

ICES AMAWGC Report 2008

ICES Advisory Committee

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Report of the Annual Meeting of Advisory Working Group Chairs (AMAWGC)

25–29 February 2008

ICES Headquarters



ICES

International Council for
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Contents

Contents	i
1 Introduction.....	1
1.1 Terms of reference	1
1.2 Structure of the report.....	1
1.3 Reform of the advisory process	1
1.4 Requests for advice.....	2
1.5 Working Group experiences in 2007.....	2
2 Review of the Table of Contents of the Advisory Report 2008	3
3 Review the Table of Contents of Working Group reports in 2008	5
4 Management strategies.....	6
5 Integrated advice.....	6
6 Mixed-fisheries and Multi-species.....	7
6.1 SGMIXMAN.....	7
6.2 Multispecies modelling.....	9
7 Links with PGCCDBS on coordination of data sampling	10
7.1 Quality Assurance Framework.....	10
7.2 Questions from PGCCDBS to AMAWGC.....	10
8 Reference points	11
9 Developments in stock assessment methodology and working group processes.....	12
9.1 Stocks for which no new advice will be provided in 2008.....	12
9.2 Benchmark and update assessments 2008 and 2009	12
9.3 ICES Data compilation workshops and RAC focus groups.....	13
9.4 Documenting data and methods	14
9.5 Standard Graph database	14
9.6 InterCatch	15
9.7 FLR developments.....	15
9.8 Sharepoint.....	16
9.9 WGMG	17
9.10 New approaches for Nephrops.....	17
10 Guidance on drafting advice	17
11 Conclusions	18
11.1 Recommendations.....	18
11.2 Specific recommendations.....	24

12	References	25
	Annex 1: List of participants	26
	Annex 2: Flow-chart of ICES Advisory Services	29
	Annex 3: Details on the PGCCDBS proposal for Quality Assurance	30
	Annex 4: RAC focus groups 2008	32
	Annex 5: Proposal for stocks on which not to provide new advice in 2008	33
	Annex 6: Benchmark workshops in 2008 and 2009	34
	Annex 7: Approaches and recommendation for Nephrops Stocks	37

1 Introduction

1.1 Terms of reference

The Annual Meeting of Advisory Working Group Chairs [AMAWGC] (Chair: Martin Pastoors, The Netherlands) will meet at ICES Headquarters from 13:00 on 25 February until 13:00 on 29 February 2008 to:

- a) review the Table of Contents for the ICES Advisory Report for 2008 and for each Chapter identify what the Groups that shall contribute;
- b) review the Table of Contents of WG reports in 2008
- c) review and plan the implementation of long-term management simulations and evaluations of recovery plans and harvest control rules;
- d) review and plan the implementation of including ecosystem drivers in the fisheries advice
- e) review and plan the implementation of fisheries-based advice and integrate fisheries technology expertise
- f) review the links between assessment working groups and the PGCCDBS on the coordination and prioritization of data sampling.
- g) review and plan the implementation or updating of precautionary limit reference points and potential target reference points.
- h) review developments in stock assessment methodology in relation to the implementation in the Assessment Working Groups;

AMAWGC will report by 3 March 2008 for the attention of ACOM.

1.2 Structure of the report

The report of AMAWGC 2008 is structured according to terms of reference. In addition, the conclusions on the reform of the advisory process (1.3) and on the special requests for 2008 (1.4) are included below.

1.3 Reform of the advisory process

Martin Pastoors presented the outline of the new advisory process in ICES to a combined meeting of AMAWGC and WGRED. The flow-chart of the advisory process is included in Annex 2. AMAWGC and WGRED noted that the science groups were not included in the flow chart for the advisory process. The draft guidelines for the different parts of the advisory process were available to groups.

The discussion focussed on the role of benchmark workshops and expert groups. Expert Groups have an important new role in the advisory process because they will be tasked with providing a first draft of the advice.

AMAWGC concluded that there is a more clear guidance needed from the advisory committee on the way the integration is intended to occur. In the current setup of the expert groups, there is no explicit recognition of the integration aspects.

AMAWGC recommended that the benchmark workshops could be used as one of the vehicles for better integration of ecosystem and fisheries aspects by explicitly including them in the Terms of Reference.

AMAWGC recommended that if the role and organization of expert groups would need to be modified in 2009, it would be important to start developing the plan and terms of reference already in the first part of 2008.

See section 5 for more comments on the integration of ecosystem aspects in the ICES advice.

1.4 Requests for advice

Mette Bertelsen presented the table with requests for advice for 2008 and outlined the approach that is envisioned for the different requests.

For some of the requests, the approach will still need to be resolved in the short term:

- redfish and deepwater stock identity questions from NEAFC
- management plan development for Baltic pelagic stocks

1.5 Working Group experiences in 2007

AMAWGC discussed the working group experiences in 2007. General themes that emerged from the experiences were:

- Several working groups have experimented with InterCatch and this has cleared up some of the issues with the implementation but it has not been possible to implement InterCatch for real in the working groups.
- The system of benchmark/update assessments works well in some of the groups but not in all.
- The links between working groups and RACs is somewhat unclear; especially if and how working groups should respond to comments from the RACs.
- Software that is used for assessments provided some problems. Especially the version control on the development of new version and new pieces of software is difficult for working groups to oversee. This was particularly acute for FLR versions.
- There is a need for training courses on methods and tools for assessments
- The use of discards information is still problematic in the absence of standard methods for raising.
- Some working groups have started putting together fisheries data for overviews. This is a very welcome development.
- Working groups should be able to meet outside of Copenhagen. Several WGs commented on very successful meetings in other places.
- WGNSSK was the first group last year that operated under the new “timing arrangement” with an earlier advice and a shorter meeting. The approach by the group was to split up in subgroups and to do most of the work in subgroups. Some people missed out on general discussions and lacked the overview of the product of the group. The chair questioned whether the earlier advice was really taken up by the clients.

