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**COMMISSION STAFF WORKING PAPER**

**Opinion of the Committee for Fisheries and Aquaculture and Opinion of the Scientific,  
Technical and Economic Committee on Fisheries**

*Accompanying the document*

**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND  
THE COUNCIL**

**on Member States' efforts during 2010 to achieve a sustainable balance between fishing  
capacity and fishing opportunities**

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## **1. PUBLICATION OF MEMBER STATES' ANNUAL REPORTS**

Member States Annual Reports are available on the Community Fleet Register "Europa" web site: [http://ec.europa.eu/fisheries/fleet/index.cfm?method=FM\\_Reporting.menu](http://ec.europa.eu/fisheries/fleet/index.cfm?method=FM_Reporting.menu)

## **2. OPINION OF THE COMMITTEE FOR FISHERIES AND AQUACULTURE ON THE ANNUAL REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT ON MEMBER STATES' EFFORTS DURING 2010 TO ACHIEVE A SUSTAINABLE BALANCE BETWEEN FISHING CAPACITY AND FISHING OPPORTUNITIES - MINUTES OF THE COMMITTEE FOR FISHERIES AND AQUACULTURE MEETING**

The opinion of the Committee was requested at the session which took place on 25 October 2011.

COM explained the content and the procedure for the adoption of the report on the Member States' efforts to achieve a sustainable balance between fishing capacity and fishing opportunities.

Member States' reports and COM's summary report were evaluated at the STECF ad-hoc working group which was held in Edinburgh from 12 to 16 September. The working group was in addition specifically asked to explore the possibility of using alternative biological indicators, to discuss and propose alternatives to improve the traffic light system and to consider possible methods to estimate the profits that are foregone as a result of technical inefficiency and/or over-capitalisation of fishing fleets. COM informed the Member States that it will start the procedure for the adoption of the report once it receives the formal opinion of the STECF after its November plenary meeting.

COM explained that at this meeting Member States are invited to express their opinions regarding COM's final draft report. Minutes of the meeting shall constitute the opinion of the Committee for Fisheries and Aquaculture. Comments not made during the session or not received before 31 October 2011 will not be incorporated in the formal Committee's opinion.

COM pointed out the main COM's conclusions on the Member States' annual fleet reports for 2010:

This year many Member States included in their report a statement concerning the balance between fishing capacity and fishing opportunities. This is considered a significant improvement. Of the 22 Member States concerned, 8 declared to have some extent of overcapacity, 6 declared their fleets to be in balance with the fishing opportunities, 7 made no statement on the situation of their fleet and 1 Member State has not submitted its fleet report yet. In some cases the claim of having a balance between fleet capacity and fishing opportunities is not underpinned by any capacity indicator of the guidelines, or a substitute thereof. In other cases, Member States acknowledge that a smaller fleet would perform better from the economic point of view. The capacity reductions during 2010 (3.6 % in tonnage and 2% in power) are in line with those of previous years, although they seem to indicate a slight acceleration of capacity adjustment in terms of tonnage. The amount of capacity decommissioned with public aid in 2010 was reduced compared to 2009 and was concentrated in a few Member States: Spain, Italy and France accounted for approximately 80% of the total tonnage. This tonnage decommissioned with public aid represented approximately 50% of the net tonnage reduction during the year.

COM explained that COM reserves the right to amend its summary annual report, and particularly chapter 5 ("The Commission conclusions"), after receiving the opinions from the

Members of the Committee for Fisheries and Aquaculture and the Scientific, Technical and Economic Committee for Fisheries.

Then COM gave the floor to the Member States to give their opinion on the report.

ES: Spain explained that the calculation of the fleet capacity indicators presents several difficulties due to the size and the diverse nature of the Spanish fleet. Spain hopes to come soon with results for some fleet segments. The explanation of the problem given by Spain is not mentioned in the COM's summary. Spain disagrees with the remark that no relation is established between capacity reduction and fishing effort adjustment plans. Spain asks the COM to verify whether the figures are based on the June snapshot instead of the September snapshot as mentioned in the report, and asked for some explanation on table 4 concerning the outermost regions. Spain doesn't agree with the text on transferable fishing concessions (TFCs).

FR: France stated that it did apply fishing capacity indicators, but different ones than the indicators of the guidelines. The reasons for using alternative indicators should be mentioned in the COM's summary. Table 8 should be amended accordingly. France disagrees with the remark that no relation is established between capacity reduction and fishing effort adjustment plans. The remark that Member States acknowledge that a smaller fleet would perform better from an economical point of view should be nuanced: this is only the case for certain fleet segments, not for all. France states that the announced further development of the existing guidelines should be done in cooperation with the Member States. The conclusions concerning the underutilisation of fishing effort or fish quota should be nuanced. The underutilisation has technical-economical reasons and does not necessarily mean overcapacity. France disagrees with the text on TFCs as a solution for overcapacity. The subject is still under discussion in the context of the reform of the CFP.

DK: the weakness mentioned in the summary of the Danish report regarding engine power is not a specific Danish problem, but concerns other Member States as well. Denmark also asks the COM to elaborate on the text on subsidies.

NL: the Netherlands support the COM's effort to improve the existing biological indicators. The Netherlands asked for an elaboration on the relationship between TFC's and overcapacity.

FI: Finland will submit written comments to the COM. Finland agrees with the remarks made by France on TFCs. The subject is still under discussion in the context of the reform of the CFP and it does not represent the content of the Member States' reports. The text should, if at all, at least be more neutral and nuanced.

SE: the capacity indicators are still difficult to apply, further improvements of the indicators are necessary.

BE: Belgium stated that it is difficult for a single Member State to draw correct conclusions from the applied capacity indicators, as fish stocks are shared. The underutilisation of fishing effort or fish quota can be due to a management plan, and does not necessarily mean overcapacity. Belgium does not agree with the text on TFCs, which is too general and does not represent the content of the Member States' reports.

PT: Portugal applied more capacity indicators than mentioned in table 8. The text in the conclusion on TFCs is disputable.

DE: the capacity indicators are still difficult to apply, further improvements of the indicators are necessary.

IE: Ireland doesn't agree with the conclusions on TFCs. TFCs are still under discussion in the context of the reform of the CFP.

COM explained that the summaries of the Member States' reports should indeed reflect the content of the reports submitted by the Member States. But the rest of the COM's report, in particular chapter 5 (Conclusions), is at the disposal of the COM to write its opinion on the current state of the fleet and on the balance between fishing capacity and fishing opportunities. The discussion on TFC's should be limited to the meetings on the reform of the CFP.

COM stated that it would verify the figures in the report mentioned by Spain and table 4 can be discussed bilateral. COM agrees to further develop the existing guidelines in cooperation with the Member States. COM takes note of the comments on the text made by the Member States and will investigate where amendments can be made. COM agrees with Denmark that weakness in the management system concerning engine power is not a specific Danish problem, but concerns other Member States as well.

### **3. WRITTEN COMMENTS RECEIVED FROM MEMBER STATES**

#### **3.1. Spain**

*Spain requests the deletion of the last paragraph of the summary of the Spanish report since the 2010 annual report includes an exhaustive analysis detailing the reduction in capacity and effort in each of the Spanish fleets affected by the adaptation schemes for fishing effort.*

*In addition, the snapshot used to carry out the calculations should be indicated in the tables to avoid any confusion in relation to the verifications carried out by Member States.*

*Spain requests that the Commission include two new tables on the situation regarding compliance in the outermost regions for the entry-exit scheme and reference levels at 31 December 2010, which is the equivalent of table 1 for the other regions. Spain also requests the inclusion of the data on total vessel reduction in the fleet for 2010 in comparison with 2009, a reduction of 274 vessels (2.46%).*

*Spain considers this annual report not to be the appropriate instrument to set out positions with regard to the new Common Fisheries Policy. Furthermore, Spain considers that the conclusions reached are incorrect because they are based on an analysis of certain indicators that in no way reflect the reality faced by the fishing fleet and the consequences of effort reduction schemes on its capacity. An example of this are the comments on the activity levels calculated using the technical indicator. Spain also included a reiteration of the comments on the Commission's guidelines.*

#### **3.2. France**

*Point 1.5 on page 4 of the draft Commission working document states that 'For the third time, Member States were requested to apply the guidelines to their fleets.' This statement is incorrect in view of the non-binding nature of these guidelines. Moreover, France explained why it could not apply them in paragraph 1.1 on page 2 of its national report.*

*France used four alternative indicators and therefore the Commission's report must either state that France did not use the indicators provided for in the non-binding guidelines or the title must be changed to indicate that it refers only to the Member States that followed the STECF guidelines.*

*France states that the final sentence in point 2.8 on page 5 incorrectly indicates that France has not established a linkage between the special fishing permit regimes and fishing capacity reductions. The report should indicate the different tools used by France to adapt the capacity of vessels flying the French flag to fishing opportunities.*

*Paragraph 1 of section 4 states that some Member States believe that there is an excess of capacity and that the fleet should be reduced further, while others believe that a smaller fleet is more economically viable. Member States that refer to excess capacity in their own fleets only take into account the fleet segments assessed and only apply to certain fisheries. This clarification must be added to the text before these two findings.*

*The French authorities ask for the Member States to be involved in preparing and approving the existing guidelines.*

*The conclusions to paragraph 3 show that consumption levels have not reached 100% of capacity*

ceilings in most Member States. France considers that, if maximum consumption levels have not been reached, it is because some vessels are under construction and that the difference will be used up as these vessels enter into service.

France does not agree with the conclusion that some vessels have no or only low fishing activity and links this to insufficient fishing opportunities and therefore to fleet overcapacity. In France, many small-scale fishermen work part-time, seasonally or to supplement another activity. Therefore it is not correct to infer that this generates overcapacity.

France considers it surprising and unacceptable that the report establishes a link between the subsidies granted and a fleet's overcapacity. None of the Member States' reports raises this point.

The French authorities do not consider the Committee on Fisheries and Aquaculture to be the appropriate forum for discussions on transferable fishing concessions. Therefore in this respect, the report exceeds its remit. As a result, it cannot be approved as it stands. The French authorities ask the Commission to reconsider its report and are willing to take part in any discussions to improve the text in order to avoid rushing to conclusions about the tools to be applied in the framework of the reformed ECF.

The French authorities reserve the right to comment on this opinion once it becomes available, regardless of the documents submitted by the Commission.

### **3.3. Denmark**

In the draft summary of the Danish report it is mentioned that, "A weakness in the management system is the difficulty to verify whether the engine power is stated correctly". Denmark states that this should not be seen as a statement on the Danish fleet, but as a general statement for the EU. Denmark would have liked to see a more detailed analysis of the capacity situation. Denmark would agree that TFC's, if well designed, would remove the incentive to have a bigger fleet than necessary. However, it should be considered carefully whether a TFC is sufficient to reduce capacity or if some more specific control or management of capacity is necessary.

#### **4. OPINION OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES ON THE ANNUAL REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT ON MEMBER STATES' EFFORTS DURING 2010 TO ACHIEVE A SUSTAINABLE BALANCE BETWEEN FISHING CAPACITY AND FISHING OPPORTUNITIES**

##### **4.1. Introduction**

The report of the Expert Working Group on Review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities (EWG -11-10) was reviewed by the STECF during its 37th plenary meeting held from 7 Nov to 11 Nov, 2011 in Brussels, Belgium. The following observations, conclusions and recommendations represent the outcomes of that review.

###### *4.1.1. STECF observation*

STECF notes that the traffic light system for presenting a summary of balance indicators could be improved by including all of the recommended balance indicators or alternatives used.

STECF also notes that based on several assumptions and with some caveats, it is possible to approximately estimate the potential value of profits that are foregone as a result of operating a fleet that is over capacity relative to its fishing opportunities.

###### *4.1.2. STECF conclusions*

STECF concludes that the traffic light matrix for indicator values used in the report is a useful tool to assist MS in drawing overall conclusions about the balance between their fleets and their fishing opportunities. There are, however, no scientifically defined values for the thresholds between red (unsatisfactory), yellow (somewhat unsatisfactory) and green (satisfactory). There are elements of judgement and preference in setting threshold values. STECF can offer information about the implications of different values for balance indicators but considers that setting threshold values is the responsibility of policy makers.

STECF concludes that the threshold indicator values presented in the EWG 11-10 report Table 11.1 are considered to be a starting point generally applicable to many fisheries. STECF further concludes that MS should consider carefully the threshold or boundary values between green, yellow and red categorisations and should choose and explain the boundary values that are appropriate to their own fisheries. This practice will encourage MS to select and justify their choice of definitions of satisfactory and unsatisfactory indicator values.

STECF suggests that in the absence of an analytical age-based assessment, MS use the results from Stock Production Models or Biomass Dynamics models to estimate a B1 indicator for stocks.

STECF concludes that when balance indicators generate a mix of green, yellow and red results in the traffic light overview, MS should answer the questions proposed in the EWG 11-10 report (see below, with wording slightly revised compared to the EWG report) about the situation of their fleets (or fleet segments) and stocks, to assist them in drawing overall conclusions on balance.

- 1) Is it possible to catch the available fishing opportunities with a smaller fleet?
- 2) Would a smaller fleet have improved economic performance?
- 3) Are fishing mortality rates too high in relation to target mortality?
- 4) Are catch rates too high in relation to biomass of the stock/species compared to the agreed fisheries management target (MSY)?

- 5) What does CPUE suggest about stock abundance relative to abundance expected at MSY exploitation rates?
- 6) Is fishing activity delivering economic and social benefits, without dependence on public financial support?
- 7) Is the economic performance of the fleet robust to withstand impacts of cost fluctuations e.g. high fuel prices?
- 8) Is the fleet sufficiently financially robust to withstand short term cuts in fishing opportunity, in line with scientific advice?

STECF concludes that balance or imbalance itself cannot be measured or given a quantitative value. Therefore, while qualitative, verbal assessments of the degree of balance or imbalance are useful (when based on evidence) it is not feasible to give a quantitative assessment of balance (or imbalance) between fleet capacity and fishing opportunity.

STECF concludes that quota uptake rates should not be used as indicators of balance between fleet capacity and fishing opportunity as it not an appropriate indicator because these rates could in many cases give a misleading impression of balance.

STECF concludes that estimation of profits foregone in the past or hypothetically in the future, as a result of operating an over capacity fleet, is not equivalent to an estimate of additional profits that could be realised as a result of reducing fleet capacity.

STECF concludes that MS consider the benefits of estimating the potential profit foregone as a result of fleet over capacity in their own country. This would inform of the potential implications of operating different sizes of fleet. Suitable methods to estimate profit foregone are proposed in the report of EWG 11-10.

#### *4.1.3. STECF recommendations*

Drawing on the findings and conclusions of the STECF EWG 11-10 on the Review of national reports on balance between fishing capacities and fishing opportunities and following further discussion, STECF recommends the following:

1. An expert workshop should be held to evaluate fully the applicability of some specific methods for estimating biological balance indicators and for providing annual stock advice on data poor stocks. This is so that balance can be assessed in more of the cases where there is not a complete age-based stock assessment. Such a workshop should be given the task of providing stock advice and balance indicators for a specific list of stocks of interest in order to focus the work on a number of practical applications. It will be necessary for experts attending this workshop to have with them the data and analyses required to test the possibilities rather than just discuss applicability in theory.
2. There is a need to issue updated Guidelines to MS on the balance indicators to be reported in MS Annual Reports. The updated Guidelines should include some worked examples of alternative biological indicators of balance. STECF recommends that the Commission ensures that updated Guidelines are completed, and that they take into account proposed text and recommendations in the reports of SGBRE 10-01 and EWG 11-10 and the advice of STECF PLEN 10-03.

**4.2. ANNEX 1. Report of (EWG-11-10)**

**EXPERT WORKING GROUP ON REVIEW OF NATIONAL  
REPORTS ON BALANCE BETWEEN FISHING CAPACITIES  
AND FISHING OPPORTUNITIES (EWG-11-10)**

**Edinburgh, 12<sup>th</sup> – 16<sup>th</sup> September 2011**

This report does not necessarily reflect the view of the STECF and the European Commission and in no way anticipates the Commission's future policy in this area

### **4.3. Executive summary**

Summary of EWG findings in relation to each of the Terms of Reference questions.

#### **ToR 1. Evaluate MS annual reports**

MS reports were evaluated using the same scoring system that had been used in previous years, but some of the criteria were more strictly interpreted.

There has been some further overall improvement in providing the required elements of the MS reports compared to the 2009 reports.

The average of scores for including required elements increased from 19.8 for the 2009 reports to 20.9 for the 2010 reports.

Spain had the most improved score for including required elements, moving from a score of 8 for their 2009 report to a score of 17 for their 2010 report.

Sweden made the biggest improvement in quality score, moving from 16.5 for their 2009 report to 30 out of 33 possible marks for their 2010 report.

The UK did not submit a report.

The ideal information required in MS reports and the ideal structure of reports is presented again to assist MS in preparing high quality, easy-to-follow reports.

An example range of 5 statements on overall balance is presented again to aid MS in reaching a conclusion about their balance, based on data presented.

#### **ToR 1.d. Evaluate MS application of Guidelines on balance indicators.**

In general, there was further improvement in presenting an overview and comparison between the different indicators (biological, technical, social and economic) that MS have estimated for their own fisheries.

#### **ToR 2. Commission summaries of MS reports**

The Commission's summaries vary in length, order of information presented, accuracy of information presented and degree of detail included, thereby making a useful comparison of MS reports difficult. Comments on each summary are presented along with an example of a more useful proposed summary template.

#### **ToR 3.**

##### **a) Biological balance indicators when no analytical stock assessment is available**

Potential alternative biological balance indicators depend on what data is available for the stocks in question. Data availability was classified into six major groups illustrated in a flow chart developed by ICES. Examples of indicators and approaches that had already been shown to be possible are presented.

The use of Stock Production Model Incorporating Covariates (ASPIC) and surplus production modelling as approaches to estimate a B1 indicator for stocks without age-based assessments are evaluated and considered useful.

For most data-poor stocks there is no current method to estimate a biological balance indicator, but further testing with data could identify potential alternative indicators.

##### **b) Rates of quota consumption as a balance indicator**

The EWG does not consider that quota uptake rate is a good indicator of balance between fleet capacity and fishing opportunity and presents a number of factors other than balance that can strongly influence this ratio.

#### **ToR 4.**

##### **a) A definitive quantitative assessment of balance**

The report presents discussion about the concept of balance, highlighting that it is a transient condition subject to annual changes in fleet capacity and fishing opportunity. The EWG concludes that it is not feasible to give a definitive, absolute, quantitative assessment of balance (or imbalance) between fleet capacity and fishing opportunity.

##### **b) An improved traffic light system for presenting balance indicators**

A table of traffic light categories is presented that includes all of the indicators in the Commission's Guidelines on estimating balance indicators. The traffic light system shows whether each indicator value is considered satisfactory (green), somewhat unsatisfactory (yellow) or very unsatisfactory (red). The report warns that for biological indicators in particular, there is no single set of boundary values (between green, yellow and red categories) that is suitable for all fisheries and MS are advised to select suitable boundaries and explain their selection.

The report proposes a series of questions about the fleet and opportunity situation that should be answered by each MS. Drawing overall conclusions on balance may require a weighting or prioritising of some balance indicators over others, such that, despite one indicator being "red" in the traffic light system, a MS may legitimately conclude that overall, their fleet is approximately in balance with its opportunity. This weighting of indicators is essentially a value-based choice and cannot be scientifically defined, therefore MS are encouraged to explain and justify their choices and conclusions in their own terms.

#### **ToR 5. Overcapacity from an economic perspective**

The report proposes a simple outline method, principally based on use of the Technical balance indicator, to estimate what profit has been generated and what profit might have been generated had a given fleet been of smaller total capacity, more in balance with its fishing opportunity. The assumptions of the technique are presented and acknowledged as being unrealistic over the time frame illustrated, some caveats of the technique are discussed, including transition issues that might arise during a reduction in fleet capacity.

#### **4.4. Conclusions of the Working Group**

STECF EWG 11-10 reached the following conclusions:

##### **Standard of MS reports (ToR 1)**

Overall there have been further improvements in completeness and quality of MS reports on their efforts to achieve a balance between the capacity of their fleets and their fishing opportunities.

There is evidence in many reports that report authors have read the report of SGBRE 10-01 and have made efforts to follow recommendations and advice, thus improving the completeness and quality of their reports.

A minority of MS reports do not follow our recommended structure and are incomplete and of poor quality. There is scope for considerable improvement in some cases.

A substantial improvement in quality of MS reports could be achieved if authors were encouraged by the Commission to follow our suggested structure, which is included again in this report. This improvement would also speed up and ease the process of assessing the MS reports.

Some MS failed to present an overall opinion on whether the capacity of their fleet was in balance with its fishing opportunity.

Some MS presented an opinion which was not based on or supported by the data and evidence presented in their report.

Balance indicators were presented to an overall higher standard than in the 2009 reports.

It is not possible to evaluate the accuracy of indicators presented unless MS show their data and calculations.

This year one MS, the UK, did not submit their 2010 report to the Commission. In the previous two years that STECF has assessed the reports, all MS have submitted reports.

