecast would need to be rerun adding the assumed discards to the catches. Some approximations can be made using the current catch option table from the ICES advice; however, the optimal way to conduct this work is in conjunction with the yearly stock assessment by each working group. This implies that an estimation of the fishing mortality generated by TAC "top ups" for all stocks, in the case that discard rates remain the same as before the introduction of the CFP landings obligation, cannot be available before the end of the 2017 assessment cycle. As such the work cannot be completed before March Plenary in 2017. A solution might be to have an ad-hoc contract to provide the estimation. The possible ToR for this contract could be:

1. Provide a complete overview of the TAC top-ups agreed for 2015 and 2016
2. Estimate the potential overshoot of fishing mortality compared to the target fishing mortality (F_{MSY} and/or F_{MP}) if the top-up would have been used to increase the overall outtake from the stocks.
3. Identify stocks for which TAC top-up might increase risks for the stock to fall below B_{lim} and $MSY_{trigger}$ in the short term if the top-up would have been used to increase the overall outtake from the stocks.
4. Identify methodologies that could be used to assess the potential impacts of TAC top-ups in different situations (e.g. simple comparisons, short-term forecast, stock assessment).

An overview of the TAC top-ups for 2016 in the North Sea and Western Waters was collated by STECF in the following table 6.5.1:

Species Latin name	Species English name	ICES fishing zone	COUNCIL TACs 2016 (UE)	COUNCIL TACs 2015 (UE)	COUNCIL comparison 2016/2015	COMMISSION Proposal for 2016	Commis. Prop. 2016/ Council TAC 2015 comparison	Comments	Topup	Discards included in TAC
<i>Melanogrammus aeglefinus</i>	Haddock	IIIa, EU waters of 22-32 (HAD/3A/BCD)	3 761	2 399	57%	3.761	57%	(2) including 20,5% top up	20.5%	640
<i>Melanogrammus aeglefinus</i>	Haddock	IV, EU waters of IIa (HAD/2AC4)	47 688	34 197	39%	47.688	39%	(2) includ. 14,5% top up	14.5%	6 039
<i>Melanogrammus aeglefinus</i>	Haddock	EU and internat. water of Vb, VIa (HAD/5BC6A)	6 462	4 536	42%	6.462	42%	Including 9,8% top up	9.8%	577
<i>Melanogrammus aeglefinus</i>	Haddock	VIIa (HAD/07A)	1 654	1 181	40%	589	-50%	Including 355t top up	21.5%	292
<i>Merlangius merlangus</i>	Whiting	VIIb-h, and VIIj-k (WHG/7X7A-C)	22 778	17 742	28%	20.616	16%	Including 20,4% top up	20.4%	3 859
<i>Merluccius merluccius</i>	Hake	IIIa; EU waters of subdivisions 22-32 (HKE/3A/BCD)		2 997	2 738	9%	2.913	6%	Northern hake with top up 11% (VI, VII) and top up 8,6% (VIIIabde) 10% of IIa, IV may be fished in IIIa	
<i>Merluccius merluccius</i>	Hake	EU waters of IIa and IV (HKE/2AC4-C)	3 492	319	9%	3.393	6%			
<i>Merluccius merluccius</i>	Hake	VI, VII; EU and internat. waters of Vb; internat. waters of XII, XIV (HKE/571214)	61 902	50 944	22%	60.185	18%			6 134
<i>Merluccius merluccius</i>	Hake	VIIIa-b, VIII d-e (HKE/8ABDE)	40 393	33 977	19%	39.259	16%			3 199
<i>Merluccius merluccius</i>	Hake	VIIIc, IX, X, EU waters of CECFAF 34.1.1 (HKE/8C3411)	10 735	13 826	-22%	5.469	-60%	Including 3,5% top up	3.5%	363

