

## STECF PLENARY MEETING 18-01

9-13 APRIL, BRUSSELS AT CENTRE BORSCHETTE (ROOM TBC)

Draft Terms of Reference 21/03/2018

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## 1. INTRODUCTION

[Does not belong to the ToRs but is listed here to avoid confusion with the section numbering when editing the plenary report.]

## 2. LIST OF PARTICIPANTS

[Does not belong to the ToRs but is listed here to avoid confusion with the section numbering when editing the plenary report.]

## 3. INFORMATION TO THE PLENARY

### 4. STECF INITIATIVES

**Possible STECF Rapporteur:**

**Background:**

**Terms of Reference:**

## 5. ASSESSMENT OF STECF EWG REPORTS

### 5.1. EWG 17-15 Stock assessments in the Mediterranean Sea - part II

**DG MARE focal person:** Chato Osio, Amanda Perez

**Possible STECF Rapporteur:**

**Possible Presenter:**

**Terms of reference of the WG:**

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

### 5.2. EWG 17-16 (Transition) Economic report fish processing 2017

**DG MARE focal person:** Angel Calvo Santos

**Possible STECF Rapporteur:**

**Possible Presenter:**

**Terms of reference of the WG:**

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

### 5.3. EWG 18-01 Data gaps and Biomass Escapement Strategy for Adriatic anchovy and sardine

**MARE focal person:** Chato Osio, Amanda Perez

**Possible STECF Rapporteur:**

**Possible Presenter:**

**Terms of reference of the WG:**

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

#### 5.4. EWG 18-02 Technical Measures

**DG MARE focal person:** Norman Graham

**Possible STECF Rapporteur:**

**Possible Presenter:**

**Terms of reference of the WG:**

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

### 6. ADDITIONAL REQUESTS SUBMITTED TO THE STECF PLENARY BY THE COMMISSION<sup>1</sup>

#### 6.1. CFP monitoring

**DG MARE focal person:** Evangelia Georgitsi, Norman Graham

**Possible STECF Rapporteur:**

**Possible Presenter:**

##### Background

Article 50 of the Common Fisheries Policy (CFP; Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013) stipulates: “The Commission shall report annually to the European Parliament and to the Council on the progress on achieving maximum sustainable yield and on the situation of fish stocks, as early as possible following the adoption of the yearly Council Regulation fixing the fishing opportunities available in Union waters and, in certain non-Union waters, to Union vessels.”

##### Request

STECF is requested to report on progress in achieving MSY objectives in line with the Common Fisheries Policy.

#### 6.2. Monitoring the Landing Obligation

**DG Mare focal person:** Evangelia Georgitsi, Norman Graham

**Possible STECF Rapporteur:**

**Possible Presenter:**

##### Background

Regulation (EU) No 2015/812 (the so-called Omnibus Regulation), introduced an obligation for the Commission to report annually on the implementation of the landing obligation, based on information transmitted by the Member States, the Advisory Councils and other relevant sources.

According to Article 9 of the Omnibus Regulation, Commission report should include the following elements:

- steps taken by Member States and producer organisations to comply with the landing obligation;

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<sup>1</sup> Background documents will be placed in the STECF ftp server on <ftp://s-jrciprvn-ftp-ext.jrc.it> upon reception from DG MARE contact point.

- steps taken by Member States regarding control of compliance with the landing obligation;
- information on the socioeconomic impact of the landing obligation;
- information on the effect of the landing obligation on safety on board fishing vessels;
- information on the use and outlets of catches below the minimum conservation reference size of a species subject to the landing obligation;
- information on port infrastructures and of vessels' fitting with regard to the landing obligation; for each fishery concerned; and
- information on the difficulties encountered in the implementation of the landing obligation and recommendations to address them.

In order to facilitate the reporting, and in line with the outcome of STECF EWG 16-04, in 2017 Member States were invited on a voluntary basis to complete questionnaires seeking more detailed information on the impact of the landing obligation and national steps taken to assist with its implementation. This year, Member States were asked to update the information provided as appropriate. This information has been reviewed and summarized in an ad hoc contract.