2 Review of the Table of Contents of the Advisory Report 2008

The review of the 2008 Advisory Report (doc 8) was regarded as a useful process and it highlights several important issues that should be addressed by the current restructuring process. These include the increasing need for more integrated ecosystem advice and the need for mixed fisheries advice. Another important issue raised relates to the status of management plan evaluations and that so few management plans have been evaluated and the heterogeneous treatment of those that have been evaluated by ICES.

The EASE project (Anon. 2007) also reviewed the quality of the assessments including the perceived assessment problem areas for a large number of assessments across the ICES and ICCAT area.

In the future not all stocks should be assessed and advised provided on an annual basis. This will necessarily lead to a prioritization of stock where advice will be produced (for some stock clients will expect annual advice). It was pointed out that in moving to a multi-annual advice framework, where possible, some evaluations should be carried out to determine the “risk” involved. There is a risk that if assessment/advice for a given stock is not scheduled for an EG in a given year that the stock assessor will not attend the meeting. It is important that institutes within ICES continue to support the EGs.

The change in expert group timing and duration presents significant challenges and will require a change of working procedures with expert groups and also in home laboratories. In that sense 2008 will be a transitional phase and it is recognized during this period of change there may be some problems. Particularly since EG durations have been set independent of volume of assessment/advisory requirements. In 2008 some EG will have to focus on producing update assessments and advice in a shorter timeframe. It was also noted the process for planning and developing stock assessments must be taken up somewhere. There are concerns that the change in working procedure may mean that there may not be time in the expert groups to take it up. Furthermore, it was noted that although full assessments and advice may not be included for a stock the EG/advisory group reports should include information from and co-operative projects with the fishing industry.

A proposal was presented for a more consistent naming of the stocks in the Advisory Report (doc 7). The proposal is to use the following format:

X.4.Y [common name (*latin name if common name is ambiguous or for unique stocks*)], [area description in ICES Div.] [(explanatory “trivial names of the stock” or area)]

AMAWGC suggested that the ICES secretariat should compile a list of stock names according to the new format and circulate these to the chairs of working groups in the first week of March 2008. Comments from the chairs will be collected and used as a basis for a final proposal to ACOM.

The present headings of the sections about the environment in the single stock advice are unclear. The present headings are:

- Management considerations
 - *Ecosystem considerations* [Impacts of the fisheries on the ecosystem]

- Factors affecting the fisheries and the stock

The environment [account of any known environmental impacts on this stock. This could be followed by considerations regarding the implications for management]

AMAWGC suggested the following change in naming in the single stock summaries:

<i>from</i>	<i>to</i>
Ecosystem considerations	Fisheries impacts on the ecosystem
The environment	Environmental impacts on the stock

AMAWGC conclusions

ACOM leadership (chair + vice-chairs) need to clearly communicate to the clients (e.g. MICC, RACs) about the change in procedure of no longer providing annual advice for stocks that previously had an annual advice. This also needs to be communicated with the research institutes servicing ICES EG so that the work programmes can be modified appropriately.

WG chairs have identified stocks for which no new advice may would be delivered in 2008 because the information base is too weak to provide an updated advice (see Annex 5). In such cases, the advice from the previous year would still be applicable. If working groups find that sudden changes are apparent for stocks that are scheduled for no-advice, the EG should communicate with the ACOM vice-chair about the process to follow for that stock. The final decision for how advice is produced should lie with ACOM.

Benchmark workshops do not provide advice but provide the basis for the advice the year after the workshop. If a benchmark workshop is scheduled for the second part of the year, this does not mean that the working group should not provide an (update-) assessment and advice in the first part of the year.

Working group reports should include updates on the status of developing assessments and other data issues (e.g. industry inputs, data quality etc.) for stocks where full assessments and advice not proposed in a given year.

AMAWGC suggested that the ICES secretariat should compile a list of stock names according to the new format (*X.4.Y [common name (latin name if common name is ambiguous or for unique stocks)], [area description in ICES Div.] [(explanatory "trivial names of the stock" or area)]*) and circulate these to the chairs of working groups in the first week of March 2008. Comments from the chairs will be collected and used as a basis for a final proposal to ACOM.

AMAWGC suggested the following change in naming in the single stock summaries:

<i>from</i>	<i>to</i>
Ecosystem considerations	Fisheries impacts on the ecosystem
The environment	Environmental impacts on the stock

3 Review the Table of Contents of Working Group reports in 2008

A proposal was presented for a standardized template for the contents of WG reports in 2008 (Doc 10). The aim of this structure is to provide clear link between working group reports and advice sheets so that review groups and other users of the advice sheets can readily refer back to reports to find the source of advice.

AMAWGC agreed to the objective of achieving a closer link between the WG reports and the advisory report.