<i>Nephrops norvegicus</i>	Norway lobster	EU waters of IIa and IV (NEP/2AC4-C)	137	17 843	-23%	13.7	-23%	Including 3,1% top up	3.1%	4
<i>Nephrops norvegicus</i>	Norway lobster	VI, EU and internat. waters of Vb (NEP/5BC6)	16 524	1 419	16%	16.524	16%	Including 1,5% top up	1.5%	244
<i>Nephrops norvegicus</i>	Norway lobster	VII (NEP/07)	23 348	21 619	8%	19.534	-10%	Including 10,2% top up	10.2%	2 161
<i>Pleuronectes platessa</i>	Plaice	Kattegat (PLE/03AS)	2 347	2 626	-11%	2.347	-11%	Including 40,5% top up	40.5%	677
<i>Pleuronectes platessa</i>	Plaice	IV; EU waters of IIa; that part of IIIa not covered by the Skagerrak and Kattegat (PLE/2A3AX4)	122 494	11 969	2%	122.494	2%	(2) Includ. 19,8% top up	19.8%	20 245
<i>Pollachius virens</i>	Saithe	IIIa and IV; EU waters of IIa,b,c,d (POK/2A34)	31 284	31 383	0%	31.284	0%	(2) Includ.5,7% top up	5.7%	1 687
<i>Solea solea</i>	Common sole	IIIa; EU waters of Subdivisions 22-32 (SOL/3A/BCD)	391	205	91%	391	91%	Includ. 3,2% top up	3.2%	12
<i>Solea solea</i>	Common sole	EU waters of IIa and IV (SOL/24-C)	13 252	1 189	11%	12.056	1%	Includ. 1,4% top up	1.4%	183
<i>Solea solea</i>	Common sole	VIIId (SOL/07D)	3 258	3 483	-6%	2.58	-26%	Includ. 8,6% top up	8.6%	258
<i>Solea solea</i>	Common sole	VIIIf, g (SOL/7FG)	779	851	-8%	750	-12%	Includ. 0,6% top up	0.6%	5

7. STECF RECOMMENDATIONS FROM STECF-PLEN-16-03

Section 4.5 EWG 16-13: Stock assessments in the Mediterranean Sea - part I

STECF recommendations

STECF recommends that in the future the complete list of stocks to be considered at each of the MED assessment EWGs be established much earlier in the year. This early warning will allow data screening in advance, and maximise the possibility of participation by experts for each stock. STECF should agree with the Commission a specific date by which the initial stock lists should be made available, ideally 6 months prior to the EWGs. STECF notes that such an arrangement is already in place with the Commission and ICES, though STECF also accepts that modifications of this list may be needed later.

STECF reiterates the strong need for a better coordination and full harmonization among the scientific bodies of FAO-GFCM and EU, in order to develop common approaches and make the best use of the human resources.

STECF notes that some unresolved issues remain, in particular relating to the species biological information (such as Linf and catch-at-age). STECF recommends that biological information provided is carefully reviewed and fully documented when submitted.

STECF recommends that merging of acoustic survey in the Adriatic should be considered in future assessments.

Section 5.8 Management plan for purse seine fishing in the Republic of Croatia:

STECF recommendations

The MP should incorporate data for the evaluation of the ecological and economic impacts of the "lokardara" fishery, especially as the plan proposes an important increase in the number of fishing licences authorised for using this net.

The assessments of highly migratory species (carangids, scombrids, Belone) targeted by certain Croatian purse seines should be made at a regional (Adriatic) level.

The overlap of phanerogam beds with fishing grounds of each of the purse seines should be estimated.

Length frequencies rather than length ranges should be recorded for catches, separated into landings and discards.

8. BACKGROUND DOCUMENTS

Background documents are published on the meeting's web site on:
<https://stecf.jrc.ec.europa.eu/plen1603>

9. ANNEXES

ANNEX I

Request for Derogation: Minimum distances and depths for the use of the fishing gears *Igličara* and *Oližnica*, Article 13

Conditions	Assessment of their fulfilment
<i>Paragraph 5</i>	
There are particular geographical constraints.	
The fisheries have no significant impact on the marine environment and affect a limited number of vessels.	
Those fisheries cannot be undertaken with another gear and are subject to a management plan.	
<i>Paragraph 9</i>	
Vessels have a track record in the fishery of more than five years.	
Not involve any future increase in fishing effort provided.	
Fishing activities fulfil the requirements of Article 4, Article 8(1)(h), Article 9(3)(2) and Article 23;	
Fisheries do not interfere with the activities of vessels using gears other than trawls, seines or similar towed nets.	
Fisheries are regulated in order to ensure that catches of species mentioned in Annex III, with the exception of mollusc bivalves, are minimal.	
Fisheries do not target cephalopods.	
Fisheries are subject to a monitoring plan.	

ANNEX II

Main technical characteristics of the fishing gears included in the management plan for purse seines (version May 2016) and assessment of the eligibility criteria to derogate from Articles 9 and 13.