### **Request**

Based on :

- The report of the ad hoc contract for Evaluation of Member States Annual Reports on the Landing Obligation
- Annual reports received by Member States, the Advisory Councils, EFCA
- Any other relevant sources of information

STECF is requested to

- 1) To advise the Commission on the elements appropriate to meet the reporting requirements of Article 9 of Regulation 2015/812, review and summarise the main findings of the reports highlighting, in a structured manner, key salient points raised by each MS and to provide an overview of them at the sea basin level.
- 2) To identify to what extent discard rates are being reduced in specific fleets or fisheries.
- 3) Identify specific actions where MS have made adjustments to support the introduction of the landing obligation.
- 4) Identify the most important gaps or weakness in implementation and the lessons to be learned from best practices. Where available, identify specific fleets and stocks where the landing obligation has had a direct impact on fishing activity;
- 5) Highlight the most important weaknesses in reporting and the lessons to be learned from best practices.
- 6) Make any further recommendations as appropriate to improve implementation and reporting

### **6.3. Review of the North Western Waters Combined *de minimis* request**

**DG Mare focal person:** Jonathan Shrives

**Possible STECF Rapporteur:**

**Possible Presenter:**

## **Background**

As part of preparations for the full implementation of the landing obligation in 2019, the Member States Regional Groups are exploring several mechanisms and methodologies to include in joint recommendations and discard plans. The STECF has previously reviewed the suggestion of a combined *de minimis* in 2017. Several concerns were raised by STECF on how such a methodology would be applied to annual quota setting in the North Western Waters. The Commission has received an updated proposal that contains several changes to the proposed methodology for a combined *de minimis*, specifically for gadoids in the Celtic Sea and Channel. As such the STECF is asked to verify the information in the attached paper and evaluate the potential implications for annual quota setting, data recording and catch advice.

## **Request**

STECF is requested to review the paper received from the North Western Waters Member States Technical Group on a potential combined *de minimis* for gadoids (cod, haddock, whiting) for vessels using bottom trawls (OTB, OTT) >80mm in the Celtic Sea and the Channel (ICES 7b-c, e-k).

In particular is the STECF is requested to:

- Advise if the proposed combined *de minimis* has sufficient modifications and safeguards to address the previous concerns raised by STECF in 2017.
- Based on the species and methods provided and using the most recent catch and discard information, verify and confirm the data and calculations therein and evaluate if the proposed combined *de minimis* would allow sustainable fishing in line with the Common Fisheries Policy.
- Advise on potential modifications to a combined *de minimis* to mitigate any concerns
- Advise how the proposed method or modified methods could be applied in annual TAC and quota setting process, where currently quotas are set on a single stock basis.
- Evaluate potential implications for accurate recording and data collection of catches, landings, discards and the catch advice process

### **6.4. Impact of exploitation pattern on MSY yields**

**DG Mare focal person:** Norman Graham

**Possible STECF Rapporteur:**

**Possible Presenter:**

## **Background**

Technical measures have a direct impact on the exploitation pattern on commercially exploited stocks. This in turn has an influence in the yield that can be taken for a given level of fishing mortality. As a first exploration of the current exploitation relative to the optimum, a scoping analysis has been done for a limited number of stocks.

## **Request**

Based on the ad hoc contract for the Analysis of exploitation patterns for some sample stocks, STECF is requested to:

- (i) review the methodological approaches developed and provide comment on whether the approach would be useful for the potential development of reference points that could be used to identify current and optimal exploitation patterns.
- (ii) consider how such reference points could be reconciled in a mixed fisheries context and provide comment on what biological and economic factors should be considered.

#### 6.5. **Review of the UK avoidance programme for picked dogfish**

**DG Mare focal person:** Line Groth Rasmussen

**Possible STECF Rapporteur:**

**Possible Presenter:**

#### **Background**

Since 2016, an amendment to the fishing opportunities for 2016 (regulation 2016/72) and subsequent regulations have allowed for a catch avoidance programme for picked dogfish (*Squalus acanthias*) by the UK. The current regulation on fishing opportunities, 2018/120, provides a derogation from the ‘Prohibited species’ listing of picked dogfish, for UK fishing vessels participating in the catch avoidance programme to land limited quantities of dead picked dogfish. UK has been granted an overall annual allocation of 100 tonnes, with a vessel monthly limit of 2 tonnes, to incentivise industry participation in the programme. Based on the STECF opinions on this programme the Commission has requested the UK to keep it informed of the results of the by-catch avoidance programme, in order to assess its effectiveness in reaching the objectives.