ACOM has set up a subgroup to evaluate and revise the structure of ICES advice later in 2008. This could entail changes in the structure the advice templates and of the working group reports in 2009. Therefore, AMAWGC decided that the type of information that is required in the advice in 2008 should be easily traceable in the WG reports (e.g. through providing links) but that a complete reformatting would be inefficient in the light of the likely changes in 2009.

Executive summaries

There is a great deal of variation between working groups in the way in which executive summaries are treated. The evaluation of 2007 working group reports examined this variation (doc 11). The purpose of executive summaries should be to convey working groups results to an outside audience eg. other working groups. Their role should therefore be to draw attention to important aspects of the report. In this respect, they should generally point out aspects of the report that differ from what would normally be expected and down-weight aspects that conform to expectations.

Action point: Barbara Schoute will prepare a guidance document on the use and content of executive summaries for distribution to working groups.

Stock annexes (Quality handbook)

Use of stock annexes has varied between working groups. Some have used the annex to document the development of methodologies over time while others have used them as “quality handbooks” which act as “recipe books” for standardized assessment methodology. The annex should provide a description of standardized methodologies that can be followed by expert groups carrying out update assessments.

Documentation of working documents

Because working documents are expected to become a more important part of the working group process, **AMAWGC recommends** the development of a documentation system of Working Documents which could be available for public access (e.g. similar to NAFO papers).

Data tables

PGCCDS has developed standardized data tables that could be included in expert group reports in future with the aim to document the availability and quality of the available data. This system is under development and is further discussed in section 7 of this report.

4 Management strategies

The work of the **Study Group on Management Strategies (SGMAS)** was presented by Dankert Skagen. The SG was established in 2005 with the objective to provide guidelines for evaluation of management strategies. Such guidelines and concepts were suggested by the SG in 2006.

Typically objectives of management strategies (relating e.g. to catch levels, acceptable risk, stability or predictability) are assessed by evaluating indicators of performance (e.g. average catch, year to year variation in catches, risks and probabilities for ssb) from simulation studies subject to different constraints and conditions.

In 2007 the work focused on inclusion of environmental information, interaction with decision makers and other stakeholders, and identification and application of simple and robust resource and performance indicators in evaluating management strategies by the SGMAS framework.

In 2008 the SG intends to review proposed rules and recent evaluations, update inventory of simulation tool, and assemble results from related groups (e.g. WGFS, SGRAMA, WGMG, WKEFA, SGFIAC, WGSAM, WGRED, WGEKO) to be incorporated in a common tool.

It is the intention that SGMAS is a forum for synthesis of ongoing work, to set standards and provide updated guidelines for future developments.

AMAWGC concluded that evaluation of management strategies and harvest control rules are lengthy processes that can not be done during a one week WG meeting. Standards and guidelines for the evaluation exist in the 2006 report of SGMAS. However, SGMAS is planning to review the evaluations of the harvest control rules that have been done.

AMAWGC recommended that Dankert Skagen and Martin Pastoors should develop a proposal for handling the evaluations of agreed management plans that have not yet been evaluated by ICES. This proposal should be submitted to ACOM in March 2008.

AMAWGC suggested that SGMAS members should be nominated as reviewers for harvest control rules evaluations. In that way they can contribute with their experience to the evaluation process within ICES and the SGMAS guidelines would be made operational.

5 Integrated advice

Jake Rice presented the main conclusions of WGRED on the integration of ecosystem drivers and effects in the ICES advice.

WGRED provided a classification of different types of expert groups and a proposal on the possible functions of these groups in the direction of integrated advice (see WGRED 2008 report for more details):

- Assessment type working groups
- SGMAS type working groups
- SGPRISM type working groups
- WGEKO type working groups
- Regional Integrated Assessment type groups
- Advice drafting groups

- Review groups
- Benchmark workshops
- Data groups
- Science expert groups

WGRED provided a table of interactions between these groups that outlined the links and expectations for the different groups.

AMAWGC/WGRED Conclusions

The general direction of the WGRED proposal is very useful. The WG products of the future will need to be better balanced: the catch option advice has been the main source of working pressure for WGs. The role of harvest advice will likely be reduced, while bycatch and environmental effects of fisheries may play a much more important role in future. This is happening under the pressure of clients and international agreements. This process will involve more than just rewriting the ToR. It means that the WGs should become the forum to discuss the integrated issues and should also have the relevant expertise to carry out that job. The WGs will have to be informed on the new visions here to make change possible.

AMAWGC notes that the change in balance should also affect the process in the Advisory Committee. In the past, ACFM has paid much more attention to the 'numbers advice' than to the more qualitative parts of the advice.

The benchmark meetings should provide the platform for a scientific integrated advice to develop. It needs to be made clear that integrated advice requires that scientific findings such as sound functional relationships between the environment and fish dynamics are brought to the attention of the relevant scientific community. Multi-disciplinary scientific debate and collaboration should then take forward the process of integrated advice. Therefore, ToRs for these benchmark workshops should be formulated more widely to include methods for including environmental and multispecies aspects in the assessment process. ACOM is asked to consider the possible additional work pressure for expert groups and Benchmarks resulting from this.

AMAWGC and WGRED suggested that development of ToRs for next year's benchmarks should start very soon. Regional benchmarks should be considered or benchmark workshop with specific themes (e.g. bycatch). AMAWGC and WGRED suggested that a Theme Session (with sub-sessions on regional basis) would be a useful initiative to further the integrated advice.