Purse seines	Target species	Mesh size	Dimensions of the net	Minimum depths, Article 13(3)	Minimum mesh sizes, Article 9(7)
Ciplarica	Mullets, <i>Sarpa salpa</i> , <i>Oblada melanura</i> , <i>Sparus aurata</i>	52 – 67 mm	Length max = 600 m Height max = 85 m	59 m	---
Igličara	<i>Belone belone</i> , <i>Spaurus aurata</i> , <i>Spicara smaris</i>	20 – 30 mm	Length max = 250 m Height max = 50 m	35 m	---
Oližnica	<i>Atherina hepsetus</i> and <i>A. boyeri</i>	10 – 14 mm	Length max = 200 m Height max = 50 m	35 m	Derogation could be allowed for boat seines and shore seines (NOT for purse seines).
Palamidara	<i>Seriola dumerili</i> , <i>Sarda sarda</i> , <i>Euthynnus alletteratus</i> , <i>Auxis rochei</i>	68 – 79 mm	Length max = 800 m Height max = 120 m	84 m	---
Lokardara	Mackerels, horse mackerels, <i>Belone belone</i> , <i>Sardinella aurita</i>	20 – 30 mm	Length max = 250 m Height max = 80 m	56 m	---

10. CONTACT DETAILS OF STECF MEMBERS AND OTHER PARTICIPANTS

1 - Information on STECF members and invited experts' affiliations is displayed for information only. In any case, Members of the STECF, invited experts, and JRC experts shall act independently. In the context of the STECF work, the committee members and other experts do not represent the institutions/bodies they are affiliated to in their daily jobs. STECF members and experts also declare at each meeting of the STECF and of its Expert Working Groups any specific interest which might be considered prejudicial to their independence in relation to specific items on the agenda. These declarations are displayed on the public meeting's website if experts explicitly authorized the JRC to do so in accordance with EU legislation on the protection of personnel data. For more information: <http://stecf.jrc.ec.europa.eu/adm-declarations>

Name	Address ¹	Tel.	Email
STECF members			
Abella, J. Alvaro	Independent consultant	Tel. 0039-3384989821	aabellafisheries@gmail.com
Andersen, Jesper Levring	Department of Food and Resource Economics (IFRO) Section for Environment and Natural Resources University of Copenhagen Rolighedsvej 25 1958 Frederiksberg Denmark	Tel.dir.: +45 33 33 68 92	jla@ifro.ku.dk
Arrizabalaga, Haritz (rapporteur)	AZTI / Unidad de Investigación Marina, Herrera kaia portualdea z/g 20110 Pasaia (Gipuzkoa), Spain	Tel.: +34667174477	harri@azti.es
Bailey, Nicholas	Marine Scotland Science, Marine Laboratory, P.O Box 101 375 Victoria Road, Torry Aberdeen AB11 9DB UK	Tel: +44 (0)1224 876544 Direct: +44 (0)1224 295398 Fax: +44 (0)1224 295511	baileyn@marlab.ac.uk n.bailey@marlab.ac.uk
Bertignac, Michel (rapporteur)	Laboratoire de Biologie Halieutique IFREMER Centre de Brest BP 70 - 29280 Plouzane, France	tel : +33 (0)2 98 22 45 25 - fax : +33 (0)2 98 22 46 53	michel.bertignac@ifremer.fr
Borges, Lisa	FishFix, Brussels, Belgium		info@fishfix.eu

Name	Address ¹	Tel.	Email
STECF members			
Cardinale, Massimiliano (vice-chair, rapporteur)	Föreningsgatan 45, 330 Lysekil, Sweden	Tel: +46 523 18750	massimiliano.cardinale@slu.se
*Catchpole, Thomas	CEFAS Lowestoft Laboratory, Pakefield Road, Lowestoft Suffolk, UK NR33 0HT		thomas.catchpole@cefas.co.uk
Curtis, Hazel (rapporteur)	Sea Fish Industry Authority 18 Logie Mill Logie Green Road Edinburgh EH7 4HS, U.K.	Tel: +44 (0)131 524 8664 Fax: +44 (0)131 558 1442	Hazel.curtis@seafish.co.uk
Daskalov, Georgi	Laboratory of Marine Ecology, Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences	Tel.: +359 52 646892	Georgi.daskalov@gmail.com
Döring, Ralf (vice-chair, rapporteur)	Thünen Bundesforschungsinstitut, für Ländliche Räume, Wald und Fischerei, Institut für Seefischerei - AG Fischereiökonomie, Palmaille 9, D-22767 Hamburg, Germany	Tel.: 040 38905-185 Fax.: 040 38905-263	ralf.doering@thuenen.de
Gascuel, Didier (rapporteur)	AGROCAMPUS OUEST 65 Route de Saint Brieuc, CS 84215, F-35042 RENNES Cedex France	Tel: +33(0)2.23.48.55.34 Fax: +33(0)2.23.48.55.35	Didier.Gascuel@agrocampus-ouest.fr
Knittweis, Leyla (rapporteur)	Department of Biology University of Malta Msida, MSD 2080 Malta		Leyla.knittweis@um.edu.mt
*Malvarosa, Loretta	NISEA S.c.a.r.l.		malvarosa@nisea.eu