#### **Request**

STECF is requested to review the report received from UK on the catch avoidance programme for picked dogfish (12 month progress update: interim evaluation Nov 2016-Oct 2017) in light of the STECF opinions<sup>2</sup>, and on this basis assess whether, taking into account the latest ICES advice on the stock<sup>3</sup>:

- The programme overall contributes to the avoidance of picked dogfish in the fisheries concerned.
- The objectives of the UK bycatch avoidance programme can be or are already being met, and what improvements can be made, especially in terms of:
  - Improving the current data deficiencies.
  - Increasing the knowledge on spatial aggregations of picked dogfish.
  - Increasing the knowledge on discard survival.
  - Facilitating the introduction of the landing obligation, including whether such a programme offers a beneficial alternative to a Prohibited Species’ listing, to prevent ‘choke’ species under the CFP landing obligation.

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<sup>2</sup> [https://stecf.jrc.ec.europa.eu/documents/43805/1281129/2015-11\\_STECF+PLEN+15-03\\_JRC98672.pdf](https://stecf.jrc.ec.europa.eu/documents/43805/1281129/2015-11_STECF+PLEN+15-03_JRC98672.pdf), p. 50, [https://stecf.jrc.ec.europa.eu/documents/43805/896390/2014-11\\_STECF+PLEN-14-03\\_JRC93037.pdf](https://stecf.jrc.ec.europa.eu/documents/43805/896390/2014-11_STECF+PLEN-14-03_JRC93037.pdf), p. 82, [https://stecf.jrc.ec.europa.eu/documents/43805/662804/2013-11\\_STECF+PLEN+13-03\\_JRC86096.pdf](https://stecf.jrc.ec.europa.eu/documents/43805/662804/2013-11_STECF+PLEN+13-03_JRC86096.pdf), p. 50

<sup>3</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/dgs-nea.pdf>

In order to improve the effectiveness of the programme, and considering the seasonal component to picked dogfish by-catch in the Celtic Sea, the UK is proposing to modify the current 2 tonnes per month, per vessel, dead picked dogfish by-catch allowance to a seasonal, gear specific, dead by-catch allowance (details set out in the report).

- The STECF is asked to assess whether the programme, if amended in line with the UK proposal, is considered scientifically justifiable.

## 6.6. Skipjack HCR

**DG Mare focal person:** Franco Biagi, Stamatis Varsamos, Alan Gray

**Possible STECF Rapporteur:**

**Possible Presenter:**

### **Background**

Resolution 16/02 'On harvest control rules for Skipjack tuna in the IOTC Area of Competence' provides the pre-agreed framework based on depletion reference points including a mechanism to calculate the total annual catch limit on the basis of the following formula:

$I \times E_{targ} \times SSB_{curr}$

Where

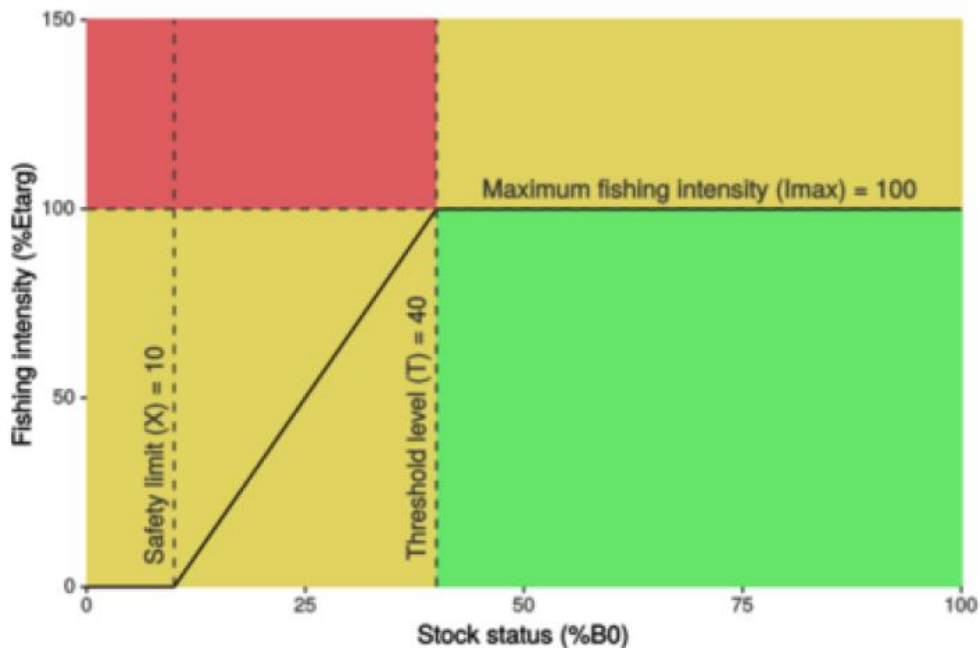
- I is the fishing intensity, in percentage, for alternative levels of estimated stock status ( $SSB_{curr}/SSB_o$ ) where  $SSB_o$  is the estimate of the unfished spawning stock biomass
- $E_{targ}$  is the estimate of the equilibrium exploitation rate associated with sustaining the stock at  $SSB_{targ}$
- $SSB_{curr}$  is the estimate of the current spawning stock biomass

At the recent 20th Scientific Committee the application of the agreed HCR and related formula provides a total annual catch limit of 470,020 t valid over the next 3-year period 2018-2020.

### **Request**

STECF is requested:

- to provide the adaptation of the abovementioned formula with a view to take into account the estimated current exploitable biomass instead of only the current spawning stock biomass. The scientific information underpinning such adaptation shall be provided and commented as required
- to calculate the annual catch limit if the abovementioned formula was applied to the estimated exploitable biomass instead of only the current spawning stock biomass
- to provide an updated overview of the HCR performance indicators on status, safety, yield, abundance and stability
- to provide an estimate of the likely difference in the economic value between the two catch limits by taking into account, inter alia, the possible price elasticity and other changes that may affect the market



6.7. Preparation for the EWG on mandatory surveys (TBC)

**DG Mare focal person:** Venetia Kostopoulou,

**Possible STECF Rapporteur:**

**Possible Presenter:**

**Background**

**Request**

6.8. Evaluation of Italian national management plans for demersal stocks in GSA 9, 10, 11, 16, 17-18 and 19

**DG Mare focal person:** Chato Osio

**Possible STECF Rapporteur:**

**Possible Presenter:**

**Background**

Under Article 19 of Council Regulation (EC) No 1967/2006 (hereafter referred to as "MEDREG"<sup>4</sup>), 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.

<sup>4</sup> 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.](#)



In 2013, the Common Fisheries Policy (CFP<sup>5</sup>) 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.

In 2011, Italy submitted consolidated management plans for demersal fisheries to the European Commission (EC). Since 2018 Italy is without national management plans for demersal fisheries and in January 2018, Italy submitted new management plan which should be examined by the STECF. The 6 new plans cover the following areas: GSA 9, 10, 11, 16, 17-18 and 19.

### **Request**

- 1) To assess and advice whether the management plans for marine commercial fishing in the territorial waters of the Republic of Italy contains adequate elements in terms of:

#### 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.

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<sup>5</sup> 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.](#)

### 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.

### Other aspects

- Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan.
  - Evaluate if the stock assessment basis is scientifically robust. For example some assessments underlying the management plan in GSA 17-18 are similar to those being evaluated by PLEN 18-01 emerging from STECF EWG 17-15 Med assessment part II.
- 2) 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.