##### **Commission summaries of MS reports (ToR 2)**

As in previous years, the Commission's summaries of MS reports do not lend themselves to an easy and representative comparison of MS reports. They vary in length, order of information presented, accuracy of information presented and degree of detail included, thereby making a useful comparison of MS reports difficult.

##### **Biological indicators when no analytical stock assessment is available (ToR 3.a)**

It is possible to estimate the B1 indicator in the absence of full age-based analytical assessments.

The EWG supports the use of Stock Production Model Incorporating Covariates (ASPIC) and surplus production modelling as approaches to derive a B1 indicator for stocks without age-based assessments.

There are several potential approaches that could be used to derive biological balance indicators. The utility of these should be explored on a stock by stock basis by an expert group covering both biological balance indicators and annual advice for data-poor stocks.

##### **Use of quota consumption rates to assess balance (ToR 3.b)**

Quota uptake rate (landings as a proportion of quota) does not make a satisfactory indicator of balance between fleet capacity and fishing opportunity.

It is possible to have an over-capacity fleet at the same time as an under-utilised opportunity. If a stock is being fished as bycatch in a mixed fishery, it is possible for the fleet to be either under or over capacity in relation to the main target species, while the bycatch is under utilised.

#### **A definitive quantitative assessment of balance (ToR 4.a)**

It is not feasible to give a definitive, absolute, quantitative assessment of balance (or imbalance) between fleet capacity and fishing opportunity.

There is no standard unit of measurement of capacity by which a fleet can be said to be out of balance with its fishing opportunity.

#### **An improved traffic light system for presenting balance indicators (ToR 4.b)**

The traffic light system for presenting a summary of balance indicators can be improved by including all of the recommended balance indicators or alternatives used.

Particularly for biological indicators, it may often be appropriate for MS to choose and explain their own boundary values for the thresholds between green, yellow and red classifications of indicators.

#### **Overcapacity from an economic perspective (ToR 5)**

It is possible to estimate approximately, based on a range of assumptions, the potential value of profits that are foregone as a result of operating a fleet that is over capacity in relation to its fishing opportunities.

#### 4.5. Recommendations of the working group

STECF EWG 11-10 makes the following recommendations:

The Commission should distribute copies of this EWG report, once approved by STECF, to the national correspondents responsible for preparing MS annual reports on balance. This might encourage report authors to follow the recommendations relating to completing their MS annual reports on balance between fleet capacity and fishing opportunity.

##### Future assessment of MS reports

If MS reports on balance are evaluated in this way again (by STECF or anyone else), the EWG recommends that points are awarded for adhering to the report structure presented in the report of SG-BRE 10-01. This structure reflects the text of the regulation that requires the reports to be produced. This would further encourage MS to structure their reports as requested.

The EWG recommends that, in future assessments, any content of MS reports that is not under a clear and relevant heading, preferably the headings presented in our proposed template, should not be awarded points for being included. This is to reduce the time taken to evaluate MS reports.

EWG 11-10 recommends that MS should use a broader definition of fleet management systems when reporting on planned fleet management system improvements. This is to encourage them to plan improvements, where appropriate, to their entire fleet management systems and not just, for instance, to the IT system used in fleet administration.

In their annual reports, MS should make a clear overall statement (or fleet segment-specific statements) on balance between capacity and opportunity. This is to encourage MS to acknowledge the current degree of balance or imbalance between their fleets and their fishing opportunities. The EWG recommends that MS choose from a range of statements such as those presented below:

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

##### Presentation of balance indicators in MS reports

The EWG recommends that MS present data and calculations used in arriving at values for balance indicators, so that the accuracy of the calculations can be assessed.

##### Commission summaries of MS reports

The EWG recommends that the Commission should use the template presented in this report to present their summaries of MS reports on balance, so that MEPs can make accurate comparisons of MS reports based on the summaries.

The EWG recommends that any future evaluations of Commission summaries carried out by STECF should simply note whether or not the Commission summaries are presented using the recommended template and not make any other detailed comments on the summaries. This is to save time of experts in the working group and because we have now made clear our expectations of how these summaries should be structured and written.

### **Biological indicators of balance**

The EWG recommends that an expert workshop should be held to evaluate fully the applicability of some specific methods for estimating biological balance indicators and for providing annual stock advice on data poor stocks. This is so that balance can be assessed in more of the cases where there is not a complete age-based stock assessment. Such a workshop should be given the task of providing stock advice and balance indicators for a specific list of stocks of interest in order to focus the work on a number of practical applications. It will be necessary for experts attending this workshop to have with them the data required to test the possibilities rather than just discuss applicability in theory.

The EWG recommends that MS should use Stock Production Model Incorporating Covariates (ASPIC) and/or surplus production modelling to estimate a B1 indicator for stocks without age-based assessments. This is so that balance can be assessed in cases where there is not a complete age-based stock assessment

The EWG recommends that quota uptake rates should not be used as indicators of balance between fleet capacity and fishing opportunity as it not an appropriate indicator and its use could in many cases give a misleading impression of balance.

### **Improve the guidance on reporting an overview of balance**

The EWG recommends that a combination of balance indicators continue to be used to assess balance rather any type of single quantitative definitive assessment of balance, in order to ensure any assessment of balance is fully informed.

The EWG recommends that MS use the suggested traffic light overview presentation of indicator values to assist in drawing overall conclusions about balance for national fleets or fleet segments, to ensure that all available indicators are considered in any overall assessment of balance.

The EWG recommends that MS consider carefully the threshold or boundary values between green, yellow and red categorizations and should choose and explain the boundary values that are appropriate to their own fisheries. This is because we do not believe that there is any single set of categorization values that are appropriate for all fisheries and it will encourage MS to select and justify their choices of definitions of satisfactory and unsatisfactory indicator values.

1 The EWG recommends that when balance indicators generate a mix of green, yellow and red results in the traffic light overview, MS should answer a series of proposed questions about the situation of their fleets and stocks to assist them in drawing overall conclusions on balance.

2 The EWG recommends that MS ensure that their overall conclusions on balance are supported by the data and evidence presented in their reports. This would avoid MS concluding, for instance, that their overall balance situation is satisfactory when the data they present do not support such a conclusion.

## **Overcapacity from an economic perspective**

1 The EWG has no recommendations concerning this question in the terms of reference.

## **4.6. Introduction to the working group report**

The expert working group included many experts who have contributed to previous working groups involved in devising the assessment system and assessing MS annual reports and Commission summaries of those reports. This continuity of expertise greatly improves and speeds up the assessment process. The evaluation process also benefited from the presence of some new experts in the group.

### *4.6.1. Terms of Reference for EWG-11-10*

The following terms of reference were agreed by DG Maritime Affairs and Fisheries (MARE) and the chair of the expert working group:

#### **1 Evaluate Member States' reports**

Evaluate the Member States' reports on their efforts during 2010 to achieve a sustainable balance between fleet (or fishing) capacity and fishing opportunities taking account in particular the following aspects:

- a) Compliance of MS reports with Art. 14 of Council Regulation No. 2371/2002 and Art. 12 of Commission Regulation No. 1438/2003
- b) Member States' evaluation of the effect of fishing effort management measures on fishing capacity
- c) Member States' assessment of the balance between fishing capacity and fishing opportunities for their fishing fleets
- d) Where appropriate, Member States' application of the indicators proposed in the "Guidelines for an improved analysis of the balance between fleet capacity and fishing opportunities"

To fulfil ToR 1. please score the Member States' reports according to the system for required elements detailed in sections 7.1 and 7.5, and table 7.1 of the report by SG-BRE10-01.

The results of the scoring exercise should be presented as in tables 7.2 and 7.3 of the report of SG-BRE 10-01. Updated versions of tables 7.4 and 7.5 should also be presented.

Please also provide basic observations on the content of the Member States' reports. See report of SG-BRE 10-01, sections 7.2, 7.3 and 7.4.

#### **2. Evaluate Commission Summaries of Member States reports**

Evaluate the quality of the summaries of MS reports prepared by the Commission for the European Parliament.

Please follow the system in section 8.5 of the report of SG-BRE 10-01.

#### **3. Biological indicators**

Member States have encountered various difficulties in applying the biological indicators ratio of mortality rates and catch to biomass ratio. The most important problem is the lack of stock assessment that limits the applicability of these indicators.

- a) Explore the possibility of using alternative biological indicators (other than catch per unit of effort) that could be implemented when no analytical stock assessment is available.

Several Member States have emphasised the need to take quota consumption into account when assessing the extent of fleet over-capacity however there are some concerns about the utility of quota consumption as an indicator of balance.

b) Consider if and how the rates of quota consumption, as well as the quota and effort allocation per vessel could be taken into account for the assessment of the balance between the fleet and the available fishing opportunities.

#### **4. Improve the Guidance on overview of balance reporting by MS**

a) Discuss and comment on the feasibility of developing an absolute definitive assessment of balance between capacity and opportunity that MS could report.

The Guidelines to MS on completion of the balance indicators propose an overview of balance based on the biological and economic indicators presented as a traffic light system. Some MS find it impossible or difficult to apply the system, or are unsure how to proceed when the values of indicators are close to boundaries between red, green and amber. Some MS want to include more indicators in their overview of balance.

b) Discuss and propose alternatives to improve the traffic light system, for instance by including additional indicators. It would also be useful to give examples of how MS might present their traffic light summary and draw overall conclusions on balance based on their traffic light presentation.

#### **5. Overcapacity from an economic point of view**

Some MS have fleets with many vessels which are occupied much less than technically possible during each year, creating both technical and economic inefficiency. The working group is asked to consider methods that could be applied in relation to EU MS fleet segments to estimate the profits that are foregone as a result of technical inefficiency and/or over-capitalisation of fishing fleets.

The group is asked to outline an approach or method, data requirements, and issues to consider for estimating this foregone profit. Please also comment on why it would be helpful or interesting for MS to make these estimates. For instance, the group may wish to refer to employment implications, quantity & quality, short and long term implications, social implications and trade-offs.

##### *4.6.2. Participants*

The full list of participants at EWG-11-10 is presented in section 13.

#### **4.7. ToR 1. Evaluate MS annual reports**

Under Item 1 in the Terms of Reference, EWG 11-10 was asked to evaluate Member States' reports on their efforts during 2009 to achieve a sustainable balance between fleet capacity and fishing opportunities; and in particular, to take into account the following aspects:

- a) Compliance of Member States' reports with Article 14 of Council Regulation no. 2371/2002 and Articles 12 and 13 of Commission Regulation no. 1438/2003
- b) MS evaluation of the effect of fishing effort management measures on fishing capacity
- c) MS assessment of the balance between fishing capacity and fishing opportunities for their fishing fleets
- d) Where appropriate, MS application of the indicators proposed in the "Guidelines for an improved analysis of the balance between fleet capacity and fishing opportunities"

##### *4.7.1. Scoring system for evaluation of MS reports – required elements*

The working group assessed compliance with Articles 12 and 13 of Commission Regulation no. 1438/2003 by using the scoring system that had been developed during SGBRE 09-01. Table 4.1 shows the scoring system used, which is based on the elements of Article 13 (items 1A to 2 in Table 7.1) and Article 12 (item O in Table 7.1). The scoring system awards a score for providing the required information and a separate score for the quality of the information. Scores for providing the required information are weighted to reflect the experts' view of the importance of the elements included (present) in Member States' reports. The quality score is a reflection of the completeness, robustness and relevance of the information provided. We did not assign a score for submitting the report by the required date.

ToR 1b and 1c above are included within the required elements and therefore in our scoring system.

For including the required elements, reports were awarded full marks available for each element. If the element in respect of 2010 was absent, the score was zero. Therefore, if a MS included a required element but only in relation to the wrong year, the report would score zero for including that element.

We awarded specific scores for completeness, robustness and relevance and each of these elements could achieve a score of 0, 0.5 or 1, so that the total quality score could be between 0 and 3 for each required element.

Experts split into smaller groups to evaluate MS reports so it is possible that groups may have applied the scoring system differently. However the system was discussed in plenary before the task so this risk is considered to be small. Last year's MS reports and scores were also reviewed to try to ensure consistency of evaluation between years.

It should be noted that, with a restricted number of points or half points to award, an improvement in quality for a given requirement in a Member State's 2010 report relative to its 2009 report, would not necessarily result in a higher score for that requirement.

Further, MS should be aware that a quality score of 3, the maximum available score, does not necessarily mean that there is no room for improvement in the presentation of a required element in the report.

For required element 1.d.ii), if a MS included a heading in their report and indicated that there was no plan for improvement in their fleet management system, while experts appreciated the clarity of this aspect of the report, no points were awarded as plans for improvements in the

system were not presented. The regulation implies that the plan for improvement should address the weaknesses identified in the fleet management system and the working group experts doubted that any MS had a system that could not be improved in some respect.

Q	Element to be included	Max score available	
		Present	Quality
1A	i) Description of fleets	2	3
	ii) Link with fisheries	3	3
	iii) Development in fleets	3	3
1B	i) statement of effort reduction schemes	2	3
	ii) impact on fishing capacity of effort reduction schemes	3	3
1C	Statement of compliance with entry / exit scheme and with level of reference	2	3
1D	i) Summary of weaknesses & strengths of fleet management system	1	3
	ii) plan for improvements in fleet management system	2	3
	iii) information on general level of compliance with fleet policy instruments	1	3
1E	Information on changes of the admin. procedures relevant to fleet management	1	3
2	Report 10 pages or less?	1	-
O	Overall: does report assess balance between capacity & opportunity?	3	3
<b>Total possible scores:</b>		<b>24</b>	<b>33</b>

**Table 4.1 Scoring system for evaluating Member States annual reports**

For required elements 1.b and 1.c., a statement of compliance with entry/exit scheme and with level of reference, if a MS presented not a statement but only a table of figures, then that was awarded a score for being present but was penalised by loss of point on quality.

With regard to element 1E, information on changes of the administrative procedures relevant to fleet management, EWG 11-10 agreed that a Member State should not be penalised in terms of quality if there is a clear statement in the report which states that there were no changes in the administrative procedures relevant to the fleet management. No quality marks should be lost in this case.

The requirement that reports should be 10 pages or less was interpreted to mean that the annual report covering the legally required elements should be 10 pages or less. If a report exceeded 10 pages only because it included balance indicators, (which are not legally required) or an annex of detailed information, then the report was still awarded a point for being 10 pages or less.

We look for MS reports to include a clear overall statement, or statements per fleet segment, on the balance of capacity and opportunity for their fleets. We have taken a less generous view when scoring this element than we did last year, so there are some MS whose reports have a zero score for this element this year when last year, for a similar standard of report, we were more liberal in our judgement of “overall assessment”. This element is once again presented in very varying degrees of completeness and clarity by MS and there is still much scope for MS to improve how they present their overall opinion on balance. There are several MS reports which include estimations and interpretations of individual indicators but contain no overall conclusions about balance drawn from the indicators presented. In these cases, MS reports were awarded a zero score for overall assessment of balance.

We reviewed report submission dates and note that only 8 of the 22 relevant MS submitted their annual reports by the deadline of 30<sup>th</sup> April 2011, compared to 10 last year. A further 6 MS were less than one week late and the last report was received on 5<sup>th</sup> July. The UK did not

submit a report to the Commission before the working group meeting. The working group was pleased that an English translation of the French report was available this year.

#### 4.7.2. *Evaluation of Member States annual reports for 2009*

All MS reports received by the Commission prior to the working group (21 reports) were evaluated against the requirements of Articles 12 and 13 of Commission Regulation no. 1438/2003 by the STECF EWG 11-10.

Overall there is once again substantial variation in the completeness and quality of MS reports for 2010 but there is a further general improvement in completeness compared to the reports for 2009. Once again a common strength amongst the MS' reports was the description provided of their fleets, changes of the fleet over the year and linkages with fisheries. Key points of note are:

- There has been some further overall improvement in providing the required elements of the MS reports compared to the 2009 reports.
- Five MS achieved full marks for including required elements, compared to only two MS for their 2009 reports, despite stricter judging on inclusion of required elements this year.
- The average of scores for including required elements increased from 19.8 for the 2009 reports to 20.9 for the 2010 reports
- The required element presented by the least number of MS is, once again, element 1.d.ii, plan for improvements in the fleet management system, which was presented by only eight MS.
- 16 Member States included information on the level of compliance with fleet policy instruments, a big improvement since the 2008 reports when only 8 MS had included this element.
- 15 MS were judged to have given an overall opinion on whether their fleet was or was not in balance with its fishing opportunity in 2010 (compared to 13 in 2009 reports and 7 in the 2008 reports).
- Spain was the most improved MS in terms of score achieved for including required elements, moving from a score of 8 for their 2009 report to a score of 17 for their 2010 report.
- Sweden made the biggest improvement in quality score, moving from 16.5 for their 2009 report to 30 out of 33 possible marks for their 2010 report.

Table 4.2 shows the scores by MS for inclusion of required elements in their annual report (the “present” score). Table 4.4 ranks MS by their score for inclusion of required elements. A maximum of 24 points was available. Cyprus, Malta, Portugal, Slovenia and Sweden achieved the maximum 24 points, while the minimum was 14 points which is nevertheless 6 points higher than last year’s minimum score. All but three MS scored 75% or above for including the required elements.

Nine MS improved their scores for including required elements, and some of those made very substantial improvements. Eight MS had lower scores for their 2010 reports compared to their 2009 reports for inclusion of required elements though a few of these reductions were due to our stricter interpretation of whether required elements were present.

Table 4.3 shows the quality scores by MS for included elements in the annual reports. There is a slight increase in variation in the quality of the MS reports compared to the previous year.

Table 4.5 ranks MS by their quality score for the required elements. A maximum of 33 points was available. Sweden achieved the highest score with 30 points.

Nine MS had improved scores for quality of included elements relative to the previous year and nine MS had lower scores for quality than in the previous year. Some of those decreases in score were due to our stricter interpretation of whether required elements were presented. If a required element was judged not to have been presented then it automatically received a quality score of zero.

Q	Required element of report	Max scores	BELGIUM	BULGARIA	CYPRUS	DENMARK	ESTONIA	FINLAND	FRANCE	GERMANY	GREECE	IRELAND	ITALY	LATVIA	LITHUANIA	MALTA	NETHERLANDS	POLAND	PORTUGAL	ROMANIA	SLOVENIA	SPAIN	SWEDEN
1A	i) Description of fleets	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	ii) Link with fisheries	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	iii) Development in fleets	3	3	3	3	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3	3	3
1B	i) statement of effort reduction schemes	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2
	ii) impact on fishing capacity of effort reduction schemes	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1C	Statement of compliance with entry / exit scheme and with level of reference	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1D	i) Summary of weaknesses & strengths of fleet management system	1	0	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	0	1
	ii) plan for improvements in fleet management system	2	0	2	2	0	0	0	0	0	2	0	0	0	0	2	0	2	2	0	2	0	2
	iii) information on general level of compliance with fleet policy instruments	1	0	1	1	1	1	1	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1
1E	Information on changes of the administrative procedures relevant to fleet management	1	1	0	1	1	0	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1
2	Report 10 pages or less?	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1
O	Overall: does report assess balance between capacity & opportunity?	3	3	3	3	3	0	3	3	3	3	0	3	0	0	3	3	0	3	3	3	0	3
Total scores:		24	20	23	24	22	17	22	19	19	22	14	21	19	18	24	22	21	24	22	24	17	24

Table 4.2 Scores by Member State for inclusion of required elements in annual reports

Q	Required element of report	Max scores	BELGIUM	BULGARIA	CYPRUS	DENMARK	ESTONIA	FINLAND	FRANCE	GERMANY	GREECE	IRELAND	ITALY	LATVIA	LITHUANIA	MALTA	NETHERLANDS	POLAND	PORTUGAL	ROMANIA	SLOVENIA	SPAIN	SWEDEN
1A	i) Description of fleets	3	3	2.5	3	3	2.5	3	1	3	3	3	1.5	3	1.5	2	3	2	3	3	3	2	3
	ii) Link with fisheries	3	1	2.5	3	3	2	3	1	3	3	1.5	3	3	3	2.5	3	3	3	3	1.5	1	3
	iii) Development in fleets	3	1.5	2.5	3	3	1	3	1	3	2.5	0	1	3	2.5	2	2.5	3	2	3	2.5	2	3
1B	i) statement of effort reduction schemes	3	2.5	2	3	3	2	3	1.5	0	3	3	1.5	3	3	3	3	3	3	2.5	3	3	3
	ii) impact on fishing capacity of effort reduction schemes	3	2	2.5	3	3	1	3	1.5	1	3	2	1.5	1.5	3	3	0	3	3	3	0.5	3	3
1C	Statement of compliance with entry / exit scheme and with level of reference	3	1.5	2	3	3	3	3	0	3	3	3	3	3	0	3	0	3	3	3	3	3	3
1D	i) Summary of weaknesses & strengths of fleet management system	3	0	1	2	3	0	3	0	1.5		0	1.5	3	1	1.5	3	2	1.5	3	2		3
	ii) plan for improvements in fleet management system	3	0	1	1.5	0	0		0	0	1.5	0	0	0		2.5	0	3	2	0	2.5		1.5
	iii) information on general level of compliance with fleet policy instruments	3	0	0.5	0	2	1	1.5	0	0		0	0.5	1		2	1.5	3	3	1	2	3	1.5
1E	Information on changes of the administrative procedures relevant to fleet management	3	3	0	2	0.5	0	3	0	3	1.5	0	1	2	3	2	0	3	2	1.5	3	1.5	3
2	Report 10 pages or less?	n/a																					
O	Overall: does report assess balance between capacity & opportunity?	3	2	3	2.5	3	0	1.5	2	1	1.5	0	3	0		0	1.5	0	0.5	0	2		3
Total scores:		33	16.5	19.5	26.0	26.5	12.5	27.0	8.0	18.5	22.0	12.5	17.5	22.5	17.0	23.5	17.5	28.0	26.0	23.0	25.0	18.5	30.0