Name	Address ¹	Tel.	Email
STECF members			
Martin, Paloma (rapporteur)	CSIC Instituto de Ciencias del Mar Passeig Marítim, 37-49 08003 Barcelona Spain	Tel: 4.93.2309500 Fax: 34.93.2309555	paloma@icm.csic.es
Motova, Arina (rapporteur)	Sea Fish Industry Authority 18 Logie Mill Logie Green Road Edinburgh EH7 4HS, U.K	Tel.: +44 131 524 8662	arina.motova@seafish.c o.uk
*Murua, Hilario	AZTI / Unidad de Investigación Marina, Herrera kaia portualdea z/g 20110 Pasaia (Gipuzkoa), Spain	Tel: 0034 667174433 Fax: 94 6572555	hmurua@azti.es
*Nord, Jenny	The Swedish Agency of Marine and Water Management (SwAM)	Tel. 0046 76 140 140 3	Jenny.nord@havochvatten.se
Pastors, Martin (rapporteur)	Pelagic Freezer-trawler Association, Louis Braillelaan 80, 2719 EK Zoetermeer, The Netherlands		mpastors@pelagicfish.eu
Paulrud, Anton (rapporteur)	Swedish Agency of Marine and Water Management	Tel.: +46 106986292	Anton.paulrud@hochvatten.se
Prellezo, Raúl	AZTI -Unidad de Investigación Marina Txatxarramendi Ugarte z/g 48395 Sukarrieta (Bizkaia), Spain	Tel: +34 667174368	rprellezo@azti.es
Raid, Tiit (rapporteur)	Estonian Marine Institute, University of Tartu, Mäealuse 14, Tallinn, EE- 126, Estonia	Tel.: +372 58339340 Fax: +372 6718900	Tiit.raid@gmail.com

Name	Address ¹	Tel.	Email
STECF members			
Sabatella, Evelina Carmen (rapporteur)	NISEA, Via Irno, 11, 84135 Salerno, Italy	TEL.: +39 089795775	e.sabatella@nisea.eu
Sala, Antonello (rapporteur)	Italian National Research Council (CNR) Institute of Marine Sciences (ISMAR), Largo Fiera della Pesca, 1 60125 Ancona - Italy	Tel: +39 071 2078841 Fax: +39 071 55313 Mob.: +39 3283070446	a.sala@ismar.cnr.it
Scarcella, Giuseppe	1) Italian National Research Council (CNR), Institute of Marine Sciences (ISMAR) - Fisheries Section, Largo Fiera della Pesca, 1, 60125 Ancona - Italy 2) AP Marine Environmental Consultancy Ltd, 2, ACROPOLEOS ST. AGLANJIA, P.O.BOX 26728 1647 Nicosia, Cyprus	Tel: +39 071 2078846 Fax: +39 071 55313 Tel.: +357 99664694	g.scarcella@ismar.cnr.it gscarcella@apmarine.com.cy
Soldo, Alen (rapporteur)	Department of Marine Studies, University of Split, Livanjska 5, 21000 Split, Croatia	Tel.: +385914433906	soldo@unist.hr
Somarakis, Stylianos (rapporteur)	Institute of Marine Biological Resources and Inland Waters (IMBRIW), Hellenic Centre of Marine Research (HCMR), Thalassocosmos Gournes, P.O. Box 2214, Heraklion 71003, Crete, Greece	Tel.: +30 2810 337832 Fax +30 6936566764	somarak@hcmr.gr
Stransky, Christoph (rapporteur)	Thünen Institute [TI-SF] Federal Research Institute for Rural Areas, Forestry and Fisheries, Institute of Sea Fisheries, Palmallee 9, D-22767 Hamburg, Germany	Tel. +49 40 38905-228 Fax: +49 40 38905-263	christoph.stransky@thuenen.de
Ulrich, Clara (chair)	Technical University of Denmark, National Institute of Aquatic Resources, (DTU Aqua), Charlottenlund Slot, Jægersborg Allé 1, 2920 Charlottenlund, Denmark		clu@aqua.dtu.dk