**Documentation:** The management plan for the fleets targeting demersal stocks in GSA 9 (ITA-EN),10(ITA-EN machine translation),11(ITA-EN machine translation),16(ITA-EN machine translation),17-18 (ITA-EN) and 19 (ITA-EN ) in the territorial waters of the Republic of Italy (ENG).

### 6.9. Evaluation of the quality of DCF data for data limited information

**DG Mare focal person:** Chato Osio

**Possible STECF Rapporteur:**

**Possible Presenter:**

#### **Background**

DG MARE issued an ad-hoc contract to Mr Francesco Ferretti in December 2017. The purpose of this contract was to obtain summary information to be used to identify stocks with promising or unpromising data for future work. The objective was to check for consistency of data in terms of availability, and sampling, and the potential for significant changes in time that might provide

useful signals. The contractor was requested to concentrate on demersal data for stocks of general interest. The ToRs of the ad-hoc contract is annexed.

### **Request**

STECF is requested to evaluate the results - Request for services – 1734 - Ad hoc Contract on "The Quality Evaluation of DCF data for data limited Information" delivered by Mr Francesco Ferretti. In detail:

- Determine the adequacy of the statistical analysis in respect of the data.
- Evaluate the potential new stocks that may be suitable for stock assessment.
- Advise on the potential to upgrade category of assessment for the identified stock.

### **6.10. Evaluation of the national management plan for boat dredges in Spain, Catalonia**

**DG Mare focal person:** Amanda Perez Perera

**Possible STECF Rapporteur:**

**Possible Presenter:**

### **Background**

The evaluation of national management plans prepared in line with the MEDREG and the CFP is a recurrent task for the STECF. The management plan for boat dredges in Catalonia (Spain) was previously assessed by the STECF during its EWG 15-16 (Rome, Dec 2015) and subsequently reviewed at the Plenary 16-01 (Brussels, Apr 2016). Early 2018, the Spanish authorities submitted a draft management plan accompanied by a technical study.

### **Request**

- 1) To assess and advice whether the management plans for marine commercial fishing in the territorial waters of the Republic of Italy contains adequate elements in terms of:

#### **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.

#### **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.

#### Other aspects

- Quantifiable indicators for periodic monitoring and assessment of progress in achieving the objectives of the plan.
  - Evaluate if the stock assessment basis is scientifically robust. For example some assessments underlying the management plan in GSA 17-18 are similar to those being evaluated by PLEN 18-01 emerging from STECF EWG 17-15 Med assessment part II.
- 2) 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.
  - 3) Assess whether the plan provides a robust overview of the catch composition of boat seines and, in particular whether the catch of species other than shellfish does not exceed 10 % of the total live weight of the catch (in accordance with Article 13(1) of the MEDREG).

#### **Background documents**

- Draft management plan - ESP/ENG
- Supporting technical study (ICM-CSIC) - ESP

#### **7. ITEMS/DISCUSSION POINTS FOR PREPARATION OF EWGS AND OTHER STECF WORK**

##### **7.1. Preparation for the EWG 18-19 aquaculture economic report**

STECF is requested to discuss the terms of reference and propose any special topic relevant in the context of this report that could be addressed in this year's report.

##### **7.2. EWG 18-09 on an effort regime for demersal fisheries in the western Mediterranean**

The objective is to discuss the preparation of the EWG 18-09, including the draft terms of references, data availability, experts' attendance, identification of possible work to carry out in advance of the meeting, anticipation of any issue and link with the EWG on stock assessments.

- 7.3. **STECF presence at the GFCM symposium in December**
- 7.4. **Debriefing from the scoping meeting for Mixed-Fish including socio-economic aspects (ICES, STECF, MARE)- April 10th**
- 7.5. **Reflection on identification of future research and innovation priorities in fisheries science**

MARE wishes to consult STECF on the future research needs in the context of preparation of FP9. Concretely, STECF is asked to discuss and identify what knowledge will be necessary by 2030 to contribute to enabling the sustainable EU's fisheries management and to contribute to the improved performance of EU fishing. STECF is requested to consolidate the (preliminary) conclusions of this discussion in a short document (preferably a 1 pager) with the key elements identified in the knowledge areas. In addition, STECF is requested to provide rationale for knowledge areas identified.