6 Mixed-fisheries and Multi-species

AMAWG TOR e) "review and plan the implementation of fisheries-based advice and integrate fisheries technology expertise" was opened by a presentation by Stuart Reeves of the results from SGMIXMAN. This was followed by a presentation by Bjarte Bogstad on WGSAM.

6.1 SGMIXMAN

SGMIXMAN (originally WKMIXMAN) was established with the short term requirement of defining a framework for simple models of mixed fisheries which could be used in the provision of fisheries based advice. The result of the first MIXMAN meeting (2006) was the development of the Fleet and Fishery Forecast

approach (Fcube). After the initial adoption of the FCube approach by WKMIXMAN exploratory runs were made at WGHMM and WGNSSK. These trials identified a number of issues and it was concluded that further development and testing would be required before Fcube could be used in an advisory context. It was noted however, that SGMIXMAN was tasked with providing simple models for fisheries based advice and that the specific requests of WGHMM regarding the inclusion of selectivity profiles would result in a significant complication of the procedure.

In 2007, Fcube was implemented in the FLR framework, which has facilitated further testing of both the hind-casting and forward projection aspects of the approach. This testing has been, and continues to be, conducted primarily under the EU project AFRAME. Results of the testing so far indicate that the approach can be used in an advisory context in situations where sufficient information is available but that widescale adoption of the approach would likely be problematic due to data limitations.

Although the 'Nantes matrix' data segmentation proposed by STECF is still considered by SGMIXMAN to be the most appropriate basis for defining fleets/métiers it was acknowledged that this information covered only EU areas and omitted other areas such as Icelandic waters and the Barents Sea where mixed fishery interactions are also known to occur. Discards information can be included in Fcube although it is a requirement that the assessments upon which the analyses are based must themselves include discards.

AMAWGC conclusions

AMAWGC concluded that the work of SGMIXMAN was a valuable contribution and represented an important step towards the provision of mixed fisheries advice. The SGMIXMAN report provides useful inputs to the working groups and to the regional advice overviews. However, it is not yet possible to use the SGMIXMAN report as a basis for the regional fisheries advice in 2008 for all the areas.

It was noted that the Fcube approach lends itself to an MSE style of analysis whereby candidate harvest control rules for mixed fisheries could be tested in a simulation framework. The current implementation of Fcube could be used and further investigated by SGMAS.

Effective communication of the results of the analyses was considered to be an important aspect. The RACs/stakeholders could be consulted on this issue. It was conceded that communication with stakeholders and managers was currently low but that this was expected to improve with time. The hind-casting component of the approach was considered to be a particularly important aspect in this respect with the initial emphasis being on the historical development of the fishery.

Ideally, the regional fisheries overviews should be conducted by expert groups that can oversee the whole region. At present, the organization of the working groups does not adhere to a strict regional orientation. Another idea would be to have Regional Fisheries Description group similar to WGRED for ecosystems.

ACOM is requested to provide more guidance on how the mixed fisheries analyses should be included in the advisory process and what role the current working groups should play in those analyses.

The future role of SGMIXMAN is unclear, but AMAWGC concluded that mixed fisheries analyses will continue to be an important aspect of an integrated advice and that the methodologies need to be further developed.

6.2 Multispecies modelling

WGSAM met in October 2007 with specific terms of reference to examine the status of multi-species modeling in ICES areas and to consider the feasibility of using the various methods across regions. Further, to evaluate stomach-sampling survey designs, and to investigate predator prey relationships and their impacts on weight at age and to compare the methods for forward projections of different multi-species and ecosystem models. The main sea areas considered by the group were the North Sea, Baltic, Barents Sea, Bay of Biscay and the Northwest Atlantic.

The group reviewed the status of multi-species modeling in each of the ICES eco-regions and the northwest Atlantic and identified four categories into which ecosystem and multi-species models could be grouped. Whole ecosystem and dynamic system models; minimum realistic models; individual based models and bio-energetic models. The group reviewed the status of stomach contents data in the above areas and compared different sampling strategies (high intensity, low frequency and low intensity, high frequency). It investigated the bottom up effects of prey abundance on predators with specific reference to the effect of sandeels on sea birds and predatory fish, marine mammals, cod and capelin in the Barents Sea and the effects of prey abundance on weight at age in hake.

The group was unable to fully address its term of reference regarding comparison of forward projections from different eco-system and multi-species models and no new analyses were conducted. However, it has made plans to conduct a comparison using EwE, 4M and SMS.

WGSAM suggested that the EU Commission should incorporate a rolling stomach sampling program in the revised EU Data Collection Regulations (DCR). A feasibility study should be conducted in order to establish the most efficient sampling strategy.

AMAWGC conclusions

Much of the discussion centered on the issue of integration and the process by which the work of WGSAM could be incorporated into the advisory process. Whilst there is a clear link with WGRED, it was noted that further integration could be achieved through SGMAS, which has specific terms of reference to incorporate the work of other groups and also to investigate the effects of variability in natural mortality. WGSAM potentially provides a link to the wider ecosystem aspects of MSE.

For some assessment working groups the issue of seal predation on cod was a largely unresolved problem, particularly in those areas where MSVPA estimates of M2 are not available. No new information was available on the subject. AMAWGC stated that any information or advice that WGSAM could provide on this subject would be gratefully received.