**Table 4.3 Scores by Member State for quality of required elements in annual reports**

Scores for inclusion (presence) of required elements					
Member State	Score 2010 report	Max Score	%	Score 2009 report	Change from 09 to 10
CYPRUS	24	24	100%	18	6
MALTA	24	24	100%	21	3
PORTUGAL	24	24	100%	20	4
SLOVENIA	24	24	100%	20	4
SWEDEN	24	24	100%	18	6
BULGARIA	23	24	96%	24	-1
DENMARK	22	24	92%	23	-1
FINLAND	22	24	92%	19	3
GREECE	22	24	92%	23	-1
NETHERLANDS	22	24	92%	22	0
ROMANIA	22	24	92%	19	3
POLAND	21	24	88%	24	-3
ITALY	21	24	88%	23	-2
BELGIUM	20	24	83%	19	1
LATVIA	19	24	79%	22	-3
GERMANY	19	24	79%	19	0
FRANCE	19	24	79%	N/A	N/A
LITHUANIA	18	24	75%	20	-2
ESTONIA	17	24	71%	19	-2
SPAIN	17	24	71%	8	9
IRELAND	14	24	58%	14	0
UK – no report	N/A	24	N/A	20	-20

**Table 4.4 Ranked results for inclusion of required elements in MS reports**

Scores for quality of included elements					
Member State	2010 Score	Max Score	%	Score 2009 report	Change from 09 to 10
SWEDEN	30.0	33	91%	16.5	13.5
POLAND	28.0	33	85%	25	3
FINLAND	27.0	33	82%	22.5	4.5
DENMARK	26.5	33	80%	28	-1.5
CYPRUS	26.0	33	79%	20.5	5.5
PORTUGAL	26.0	33	79%	23.5	2.5
SLOVENIA	25.0	33	76%	22	3
MALTA	23.5	33	71%	20.5	3
ROMANIA	23.0	33	70%	23.5	-0.5
LATVIA	22.5	33	68%	23.5	-1
GREECE	22.0	33	67%	21.5	0.5
BULGARIA	19.5	33	59%	20	-0.5
GERMANY	18.5	33	56%	20	-1.5
SPAIN	18.5	33	56%	9.5	9
ITALY	17.5	33	53%	21.5	-4
NETHERLANDS	17.5	33	53%	20.5	-3
LITHUANIA	17.0	33	52%	17.5	-0.5
BELGIUM	16.5	33	50%	14	2.5
ESTONIA	12.5	33	38%	18.5	-6
IRELAND	12.5	33	38%	12.5	0
FRANCE	8.0	33	24%	N/A	N/A
UK – no report	N/A	33	N/A	24	-24

**Table 4.5 Ranked results for quality of included elements in MS reports**

Scores for including required elements		2008 MS reports			2009 MS reports			2010 MS reports		
		Sum of scores	Summed score as % of max	sum of max scores	Sum of scores	Summed score as % of max	sum of max scores	Sum of scores	Summed score as % of max	sum of max scores
Q	Required element of report									
1A	i) Description of fleets	42	100%	42	42	100%	42	42	100%	42
	ii) Link with fisheries	45	71%	63	54	86%	63	63	100%	63
	iii) Development in fleets	51	81%	63	57	90%	63	60	95%	63
1B	i) statement of effort reduction schemes	36	86%	42	40	95%	42	40	95%	42
	ii) impact on fishing capacity of effort reduction schemes	45	71%	63	60	95%	63	63	100%	63
1C	Statement of compliance with entry/exit scheme and with level of reference	32	76%	42	42	100%	42	42	100%	42
1D	i) Summary of weaknesses & strengths of fleet management system	12	57%	21	16	76%	21	16	76%	21
	ii) plan for improvements in fleet management system	22	52%	42	20	48%	42	16	38%	42
	iii) information on general level of compliance with fleet policy instruments	8	38%	21	14	67%	21	16	76%	21
1E	Information on changes of the administrative procedures relevant to fleet management	10	48%	21	17	81%	21	17	81%	21
2	Report 10 pages or less?	13	62%	21	14	67%	21	18	86%	21
O	Overall: does report assess balance between capacity & opportunity?	21	33%	63	39	62%	63	45	71%	63
<b>Total scores:</b>		337	67%	504	415	82%	504	448	87%	87%

**Table 4.6 Comparison of scores for inclusion of required elements between 2008, 2009 and 2010 MS reports**

Scores for quality of included elements		2008 MS reports			2009 MS reports			2010 MS reports		
		Sum of scores	Summed score as % of max	sum of max scores	Sum of scores	Summed score as % of max	sum of max scores	Sum of scores	Summed score as % of max	sum of max scores
Q	Required element of report									
1A	i) Description of fleets	41	65%	63	56.5	90%	63	54	86%	63
	ii) Link with fisheries	27	43%	63	41	65%	63	52	83%	63
	iii) Development in fleets	33	52%	63	41.5	66%	63	47	75%	63
1B	i) statement of effort reduction schemes	42	67%	63	56.5	90%	63	54	86%	63
	ii) impact on fishing capacity of effort reduction schemes	23	37%	63	47.5	75%	63	46.5	74%	63
1C	Statement of compliance with entry / exit scheme and with level of reference	41	65%	63	51.5	82%	63	51.5	82%	63
1D	i) Summary of weaknesses & strengths of fleet management system	21	33%	63	31.5	50%	63	32	51%	63
	ii) plan for improvements in fleet management system	22	35%	63	22.5	36%	63	15.5	25%	63
	iii) information on general level of compliance with fleet policy instruments	9	14%	63	17.5	28%	63	23.5	37%	63
1E	Information on changes of the administrative procedures relevant to fleet management	19	30%	63	37	59%	63	35	56%	63
2	Report 10 pages or less?									
O	Overall: does report assess balance between capacity & opportunity?	16	25%	63	22	35%	63	26.5	42%	63
<b>Total scores:</b>		294	42%	693	425	61%	693	446.5	63%	63%

**Table 4.7 Comparison of scores for quality of included elements between 2008, 2009 and 2010 MS reports**

#### 4.7.3. *Reporting strengths and weaknesses of fleet management system*

The EWG believes that MS could benefit from taking a broader definition of “fleet management system” in their reports. The Commission regulation 1438/2003 requires MS to supply “a summary report on the weaknesses and strengths of the fleet management system together with a plan for improvements and information on the general level of compliance with fleet policy instruments”. In this context, most MS appear to have prepared a report based on a very limited definition of the term “fleet management system”. In some cases it is confined only to the software or IT solution chosen by the MS to record fleet data.

Modern fisheries management is often referred to as a governmental system of appropriate management rules based on defined objectives and a mix of management means to implement the rules, which are put in place by a system of monitoring control and surveillance. MacKenzie (FAO Fish.Tech.Pap., 226) describes Fishery Management relating to a total system made up of resources, industry and trade. There are important linkages between these components. Economically rational fishery management requires the transformation of common property through some kind of limited entry system designed to optimise net benefits from the fishery. Management planning involves the definition of goals and policy objectives and the development of strategies to assure attainment of policy objectives. The whole of this forms the “fleet management system”.

This STECF EWG considers that the very narrow interpretation currently in use by many MS misses an opportunity to illustrate how problems and difficulties are really affecting the evaluation of ‘compliance with the fleet policy instruments’ in operation.

MS’ evaluation of the current strengths and weaknesses of their fleet management system could be linked to the reports that are required under Regulation 1224/2009 (The Control Regulation). In the context of monitoring capacity this implies:

- Reporting on proportion of fleet inspected and level of compliance with engine regulations. These inspections are carried out under the Control Regulation which requires the establishment of a sampling plan aimed at verifying that the engine capacity stated on the fishing licence is in accordance with the actual power of the vessel (article 41),
- Reporting on proportion of fleet inspected and level of compliance with tonnage regulations. These inspections are carried out under the Control Regulation which requires the establishment of a sampling plan aimed at verifying that the tonnage stated on the fishing licence is in accordance with the actual tonnage of the vessel (article 38),

As MS are required to determine if their fleets are in balance with their fishing opportunities, there is an implied requirement to define fishing opportunities, i.e. removals (both catch and landings), TAC uptake and how accurately these are recorded. In the context of monitoring removals this implies checking the number and success rate of MS catch inspection systems. This brings out other aspects to be checked:-

- Numbers of inspections and numbers of instances when non compliance is detected.
- Effort monitoring – accuracy and effectiveness of effort monitoring systems.
- Effectiveness and accuracy of monitoring of landings
- Effective monitoring of catches (including elements which are discarded, slipped or high-graded) and where discard and/or high-grading bans are in place, compliance with these bans.

This list is not exhaustive but is intended to draw attention to the current, rather limited, aspects in which fleet policy and balance is considered. To conclude, MS should consider the full range of monitoring and compliance inspections needed, their efficiency and success and the resulting errors in the system when drawing up a report on strengths and weaknesses of fleet policy instruments.

MS should consider all the above aspects and make plans for improvement of any areas where problems of balance or non-compliance are identified.

EWG 11-10 recommends that MS should use a broader definition of fleet management systems when reporting on planned system improvements.

#### *4.7.4. Specific comments on Member States annual reports*

Experts at STECF EWG 11-10 made some comments on each MS report which may be helpful to those preparing the reports next year.

#### **Belgium**

This report included some unnecessary details, such as the names and registration numbers of every vessel that exited the fleet, where a summary of these exits would be sufficient. The link between the entire Belgium fleet and the fisheries is described in the report. This could be improved by describing this link for each fleet segment. Furthermore, the report can be improved by describing the development of number of vessel/GT/KW etc. of each fleet segment and not only for the entire fleet. Belgium has provided a table that shows the compliance with entry exit schemes, but a short interpretation of the table would be appreciated.

#### **Bulgaria**

Bulgaria has delivered an annex that gives a detailed overview of the fleets however some explanation of the annex contents would be appreciated, for example is it unclear what is meant by “percentage of fishing gear”. Bulgaria has provided a table that shows the reduction in effort, but some explanation of the effort reduction schemes and a brief statement of the country has complied with the effort reduction schemes would improve the report. The section of strength and weaknesses of the fleet management system is a little unclear and could be elaborated. Also, it would be appreciated if all text is written in English (see section 3.2.2).

#### **Cyprus**

Cyprus does not provide details of compliance with fleet policy.

#### **Denmark**

Denmark improved the structure of the report by presenting information in the order of the required minimum elements as listed in the regulation (see page 23 of SG-BRE report 10-01); sections which were missing in 2009 were included in 2010. In section E (information on changes of the administrative procedures relevant to fleet management) no clear details are given with regards to 2010.

#### **Estonia**

Estonia could improve on the structure of the report by presenting information in line with the required minimum elements as listed in the regulation (see page 23 of SG-BRE report 10-01). Estonia compares the fishing capacity of the Estonian fleet as a whole at 31.12.2010 compared to 01.05.2004, but no detailed report of the development of the different fleet segments is given. Estonia fails to give a detailed description of effort reduction schemes. Estonia fails to take into account the criticisms of the 2009 report made by SG-BRE 10-01; the group noted no overall improvement.

Estonia included a section on the balance between fishing opportunities and fishing capacity (section 3.4). In this section reference is made to an assessment on the capacity of the different segments of the Estonian fishing fleet on the basis of several indicators, including those suggested by the Commission (biological and technical indicators) based on 2007 data. However there is no attempt to assess the 2010 balance between capacity and opportunity based on the indicators presented in the report.

#### **Finland**

Finland has made a detailed report with a good overview.

### **France**

While some of the indicators suggested are calculated, the structure of the report is non-standard and difficult to follow. It would be helpful to present the information in accordance with the headings and guidance provided. The table of TAC uptake is presented as TAC and catches but seems to refer to TACs and landings. France indicated that catches (landings) were often below TACs, but made no indication of effort deployment, without such information conclusions of balance in capacity are not meaningful.

### **Germany**

The report expresses concern that some of the data required to assess biological indicators is not available. While it is the case that the assessments of the state of the stocks at the end of the reporting year are not necessarily available in April, state of stock at the start of the year being reported on is available and this data from ICES could easily be used for assessed stocks. The report indicated that no effort schemes are in operation, however German fleets are subject to effort restrictions in cod fisheries in both Baltic and North Sea. Germany approached DG MARE during the 2010/11 year regarding effort in the Baltic fisheries. Germany's experience with effort regimes would have made a valuable contribution to the capacity and effort debate. Germany had data on fleet effort uptake and could have presented this in the report. Germany had a heading for element 1.d.ii which requires a plan for improvement and stated that they did not need a plan. The experts appreciate the clarity of this heading and statement, however, since the regulation requires an improvement plan, the report scored zero for presence (inclusion) of the required element.

### **Greece**

Greece has provided a clear report. It is recommended to expand the Table under "general description of the fishing fleet" to include information of previous years.

### **Ireland**

Ireland has provided good fleet segment descriptions but failed to link these with the species in these fisheries. The analysis of changes was only presented for totals, not by fleet. No attempt was made to present or discuss the state of balance in capacity and fishing opportunities in Ireland

### **Italy**

Statements on effort reduction schemes only present eventual targets to be achieved by 2015 but there is no concrete information on progress being made and reductions achieved in 2010 compared to previous years. There is no mention of plans for improvements in the fleet management system

Italy could improve on the structure of the report by presenting information in line with the required minimum elements as listed in the regulation (see page 23 of SG-BRE report 10-01)

### **Latvia**

Despite providing a detailed description of the strengths and weaknesses in its fleet management system, the only comment on plans for improvements in the fleet management systems was that work related to the country's Integrated Control and Information System (ICIS), which was established in 2003, is ongoing. More details on plans for improvements and / or ongoing work would be welcomed in the future.

Despite a comment on the fact that the Latvian fishing fleet's capacity adjustment plan takes into account the scientific prognosis of fish stock development as well as the expected economic performance of the fishing fleet in the future, no attempt was made to draw conclusions on whether the 2010 indicators submitted showed an overall balance between capacity and opportunity.

## **Lithuania**

The description of the fleet lacks information of the type of gear used by the segments. Where the development in the fleet is compared with the previous year, a comparison with previous year's data would be more informative. Lithuania includes a table that shows compliance with the entry-exit schemes, however some comment on the contents of the table would improve readability. An overall judgement of the balance between fleet capacity and fishing opportunities is missing.

## **Malta**

Although capacity balance is mentioned in places in the document, the calculated indicators are not discussed in this context; a paragraph discussing this would be very useful.

## **Netherlands**

A detailed account of effort reduction schemes was given, however the impact on fishing capacity was not clearly described.

## **Poland**

The report from Poland included estimation of indicators but there was no overall conclusion drawn about the overall balance between fleet capacity and fishing opportunity. Last year, the expert group made a somewhat generous interpretation of Poland's compliance with this element of the scoring system, but this year we are being more consistently strict about not giving marks for inclusion of the overall assessment if such an assessment is not clearly stated in the MS report. Therefore this year, Poland was not awarded points for this element.

## **Portugal**

Portugal reports information in line with the structure of the required minimum elements as listed in the regulation, making the report easy to review and interpret. Although Portugal included a conclusion section, a detailed and concrete assessment of the balance between capacity and opportunity for 2010 is lacking.

## **Romania**

Romania gives a good description of the fleet including useful context information from outside the fleet itself, such as import trends affecting the market of species targeted by the fleet.

## **Slovenia**

International aspects that may influence the fleet management system are not mentioned in the report. Disagreement with STECF regarding proposed management measures are mentioned but not explained.

## **Spain**

Spain has presented a long description of the fleet, but despite that, little information of the Spanish activity in the EU area is presented. Furthermore, the link between fishing fleets and fisheries is not fully described and the development in fleets is mostly described in terms of sea days and/or catches and not the fleet number or GT/kW. The first Table under section 2 is not clear and should be elaborated with explaining text. Spain states that the only biological indicator possible to calculate is catch per unit of effort. Some comments on the difficulties of calculating the relationship between  $F$  and  $F_{\text{target}}$  would be appreciated. Spain discusses the difficulties of assessing the technical indicators, which is appreciated. An attempt to judge the balance between fishing capacity and fishing opportunities is lacking.

## **Sweden**

Sweden provided a clear and well presented report. However, in order to state if the country has complied with the entry-exit scheme, the current GT/kW should have been compared with the GT/kW on the 1st of January 2003. This was not done. More information of improvements of management systems and information of the level of compliance with fleet policy instruments would improve the report.

#### *4.7.5. Ideal information under each required element of the MS reports*

Many MS could make substantial improvements to the completeness and usefulness of their report if they would structure their report in line with the required minimum elements as listed in the regulation. Some MS did do this and it made the job of the working group very much easier when the report headings matched the text of the required elements in Article 13 of Regulation 1438/2003.

If this group of experts is asked to carry out this evaluation again, we would be minded to award points for adhering to this structure and not award points to any content which is not under a clear heading, preferably the headings given below. We no longer feel inclined to search through an entire MS report looking for content that might just fulfil the required elements.

Specifically, we suggest that the MS reports should be structured as shown in Table 4.8.

<b>1. Summary</b> of report
<b>2. Statement</b> of MS opinion on balance of fleet capacity and fishing opportunity
<b>3. Section A</b>
i) Description of fleets
ii) Link with fisheries
iii) Development in fleets
<b>4. Section B</b>
i) statement of effort reduction schemes
ii) impact on fishing capacity of effort reduction schemes
<b>5. Section C</b>
Statement of compliance with entry / exit scheme and with level of reference
<b>6. Section D</b>
i) Summary of weaknesses & strengths of fleet management system
ii) plan for improvements in fleet management system
iii) information on general level of compliance with fleet policy instruments
<b>7. Section E</b>
Information on changes of the administrative procedures relevant to fleet management
<b>8. Section F</b>
Estimation and discussion of balance indicators
i) Technical indicator(s)
ii) Biological indicators
iii) Economic indicators
iv) Social indicators

**Table 4.8** Suggested structure of MS annual reports

### **Summary of report**

The summary page of MS reports should be as per the proposed summary page contained in the report of SGBRE 09-01, which was endorsed by STECF plenary and by the Commission.

## Statement of opinion on balance of fleet capacity with fishing opportunity

It is very helpful if each MS gives a clear opinion or verdict on whether, overall, there is balance between fleet capacity and fishing opportunity. We looked for MS reports to include a clear statement on how the MS assesses the balance between fleet capacity and opportunity. Opinions on balance should clearly relate to and be supported by the evidence presented. There were some MS reports that presented an opinion which bore little resemblance to the picture presented by their data and evidence.

An acceptable statement could be along the lines of this: *Based on the overview of the four balance indicators the fishing capacity of the fleet of this MS is approximately in balance with the fishing opportunity in 2010.* For some MS, it might be appropriate to make such a statement for a number of major fleet segments or sectors.

We recommend that MS choose from, for instance, five possible opinions on a scale from seriously over capacity, through in balance, to seriously under capacity. A suggested range is presented below.

1 Capacity is **substantially in excess** of opportunity – means that the fleet is capable of catching (at reference year catch rates) far in excess of the permitted opportunity, or that the level of production could have been achieved with substantially less physical capacity.

2 Capacity is **somewhat in excess** of opportunity – means that the fleet is capable of catching more than the permitted opportunity

3 Capacity is **approximately in balance** with the fishing opportunity. There is either little unused capacity or little unused opportunity

4 Capacity is **somewhat below** the fishing opportunity – means that there is some unused opportunity due to lack of catching capacity, which is therefore not delivering possible economic and social benefits to the MS.

5 Capacity is **substantially below** the fishing opportunity – means that there is a substantial amount of the fishing opportunity that is not taken up due to lack of fleet capacity, and there are substantial social and economic benefits that are not being realised by the MS.

### 4.8. ToR 1.d. Evaluate MS application of Guidelines on balance indicators

The balance indicators estimated in MS reports were reviewed and evaluated using the scoring system devised during SGBRE 10-01. If any indicator in a category (Technical, Biological, Economic, Social) was presented, that indicator was awarded one point for being present. The maximum score for completing the minimum recommended indicators is therefore four points. If a MS included extra indicators over and above the minimum recommended of one per category, this was noted in the score table but not awarded a numerical score.

The existing Guidelines on completing balance indicators recommend completing the technical indicator, one biological, one economic and one social indicator. There is a stated preference for the first indicator in each category, with second or third indicators regarded as less satisfactory but acceptable if data are not available for the first indicator.

Table 4.9 shows scores per MS for presenting the indicators. Detailed scores are shown in subsequent tables for each type of indicator. Detailed evaluation was carried out by experts working in sub-groups of appropriate disciplines.