Name	Address ¹	Tel.	Email
STECF members			
van Hoof, Luc	IMARES, Haringkade 1, Ijmuiden, The Netherlands	Tel.: +31 61061991	Luc.vanhoof@wur.nl
Vanhee, Willy (rapporteur)	Independent consultant		wvanhee@telenet.be
Vrgoc, Nedo	Institute of Oceanography and Fisheries, Split, Setaliste Ivana Mestrovica 63, 21000 Split, Croatia	Tel.: +385 21408002	vrgoc@izor.hr

STECF members marked with an asterix* did not attend the PLEN-16-02 meeting (see section 2 of this report).

JRC experts			
Name	Address	Telephone no.	Email
Casey, John	DG Joint Research Centre JRC		John.casey@jrc.ec.europa.eu
Holmes, Steven	DG Joint Research Centre JRC		steven.holmes@jrc.ec.europa.eu
Jardim, Ernesto	DG Joint Research Centre JRC		Ernesto.jardim@jrc.ec.europa.eu
External experts			
Nielsen, Rasmus	Department of Food and Resource Economics University of Copenhagen Rolighedsvej 25 1958 Frederiksberg C, Denmark		rn@ifro.ku.dk
Simmonds, Edmund John	Independent expert		e.j.simmonds1@gmail.com

European Commission			
Name	Address	Telephone no.	Email

Calvo, Angel	DG MARE, A3		angel-andres.calvo-santos@ec.europa.eu
Doerner, Hendrik	DG Joint Research Centre JRC, STECF secretariat		Stecf-secretariat@jrc.ec.europa.eu
Graham, Norman	DG MARE, A2		norman.graham@ec.europa.eu
Griffin, Robert	DG MARE, C2		Robert.GRIFFIN@ec.europa.eu
Groth Rasmussen, Line	DG MARE, C2		Line.GROTH-RASMUSSEN@ec.europa.eu
König, Szuzsanna	DG MARE, A2		zsuzsanna.koenig@ec.europa.eu
Kostopoulou, Venetia	DG MARE, C3		venetia.kostopoulou@ec.europa.eu
Kruiderink, Simkje	DG MARE, A3		simkje.kruiderink@ec.europa.eu
Patterson, Kenneth	DG MARE A		Kenneth.Patterson@ec.europa.eu
Perez-Perera, Amanda	DG MARE D2		Amanda.Perez-Perera@ec.europa.eu

Reussner, Eckehard	DG MARE, E2		eckehard.reussner@ec.europa.eu
Schutyser, Frederik	DG MARE, C2		Frederik.SCHUTYSER@ec.europa.eu
Spera, Giuseppe	DG MARE, A2		Giuseppe.SPERA@ec.europa.eu

Authors:

STECF members:

Ulrich, C., Abella, J. A., Andersen, J., Arrizabalaga, H., Bailey, N., Bertignac, M., Borges, L., Cardinale, M., Catchpole, T., Curtis, H., Daskalov, G., Döring, R., Gascuel, D., Knittweis, L., Malvarosa, L., Martin, P., Motova, A., Murua, H., Nord, J., Pastoors, M., Paulrud, A., Prellezo, R., Raid, T., Sabatella, E., Sala, A., Scarcella, G., Soldo, A., Somarakis, S., Stransky, C., van Hoof, L., Vanhee, W., Vrgoc, Nedo

JRC experts: Casey, J., Holmes, S., Jardim, E.

Europe Direct is a service to help you find answers to your questions about the European Union
Free phone number (*): 00 800 6 7 8 9 10 11
(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server <http://europa.eu>

How to obtain EU publications

Our publications are available from EU Bookshop (<http://bookshop.europa.eu>),
where you can place an order with the sales agent of your choice.

The Publications Office has a worldwide network of sales agents.
You can obtain their contact details by sending a fax to (352) 29 29-42758.

STECF

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.

JRC Mission

As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent, evidence throughout the whole policy cycle.



EU Science Hub
ec.europa.eu/jrc



@EU_ScienceHub



EU Science Hub - Joint Research Centre



Joint Research Centre



EU Science Hub