AMAWGC recommends that the following points be included in the terms of reference for consideration by WGSAM in 2008.

- The effect of seal-fish interactions
- The effect of variability in natural mortality (especially at the younger ages)

7 Links with PGCCDBS on coordination of data sampling.

7.1 Quality Assurance Framework

The PGCCDBS chair presented the development on Quality Assurance Framework (QAF) for stock assessment input parameters. Issues about quality assurance are included in the current MoU between EC and ICES committing ICES to communicate any problems regarding data collected under the DCR and be responsible about the quality control of the aggregated data used for assessment.

The main objectives of the Quality Assurance Framework (QAF) suggested by PGCCDBS are: (i) to guarantee the quality of the raw data used for assessment, (ii) promote transparency of the process of compiling parameters at the stock level and (iii) give feedback about the usage of the data available.

The approach proposed by PGCCDBS is based on a set of quality indicators computed for each parameter available for stock assessment. Such indicators can be qualitative or quantitative. At the moment three indicators are proposed (ICES CM 2007/ACFM:09): (i) compliance with protocols, (ii) coverage of the sampling achieved and (iii) precision of the estimates. These quality indicators are under development in ICES within two dedicated workshops, WKACCU in 2008 and WKPRECISE in 2009.

AMAWGC conclusions

AMAWGC endorsed the principles of the quality assurance framework presented by PGCCDBS.

AMAWGC supports the development of the quality indicators. These will contribute to systematize sampling meta information and provide the feedback to data collectors and relevant EU/DCR bodies regarding the quality of input data for assessment. The implementation of the quality assurance framework should not increase the workload of stock coordinators and assessment working groups by making sure that efficient software tools can be used for the analysis (e.g. InterCatch)

AMAWGC supports the development of a data catalog to manage sampling meta information so that the sampling summaries can be generated automatically. The data catalog should contain information about and be available to all ICES member states sampling efforts.

7.2 Questions from PGCCDBS to AMAWGC

In 2007, PGCCDBS made the following requests to AMAWGC.

- Provide information on usage of maturity data to build maturity ogives.
- Comment on the frequency of Age Calibration Workshops.
- Comment on guidelines for Age Calibration WK, in particular the follow up actions of which AWGs are the main users.

Unfortunately the questions were not addressed by AMAWGC in 2007. Martin Pastoors will request input from WG chairs on these questions.

For 2008, the following requests to AMAWGC were raised by the EU-ICES Liason Meeting:

- WG should consider the list of species for which probabilistic maturity reaction norms should be computed.

The basis of this request is not sufficiently clear. AMAWGC does not consider the assessment working groups an appropriate forum for recommending sampling strategies for probabilistic maturity reaction norms.

- LM considers that the methodological aspects [regarding sampling recreational fisheries] should be addressed by forthcoming PGCCDBS/PGMed.

AMAWGC supports the proposal for a workshop on methods for sampling recreational fisheries because recreational fisheries could be having a larger impact on stocks that are at low levels.

- SGRST proposed a pilot study to look at the problems encountered when linking catch and effort data at 'metier' level with fleet economic data, in order to produce a framework for the estimation of economic data at "metier" level. LM notes that the SGECA-SGRN workshop has linked the catch and effort data between the metier stratification and the fleet segmentation. In accordance with SGECA 08-03 recommendation, the linkage of all other variables still has to be explored and should be the subject of a study or a research project. In order to progress on this issue, LM agrees with SGECA 08-03 suggestion to draw the contour of such a project in a dedicated workshop including both economists and biologists.

AMAWGC supports the proposal for a joint workshop of economists and biologists that link the fleet economic data with metier biological data. This could be organized through a joint ICES-STEFC workshop.

8 Reference points

The report from the ICES' Workshop on Reference Points in the Baltic Sea [WKREFBAS] was presented by Morten Vinther.

For the Central Baltic Sea there are indications that effects of species interactions and regime shifts may have influenced productivity of the stocks. However, WKREFBAS found that for the eastern Baltic cod stock an F at 0.3 to 0.4 as suggested by AGLTA (ICES, 2005), is still a reasonable estimate for a sustainable fishing mortality.

In the Baltic Sea, the interacting fish community in the open sea is dominated by three species namely cod, herring, and sprat. Cod is known to feed on herring, sprat and juvenile cod. The biomass of cod has varied by a factor of around 5 with the highest biomass in the beginning of the 1980s and the lowest in the most recent period. The sprat stock is in a good state and the status of the herring stock is improving. There seems to be a clear correlation between the biomasses of the predator and prey species (especially sprat).

To investigate existing (and potential) limit and precautionary reference points for Baltic stocks in the context of biological interaction, WKREFBAS investigated a three species model (cod-sprat-herring) using the SMS (Stochastic Multi-Species) software. The results indicated that models including estimation of predation mortality give a very different result with respect to biological reference point and management measures when compared to single species models.

In the eastern Baltic Sea, reference limits for the prey species herring and sprat cannot be defined without considering changes in the biomass of their predators. Likewise

reference limits for the predator species cod cannot be defined without considering changes in the biomass of its prey and the environment condition for spawning and recruitment. These considerations make it impossible to achieve MSY predicted by single species assessment, simultaneously for cod, sprat and herring.