Member State	TECHNICAL	BIOLOGICAL 1	BIOLOGICAL 2	BIOLOGICAL 3	BIOLOGICAL Alt.	ECONOMIC 1	ECONOMIC 2	SOCIAL 1	SOCIAL 2	Total Score	No. of Extra Indicators	Full marks for min required indicators	% of full marks
Belgium	1	1				1		1		4		4	100%
Bulgaria	1	1		E		1	E	1	E	4	3	4	100%
Cyprus	1			1		1			1	4		4	100%
Denmark	1			1		1	E	1	E	4	2	4	100%
Estonia	1			1						2		4	50%
Finland										0		4	0
France					1					1		4	25%
Germany										0		4	0
Greece										0		4	0
Ireland										0		4	0
Italy	1			1		1	E	1	E	4	2	4	100%
Latvia	1	1				1	E	1	E	4	2	4	100%
Lithuania										0		4	0
Malta	1	1		E			1	1		4	1	4	100%
Netherlands	1	1				1	E	1	E	4	2	4	100%
Poland		1	E			1	E	1	E	3	3	4	75%
Portugal	1		1				1		1	4		4	100%
Romania										0		4	0
Slovenia	1			1		1	E	1	E	4	2	4	100%
Spain				1						1		4	25%
Sweden	1	1				1	E			3	1	4	75%

Table 4.9 Scores per Member State for completion of balance indicators. (E = extra)

Ten MS (Belgium, Bulgaria, Cyprus, Denmark, Italy, Latvia, Malta, Netherlands, Portugal and Sweden) met or exceeded the minimum requirements for the balance indicators as specified in the guidelines. This is an improvement on the previous year when there were eight MS presenting at least one of each type of indicator. Once again, several MS did not complete any balance indicators and some MS completed some of the indicators suggested. The Technical indicator and the first economic indicator were once again the most commonly completed indicators. 15 MS presented at least one biological indicator which is an improvement on the previous year when 11 MS presented at least one biological indicator.

Table 4.10 shows quality scores for MS for the guideline and alternative indicators. Belgium, Bulgaria, Denmark, Italy, Latvia, Lithuania, Malta, Netherland, Slovenia and Sweden all scored highly in terms of the quality of indicators. All indicators presented were evaluated.

Member State	TECHNICAL	BIOLOGICAL 1	BIOLOGICAL 2	BIOLOGICAL 3	BIOLOGICAL Alt.	ECONOMIC 1	ECONOMIC 2	SOCIAL 1	SOCIAL 2	TOTAL SCORE	Max score for minimum recommended indicators
Belgium	6	6.5				4		7		23.5	32
Bulgaria	8	6		7		6	6	6	7	46	32
Cyprus	6			8		5			4	23	32
Denmark	8			6		6	6	6	6	38	32
Estonia	4			6						10	32
Finland										0	32
France					5					5	32
Germany										0	32
Greece										0	32
Ireland										0	32
Italy	6			6		6	6	6	6	36	32
Latvia	8	7				4	6	7	7	39	32
Lithuania										0	32
Malta	7	7		7			6	6		33	32
Netherlands	3	3				4	3	3	4	20	32
Poland		5	4			7	7	7	7	37	32
Portugal	7		5.5				5		7	24.5	32
Romania										0	32
Slovenia	6			6		4	4	5	5	30	32
Spain				3						3	32
Sweden	5	8				6	6			25	32

**Table 4.10 Summary of quality scores for indicators per Member State**

In general, there was further improvement in presenting an overview and comparison between the different indicators (biological, technical, social and economic) that MS have estimated for their own fisheries.

#### 4.8.1. Evaluation of Technical Indicators

##### Technical Indicator Scoring System

The technical indicators included in MS reports were reviewed and evaluated against four criteria and given scores of 0, 1 or 2 for each of the criteria. Table 4.11 shows how scores were awarded for quality of technical indicators. The criteria for scoring points for accuracy were modified during this working group compared to last year's criteria, to bring them into line with the criteria for accuracy under other indicators. This has led to a few lower scores for accuracy in technical indicators between 2009 and 2010.

Score	
	<b>Completeness of indicator</b>
0	Incomplete i.e. indicator not calculated
1	Partially complete – included one of days at sea per vessel, GT or KW. Or, data was not 2010
2	Complete or almost complete – as per guidelines. Included two of days at sea per vessel, GT or kW, data was for 2010
	<b>Interpretation / useful / conclusion</b>
0	No interpretation, comment on ratio
1	Limited comment on meaning of ratio
2	Useful commentary on meaning of ration in relation to segment
	<b>Accurate – correct computation</b>
0	Calculation not present or completely inaccurate. <i>(definition updated since last year)</i>
1	Data presented. Partially correct computation. <i>(definition updated since last year)</i>
2	Presented days at sea and ratio. Calculation appeared accurate.
	<b>Fleet coverage</b>
0	No coverage of segments
1	0-74% of total fleet GT covered
2	75% or over of total fleet GT covered

**Table 4.11 Scoring system used for technical indicators**

Member State	Completeness	Interpretation / Conclusion	Accuracy	Fleet coverage	Total Score	Max Score
<b>Belgium</b>	1	2	1	2	6	8
<b>Bulgaria</b>	2	2	2	2	8	8
<b>Cyprus</b>	1	1	2	2	6	8
<b>Denmark</b>	2	2	2	2	8	8
<b>Estonia</b>	1	1	0	2	4	8
Finland					0	8
France					0	8
Germany					0	8
Greece					0	8
Ireland					0	8
<b>Italy</b>	2	0	2	2	6	8
<b>Latvia</b>	2	2	2	2	8	8
Lithuania					0	8
<b>Malta</b>	2	1	2	2	7	8
<b>Netherlands</b>	1	1	0	1	3	8
Poland					0	8
<b>Portugal</b>	1	2	2	2	7	8
Romania					0	8
<b>Slovenia</b>	2	1	2	1	6	8
Spain					0	8
<b>Sweden</b>	1	1	1	2	5	8

Table 4.12 shows the scores awarded to each MS for their application of technical indicators. The technical indicators from each MS are then evaluated individually and a short summary and comment are presented.

The technical balance indicator evaluated is:

**Capacity utilisation:** Ratio between the average number of days at sea per vessel and the maximum historical number of days at sea achieved by any vessel in that fleet segment. Gives a simple measure of potential capacity in a given fleet segment over time, and the utilisation of that potential capacity over time. Kilowatts (kW) and or Gross tonnage (GT) can be incorporated into the calculation to give a better assessment

Member State	Completeness	Interpretation / Conclusion	Accuracy	Fleet coverage	Total Score	Max Score
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<b>Belgium</b>	1	2	1	2	6	8
<b>Bulgaria</b>	2	2	2	2	8	8
<b>Cyprus</b>	1	1	2	2	6	8
<b>Denmark</b>	2	2	2	2	8	8
<b>Estonia</b>	1	1	0	2	4	8
Finland					0	8
France					0	8
Germany					0	8
Greece					0	8
Ireland					0	8
<b>Italy</b>	2	0	2	2	6	8
<b>Latvia</b>	2	2	2	2	8	8
Lithuania					0	8
<b>Malta</b>	2	1	2	2	7	8
<b>Netherlands</b>	1	1	0	1	3	8
Poland					0	8
<b>Portugal</b>	1	2	2	2	7	8
Romania					0	8
<b>Slovenia</b>	2	1	2	1	6	8
Spain					0	8
<b>Sweden</b>	1	1	1	2	5	8

**Table 4.12 Scores per Member State for quality of technical indicators**

### **Belgium**

Belgium presented the technical indicator for 2010, which covered 80% of the fleet by segment. The indicator was calculated for days at sea per vessel, but not for kW days or GT days. The conclusion interpreted the technical indicator but not in relation to the balance between fishing capacity and fishing opportunities.

### **Bulgaria**

Bulgaria provided technical indicators for 2010 covering all fleet segments. Days at sea per vessel, kW days and GT days were all calculated. The indicators were interpreted using a traffic light approach. Bulgaria concluded their fleet had a good balance between fishing capacity and fishing opportunities. Overall, Bulgaria provides a very good example of how technical indicators should be reported and concluded.

### **Cyprus**

No technical indicator was provided for 2010. Instead, Cyprus presented technical indicators for days at sea per vessel, kW days and GT days for 2009, for all licensed vessels. The conclusion gave a limited interpretation of the results.

#### **Denmark**

Denmark reported the technical indicator for 2010. The ratio was calculated for days at sea and kW days across the whole fleet. Figures used to calculate the ratio are in the annex and appear accurate. Denmark concluded by saying an increasing technical ratio is expected in the future.

#### **Estonia**

Estonia calculated the technical indicator for 2010. Estonia reported the technical ratio for the Estonian fleet in days at sea. However, the ratio was reported in the text, for clarity it would have been clearer if reported in a table format. Estonia did not present underlying data to support accurate ratio calculation. Estonia provided limited interpretation of the ratio.

#### **Finland**

No technical indicator was provided for 2010 according to the guidelines.

#### **France**

No technical indicator was provided.

#### **Germany**

No technical indicator was provided.

#### **Greece**

No technical indicator was provided.

#### **Ireland**

No technical indicator was provided.

#### **Italy**

Italy reported the technical indicator for 2010. The report provided the ratio for days at sea, kW and GT days. The ratio was interpreted clearly using a traffic light system. However, there were no conclusions drawn about the ratio.

#### **Latvia**

Latvia provided the technical indicator for 2010. The ratio was reported in days at sea and kW days. Latvia calculated the technical indicator for the whole Latvian fleet by fleet segment. Latvia interpreted their results using a traffic light system, an improvement on last year's conclusion.

#### **Lithuania**

No technical indicator was provided.

#### **Malta**

Malta provided the technical indicator for 2010. The ratio was calculated in days at sea, kW days and GT days for all licensed vessels but not broken down by fleet segment. Malta clearly presented the data to support the accurate calculation of ratios. The conclusion provided limited interpretation of the results, a traffic light system would have been useful.

#### **The Netherlands**

The Netherlands provided the technical indicator for 2010. However, the ratio was only calculated for the beam trawlers and not for pelagic freezer trawlers. No supporting data was presented on which to

judge the accuracy of the ratio. Whilst the conclusion indicates over capacity, interpretation of the results is limited.

### **Poland**

No technical indicator was provided.

### **Portugal**

Portugal provided the technical indicator for 2010. The ratio is only calculated in days at sea, nevertheless the technical ratio covers 86% of the mainland Portuguese fleet by segment. The ratios were discussed in the conclusion, however an interpretation of the balance between fishing capacity and opportunities is lacking. Overall, the presentation of ratios was of good quality.

### **Romania**

No technical indicator was provided.

### **Slovenia**

Slovenia provided the technical indicator for 2010. The ratio was calculated in days at sea and GT day and the calculations appeared accurate. The fleet coverage was good as the ratio was reported for individual Slovenian vessels by fleet segment. The ratios were discussed in the conclusion however there was no interpretation of the balance between fishing capacity and fishing opportunities.

### **Spain**

No technical indicator was provided.

### **Sweden**

Sweden provided the technical indicator for 2009 however the assessment year is not explicitly stated. The ratio is calculated in days at sea and kW days at sea. The ratios and underlying days are presented in the report, accordingly the calculations appear accurate. Complete fleet coverage was presented by fleet segment. The conclusion is somewhat limited, merely suggesting ratios of less than 0.7 imply structural overcapacity.

#### *4.8.2. Evaluation of Biological Indicators*

The biological indicators included in Member States' reports were reviewed and evaluated against four criteria and given scores of 0, 1 or 2 for each of the criteria. In general, those indicators presented were of fairly good quality. However, only seven MS calculated the preferred biological indicator. The experts appreciated the effort of these MS for presenting the more difficult indicator. Some MS gave reasons of incompatibility with non-quota management regimes and some mentioned that the Guidelines were not clear.

Table 4.13 shows how scores were awarded for quality of biological indicators.

Score	
	<b>Completeness of indicator by species</b>
0	When none of the biological indicators were present/calculated
1	Partially complete – when at least one year is calculated (either 2009 or 2010) for at least the main species in terms of catch composition
2	When biological indicator was present for at least 5 years (as cited in the guidelines) for at least the main species in terms of catch composition

	<b>Interpretation / useful / conclusion</b>
0	No interpretation and comments on indicator
1	Limited comments on meaning of indicator, little interpretation or conclusion
2	Meaningful and coherent comments on fleet segment, possible draw conclusion
	<b>Accurate – correct computation</b>
0	Data not present or completely inaccurate calculation
1	Partially correct computation of indicators
2	Fully correct computation of indicators
	<b>Fleet coverage</b>
0	<10% of the total fleet in number of boats
1	11-70% of total fleet in number of boats
2	>70% of total fleet in number of boats

**Table 4.13 Scoring system used for biological indicators**

In assessments to date of the biological indicators, quality of the indicator was scored on the degree of fleet coverage, based on a percentage of the number of vessels that contributed to the indicator. However, the experts feel that it is more appropriate to score biological indicators based on the percentage contribution that the stocks included in the estimate biological indicator make to overall landings. For future assessments of quality of biological indicators, we would propose to change the scoring of fleet coverage to scoring of stock coverage. The EWG has agreed to adopt the following scoring for future assessments:

score	<b>Stock Coverage</b>
0	Less than 50% of landings are from stocks included in the indicator
1	50 - 80% of landings are from stocks included in the indicator
2	>80% of the landings are from stocks included in the indicator

Table 4.14 shows the scores awarded to each Member States for their application of biological indicators. The biological indicators from each Member States are then evaluated individually and a short summary and comment are presented.

The three biological balance indicators evaluated are:

**1 Ratio between current and target fishing mortality.** This indicator accommodates differences between species in terms of sustainable exploitation rates. The  $F/F_t$  ratio is dimensionless and facilitates comparisons or combinations across species.

**2 Catch / Biomass Ratio.** It can be interpreted as a proxy for the exploitation rate.

**3 Catch per unit of effort (CPUE).** It can be interpreted as a relative index of stock abundance.

Some MS presented more than one biological indicator. The DCF requires that all MS should collect catch and effort data and therefore MS could present at least CPUE trends together with one or all biological indicators.

Following Commission Guidelines for biological indicators, it is desirable to have a 5 year time series as it contributes to robust results. But if a MS cannot provide a 5 year time series because they are new members of the EU or because there has been no assessment for one stock, we have not penalised them for using shorter time series.

Member State	Indicator	Completeness	Interpretation / Conclusion	Accuracy	Fleet coverage	Total score	Max Score
<b>Belgium</b>	B1	2	2	1	1.5	6.5	8
<b>Bulgaria</b>	B1	2	1	1	2	6	8
<b>Bulgaria</b>	B3	2	1	2	2	7	9
<b>Cyprus</b>	B3	2	2	2	2	8	8
<b>Denmark</b>	B3	1	1	2	2	6	8
<b>Estonia</b>	B3	1	1	2	2	6	8
<b>France</b>	B alt.	1	1	2	1	5	8
Finland						0	8
Germany						0	8
Greece						0	8
Ireland						0	8
<b>Italy</b>	B3	2	2	1	1	6	8
<b>Latvia</b>	B1	1	2	2	2	0	8
Lithuania						0	8
<b>Malta</b>	B1	2	2	2	1	7	8
<b>Malta</b>	B3	2	1	2	2	7	8
<b>Netherlands</b>	B1	1	1	0	1	3	8
<b>Poland</b>	B1	1	2	0	2	0	8
<b>Poland</b>	B2	1	2	0	1	4	8
<b>Portugal</b>	B2	1.5	1	2	1	5.5	8
Romania						0	8
<b>Slovenia</b>	B3	2	0	2	2	6	8
<b>Spain</b>	B3	1	0	2	0	3	8
<b>Sweden</b>	B1	2	2	2	2	8	8

**Table 4.14 Scores per Member State for quality of biological indicators**

### General comments on approaches

Some detail on estimation of B1 indicator was missing (from Sweden) but the detail had been supplied in their report relating to 2009 and noted as not necessary this time.

MS should provide a table of total catch or catch by species by fleet segment. If catch data are not available, landings data may be used.

#### For Indicator B1

- Provide basis and value of F target by species/stock
- Provide information to show that F and F target are rescaled to fleet segment
- It should be reinforced that target values should be based on MSY values

#### For Indicator B2

- It is preferable to define biomass as SSB, however if the fisheries predominantly consist of juveniles then total biomass should be used. In either case the basis should be stated.
- Where possible SSB should be partitioned relative to national TAC allocation where available.

#### For Indicator B3

- CPUE should be calculated by species – provide a table of effort and catch (CPUE) by species.

### **Comments on biological indicators by country**

#### **France**

- France proposed an alternative biological indicator (Catches 2010 / Final 2010 quota). The group agreed that this ratio was only suitable as indicator of current status of exploitation by stock and in some cases (such as single species fisheries) could be used in order to provide information about the balance between fishing capacity and fishing opportunity. This ratio is not an indicator of balance between fleet capacity and fishing opportunity.
- Biological indicator should be given for all the time series available and not only for the reference year.
- The biological indicator should be calculated by stock and fleet segment. It is not possible to split the information presented in table 3.4 into different fleets.
- The conclusions drawn are based on the TAC uptake table and do not appear to be consistent with the table (3.4?). (This table is presented as catches but the data may be landings, the MS should check this)

#### **Slovenia**

- The biological indicators, catch per unit of effort (CPUE), were calculated for 6 years, which fully complies with the guidelines.
- In Slovenia, sardine and anchovy data are collected as part of the national data collection program. The main problem for regular stock assessment of these two small pelagic species in Slovenia is the fact that these are shared stocks between Italy, Croatia and Slovenia. At the moment, only Slovenian data on catches, landings and effort are available. Any actions that may be considered to improve balance between fleet capacity and fishing opportunity should take into consideration what occurs in the fisheries of other countries that share the resources. It is important to note that such stocks are not managed on a quota basis. In non-quota situations it may also be necessary to consider what other countries are doing when judging status of balance.
- Slovenia might benefit from working together with Italy and Croatia to develop a joint approach to assessing balance.

#### **Cyprus**

- The biological indicator (catch per unit of effort (CPUE)) was calculated using a 10 year time series for the small scale inshore and trawl fisheries and 4 years for drifting long-liners, which fully complies with the guidelines.

### **Germany**

- The biological indicators are not reported.
- The MS explains again their disagreement about the usefulness of all three biological indicators.
- The MS indicates it is difficult to calculate the main biological indicator, however the EWG suggests that it is possible to calculate a 5 year series for the most important stocks. Indeed some other MS have calculated 5 year time series for the most important stocks in the Baltic and North Sea.

### **Malta**

- Two indicators (F/Ft and CPUE) were provided. Due to lack of analytic assessment the F/Ft was only used in respect of demersal resources (Pink Shrimp, Giant Red Shrimp, Hake), which represent a minor portion of the Maltese total landings. CPUE were used for the most important species and divided by fleet segment.
- Six years detailed time data series were used for CPUE trend evaluations, but limited comments on the interpretation of the indicator are present.
- Several Maltese resources are shared with other countries and any consideration aimed at getting the desired equilibrium between resources and capacity have to consider the current removals due to the other countries as well as their management decisions. In this case, two countries (Tunisia and Libya) are not part of the EU.

### **Ireland**

- The biological indicators were not reported.

### **Romania**

- The biological indicators were not reported.

### **Estonia**

- The biological indicator was not calculated by stock. Information provided for CPUE trend should be to be for at least of 5 years if available. CPUE biological indicator data has been calculated based on data from those fishing vessels in 4S1 and 4S3 segments that performed fishing operations in 2007 – 2010.

### **Denmark**

- It would have been possible for Denmark to provide estimates of the B1 indicator in addition to the B2 indicator (ratio between current catch weight of a species per fleet segment and the estimated biomass of the stock).
- The biological indicator, catch per unit of effort (CPUE), was calculated for 6 years, which fully complies with the guidelines.
- MS analysed two valuable species (cod and plaice) for all fleet segments with significant catches, by main fishing area. The number of species should be extended to cover other demersal species, Nephrops, industrial and pelagic fisheries.

### **Latvia**

- Reference points for the target fishing mortality  $F_t$  were stated as  $F_{pa}$  (precautionary approach fishing mortality) for all species, however, it seems that MSY values were correctly used for cod. The MS should check what was used for all species and correct the entries accordingly.
- The biological indicator B1 was calculated for three main segments of the Latvian fishing fleet in two regions of the Baltic Sea, where Latvian fishing vessels operate the whole year round and four fish stocks exploited by the Latvian fishing fleet were considered. The biological indicator was not provided for high seas fisheries.

#### **The Netherlands**

- MS should calculate the indicator for all the fleet segments and main species.
- The biological indicator B1 was calculated only for one year (2008) and for beam trawl fisheries there is a need to provide information for 5 years and for the pelagic sector, where stock assessments are available.

#### **Poland**

- The biological indicators B1 and B2 are given only for reference year 2008.
- The report tables presented results of biological indicators B1 and B2 without computation.
- Indicators were calculated for all fleet segments and all Baltic Sea fish stocks.

#### **Portugal**

- Coverage by species ignores horse mackerel which is more important than hake by tonnage and probably value.
- B2 Biomass indicator for sardine is less informative than the B1 ( $F/F_t$ ) which would be available as stock assessment is available but  $F_{msy}$  not defined.
- Conclusions are not drawn from indicators presented.