For its discussion, STECF is asked to take into consideration as a background document an internal MARE note prepared by DG MARE CFP Units on possible FP9 priorities and consultation on post-2020 fisheries research and innovation (R&I) strategy. This note contains first reflections on the possible agenda for future research.

## **8. ANNEX**

### **8.1. AD-HOC contract to evaluate quality of DCF data for data limited information.**

The purpose of this contract is to obtain summary information to be used to identify stocks with promising or unpromising data for future work. The objective would be to check for consistency of data in terms of availability, and sampling, and the potential for significant changes in time that might provide useful signals. The proposal is to concentrate on demersal data for stocks of general interest. Two types of DCF data should be evaluated, survey data and catch data.

**Survey evaluation:** MEDITS survey by species by GSA presented on no more than one page per species/ GSA; this should be based on annually tabulated summary data in a simple data frame (in R) and then output in plots on a single page, combined with some overall statistics for the data set for a species in a GSA.

**Annual summary stats** for each species for each year calculate and tabulate and plot. DCF calls for TA file (hauls), TB (catch by species and haul), TC (length, sex and maturity by target species). Analysis on biomass and density indexes should be possible for all the species caught during the survey (based on the TB file in the DataCall) while the length analysis can be carried out only for target species (TC file in the DataCall). For example in TB file GSA9 for year (2015) reported data for 270 species and for 63 in TC file and obviously not for all these species we have enough information to do anything. The following should be stored in a data frame and plotted:

- Total number of trawl stations by year;
- Proportion of positive stations by year;
- Mean and CV of (standardized) catch abundance (including zero values) by year;
- Mean and CV of (standardized) catch weight (including zero values) by year;
- Min. max and mean day in year of survey data by year (or 5, 50, 95%).

For species with length data (TC data file):

- 5, 50 and 95% on fish length caught by year;
- Mean and CV of (standardized) mature catch abundance (including zero values) by year;
- Mean and CV of (standardized) mature catch weight (including zero values) by year.

Age based evaluation based on deterministic length slicing using VBGF from the Data Call biological file. In addition for a limited number of species and limited years age data has been collected since 2012 for some target species (Hake, Red mullet, Striped red mullet) and stored in TE MEDITS file. This should be used if available:-

- Matrix plot of n at age a in year y with n at age a+1 in year y+1

### **Series Summary statistics across all years**

- Autocorrelation coefficient on mean abundance (1<sup>st</sup> order);
- Autocorrelation coefficient on mean catch weight (1<sup>st</sup> order);
- Autocorrelation coefficient on mean time (1<sup>st</sup> order);
- Fraction of years with the mean abundance outside median of mean values  $\pm 2CV$ ;
- Fraction of years with the mean biomass outside median of mean values  $\pm 2CV$ .

### **For Multiple GSAs**

In addition to single GSA the following combinations should also be presented:

1, 5, 6, 7, 8, 9, 10, 11, 15, 16 17-18, 20,22,23.

Notes:

MEDITS is a standardized survey based on random sampling stratification with hauls number by strata allocated based on the surface of the strata (see MEDITS handbook under: <http://www.sibm.it/MEDITS%202011/principaledownload.htm>).

The TA file contains hauls information including distance covered and horizontal net open so we can estimate swept area by haul. For all the GSA, the JRC has the stratification scheme by strata and stratum so we can compute the abundance and biomass index by square kilometre.

Having the stratification surface we can combine across GSAs.

Issues might arise dealing with some GSAs in which MEDITS time series is different (e.g. GSA17 ITALY, CROATIA and SLOVENIA), for which some extra assumptions may be needed (maybe assuming some kind of proportion for the missing year(s), based on the years for which we have data).

Additionally, in some areas (16 and maybe 18), the random stratified design has been violated with the addition of a new area of sampling after 10 years of survey. As such, in this case a statistical standardization with GLMs would likely be more appropriate.

### **Identification of stocks to be moved to higher category**

Identify on the basis of the available data, which of the current data limited stocks can be potentially moved to a higher category (category 1 stock sensu ICES).