The SMS model did not include predation of sprat on cod eggs and density dependent growth. While predation on cod eggs and food competition between cod and sprat larvae are probably of minor importance under the present environmental regime, the density dependence of clupeid growth has been shown to be significant.

AMAWGC conclusions

The discussion about role of reference points in a multispecies context used the Baltic case as an example. The results of WKREFBAS suggest that a change is required in thinking: from single species reference points to multispecies reference points. AMAWGC recommends further (methodological) developments in this direction.

The specific WKREFBAS recommendations on reference point for Baltic cod should be considered by WKBFAS and are not an issue for AMAWGC.

WKREFBAS could not fully address the EC request on management plans for the pelagic stocks (herring and sprat) in the Baltic. AMAWGC recommends to the Advisory Committee that an ad-hoc group of experts should be set up to address the EC request. This group should preferably meet in the end of 2008 because the appropriate experts are already fully occupied with the regular work and the other requests.

9 Developments in stock assessment methodology and working group processes

9.1 Stocks for which no new advice will be provided in 2008

In order to reduce workload in working groups, a proposal has been made to move to multi-annual advice for those stocks which have a weak information base (doc 9).

The proposal for stocks for which no new advice is provided in 2008 is based on the evaluation of the 2007 advice (doc 8) and the understanding that ICES has insufficient information to provide an annual advice for those stocks. In those cases the advice for 2008 will also be applicable for 2009. Details of the proposal are in Annex 5.

AMAWGC updated and agreed to the proposal of stocks for which no new advice will be provided in 2008 and where the advice from 2007 will remain applicable.

9.2 Benchmark and update assessments 2008 and 2009

The schedule for benchmark and update assessments for 2008 and 2009 was discussed several times during the AMAWGC meeting. The year 2008 is a transition year from the situation where assessment working groups carried out updates and benchmarks within the working group meetings and to the situation where the process of updating and benchmarking will be organized in two separate meeting. The working group meeting will be responsible for updating and providing the advice and the benchmark workshops will be responsible for developing the science. This new way of working is operational for the following groups in 2008: WGNSSK, WGNSSD, WGSSDS, WGHMM. The other groups are still working under the old arrangements and are expected to change in 2009.

AMAWGC discussed the arrangements for the benchmark workshops for 2008 and 2009. In line with the joint sessions with WGRED, AMAWGC recommended that the scope of the benchmark workshops should be wider than only updating the methodology for stock assessments. The benchmark workshops should follow a more thematic approach and be used as a vehicle to integrate the scientific understanding into the ICES advisory process.

Therefore, AMAWGC recommends that the following benchmark workshops should be organized in 2008 and 2009 (details can be found in annex):

2008

- **Workshop on Benchmark assessments for Flatfish stocks (WKFLAT)**
- **Workshop on Benchmark assessments for Roundfish stocks (WKROUND)**

2009

- **Workshop on Benchmarking for Real-time monitoring (WKREAL)**
- **Workshop on Benchmarking for length-based assessments (WKLENGTH)**
- **Workshop on Benchmarking of industry-based data in assessments (WKIND)**
- **Workshop on Benchmarking of survey-based assessments (WKSURV)**

The benchmark workshops are expected to start with a (one-day) Data Compilation Workshop (see below) that aims to bring all available data sources to the table.

The benchmark workshops are expected to produce a workshop report and updates of the quality handbook for the stocks considered.

The benchmark workshops will be reviewed by largely external reviewers who will focus on the scientific improvements. The workshop report and the review report are scheduled to feed information into working groups and advice in the next year.

9.3 ICES Data compilation workshops and RAC focus groups

The ICES Data Compilation Workshops are a part of the new ICES Advisory Services and aim to bring stakeholders and scientists together in evaluating the quality and appropriateness of data that is used for providing scientific advice.

During the Meeting between ICES and the RACs (MIRAC, doc 19), a suggestion was raised (but not agreed!) to create an efficient division of responsibilities between the RACs and ICES. The RACs could take primary responsibility for **focus-groups** which are aimed at improving the available data and for exploring alternative data sources that could be used for scientific assessments. These focus-groups could consist of stakeholders (fishers) and scientists from different national backgrounds. ICES could then be responsible for organizing **data compilation workshops** which aim to evaluate all available data (including time-series of non-traditional data sources) for the purpose of providing the best assessments of the state of the stocks. The data-compilation workshops should be attached to the ICES benchmark workshops.

For 2008, the data compilation workshops will be attached to the two benchmark workshops that are foreseen (WKFLAT, WKROUND). The report of the data compilation workshop will be included in the benchmark workshop report.

Chairs of ICES working groups are increasingly requested to participate in RAC meetings (including focus groups). If the chairs of ICES working groups are expected to represent ICES during a RAC meeting, there will always need to be an explicit invitation through ICES to these chairs, indicating what the meeting is about and what the expected role of the chair would be in that meeting. In most cases the funding arrangements will be an agreement between the RACs and the chairs directly and will consist of travel and per diem.

9.4 Documenting data and methods

The documentation of data and methods used by the working groups has sometimes been lacking in recent years with the introduction of the combination of sharepoint and the W-drive. It has not always been clear where final runs or the input data were stored for the different stocks.