#### **Italy**

- For the CPUE calculation the unit of effort unclear
- Assume landings of all species but not presented by species
- Estimate of total fleet coverage of effort and landings need to be provided.
- Mixed passive gear is missing from the analysis
- Some stock assessments are available (eg. hake, mullet, shrimp, sardine, anchovy) and could be used to give B2 or possibly B1 indicators

#### **Bulgaria**

- The B1 indicator appears to be incorrectly calculated as the national  $F_t$  is not scaled to fleet but the  $F$  by fleet is scaled by catch/total catch or TAC
- For fleet coverage we have no indication of the number of vessels though the report suggests a high % coverage of catches.
- Biological conclusions not well founded, B1 calculations may be in error and CPUE rather noisy and no reference level can be set.

#### **Belgium**

- For B1 indicators the target values appear to be  $F_{pa}$  values and should be management plan targets or  $F_{msy}$  values.  $F$  and  $F_t$  for fleet segments have not been scaled by catch proportions

#### **Greece**

- The biological indicators were not reported.

#### **Sweden**

- In 2009 the group suggested to Sweden that the level of detail presented was not required, however, with hindsight, the table presented in Sweden's 2009 report as an annex, giving calculations and reference  $F_s$  by stock, was a useful table giving clear evidence of methodology and reference values. If this could be included in future reports the EWG would be grateful, and the experts apologise to the Swedish authors for this change in advice.

#### **Lithuania**

- The biological indicators were not reported.

#### **Spain**

- Completeness was allocated 1 point but the proportion of the Spanish fisheries covered was very small and omitted all of the EU waters fleets except for some limited tuna, swordfish and shark fisheries
- Spain claims that the CPUE indicator B3 is the only indicator that can be calculated. This assertion is incorrect. DCF data and analytical assessments are available for a number of exploited species so indicators can be calculated.

#### **Finland**

- The biological indicators were not reported.

#### *4.8.3. Evaluation of Economic Indicators*

The economic indicators included in Member States' reports were reviewed and evaluated against four criteria and given scores of 0, 1 or 2 for each of the criteria. Table 4.15 shows how scores were awarded for quality of economic indicators.

The criteria for scoring points for accuracy (correct computation) were modified this year, to be consistent with the criteria for accuracy under other indicators. The updated score system means that a country is not awarded points for accuracy if they have not provided the data and calculation for the indicator. We are aware that this is not consistent with the previous two years' assessment of the accuracy element of the quality score for the economic indicator. This inconsistency resulted in a lower awarded score for some MS 2010 reports even though the presentation was the same as in previous years.

We recommend that MS present the format for the Return on Investment (ROI) and Current Revenues / Break Even Revenue (CR/BER) as presented in the "Guidelines for an improved analysis of the balance between fishing capacity and fishing opportunities". This should be done in a separate table for each of the presented years.

There was very little change since the 2009 reports in terms of submission of economic indicators in the 2010 reports. Most MS which previously did not present economic indicators also did not include them in their 2010 reports. Poland was an exception, presenting the both economic indicators in their 2010 report.

Overall quality of the economic indicators was judged to be fair to good. However, for some MS that only presented the economic indicators without detail of the components of the calculation it is difficult to assess the accuracy of the indicator. It would be useful if MS would provide a breakdown of the data used and the components of the indicators.

Score	
	<b>Completeness of indicator</b>
0	Incomplete i.e. indicator not calculated
1	The indicator is only calculated for one year
2	The indicator is completely calculated for three years or more
	<b>Interpretation / useful / conclusion</b>
0	No comments or interpretation of indicator
1	Limited comments and interpretation of indicator
2	Useful comments and interpretation of indicator
	<b>Accurate – correct computation</b> ( <i>definitions updated since last year</i> )
0	Calculation not presented or completely incorrect
1	Partially correct or uncertain accuracy of the calculation
2	Computation appears correct
	Fleet coverage
0	No coverage of segments
1	0-74% of total fleet GT is covered in the calculation of the economic indicator
2	75% or over of total fleet GT is covered in the calculation of the economic indicator

**Table 4.15 Scoring system used for economic indicators**

Table 4.16 shows the quality scores awarded to each MS for their application of economic indicators. The economic indicators from each MS are then evaluated individually and a short summary and comment are presented.

The two economic balance indicators evaluated are:

**1 Return on Investment (ROI):**  $ROI = (\text{Net profit} + \text{Opportunity cost of capital}) / \text{Investment}$ . ROI measures investment profitability and can identify under or over capitalisation in the medium to long term.

- The greater the ROI, the more profitable the investment
- Low or negative ROI may indicate over capitalisation

**2 Ratio between current revenue (CR) and break even revenue (BER)** where  $BER = \text{Fixed Costs} / (\text{Cash Flow} / \text{Revenue})$ . Indicates economic sustainability in the short-run.

- When  $(CR/BER) < 0$ , cash flow is negative and fishery unviable in the short-run
- When  $(CR/BER) < 1$ , cash flow does not cover fixed costs, indicating an unviable fishery
- When  $(CR/BER) > 1$ , cash flow is equal to or greater than fixed costs, indicating a viable fishery

Member State	Indicator	Completeness	Interpretation / Conclusion	Accuracy	Fleet coverage	Total score	Max Score
<b>Belgium</b>	E1	2	0	0*	2	4	8
<b>Bulgaria</b>	E1	2	1	1	2	6	8
<b>Bulgaria</b>	E2	2	1	1	2	6	8
<b>Cyprus</b>	E1	2	1	1	1	5	8
<b>Denmark</b>	E1	2	2	0*	2	6	8
<b>Denmark</b>	E2	2	2	0*	2	6	8
Estonia						0	8
Finland						0	8
France						0	8
Germany						0	8
Greece						0	8
Ireland						0	8
<b>Italy</b>	E1	2	2	0*	2	6	8
<b>Italy</b>	E2	2	2	0*	2	6	8
<b>Latvia</b>	E1	1	1	0*	2	4	8
<b>Latvia</b>	E2	2	2	0*	2	6	9
Lithuania						0	8
<b>Malta</b>	E2	2	2	0*	2	6	8
<b>Netherlands</b>	E1	1	1	0*	2	4	8
<b>Netherlands</b>	E2	1	0	0*	2	3	8
<b>Poland</b>	E1	1	2	2	2	7	8
<b>Poland</b>	E2	1	2	2	2	7	8
<b>Portugal</b>	E2	1	1	1	2	5	8
Romania						0	8
<b>Slovenia</b>	E1	1	1	0*	2	4	8
<b>Slovenia</b>	E2	1	1	0*	2	4	8

Spain						0	8
Sweden	E1	1	1	2	2	6	8
Sweden	E2	1	1	2	2	6	8

**Table 4.16 Scores per Member State for quality of economic indicators**

\*Member State reports which did not present the raw data and calculations could not be assessed for accuracy of computation, therefore they were awarded 0 for this element of the quality score.

### **Belgium**

The report shows ROI in a table, but the CR/BER is not calculated. It was not possible to state whether the computation is correct because it was not clear whether the opportunity costs were deducted from profit. It would have been useful to present the gross tonnage for each fleet segment in order to determine the fleet coverage, but based on the value of landings it was considered that the Belgian indicators covered the most of the fleet.

### **Bulgaria**

The report presents ROI and CR/BER in a table. The interpretation for the ROI indicator was reported, but the calculation was incorrect since they did not subtract the opportunity costs from the profit (this was also wrongly calculated last year by Bulgaria). Insufficient interpretation of the indicators is provided.

### **Cyprus**

The report presents ROI. However, the indicator is believed to be incorrect, since the opportunity cost of capital can not be higher than the total invested capital. A possible explanation for this could be that Cyprus has used the investments for 2010 in the calculation of ROI and not the value of total investments.

### **Denmark**

The report presents both ROI and CR/BR indicators. The report (economic indicators) is still a good example to all other MS to follow, but it should include the calculations for the indicators.

### **Estonia**

No economic indicators reported.

### **Finland**

No economic indicators reported.

### **Germany**

No economic indicators reported.

### **Greece**

No economic indicators reported.

### **Ireland**

No economic indicators reported.

### **Italy**

The report presents ROI and CR/BER. However, the report could be improved by expanding the calculations and by following the guidelines more closely. Good comments and interpretation are provided.

### **Lithuania**

No economic indicators reported.

### **Malta**

The report calculates CR/BER, but not ROI. There are plans to improve the data so that ROI can be calculated in the future. The calculations are not presented. The report makes good comments and interpretation of the figures for CR/BER.

**Netherlands**

The report presents CR/BER for 2 years (2008 and 2009) only for one segment and ROI for one year (2009). The interpretation for ROI was only provided for one segment namely the beam trawl segment. No interpretation was provided for the CR/BER indicator. The calculations are not presented.

**Poland**

The report presents both CR/BER and ROI but only for one year (2008). Interpretations of the indicators are satisfactory and the calculations are accurate.

**Portugal**

The report presents CR/BER, but not ROI. The fleet coverage has improved from the previous report. Calculations are considered to be good, however, attention should be paid to particular components of the given formula. More elaboration on the interpretation of the balance indicator would be helpful.

**Spain**

No economic indicators reported.

**Slovenia**

Slovenia has calculated both ROI and CR/BER only for one year. The ROI for the pelagic trawl 24-40m segment is not present and no explanation is given. The interpretation could include some explanation of the results. It is uncertain whether the computation for the indicators is correct as the calculations were not provided.

**Sweden**

The report presents both CR/BER and ROI but only for one year (2009). The interpretation could include some explanation of the results, nevertheless the calculations are accurate.

*4.8.4. Evaluation of Social Indicators*

**Social indicator scoring system**

The social indicators included in Member States’ reports were reviewed and evaluated against four criteria and given scores of 0, 1 or 2 for each of the criteria. Table 4.17 shows how scores were awarded for quality of social indicators. The criteria for scoring points for accuracy were modified this year, to come into line with the criteria for accuracy in place for other indicators. This led to some lack of consistency in scoring for accuracy in social indicators between 2009 and 2010.

Score	
	<b>Completeness of indicator</b>
0	Incomplete – year of indicator not referenced or incorrect year reported
1	At least one year (either 2007, 2008, 2009 or 2010)
2	Required time series of three years (2007-2009 or 2010 if possible)
	<b>Useful / quality of presentation / interpretation or conclusion</b>

0	No useful information or useful interpretation/conclusion of indicators
1	Limited usefulness of information, very little interpretation or conclusion
2	Good information and/or interpretation / conclusions drawn
	<b>Accurate – correct computation</b> ( <i>definitions updated since last year</i> )
0	Data not presented or completely inaccurate computation of indicators
1	Partially correct computation of indicators
2	Correct computation of indicators
	<b>Fleet coverage</b>
0	for <20% of total fleet GT coverage
1	for 21%-50% of total fleet GT coverage
2	for >50% of total fleet GT coverage

**Table 4.17 Scoring system used for social indicators**

In addition to the fleet coverage calculated on the basis of the total GT (which is not always clearly outlined in MS reports), the fleet coverage in terms of the number of employed crew could be used. We believe that the latter is an appropriate measure for fleet coverage as it is directly related to the social aspect in terms of employment.

Member State	Indicator	Completeness	Interpretation / Conclusion	Accuracy	Fleet coverage	Total score	Max Score
<b>Belgium</b>	S1	2	1	2	2	7	8
<b>Bulgaria</b>	S1	2	1	1	2	6	8
<b>Bulgaria</b>	S2	2	1	2	2	7	8
<b>Cyprus</b>	S2	1	1	0	2	4	8
<b>Denmark</b>	S1	2	2	0*	2	6	8
<b>Denmark</b>	S2	2	2	0*	2	6	8
Estonia						0	8
Finland						0	8
Germany						0	8
Greece						0	8

Ireland						0	8
<b>Italy</b>	S1	2	2	0*	2	6	8
<b>Italy</b>	S2	2	2	0*	2	6	8
<b>Latvia</b>	S1	2	2	2	1	7	8
<b>Latvia</b>	S2	2	2	2	1	7	8
Lithuania						0	8
<b>Malta</b>	S1	2	2	0*	2	6	8
<b>Netherlands</b>	S1	1	0	0*	2	3	8
<b>Netherlands</b>	S2	1	1	0*	2	4	8
<b>Poland</b>	S1	1	2	2	2	7	8
<b>Poland</b>	S2	1	2	2	2	7	8
<b>Portugal</b>	S2	1	2	2	2	7	8
Romania						0	8
<b>Slovenia</b>	S1	1	2	0*	2	5	8
<b>Slovenia</b>	S2	1	2	0*	2	5	8
Spain						0	8
<b>Sweden</b>	S2	2	2	0*	2	6	8

Table 4.18 shows the scores awarded to each Member State for their application of social indicators. The social indicators for each Member State are then evaluated individually and a short summary and comment are presented.

The two social balance indicators evaluated are:

**Gross Value Added (GVA):** Where  $GVA = \text{Depreciation costs} + \text{Interest} + \text{Crew share} + \text{Net profit}$ . This indicator measures the sum of contributions from the factors of production and indicates if rents are extracted from the resource

**Crew wages per Full Time Equivalent (FTE):** Supplements GVA to facilitate an assessment of the remuneration of labour and can be compared with average and minimum wage rates in Member States.

Member State	Indicator	Completeness	Interpretation / Conclusion	Accuracy	Fleet coverage	Total score	Max Score
<b>Belgium</b>	S1	2	1	2	2	7	8
<b>Bulgaria</b>	S1	2	1	1	2	6	8
<b>Bulgaria</b>	S2	2	1	2	2	7	8
<b>Cyprus</b>	S2	1	1	0	2	4	8
<b>Denmark</b>	S1	2	2	0*	2	6	8
<b>Denmark</b>	S2	2	2	0*	2	6	8
Estonia						0	8
Finland						0	8
Germany						0	8
Greece						0	8
Ireland						0	8
<b>Italy</b>	S1	2	2	0*	2	6	8
<b>Italy</b>	S2	2	2	0*	2	6	8
<b>Latvia</b>	S1	2	2	2	1	7	8
<b>Latvia</b>	S2	2	2	2	1	7	8
Lithuania						0	8
<b>Malta</b>	S1	2	2	0*	2	6	8
<b>Netherlands</b>	S1	1	0	0*	2	3	8
<b>Netherlands</b>	S2	1	1	0*	2	4	8
<b>Poland</b>	S1	1	2	2	2	7	8
<b>Poland</b>	S2	1	2	2	2	7	8
<b>Portugal</b>	S2	1	2	2	2	7	8
Romania						0	8
<b>Slovenia</b>	S1	1	2	0*	2	5	8
<b>Slovenia</b>	S2	1	2	0*	2	5	8
Spain						0	8
<b>Sweden</b>	S2	2	2	0*	2	6	8

**Table 4.18 Scores per Member State for quality of social indicators**

\*MS reports which did not present the raw data and calculations could not be assessed for accuracy of computation, therefore they were awarded 0 for this element of the quality score. MS with a zero score but no asterisk were awarded 0 because their computation was judged to be inaccurate.

## **Belgium**

Belgium calculated the average share per full-time equivalent for 2003-2009 for two fleet segments (Beam Trawl 12-24m and Beam Trawl 24-40m). Belgium had a good time series for the S1 social indicator and it was estimated accurately for a very large proportion of the fleet. However, the report did not clearly state the percentage of GT attributed to the two main segments considered.

## **Bulgaria**

Bulgaria calculated both social indicators for the whole fleet segmented according to length. However, the number of FTE used to calculate the average wage per FTE indicator should not include the unpaid workers as stated in the report. Furthermore, the conclusions presented in the table according to the traffic light system do not state which social indicator the conclusions refer to.

## **Cyprus**

Cyprus calculated one social indicator namely the Gross Value Added (GVA). However, the calculation was incorrect because fixed costs were not included in the calculation.

## **Denmark**

Denmark reports a complete time series for both indicators including useful comments and conclusions; however, it was not possible to test if the calculations were accurate as the raw data were not presented.

## **Estonia**

No social indicators were reported.

## **Finland**

No social indicators were reported.

## **Germany**

No social indicators were reported. As in previous reports, Germany explains that the figures required to estimate the social indicators are not accessible for administrative reasons.

The Member State expresses its disagreement with regards to the application and interpretation of reference interest rates or the 'comparative wage' in terms of comparability.

## **Greece**

No social indicators were reported.

## **Ireland**

No social indicators were reported.

## **Italy**

Italy reports a complete time series for both indicators including useful comments and conclusions; however, it was not possible to test if the calculations were accurate as the raw data were not presented.

## **Latvia**

Latvia has calculated two social indicators for the Baltic Sea vessels and the coastal fishing vessels which represent less than 50% of the total fleet GT coverage.

## **Lithuania**

No social indicators were reported.

## **Malta**

Malta reports a complete time series for the average wage per FTE indicator including useful comments and conclusions; however, it was not possible to test if the calculations were accurate as the raw data were not presented.

### **Netherlands**

Netherlands reported both social indicators with a time series of two years. It was not possible to test if the calculations were accurate as the raw data were not presented. Additionally, the interpretation and the conclusion with regards to the Gross Value Added (GVA) indicator were only presented for one out of the two segments for which the indicator was calculated. No conclusions or interpretations were present for the 'Average wage per FTE' indicator for both segments.

### **Poland**

Poland presented two indicators for only one year (2008), however this is an improvement as last year Poland did not provide any social indicators.

### **Portugal**

Portugal presented one social indicator for two years (2008 and 2009).

### **Romania**

Although Romania presented a set of economic and transversal variables in the report, no social indicators were present.

### **Slovenia**

Slovenia reported both indicators only for the year 2009. It was not possible to test if the calculations were accurate as the raw data were not presented.

### **Spain**

No social indicators were reported.

### **Sweden**

Sweden reported one social indicator (GVA) for a time series of four years and has presented two additional indicators namely 'gross value added per full-time equivalent' and 'gross value added per vessel'. It was not possible to test if the calculations were accurate as the crew share (costs) data was missing from the set of raw data presented.

## **4.9. ToR 2. Evaluate Commission summaries of MS reports**

The working group felt that, as in previous years, the Commission's summaries of MS reports do not lend themselves to an easy and representative comparison of MS reports. They vary in length, order of information presented, accuracy of information presented and degree of detail included, thereby making a useful comparison of MS reports difficult.

Last year, SG-BRE 10-01 and STECF recommended a standardised and structured approach to these summaries so that the people who read them would have a better idea of the comparative merits of the MS reports and the MS efforts to achieve balance of fleet and opportunity. The summaries presented to STECF EWG 11-10 do not follow our suggested template. We understand that the inclusion of our score board tables in the report to Parliament and Council reduced the character count available for each MS summary; however, we had no difficulty in following our own template with a character count lower than that used by the Commission.

We conclude that the template we presented in our report SG-BRE 10-01 is still a good template, even if the character count available is reduced, and ought still to be followed. Any future evaluations of Commission summaries could simply say whether or not a standardised template was followed. In the

comments below we present an alternative summary of the German report using our own template, which we feel is more useful than the summary presented by the Commission.

#### *4.9.1. Comments on individual Commission summaries*

##### **Comments on summary of Belgium's report**

- The summary correctly states that the guidelines were applied only to the beam trawler segment.
- The commission does correctly state that the average biological indicator for both sole and plaice is below one for 2010. Where this is correct, the commission could have mentioned that the biological indicator value for plaice is around 0.5. The commission does not comment on the technical, economic or social balance indicators, nor do they comment on whether the Belgium fleet is in balance with fishing opportunities.
- The commission correctly states that 7 vessels were scrapped and two vessels were partly decommissioned.
- The commission does not describe the size of the fleet (main segments, no. of vessels, total GT, total kW).
- The commission does not mention whether there have been any major changes in stocks and/or fishing opportunities during the year.
- The commission correctly mention that there is a high quota utilisation for plaice for all areas, except are VIIa. They also mention that the reason for the low capacity utilisation was the result of increased quotas due to quota swapping. Here the Commission seems to confuse the term capacity utilisation with quota utilisation.
- The summary does not state whether there has been compliance with the entry-exit scheme, nor whether there has been any plans improvements in the fleet management system.

##### **Comments on summary of Bulgaria's report**

- The summary is relevant but it is concentrated on quantifying the number of active and inactive vessels in the fleet.
- The summary notes that the Bulgarian report does evaluate the current status of balance between capacity and fishing opportunities based on the technical indicator. The summary does not indicate whether balance is improving or worsening.
- The summary is correct in stating that the guidelines were applied to the main Bulgarian fleets.
- The summary does not comment on the quantification of the MS biological and economic balance indicators.
- The summary only quantifies vessel numbers, not GT or power although it does note that the number of days increased in the three segments from 2009.
- The summary does not mention explicitly that the MS complied with the entry/exit scheme.
- The summary does comment on proposals to introduce tighter controls for inactive or dormant capacity.

##### **Comments on the summary of Cyprus's report**

- The summary correctly states that the guidelines were adequately applied in the Cypriot report and reproduces the statement about the balance of two of the main segments, but there is no mention of the extent of balance in the polyvalent gears.
- The indicators are absent from the summary, although they are all present in the report.
- The summary correctly mentions the effort reduction schemes and the removals and additions to the fleet. The plans for improvement in the management system are also reflected in the summary.
- The summary makes no mention of the changes in stocks, size of the fleet or the compliance with entry-exit schemes.