Guidelines for documenting data and methods were presented in document 16. The distinction between sharepoint and the W-drive will be operated as follows:

- Sharepoint
 - Working documents
 - Software
 - WG report (including the basic data files used for plots and tables)
- W-drive
 - Data
 - Final runs (these folders include the input data + results of the analyses)

After the end of the WG meeting, the ICES secretariat will make the data and final runs available on the sharepoint site (in zipped format).

AMAWGC recommends that an “Exploratory runs” folder should be added under each of the stocks on the W-drive

9.5 Standard Graph database

A brief discussion was devoted to the standard graph database which is used to generate the standard graphs and as a basis for the historical retro plots.

Working Groups should make sure in consultation with the secretariat that the standard graph database has been updated by the end of the working group meeting.

The secretariat is responsible for maintaining the historical retro database and will make sure that this database is available to the working groups and in the advisory process.

AMAWGC recommends that if changes are needed to standard graphs (e.g. removing recruitment numbers, changing SSB in final year) this should be done on the standard graph database itself and not on the Excel plots that are derived from the database.

AMAWGC recommends that discards should be included in standard graph database. This could be accomplished by modifying the data exchange format to the standard exchange format that has been proposed in doc 29.

9.6 InterCatch

Henrik Kjems-Nielsen presented the development carried out in InterCatch (IC) during 2007. Several groups have provided feedback and comments on the use of InterCatch during 2007.

InterCatch will be applied to 34 example stocks in 2008. The example stocks are spread over different working groups.

AMAWGC noted that an updated documentation of InterCatch is required

AMAWGC noted that the feedback to working groups needs to be improved and the working groups should have insight in how their comments have been treated and incorporated. This should also apply to the conclusions of workshops on InterCatch.

InterCatch appears to be working according to specification that have been set for the program. However, AMAWGC considers that the specifications may have been too narrow and do not address all the additional requests for quality assurance.

AMAWGC recommends a further development of an exchange format for assessment data that can be used by all groups working with these types of data. It appears that a proposal for such a format could be shortly forthcoming from groups working under STECF.

AMAWGC recommends that InterCatch should be further developed by extending its use to serve as the Stock Coordinator tool for deriving all assessment data from a national basis. InterCatch should develop to a open data model containing all relevant data and working methods for the assessment process. To ensure that data extraction can be reproduced, InterCatch should document all procedures leading to the assessment input data.

For the implementation of the recommended improvements the following list of priorities should be taken into account:

- a) Conversion of length aggregated data to age data within InterCatch for parameters used in stock assessments. This requires flexible allocation keys.
- b) Quality indicators on stock weight, sex ratio, maturity and CPUE should be included
- c) Discards raising
- d) Mixed fisheries to be able generate overviews of catches and effort by fleet/fisheries

The current implementation of InterCatch should be maintained during the development that is recommended by AMAWGC.

9.7 FLR developments

Release of FLCore 2.0 is imminent including improved/faster algorithms for forecasting, optimisation using ADOL-C and SQL facilities. The developments have been driven by EU project considerations. The FLCore team is under taking the developments and that the team will not do the work for ICES.

Use in WGs has been increasing at a faster speed than the development of agreed, tested algorithms. Problems that have been highlighted are the low number of assessment methods available, the lack of diagnostic output, version and quality control.

There is a need within ICES to set up a group that can formulate and test standard functions for WG to use and for a library of agreed functions to be stored at ICES. Version control advice to the WG is required. In addition it was noted that each assessment is run using a user-defined script and unless that is available to chairs and review group members it will not be possible for assessments to be reproduced outside of the WG environment.

Quality control of assessment methods used by ICES has been discussed by the methods WG at several meetings; the ideas developed at the methods meetings should be progressed and a formulation for a workshop for the quality assurance of assessment software agreed.

AMAWGC recommends that an ICES-FLR group should be set up with the following tasks:

- to implement and maintain FLR routines that are of specific interests to working groups and study groups
- to oversee version control of FLR within ICES
- to be involved in the recommended workshop on Guidelines for Quality control of Assessment and simulation software.
- to update the software inventory for assessment software on the ICES homepage

9.8 Sharepoint

It is proposed that the use of SharePoint will be extended and its format simplified in 2008. For 2008 the secretariat intend that as much information as possible will be stored on SharePoint so that it is accessible from outside of ICES. Questions were raised as to the feasibility of this as experience had shown that there are difficulties in loading and downloading large files across the internet using SharePoint. Output from programs that produce large file sizes (maps) can be problematic. The possibility for accessing the W: drive using other software would be explored.

AMAWGC recommends the development of the facility for downloading multiple files in one copy process. Groups had found that the time involved in downloading files created bottlenecks that would be avoided by improved file handling. The secretariat will look into the possibility; it may require changed permissions.

The use of the W: drive stock files and personal files and SharePoint was creating problems within working groups. One suggested approach to rationalisation was to have all files stored on SharePoint; however given the file transfer difficulties described above it was considered that this could be problematic.

A new format for SharePoint allowing access to the advice sheets page from the working group page was demonstrated. WG members will only have read access to the advice sheets after the WG has finished. It was considered that this would permit improved transparency in the development of the advisory process.