#### **Comments on the summary of Finland's report**

- The Commission provides a good summary of the report.
- The summary succinctly presents the plans and efforts implemented by Finland to keep balanced between fisheries opportunities and fleet.
- The summary lacks a complete description of the size of the fleet.

#### **Comments on the summary of France's report**

- Summary correctly identifies that the report does not follow guidelines.
- The summary quotes the report conclusions (in terms of balance) but does not note the very poor support for that assertion
- The size of the fleet (number of vessels, GT kW) is not included and no mention is made that GT and kW are below reference

#### **Comments on the summary of Germany's report**

- The summary captures some of the key content of the report
- The summary fails to note that although the report does not follow the guidelines on balance indicators, the rest of the required elements are covered.

We suggest the following alternative summary, following the STECF recommended template, giving a shorter (817 characters including spaces) summary than the Commission's (1,094 characters).

The report commented on balance based on a qualitative biological approach and did not reach a formal conclusion on status. The balance indicators are not estimated. The qualitative approach suggests that fleets are broadly in balance with fishing opportunities but makes no reference to effort available and deployed. There were 1,674 vessels, 67,219 GT, and 158,385 kW in the fleet register on 31/12/10. There was a net reduction of 93 vessels during the year. Most of the reduction was achieved by vessel removal from small scale coastal fleets. The capacities of the over 12m passive gear segment and the beam trawl segment (lists I and II) were reduced mainly due to the poor condition of the herring stocks. Fleet GT and kW were below reference levels. No improvements in the fleet management system are planned.

#### **Comments on the summary of Greece's report**

- The summary correctly states that the Greek report did not apply the guidelines.
- The summary accurately reflects the Greek report and correctly states that fishing activities and the biological stock situation remain unchanged from the previous year. However, it omits some deficiencies in the reporting on fleet management system and the level of compliance with fleet policy instruments. Moreover, the summary should note that the report provides an evaluation of balance between capacity and fishing opportunities.

#### **Comments on the summary of Ireland's report**

- The summary reflects what is written in the Irish report and the comments are relevant.

- The summary reflects that guidelines were not applied in the Irish report.
- The summary does not describe size of the fleet and additions to and removals from the fleet.
- The summary does not mention that the report does not evaluate the current status of balance between capacity and fishing opportunities.

#### **Comments on the summary of Italy's report**

- The Commission summary starts by stating that guidelines were correctly applied by Italy, which is correct. However the Commission summary states that the only biological indicator used was CPUE, since no stock assessment is available for the Mediterranean stocks, except for Bluefin tuna. This is incorrect: stock assessments are available for a number of Mediterranean stocks. Only Bluefin tuna is managed by a quota system; other stocks in the Mediterranean follow an effort management scheme. Italy could not calculate the preferred biological indicator ratio between  $F_{estimated}$  and  $F_{target}$  ( $F/F_t$ ) because this indicator takes into account quotas allocated to Member States.
- Several points of the Commission summary make reference to 'values' and 'figures'. However there is no clear indication which the values and figures in question are.
- The Commission summary correctly mentions a decrease in the total Italian fishing capacity in 2010 compared to 2009. However the Commission summary fails to criticise that Italy only reports its statement of effort reduction schemes by fleet segment as planned reductions until 2015; no details on progress being made in 2010 is given.

#### **Comments on the summary of Latvia's report**

- The Commission summary of the balance indicators calculated by Latvia correctly reflects the details given in the Latvian national fishing fleet report for 2010.
- Although the Commission summary does not follow the suggested template for summaries of Member States' annual reports put forward by SGBRE 10-01, on the whole it conveys the information given in the Latvian report. A notable exception is a failure to mention major changes in the Latvian fleet management system which came into force as of 1st January 2010. The latter are mentioned in section 6 of the Latvian report.

#### **Comments on the summary of Lithuania's report**

- The summary is a fair reflection of the contents of the Lithuania report.
- The summary correctly states that the Lithuanian report does not apply the guidelines and does not provide an evaluation of balance between capacity and fishing opportunities.
- The summary should include that the report missed information on the general level of compliance with fleet policy instrument.

#### **Comments on the summary of Malta's report**

- The summary correctly states that the guidelines were adequately applied in the
- Maltese report and reproduces the statement about the balance of the fleet.
- The summary presents an excessive detailed coverage of the indicators, which are not required by the legislation.
- The Commission correctly states that during 2010, 8 fishing vessels stopped their fishing activities through the adjustment of fishing effort aid scheme. However, the summary does not describe the size of the fleet, the changes in the stocks and other relevant aspects of the report such as effort schemes, entry-exit regime compliance or plans for improvement.

### **Comments on the summary of the Netherlands' report**

- Overall the Commission summary for the Netherlands captures some of the key aspects of the Dutch report
- The Commission summary does not succinctly follow the suggested template for summaries of Member States' annual reports put forward by SGBRE 10-01. No mention is made of compliance with the entry / exit scheme during 2010 or the need to reduce the number of 'insoluble warnings' in collaboration with the Commission as stated in section 5 (information on changes to administrative procedures) of the Dutch report.
- The summary fails to highlight the absence of biological and technical indicators of pelagic freezer trawlers for 2010, or the reasons why these figures have been omitted from the Dutch report.

### **Comments on the summary of Portugal's report**

- The Commission summary correctly reflects the Portuguese annual report on the Portuguese fishing fleet 2010.
- Although the Commission summary roughly follows the suggested template for summaries of Member States' annual reports put forward by SGBRE 10-01, the Commission omits comments on (1) technical, economic and social balance indicators, (2) size of fleet, (3) changes in stock status, (4) the compliance with entry-exit schemes and (5) plans for improvement in fleet management system.
- A positive comment from the Commission on Portugal's efforts to improve the structure of its report could encourage the Member State to continue its good work in the future.

### **Comments on the summary of Romania's report**

- The summary provides an accurate synthesis of the Romanian report and correctly states that the guidelines have not been followed correctly? The conclusion drawn in the report about the absence of imbalance between fleet and stocks is also reproduced.
- However the summary fails to say on what basis the Romanian report reaches this conclusion, as it does not mention the indicators employed in the report.
- The summary accurately describes the total size of the fleet, the additions and removals from the fleet in 2010 and the existence of effort reduction schemes.
- The summary makes no mention of the changes in stocks, the compliance with entry-exit schemes or the plans for improvement in the management systems.

### **Comments on the summary of Slovenia's report**

- Generally the summary brings out the main points
- Reliance on CPUE trends to judge balance should be treated with more caution.
- Statement of the state of the fleet (N of vessels, GT, kW) is not provided
- No indication that Slovenia is in compliance with entry and exit rules.

### **Comments on the Summary of Spain's report**

- The summary reflects fairly well what is included in the Spanish report.
- The summary correctly states that the guidelines were not completely applied.

- The summary correctly states that there are no conclusions on the balance between fishing capacity and fishing opportunities.
- The summary omits that the report did not describe the strengths and weaknesses of the management system
- The summary omits that the report did not refer to a plan for improvement in fleet management system.

**Comments on the Summary of Sweden's report**

- The summary in general gives a fair view of the Swedish report.
- The summary correctly states that the guidelines were applied.

#### 4.10. ToR 3. Biological indicators of balance

ToR 3. Member States have encountered various difficulties in applying the biological indicators ratio of mortality rates and catch to biomass ratio. The most important problem is the lack of stock assessment that limits the applicability of these indicators.

a) Explore the possibility of using alternative biological indicators (other than catch per unit of effort) that could be implemented when no analytical stock assessment is available.

Several Member States have emphasised the need to take quota consumption into account when assessing the extent of fleet over-capacity however there are some concerns about the utility of quota consumption as an indicator of balance.

b) Consider if and how the rates of quota consumption, as well as the quota and effort allocation per vessel could be taken into account for the assessment of the balance between the fleet and the available fishing opportunities.

##### 4.10.1. ToR 3a Alternative Biological Indicators

The EWG discussed the purpose and functioning of a biological indicator of balance in order to focus on the type of information that would be most useful. Following this discussion, for stocks without full age-based assessment, data availability was classified into six major groups illustrated in a flow chart developed by ICES. Given this classification the group looked for examples of indicators and approaches that had already been shown to be possible. In particular these came from Marine Strategy Framework Directive (MSFD) (DIRECTIVE 2008/56/EC) studies under Descriptor 3 (Commercially Exploited Fish and Shellfish) of the MSFD, examination of literature on survey analyses and experience in North America.

#### The objective and function of a biological balance indicator

The purpose of a biological balance indicator would be to show how current exploitation of several stocks by a fleet is related to target exploitation. First, an indicator of stock exploitation is required. When necessary, this indicator could be combined for a number of exploited stocks, to illustrate the situation for stocks exploited by a specific fleet segment. A suitable indicator would require the following elements:

- **An exploitation reference value** to signify what would constitute a target. This value should be based on at least one of: stock biomass, exploitation rate based on fishing mortality or ratio of catch (yield) to biomass. For instance, this target might be  $F_{msy}$ , or  $F_{mey}$ .
- The indicator should have **directional properties** i.e. the ability to show whether the current status is above, at or below target exploitation with the range of precision required.
- A **source of information** that provides sufficient precision to give meaningful measure of the parameter relative to the expected range.

#### An example new biological indicator – mean fish length

A potential biological indicator could be the mean length of fish caught (of one species) as a proportion of the expected mean fish length at target exploitation rates. To enable this indicator to be used, the naturally occurring distribution of mean length, at, above and below target exploitation rate would need to be determined. This could be done by comparing with history, or by simulation of a better known stock with sufficiently similar biological parameters. If sufficient contrast between mean fish lengths at these three exploitation rates will occur, despite expected natural variability, then the indicator could be useful. If natural variability is too great it may be helpful to consider averaging over

several years in order to diminish the influence of short term natural variability in aspects such as recruitment.

Mean fish length in the catch would be expected to increase in the short term with declining recruitment or decreased exploitation. Averaging the results over a longer time period may reduce the influence of natural short term variability in recruitment and increase the influence of exploitation rate, making the indicator more useful to show appropriate exploitation rate

Once it is established that the mean length indicator is meaningful, then a reference value or distribution of mean fish length should be defined to represent expected mean length at target exploitation rate. A sampling programme (either new or existing) would be required to deliver an estimate of mean length with sufficient precision to detect the status when compared to the reference. This procedure would be stock specific.

It is unlikely that a single indicator will be useful for all stocks. A parameter such as mean fish length in the catch is likely to be useful for longer-lived low exploitation rate stocks and is unlikely to be informative for short-lived species exploited under single-year-class fisheries.

### **Selecting potential indicators**

In defining balance indicators that relate to MSY exploitation it is possible to draw on work already carried out to define MSY criteria. The EWG considered and supported the output from an ICES workshop on evaluating MSY reference points and advice (WKFRAME2 Jan 2011), which discussed approaches for selecting suitable methods based on data availability. Figure 10.1, taken from the ICES report, provides a decision tree for the selection of approaches. WKFRAME distinguished two main groups of stocks (without analytical assessments or forecasts) for which this approach would be suitable, i) stocks for which length or age data is not available and ii) stocks for which length or age data is available. Within each of these groups, WKFRAME identified a number of potential scenarios and has suggested ways of delivering advice for such stocks. This scheme is summarised in the flowchart included in Figure 10.1. This approach is directly applicable when determining biological balance indicators too.

The flowchart in Figure 4.1 includes the following main cases and should function as guidelines for selecting methodology where no analytical assessment is available or for stocks with limited data. It is anticipated that expert judgment based on the stock biology and ecology is required alongside the information on the stock indicator trends. This section draws very heavily on the work of WKFRAME and is modified as required to discuss biological balance indicators.

The cases identified are:

#### **When length and age are not available and:**

##### **1 When commercial catch data are not available**

With no catch data it will not be possible to determine the source of mortality even if it can be measured so no balance indicator will be estimable and a sampling program will require to be initiated.

##### **2 When only trends in landings or catches are available**

Balance indicator might be based on the analysis of the landings, *if* the landings are considered informative of stock trends e.g. if landings are not dependent on market conditions and the time series long enough to cover a range of exploitation that could include MSY exploitation. But it is unlikely any balance indicator will be estimable and a sampling program will require to be initiated.

##### **3 When only *standardised* CPUE from fisheries and/or CPUE from survey is available**

Advice should be based on trend analysis, e.g. CUSUM (Cumulative sum control chart) with priority to long time series. Again in these situations advice options are restricted to general; direction unless there is a reason to believe that MSY is included in the range of exploitation. (Non-standardised CPUE series giving index creep are unlikely to be suitable.)

4 When the data time series of CPUE and catches are informative and are thought to cover an appropriate range of exploitation conditions, Biomass dynamic models can produce estimates current  $F$  and  $F_{msy}$ . In these cases you may be able to make a determination if the stock is exploited above MSY or not, and thus be able to derive a balance indicator from CPUE. See method ASPIC method below. Measured effort must be standardized if different segments exploit the same stock with different gears.

**When length or age is available:**

5 When population structure information (length or age) from catches (yearly catch at age) is available, then derive  $F_{curr}$  via e.g. pseudocohort analysis and  $F_{msy}$  proxies via Yield per recruit (YPR) analysis. To determine the effect of changes direct proportionality between  $F$  and catches will have to be assumed.

6 When only survey-based analysis is available (see section below) then derive  $F_{curr}$  using survey-based methods (e.g. survey based assessment method (SURBA) when age data and catchability at age are available) and  $F_{msy}$  proxies as via YPR, again, direct proportionality between  $F$  and catches will be assumed if changes are recommended.

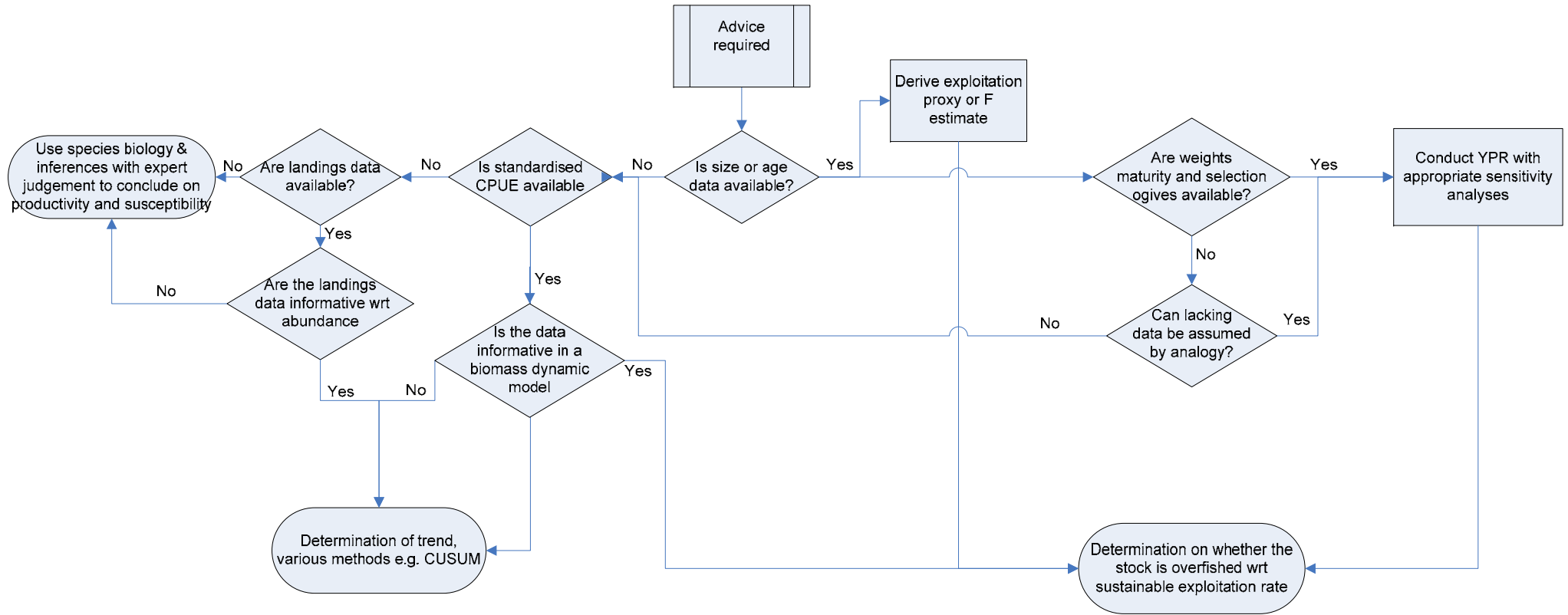


Figure 4.1 Flow chart of options for data limited stocks taken from ICES WKFRAME2 report (ICES 2011)

## Examples drawn from Marine Strategy Framework Directive (MSFD)

For alternative biological indicators when there is no analytical assessment, we discuss below three descriptors proposed in Marine Strategy for GES (good Environmental Status) – 2010/447/EU, Descriptor 3 (Commercially exploited fish and shellfish).

MSFD also deals with stocks with full assessments using indicators similar to B1 and B2, and, as these are not relevant to this discussion, they are excluded from the evaluations below.

### Healthy age and size distribution:

The general consensus is that the health of a fish stock increases as the age and size distribution consists of more, older fish. This attribute is represented by an indicator best representing the proportion of older and larger fish in the population.

#### MSFD Primary Indicators

- Proportion of fish larger than the mean size of first sexual maturation;
- Mean maximum length across all species found in research vessel surveys
- 95% percentile of the fish length distribution observed in research vessel surveys

#### MSFD Secondary Indicators

- Mean size at first sexual maturity which may reflect undesirable genetic effects.

The EWG considers that the secondary indicator of potential genetic change will not be informative for balance due to inability to separate these from density dependent effects and to link and potential change to specific fleets

### Mean maximum length across all species found in research vessel surveys:

- This indicator is part of the DCF indicators to measure the effects of fisheries on the marine ecosystem. According to (EC 2008) the Mean maximum length indicator (MMLI) can be calculated for the entire assemblage that is caught by a particular gear or a subset based on morphology, behaviour or habitat preferences (e.g. bottom-dwelling species only). Mean maximum length is calculated as:  $\bar{L} = \frac{\sum_{j=1}^n L_{max,j} N_j}{N}$ , where  $L_{max,j}$  is the maximum length obtained by species  $j$ ,  $N_j$  is the number of individuals of species  $j$  and  $N$  is the total number of individuals. Asymptotic total length ( $L_{\infty}$ ) is preferred to maximum recorded total length if an estimate is available, but it is recognized that such data may not be available for many species.
- This indicator describes the fish community species composition and does not reflect size characteristics of individual species and cannot be attributed to a given national or international fleet segment. The indicator is therefore considered to be not appropriate as a balance indicator.

### 95% percentile of the fish length distribution observed in research vessel surveys:

- According to (Rochet et al. ICES CM 2007 / D:16), this indicator provides a good summary of the size distribution of fish with an emphasis on the large fish and is expected to be sensitive to fishing and other human impacts. For a species  $i$  and per-centile  $q=0.95$ , the indicator is calculated as

$$L_{q,i} = l_{q,i} \left| \frac{\sum_{l=1}^{l_q} y_{l,i}}{y_i} = q \right.$$

where

$y_{l,i}$  = numbers caught in length class  $l$ ,

$y_i$  = total numbers caught,

$l_{q,i}$  = length corresponding to length class  $l_q$  for species  $i$ .

- The  $L_{0.95}$  can be based on any standard survey that provides a length-frequency distribution. However, if more surveys are available it is recommended to choose the survey that samples the larger sizes best. Even though commercial catches (landings) in general sample the larger sizes better than surveys (that often target the smaller sizes), there is an issue with consistency because the fishery is more likely to have changed over time.

### Survey data as Biological indicators for assessing balance

The best method for monitoring biological indicators for a stock is with a fish survey, usually a trawl survey, in which the catchability for each species is reasonably constant from place to place and time to time as a result of careful standardization of gear and fishing methods (Anonymous (ICES) 2004, 2006).

A selection of indicators relevant for monitoring significant aspects of the biology of a stock is presented in Table 4.19 (Cotter et al., 2009). It is intended as a starting point for anyone contemplating management of an annually recruiting fishery using time series of biological indicators estimated from one or more trawl surveys. Users are expected to adjust the detailed design of each selected indicator to suit the specific circumstances of their stocks and surveys. More complete reviews of many of the difficult and unresolved issues associated with indicators are provided by Rochet and Trenkel (2003) and Jennings (2005), and in several later papers (e.g. Cury and Christensen 2005; Greenstreet and Rogers 2006). In order to use these methods to evaluate balance there is a need for “Reference points” even though setting them is usually problematic for biological indicators (Greenstreet and Rogers 2006).

Indicator group	Indicator	Abbreviation	Main processes affecting indicator	Population characteristics indicated
Abundance based	Log abundance and intrinsic population growth rate	$r$	Fishing and natural mortality, reproduction, migrations	Numerical abundance (as CPUE) summed over all ages
	Total mortality	$Z$	Fishing and natural mortality, migrations with age into or out of survey area	Rate of dying, migrations related to age, e.g. to deep water
Length- and age based	N-at-length, N-at-age	$NaL, NaA$	Recruitment, growth, Fishing and natural mortality	Length and age frequency distributions
	Length statistics	$Lbar, L25, L50, L75 etc.$	Recruitment, growth, Fishing and natural mortality	Growth, length frequency distribution recruitment
Weight-based	Catch weight per unit effort	$WPUE$	Fishing and natural mortality, growth, feeding	Numerical abundance, age composition, growth

Reproductive	Spawning stock in number	<i>SSN</i>	Maturation, fishing and natural mortality, nutrition	Abundance of potentially breeding fish, sustainability of the stock
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Table 4.19 Grouped list of relevant biological indicators presented in Cotter et al., 2009.

When using biological indicators for assessing balance, particularly noisy indices from surveys, it may be necessary to evaluate if the indicator is showing changes. A selection of univariate and multivariate, nonparametric statistical methods thought to be useful for assessing trends in indicators estimated from trawl surveys is presented in Table 4.20 (Cotter, 2009). Nonparametric methods make minimal assumptions about the data and can therefore be suitable when parametric modelling methods (as typically preferred by fisheries scientists) are not suitable.

Method	Purpose to	Ease of application
Estimating quantiles	Estimate quantiles and confidence intervals for observed values or serial differences	Simple
Assessing trend relative to quantiles	Detect any kind of trend from one period to another	Simple
Runs test	Detect serial correlation around median or fitted trend	Simple
Mann-Kendall's K	Detect monotonic trend	Spreadsheet: onerous R: simple
Spearman's rho	Detect trend in ranks	Simple
Jonckheere's test	Detect monotonic trend; multiple observations at each time point	Onerous
Cochran's Q	Test whether multiple time series are responding similarly, but not a test of trend	Simple
Aligned rank test	Detect multivariate trend; different variables show same trend direction	Simple
Dietz-Killeen test	Detect multivariate; monotonic trend different variables may show different trend directions	Difficult; R program available

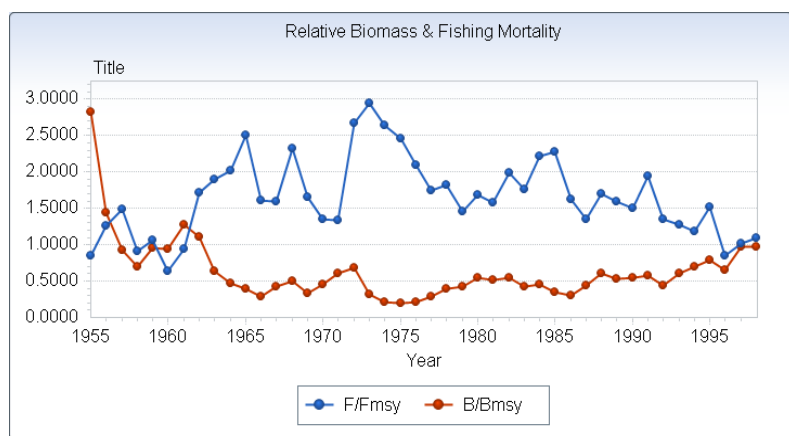
Table 4.20 List of nonparametric methods, their purposes, and opinions on ease of application (Cotter, 2009).

### Fishery Independent Survey Indices and Catch based approaches

In circumstances where catch (from quota or non-quota stocks) and relative biomass indices from surveys are available, there are a number of approaches that can be used to determine appropriate reference points and to assess the level of exploitation relative to these. An Index Method (AIM) fits a relationship between time series of relative stock abundance indices and catch data. Underlying the methodology is a linear model of population growth, which characterizes the population response to varying levels of fishing mortality. AIM can be used to estimate the level of relative fishing mortality

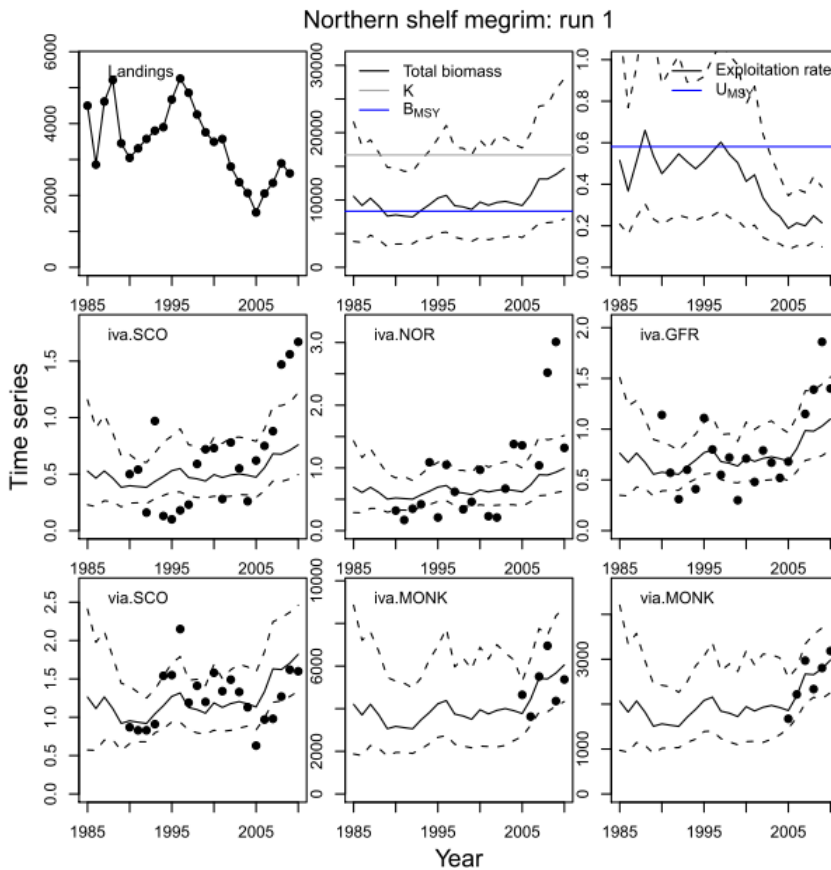
at which the population is likely to be stable. The software can be downloaded from the NOAA Toolbox. (<http://nft.nefsc.noaa.gov/index.html>).

**A Stock Production Model Incorporating Covariates (ASPIC)** is a non-equilibrium implementation of the well-known surplus production model of Schaefer (1954, 1957). **ASPIC** also fits the generalized stock production model of Pella and Tomlinson (1969) using the alternative parameterization of Fletcher (1978). ASPIC uses fishery dependent catch (ideally total catch) and is able to incorporate up to ten different time series of fishery independent (survey) data. Provided that there is a sufficiently long time series of catch with contrast in the exploitation rate and survey data, it is possible to generate the B1 indicator ( $F/F_t$ ) based on a target of MSY, without a full age based stock assessment. **Figure 4.2** shows the relative plots in  $F$  and Biomass generated from the ASPIC model.



**Figure 4.2** Output run from the ASPIC model showing a plot of historic  $F/F_t$  and  $B/B_t$  (MSY)

Minto and Graham (2010) have also used survey indices in a variant of the surplus production model to provide a preliminary assessment of megrim in ICES divisions VI and IV. The state space surplus production model implemented in a Bayesian framework can accommodate a range of survey data and catch data from the commercial fishery. Figure 10.3 shows the output run from this approach and shows that it is possible to estimate both the exploitation rate and stock biomass relative to MSY targets. Note that both of these approaches are only applicable when  $F_t \equiv F_{MSY}$ .



**Figure 4.3** Time series of landings, estimated biomass, estimated Exploitation rate (catch divided by estimated biomass), observed and fitted survey indices. Ninety five percent credible intervals are shown as dashed lines. Derived biomass at maximum sustainable yield  $B_{MSY} = K/2$  and  $U_{MSY} = r/2$  are shown in blue.

### Simple assessment approach

Where full assessments are not possible but some limited length/age separation in the data is available a simple assessment model such as Collie-Sissenwine Analysis (CSA) may be useful to indicate balance even though such an assessment is not of a high enough standard to give catch advice. CSA is a stage-based model that estimates the abundance of two classes, defined as recruits and post-recruits. Recruits are assumed to become fully available for the fishery over the model's unit time step. The model requires indices of abundance for these two stages and estimates of the total number of animals removed via the fishery. Data of numbers in Catches, Landings, numbers of pre-recruits and recruits from surveys and an estimate of Natural mortality are requested. The approach allows estimating recruitment, harvest rates, fishing mortality and is possible to look for trends.

### Catch series based method

The Depletion-Adjusted Average Catch method (Alec MacCall, NMFS/SWFSC/FED (draft 9/6/07) provides a tool for estimating a yield that is likely to be sustainable. It is particularly useful in data poor situations, due to the modest request of information. Very low yields may have this propriety, but this method searches for a value that is moderately high, considered sustainable, and has a low probabilities of greatly exceeding MSY and produce overfishing. The data needs are a time series of catch in tonnes. It is assumed direct evidence of removals at a sustainable level are provided by periods in this catch data that have been stable, and ideally are without any evidence of reduction of abundance of the stock. This simple method has a number of assumptions. The utility of the method depends on the availability of periods of stability in catch, so the method will not be universally applicable. It would need to be evaluated for a number of cases.

### **Mean length based mortality estimator**

The Survival Estimates In Non-Equilibrium situations (SEINE) model allows calculating total mortality rates by the analysis of changes in the mean lengths in time. The model is a variant of the Beverton and Holt (1956, 1957) total mortality estimator and is feasible in limited data situations. While the B%H requires the assumption of equilibrium conditions with mortality rate remained constant for the time necessary for be sure that the observed mean length does reflect the current mortality rate). The SEINE model was developed by Gedamke and Hoenig (2006) addressing the feasibility of application in non-equilibrium conditions and allowing total mortality to change at one or more points along the analysed time period. Estimated of  $Z$  may be compared with a reference value derived for instance from Y/R analysis (i.e.  $F_{0.1}$ ). Given von Bertalanffy parameters, the length at full vulnerability, and a series of annual observations of mean length over time, the model estimates mortality rates and the years in which they changed. A grid search over possible years of change is used to evaluate the likelihood surface and provide starting values for the final estimation. Additional changes in mortality can be added to the model and the improvement of model fit in relation to the additional parameters can be evaluated through AIC values

### **Conclusions**

It is possible to estimate the B1 indicator in the absence of full age-based analytical assessments.

The use of Stock Production Model Incorporating Covariates (ASPIC) and surplus production modelling have been relatively well investigated and the EWG supports the use of these approaches to derive a B1 indicator with no age-based assessment.

It is clear that there are several potential approaches that could be used to derive biological balance indicators for stocks with full age-based assessment. It is likely that the appropriateness of these will be stock- and fishery- specific, largely dependent on data availability and type.

It would be valuable to investigate the applicability of the different techniques in practice. This would also be valuable for preparing annual advice for data-poor stocks. An expert workshop covering both biological balance indicators and annual advice could evaluate fully some specific methods. Such a workshop should be given the task of giving advice and balance indicators for a specific list of stocks of interest in order to focus the work on a number of practical applications.

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#### 4.10.2. ToR 3.b) Rates of quota consumption as balance indicator

ToR 3. Several Member States have emphasised the need to take quota consumption into account when assessing the extent of fleet over-capacity however there are some concerns about the utility of quota consumption as an indicator of balance.

b) Consider if and how the rates of quota consumption, as well as the quota and effort allocation per vessel could be taken into account for the assessment of the balance between the fleet and the available fishing opportunities.

#### **Quota and Catch Uptake as an indicator of balance**

The working group does not consider that rates of quota consumption for individual stocks are good indicators of balance between fleet capacity and fishing opportunity.

All TAC-regulated fisheries aim to control fishing mortality by limiting the amount of catch that can be taken from a given stock. In practice however, the monitoring of TAC utilisation is based on the reporting of landings rather than catch. If landing volumes are close to or equal to the catch, then the monitoring of landings data alone is appropriate. However, in almost all fisheries, particularly those targeting a mix of species, or fisheries where there is a high price differential between particular grades of fish, landings seldom equal catch as some proportion of the catch is discarded due to legal or economic considerations.

Monitoring the proportion of marketable fish discarded due to quota restrictions could potentially be used as an indication of excess capacity of that particular species. However, there are a number of important caveats. Such an indicator is species specific and could not be used as a broad indicator of the balance of the overall fishery. Many of the other species caught by that segment may in fact be harvested sustainably. Secondly, quota management between fleets and between different countries can differ and high discards of a given species may simply be due to inappropriate allocation of fishing opportunities relative to the catch profile of the fleets concerned.

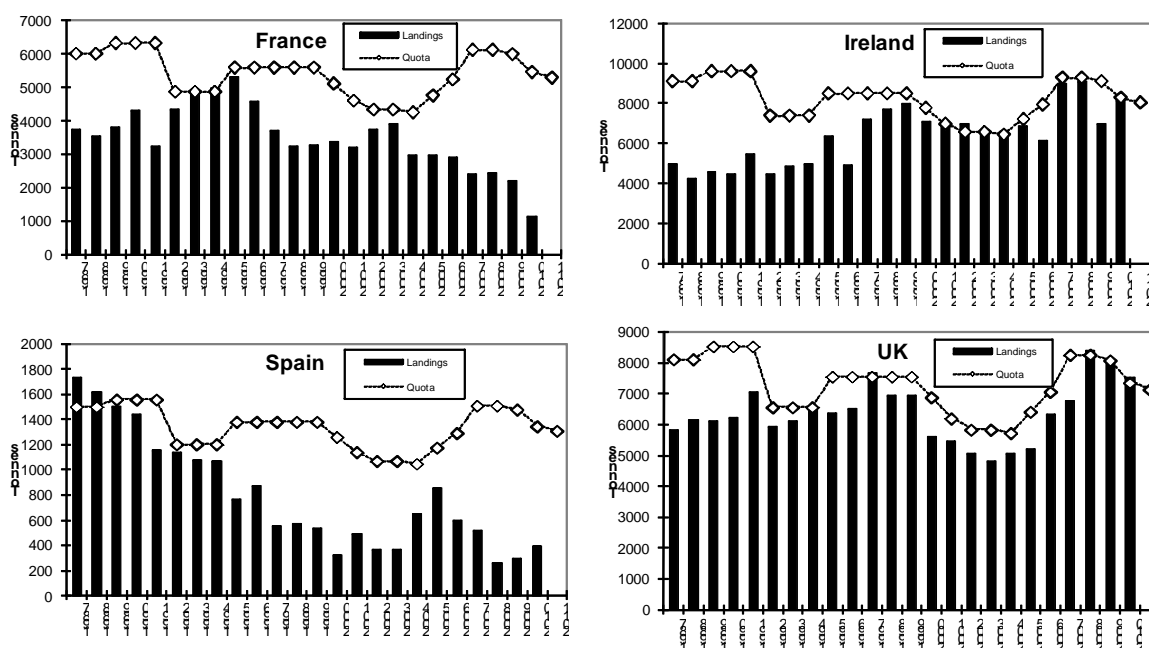
Provided that quotas are set in accordance with a sustainability requirement e.g. management target considerations, under-utilisation of quota, on face value, might be interpreted as an indication of under-capacity of the fleet, particularly if there is a long time series demonstrating persistent under utilisation. However, there are a number of causes that can contribute to under-utilisation of quota and therefore, on its own, quota uptake rate is not a reliable indicator of balance between fleet and opportunity.

Managers may have decided to set a quota level higher than the sustainable level, in which case quota uptake would not be a reliable indicator of sustainable balance.

In multi-fleet, multi-national fisheries if the allocation keys used to distribute TACs into country and fleet quotas are not reflective of fishing activity and catch, resulting in inappropriate distribution of fishing opportunities. In such circumstances it is possible that between fleets and between countries the degree of uptake can vary considerably, with some only partially using their available quota while others may have full utility and potentially have quota induced discarding as a consequence. The quota and uptake rates of four countries exploiting Nephrops in ICES division VII is provided as an example, see Figure 4.4. Two countries (Ireland and the UK) have full utilisation of available quota, however the other two countries (France and Spain) in recent years have only utilised ~25%.

Furthermore, quota uptake rate of less than 1 could be due to more profitable fishing alternatives or simply that the gross profit of fishing is negative. The latter could be due to high variable costs (high input prices for provisions, fuel, salary etc.), low fish prices and/or low CPUE.

Investigating quota uptake is warranted however, in part because examining the distribution of fishing allocations across fleets and countries may help alleviate the problem of quota induced discarding. This raises issues regarding relative stability in EU fisheries, but it is an important question and one that has implications when contrasting fleet capacity against available fishing opportunities because quota allocation is central to the level of fishing opportunity for a given fleet.



**Figure 4.4 Contrast of quota allocation and uptake between four different countries exploiting *Nephrops* in ICES division VII.**

In mixed species fisheries where the quota of one species becomes exhausted, but quota remains for others, fishermen can, and often do, comply with landing quota constraints by discarding the catch of species for which the landing quota is exhausted while continuing to land species for which quota remains. Such quota-induced discarding occurs widely and could be argued to indicate over-capacity of the fleet.

### Conclusions

Quota uptake rate (landings as a proportion of quota) does not make a satisfactory indicator of balance between fleet capacity and fishing opportunity.

Quota uptake proportion has a ceiling of  $\sim 1$  so on its own, cannot detect excess capacity, and a high ( $\sim 1$ ) uptake does not, on its own, indicate either balance or imbalance between capacity and opportunity.

Low quota uptake ( $\ll 1$ ) does not necessarily imply under capacity, quota uptake can be influenced by market considerations and mixed fishery limitations in addition to capacity and distribution of fishing opportunities between fleets and MS.

Balance indicators should take into consideration the lowest stock (choke species) in a mixed fishery.

In a mixed fishery, under utilisation of more abundant (non-choke) stocks does not necessarily imply that the under-utilisation is due to lack of fleet capacity.

It is possible to have an over-capacity fleet at the same time as an under-utilised opportunity. If a stock is being fished as bycatch in a mixed fishery, it is possible for the fleet to be either under or over capacity in relation to the main target species, while the bycatch is under utilised.

#### 4.11. ToR 4. Improve the guidance on reporting overview of balance

The experts were asked to address the following two questions under ToR 4:

4a) Discuss and comment on the feasibility of developing an absolute definitive assessment of balance between capacity and opportunity that MS could report.

4b) Discuss and propose alternatives to improve the traffic light system, for instance by including additional indicators. It would be useful to give examples of how MS might present their traffic light summary and draw overall conclusions on balance based on their traffic light presentation.

##### 4.11.1. ToR 4.a) Feasibility of a definitive assessment of balance

Discuss and comment on the feasibility of developing an absolute definitive assessment of balance between capacity and opportunity that MS could report.

As defined by SG-RST-07-05 (2005), assessing the balance between fishing capacity and fishing opportunities requires the consideration of the following competing forces / objectives:

- *Biological* status of stocks – a sustainable exploitation rate at  $F_{msy}$  or  $F_{mey}$
- *Economic* efficiency – profit (or value added) maximizing level of output of fleet
- *Technical* efficiency – optimising sales output per unit of technical input
- *Social* welfare – maximising the benefits of fisheries to society

We consider that it is not feasible to give a definitive, absolute, quantitative assessment of balance (or imbalance) between fleet capacity and fishing opportunity. There is no standard unit of measurement of capacity by which a fleet can be said to be out of balance with its fishing opportunity. Balance is deemed to exist when a fishing fleet is of the optimal capacity to maximise the socioeconomic objectives from exploiting a fish stock or group of stocks, at an output level in accordance with the sustainable exploitation rate ( $F_{msy}$ ) of all stocks. In a continuously changing dynamic system with annual fluctuations in the fleet and the fishing opportunities, a precise quantification of these parameters is extremely challenging. Rather, we would recommend the use of statements such as those presented in section 4.7.5 of this report, e.g. capacity is somewhat in excess of opportunity or capacity is approximately in balance with the fishing opportunity.

The following issues contribute to the difficulty of making an absolute definitive assessment of balance:

- (a) Numerous **data availability issues** remain. An absolute, definitive assessment of the balance between capacity and opportunity would require information at species level, fishery by fishery, period by period for all the MS exploiting a stock. However several EU countries share borders with **non-EU countries**, and face difficulties accessing information on stock shared with neighbouring jurisdictions, especially for biological indicators. Therefore the MS exploiting such stocks may face difficulties providing the requested indicators for all waters in which their fleets are active (e.g. Mediterranean and Black Sea Waters).
- (b) Trying to match fleet and fishery indicators when considering multi-gear and multi-species fisheries is problematic, and relating  $F_{msy}$  to catch composition analysis of fleet segments which have mixed catches including stocks for which  $F_{msy}$  is not known even more challenging (SG-RST-07-05\_2005). In multi-species fisheries, an assessment of capacity use at species level is difficult when fishers are targeting individual species but in fact harvesting a number of additional species. The optimal fleet size calculated for the fleet segment as a whole, based on multi-species data, could potentially imply that some species would be harvested beyond their individual optimal levels, while others would be harvested below their

optimal levels. Biological indicators only make reference to exploited species, as opposed to reflecting the status of all resources which could potentially be exploited with the use of the existing fleet capacity. As a result the proposed biological indicators may reflect a worse situation because they are based only on the state of the target species.

- (c) Another source of difficulty is **natural fluctuations**, which create uncertainties resulting from variable levels of biological productivity due to weather and environmental changes, which are difficult to predict. Low values for the catch per unit effort indicator may, for instance, indicate small stocks rather than a general underuse of fleet capacity (fleet over capacity), as the fleet may have other fishing opportunities as well as the stocks that have low CPUE indicators. Such issues are particularly likely to occur when dealing with highly variable stocks such as small pelagic species and for example, haddock, which are particularly prone to influence from environmental fluctuations.
- (d) Situations in which low fleet utilisation (over capacity) is due to market conditions can arise from time to time, and if market conditions improve fleets may once again operate at full capacity. The results of the social, economic and technical indicators can be affected either directly or indirectly due to such transient economic fluctuations, making a definition of the balance between capacity and opportunity only a temporary result which may or may not imply the need for government intervention. Market changes are difficult to predict, and different fluctuations may apply to different species being targeted by any one fleet segment. Changing economic conditions such as recent fluctuations in fuel prices can have profound but potentially temporary impacts on fleet utilisation rates and therefore on the results of the technical indicator. Biological, economic, technical and social factors operate at different time scales with varying responses and lags
- (e) Fluctuation in opportunity caused by management measures. If fleet under-utilisation (fleet over capacity) in the short term is the direct result of a management intervention (for instance the introduction of a closed season) with the aim of allowing the stock to recover, then the fleet may once again operate at full utilisation, and therefore would no longer be over the required capacity, once the restrictions have been removed.

Rather than attempting to assign an absolute definitive assessment value when determining the balance between capacity and opportunity it is necessary to interpret fleet capacity indicators in the context of information about what factors are influencing the indicator results in order to make a qualified judgement on a case by case basis. Long-term stock conditions should also be considered. For instance, a fleet may be operating at full capacity when targeting an overexploited stock, but that same fleet may yield catches well in excess of the target quota when operating under a different management regime.

- Political preferences may play a part when assessing the balance between fishing capacity and fishing opportunities. The biological status of stocks, economic / technical efficiency and social welfare can be assessed individually from a scientific point of view, but the weighting of the different indicators of balance implies political or value-based judgement. Political decisions are likely to take into account conflicting interests and resource uses. A pertinent example is conflicts in marine spatial management, where politicians may be faced with giving preference to one of several industries competing for space such as for instance shipping, fisheries, tourism, marine protected areas, the creation of wind farms, etc.

In **conclusion**, use of any model for defining the balance between fishing capacity and opportunity by MS requires caution. There will always remain a high level of uncertainty about the biological, social and economic parameters being used in model calculations and any results derived from such models should be considered with caution. Results can be used as a guide when defining capacity management measures, but can never be considered as an absolute definitive answer.

Due to the transient nature of most sectors and the measured parameters under consideration at any one time, it is important to bear in mind that the outcomes of any attempted assessment of the balance between capacity and opportunity will only apply to the year of the data used and may change the following year as fleet size, fleet utilisation and fishing opportunities fluctuate.

Drawing overall conclusions on balance depends somewhat on stating whether the situation is considered problematic and one that should be addressed, or whether the situation (the degree of imbalance between fleet and opportunity) is considered to be acceptable.

#### 4.11.2. ToR 4.b) Ways to improve the traffic light system of reporting indicators

Experts were asked to discuss and propose alternatives to improve the traffic light system, for instance by including additional indicators. It would be useful to give examples of how MS might present their traffic light summary and draw overall conclusions on balance.

The working group considers that current balance indicators are largely adequate and suitable to indicate the balance of European fleets with their opportunities. Alternative indicators may be useful in specific MS cases to reflect an overview of balance, and the newly suggested biological indicators under ToR 3 of this report should be considered.

The traffic light system shows whether each indicator value is considered satisfactory (green), somewhat unsatisfactory (yellow) or very unsatisfactory (red). These classifications do not necessarily translate into a need for action to address the situation however. STECF has recognised the traffic light system as useful instrument to interpret balance indicators individually and collectively.

To help MS form their opinion on overall balance using the traffic light system, the table below presents a summary of indicator thresholds. In some cases the thresholds below have been defined by STECF experts, the value of other indicator thresholds should be left to the discretion of individual MS, based on knowledge of the fishery and management system. If a MS uses alternative thresholds then they should also explain the choices made.

Indicator	Definition	Green	Yellow	Red
TECHNICAL	Ratio between average and maximum effort per vessel	<0.7	0.7-0.9	>0.9
BIOLOGICAL 1	Festimated/Ftarget	Close to 1	Loss of yield >1 or <1	Substantial lost yield >>1 or <<1
BIOLOGICAL 2	Catch/Biomass	As defined per species/stock	As defined per species/stock	As defined per species/stock
BIOLOGICAL 3	CPUE <sup>(1)</sup>	As defined per species/stock	As defined per species/stock	As defined per species/stock
ECONOMIC 1	ROI <sup>(2)</sup>	ROI > TRP	0<ROI<TRP	ROI<0
ECONOMIC 2	CR/BER	>1	approximately =1	<1
SOCIAL 1	GVA	GVA ÷ Income ≥ 0 <b>AND</b> GVA ÷ Income ≥ national average GVA ÷ Income	GVA ÷ Income ≥ 0 <b>AND</b> GVA ÷ Income ≤ national average GVA ÷ Income	GVA ≤ 0
SOCIAL 2	Crew wages per FTE	Crew wage per FTE > MS average wage	MS Average Wage < Crew wage per FTE > MS minimum Wage	Crew wage per FTE < MS minimum wage

**Table 4.21 Suggested threshold values for indicator classification as green, yellow or red**

(1) It shows stock relative abundance.

(2) TRP: rate of return on a risk free investment

It would be helpful if MS provide a traffic light summary table clearly presenting the indicators. For purposes of transparency, MS opinion on overall balance should be justified by reference to the traffic light overview.

MS would need to explain the relative priority and importance of their fisheries management objectives. After presenting the above table, MS answer **each** of the following questions in order to support their overall conclusion on balance between fishing capacity and fishing opportunities.

- 1) Is it possible to catch the available fishing opportunities with a smaller fleet?
- 2) Would that improve the economic results of the fishing fleet?
- 3) Are fishing mortality rates too high in relation to target mortality?
- 4) Are catch rates too high in relation to biomass of the stock/species?
- 5) What does CPUE suggest about stock abundance relative to abundance expected at MSY exploitation rates?
- 6) Is fishing activity delivering economic and social benefits, without dependence on public financial support?
- 7) Is the economic performance of the fleet robust to withstand impacts of cost fluctuations e.g. high fuel prices?
- 8) Is the fleet sufficiently financially robust to withstand short term cuts in fishing opportunity, in line with scientific advice?

Finally, MS should choose one of the following five statements which best describes the balance between fishing capacity and fishing opportunities:

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

MS should clearly explain why they have chosen statement a, b, c, d or e in relation to balance. As there can be conflicting traffic light indicators, for MS to draw a defensible conclusion regarding balance, MS should weight individual indicators according to their management objectives. In addition, MS should describe their indicator weighting approach explaining why certain indicators receive more or less weight than others. The data and evidence presented by the MS should support the chosen statement.

STECF is not in a position to define management objectives and weighting of individual balance indicators. An overall conclusion is a political and not a scientific decision, it is a politically sensitive value judgement best made by individual MS only.

#### **Traffic lights for biological indicators**

Defining a single set of traffic light boundary values for the biological indicators is particularly problematic and is probably best decided by MS, as long as they explain and justify their choices.

The primary biological indicator B1 is defined as  $F/F_t$  where in many cases  $F_t$  could be expected to be  $F_{MSY}$ . A traffic light system uses colours to express the status: green for ‘on target’, amber for ‘warning’ and red for ‘inappropriate outcome’. As B1 is based on a target, being close to that target should give a green light, being further away either above or below 1 indicates some imbalance and being well away from 1 clearly out of balance. An alternative scale for indicator B1 could therefore be as follows:

red	yellow	Green	yellow	red
<a	>a & <b	>b & <c	<d & >c	>d

Where  $a < b < 1 < c < d$

### References

ICES 2010 Report of the Workshop on Implementing the ICES FMSY framework. ICES CM 2010/ACOM:54

STECF 11-07 EWG 11-05 - Baltic cod Impact Assessment 11-25 July 2011, Copenhagen, Denmark - Impact Assessment of Baltic cod multi-annual plans. JRC66048

#### **4.12. ToR 5. Overcapacity from an economic perspective**

Some MS fleets contain many vessels which operate much less than technically possible during each year, creating both technical and economic inefficiency.

The working group is asked to consider methods that could be applied in relation to EU MS fleet segments to estimate the profits that are foregone as a result of technical inefficiency and/or over-capitalisation of fishing fleets.

The EWG was asked to outline an approach or method, data requirements, and issues to consider for estimating this foregone profit and to comment on why it would be helpful or interesting for MS to make these estimates. For instance, the group may wish to refer to employment implications, quantity & quality, short and long term implications, social implications and trade-offs.

##### *4.12.1. Discussion*

Presented below is a method, devised by the EWG, for estimating profits that could be forgone as a result of fleet overcapacity. The experts focused on a method that can be estimated by MS using data collected under the DCF. The method outlines the existence of a fully efficient fleet without overcapacity and estimates the profits forgone as a result of having an overcapitalised fleet. The group wishes to emphasise that this estimation of foregone profits is not equivalent to saying that scrapping part of the fleet equivalent to the corresponding overcapacity will give the equivalent gain in the short to medium term since the capital bound to the vessels is considered to be non-malleable.

A simple way of calculating the short and medium term yearly gain that could be achieved as a result of scrapping all superfluous vessels (with an assumed non-malleable fleet) is presented. In addition, the possible social consequences that may arise from scrapping a large part of the fleet are discussed and uncertainties in the calculations are pointed out. It should be noted that the calculation assumes that stocks, quotas and fish prices are constant. If these parameters are to be considered as variable, then bio-economic modelling would be a more suitable approach to take, for example the EIAA model that is able to project the impacts of changing stock, quotas and prices and at the same time can estimate the forgone profit of an efficient fleet.

It is possible to make an approximate estimate of the profit that is forgone as a result of having a fleet which is over the required capacity. It should however be pointed out that the estimated gain resulting from decommissioning or removing vessels implies more assumptions and is therefore more uncertain. Furthermore, it should be noted that neither approach takes into account the upstream and downstream businesses that will be affected by a reduction in vessel numbers, but only considers the forgone profits of the fleets.

By using this approach, MS can obtain rough estimates of profits that have been forgone as a result of having an overcapacity fleet. More interestingly, the approach below also gives a rough estimate of the potential gain in profits that might, in due course, result from scrapping superfluous vessels, subject to assumptions about malleability of capital invested in vessels.

##### **Estimating forgone profits for an under-utilised / over-capacity fleet segment:**

- Step 1: The technical indicator calculated yearly by MS as part of their report on efforts to achieve balance between fleet capacity and fishing opportunities (following the guidelines on balance indicators [Version 1 March 2008]) is a starting point for measuring technical inefficiency. It is calculated by dividing the average actual number of days at sea per vessel by the maximum number of days at sea per vessel. Subtracting this ratio from 1 tells us what proportion of the fleet segment was technically not required for the volume of fish landed.

- Step 2: The ratio derived in Step 1 is then applied to the Capital Cost (depreciation and interests - to be calculated by MS) and fixed costs of the under utilised fleet (see Commission Decision (EC) 93/2010) for the calculation of annual depreciation).
- Step 3: The estimated annual net profit for the **efficient (appropriate capacity)** fleet is calculated by subtracting crew costs, energy costs, repair and maintenance costs, variable costs, fixed costs and capital costs for the efficient fleet derived from Step 2 above from the value of landings\*.
- Step 4: The profit for the **inefficient (over capacity)** fleet is also calculated by subtracting crew costs, energy costs, repair and maintenance costs variable costs, fixed costs and capital costs for the inefficient fleet from the value of landings\*.
- Step 5: Foregone profit is equal to the difference between the profit of the efficient (appropriate capacity) fleet and the profit of the inefficient (over capacity) fleet.

\*Value of landings, crew costs, energy costs, repair and maintenance costs, variable costs, fixed costs and capital costs (annual depreciation) are derived from the yearly data collected as part of the EU Data Collection Programme (Commission Decision (EC) 93/2010).

This approach provides a simplistic picture of the profit that is, in theory, forgone as a result of having an inefficient (over capacity) fleet. However, another interesting question for MS is the gain in profit they can expect by moving towards an efficient fleet, for example by scrapping vessels or otherwise reducing vessel numbers (assuming that the fishing opportunity does not increase and thereby achieve balance). Assuming a fleet with malleable capital, such that vessels could readily be sold out of the fleet, the gain in fleet profit by decommissioning vessels to an amount that removes overcapacity will be the same as above.

However, as discussed below, a more appropriate assumption is that the capital of fishing fleets is non-malleable, and vessels cannot just be readily sold out of the fleet, which means that the gain in profit would be lower. Assuming a depreciation period of 30 years and a fleet where the ages of the vessels are evenly distributed among the years, the yearly gain (over the next 30 years) from removing vessels corresponding to the overcapacity will be the difference in fixed cost between the efficient (appropriate capacity) and inefficient (over capacity) fleets plus the average of 1/30 of the difference in capital costs the first year, 2/30 of the difference in capital costs the second year etc.

Disregarding inflation and acknowledging the already made assumptions, this estimation is approximated to:

Gain in profit = difference in fixed costs +  $\frac{1}{2}$  \* (difference in capital cost).

**In the under-utilised (over capacity) fleet:**

(A) Actual number of days at sea per vessel	200
(B) Max no. of days at sea per vessel (at fleet segment level)	300
(C) Technical efficiency rate (A/B)	0.67

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Under-utilised  
fleet      Fully-utilised fleet      Fully-utilised fleet

	malleable capital		non-malleable capital
	currency units	currency units	currency units
Revenue	1000	1000	1000
Crew costs	300	300	300
Energy Costs	100	100	100
Repair and maintenance Costs	100	100	100
Variable Costs	100	100	100
Fixed costs	150	100	100
Capital costs	150	100	125
Profit	100	200	175
Value Added	400	500	475

**Table 4.22 Example estimation of profit achieved by fleet with excess capacity and potential profit that could be achieved by a smaller fleet**

In the above example, the profits forgone as a result of operating an over-capacity fleet with a technical efficiency rate of 67%, assuming malleable capital, is 100 currency units. Assuming non-malleable capital, the foregone profit is 75 currency units.

#### **Data requirements:**

- Capital costs (depreciation and interests) for each fleet segment. The depreciation is a requirement under DCF (Commission Decision (EC) 93/2010). MS should estimate interest costs using the method detailed in the STECF EWG 11-04 report.
- Actual days at sea for each fleet segment. This is a requirement for DCF.
- Maximum possible days at sea for each segment.

#### **Limitations and considerations**

EWG 11-10 suggests that this is a *practical* way to measure the technical inefficiency based on the *maximum number of days* instead of using traditional quantitative approaches such as Stochastic Production Frontier (SPF) or Data Envelopment Analysis (DEA) aimed to estimate production frontier of the fully efficient firms. Although this approach is limited by the fact that it considers only one variable, it is easy to understand and apply by MS.

#### **Short and long term implications**

Inefficiency (in terms of fleet size in relation to fishing opportunity) can be caused by a temporary excess of fleet capacity or by a persistent problem of overcapacity. Even if these two situations have different consequences, both will lead to lost efficiency in the short term. Using the same reasoning, a fully efficient fleet without overcapacity may lead to forgone profit, if the fishing opportunities increase and the quotas can no longer be fully utilised. That would be profit foregone as a result of an under-capacity fleet.

#### **A constant approach**

The suggested estimation of profit forgone as a result of excess fleet capacity assumes stocks, management regulations and cost structures remain constant. Since we estimated over a period of 30 years, this assumption is clearly not likely to be realised. In addition, longer term implications require the inclusion of other possible factors which may affect efficiency, such as technological progress, social equity problems and inflation rates. Some of the expert group suggest that, because of unrealistic assumptions, it is not valid or useful to extend this estimation of effects for so long a time period as 30 years.

### **Theoretical versus actual maximum days at sea:**

The maximum possible days at sea can be estimated based on two approaches. The actual maximum achieved days at sea are based on real data and the theoretical maximum days at sea are based on the maximum theoretical possible amount of days at sea. Based on SGBRE 10-01, it is suggested that the theoretical maximum number of days at sea should be calculated as 365 days minus the days that the MS considers that the fleet will not use for social, technical and/or other reasons. These reasons could be weekends, holidays, days to repair and maintain the vessel and weather conditions that make fishing unprofitable or unsafe to fish. The actual maximum days at sea is based on the vessel or groups of vessels in a segment that has the highest days at sea in a year during a given time period. This is only an appropriate way of estimating the maximum days at sea, if the segment is not restricted by any effort regulations

### **Value added versus profit**

The method of estimation presented above is based on the value added approach. It considers not only the fishermen's profit, but also counts the value of the fishermen's salary as a value added to society. The salary benefits both the MS through taxes and also gives more purchasing power to the society. The value added is therefore the proxy for the resource rent of the society and is also presented along with the profit.

Whether profit or value added is used, keeping everything else constant, the profit forgone as a result of operating an inefficient (over capacity) fleet is the same. In the theoretical estimation of the forgone profit resulting from overcapacity, the crew cost is not assumed to change.

### **Transition issues**

Scrapping or removing vessels in order to reduce total depreciation costs means that some costs and delays need to be taken into consideration. As fishing vessels are often non-malleable capital, the possibility to resell the vessel or use it for another purpose can be very limited or non-existent, especially in the context of overcapacity. Therefore, there are very few opportunities to disinvest the capital and owners may be reluctant to scrap their vessels.

In the intermediate term, crew, maintenance and repair costs will be higher if the utilisation of remaining vessels is to be increased. This is because of greater wear and tear of equipment and potentially higher wages for longer shifts. On the other hand, the vessels that have left the fleet will now not have any crew, maintenance and repair costs. It is hard to say whether the total crew, repair and maintenance costs will decrease or increase when some vessels leave the fleet and others spent more days at sea. In this estimation, it is assumed that the total repair and maintenance costs will remain the same.

In the longer term, the way to handle the issue of inactive vessels would have to be considered. At the moment, they can be analysed using the same setting as the active vessels, giving two alternative measures of foregone profits, with and without inactive vessels. Thus, inactive vessels would be considered as vessels with a technical efficiency of zero, and any depreciation costs and/or interest costs considered as foregone profits.

Future developments in the abundance of target stocks would also need to be considered, taking into account stocks affected by recovery plans for example.

### **Distribution issues**

Following this approach, higher efficiency may mean a reduction of the size of crews and redistribution between capital gains and crew wages, depending on the initial level of technical inefficiency and the concentration of the ownership of the vessels.

Geographical impact of higher efficiency will be very different depending on fishing patterns, as concentration of activities in fewer vessels may affect the communities in the ports of origin.

Social issues should also be considered, especially working conditions and impact on ancillary industries. The suppliers for vessels (repair, inputs etc.) could also be affected.

In some areas income from part time jobs in fisheries is complementary to other sources of income, and therefore a concentration of economic activities may affect a wider part of the population.

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#### **4.14. List of Background Documents**

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

List of background documents:

EWG-11-10 – Doc 1 - Declarations of invited and JRC experts.

EWG-11-10 – Doc 2 - Guidelines for an improved analysis of the balance between fishing capacity and fishing opportunities. The use of indicators for reporting according to Art. 14 of Council Regulation 2371/2002. Version 1

EWG-11-10 – Doc 3 - REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on Member States' efforts during 2009 to achieve a sustainable balance between fishing capacity and fishing opportunities. {SEC(2011) 759 final}. {SEC(2011) 760 final}

European Commission

EUR XXXXX EN – Joint Research Centre – Institute for the Protection and Security of the Citizen

Title: Scientific, Technical and Economic Committee for Fisheries. Review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities (STECF-11-17).

EWG-11-10 members: Curtis, H., Graham, N., Abella, A., Scarcella, G., Iriondo, A., Yankova, M., Thøgersen, T., Miguez, M., Vassallo, D., Gambino, M., Stroe, C., Rhadu, G., Zolubas, T., Goti, L., Knittweis, L., Davidjuka, I., Little, A., Alves, A., Simmonds, J., Anderson, J.

STECF members: Casey, J., Abella, J. A., Andersen, J., Bailey, N., Bertignac, M., Cardinale, M., Curtis, H., Daskalov, G., Delaney, A., Döring, R., Garcia Rodriguez, M., Gascuel, D., Graham, N., Gustavsson, T., Jennings, S., Kenny, A., Kirkegaard, E., Kraak, S., Kuikka, S., Malvarosa, L., Martin, P., Motova, A., Murua, H., Nowakowski, P., Prellezo, R., Sala, A., Somarakis, S., Stransky, C., Theret, F., Ulrich, C., Vanhee, W. & Van Oostenbrugge, H.

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#### Abstract

STECF expert working group 11-10 was convened in September 2011 to assess EU Member States annual reports on their efforts to achieve balance between fishing opportunities and fishing fleet capacity, and the Commission summaries of those reports. Overall there have been further improvements in completeness and quality of EU Member States reports on their efforts to achieve balance.