The version control system of SharePoint was demonstrated. This was considered useful, but it was pointed out that uploading a new version from some systems (non windows) does not have version control and that it appeared to be possible to overwrite archive files from previous meetings. **AMAWGC recommends** that overwriting of the Check-in facility in Sharepoint should be remedied

9.9 WGMG

Coby Needle (chair of WGMG) participated in the meeting through a video link. He explained the general approach of the WG and the anticipated work for 2008. WGMG wants to avoid the situation that all the methodological questions get “dumped” on the group and rather attempts to develop methodological issues on a longer time basis.

Practical methodological issues that are pressing for the working groups will need to be resolved through focussed benchmark workshops (for which input from the methods groups is obviously very welcome).

9.10 New approaches for Nephrops

The knowledge base, data quality, assessment approaches, stock size, status, dynamics and fisheries for various *Nephrops* stocks are very heterogeneous. The assessment and advice schedule reflects this. However, there is an expectation from clients and stakeholder for new advice on *Nephrops* stocks in 2008. In that light some results and conclusions from WKNEPTV 2007 were presented at AMAWGC to give an overview of the current status and future development in the use of UWTV surveys in assessment and advice. The approach for handling the *Nephrops* stocks in 2008 was then discussed.

Conclusions

- The WGs should plan to carry out update-assessments in 2008 and provide advice along the same basis as in 2006. Annex 7 provides an overview of what approaches will be used for which stocks in 2008.
- The WKNEPHTV report should be externally reviewed particularly with regard to the used of the harvest ratio approach for advice and the conclusion that 20% suitable precautionary basis for the advice
- Where UWTV surveys are used that the basis for assessment and advice this should be consistent across groups.
- The assessments carried out by EG will be on Functional Units (e.g. stocks). The historical WGNEPH usage of the term "Management Area" should be discontinued in the EG and Advisory reports because it is unclear. The advice needs to be synthesised at a TAC area scale in the Advisory report.
- *Nephrops* stocks should be addressed in thematic benchmark groups in 2009 on both length based assessments and survey based assessments (see Annex 7)

10 Guidance on drafting advice

Martin Pastoors provided a general guidance on the drafting of advice (see <http://groupnet.ices.dk/AMAWGC2008/Presentations/Writing%20advice.ppt>). The presentation will (in a modified form) be presented by Martin Pastoors to the different working groups so that there is a common starting point on the role of working groups on the drafting of advice.

11 Conclusions

11.1 Recommendations

Integrated advice (sections 1.3, 1.4 and 5)

AMAWGC concluded that there is a more clear guidance needed from the advisory committee on the way the integration is intended to occur. In the current setup of the expert groups, there is no explicit recognition of the integration aspects.

AMAWGC recommended that the benchmark workshops could be used as one of the vehicles for better integration of ecosystem and fisheries aspects by explicitly including them in the Terms of Reference.

AMAWGC and WGRED suggested that development of ToRs for next year's benchmarks should start very soon. Regional benchmarks should be considered or benchmark workshop with specific themes (e.g. bycatch). AMAWGC and WGRED suggested that a Theme Session (with sub-sessions on regional basis) would be a useful initiative to further the integrated advice.

AMAWGC recommended that if the role and organization of expert groups would need to be modified in 2009, it would be important to start developing the plan and terms of reference already in the first part of 2008.

AMAWGC concluded that the requests on bycatch of seabirds and on bycatch of cetaceans would have benefitted from a direct involvement of the fisheries expertise, because effort data is already being collected through SGMIXMAN and some of the assessment working groups.

Review of advisory report (section 2)

ACOM leadership needs to clearly communicate to the clients (e.g. MICC, RACs) about the change in procedure of no longer providing annual advice for stocks that previously had an annual advice. This also needs to be communicated with the research institutes servicing ICES EG so that the work programmes can be modified appropriately.

WG chairs have identified stocks for which no new advice may would be delivered in 2008 because the information base is too weak to provide an updated advice (see annex 5). In such cases, the advice from the previous year would still be applicable.

AMAWGC suggested that the ICES secretariat should compile a list of stock names according to the new format (*X.4.Y [common name (latin name if common name is ambiguous or for unique stocks)], [area description in ICES Div.] [(explanatory "trivial names of the stock" or area)]*) and circulate these to the chairs of working groups in the first week of March 2008. Comments from the chairs will be collected and used as a basis for a final proposal to ACOM.

AMAWGC suggested the following change in naming in the single stock summaries:

<i>From</i>	<i>to</i>
Ecosystem considerations	Fisheries impacts on the ecosystem
The environment	Environmental impacts on the stock

Review of WG reports (section 3)

Working group reports should include updates on the status of developing assessments and other data issues (e.g. industry inputs, data quality etc.) for stocks where full assessments and advice not proposed in a given year.

AMAWGC recommends the development of a documentation system of Working Documents which could be available for public access (e.g. similar to NAFO papers).

Management strategies (section 4)

AMAWGC concluded that evaluation of management strategies and harvest control rules are lengthy processes that can not be done during a one week WG meeting. Standards and guidelines for the evaluation exist in the 2006 report of SGMAS. However, SGMAS is planning to review the evaluations of the harvest control rules that have been done.

AMAWGC recommended that Dankert Skagen and Martin Pastoors should develop a proposal for handling the evaluations of agreed management plans that have not yet been evaluated by ICES. This proposal should be submitted to ACOM in March 2008.

AMAWGC suggested that SGMAS members should be nominated as reviewers for harvest control rules evaluations. In that way they can contribute with their experience to the evaluation process within ICES and the SGMAS guidelines would be made operational.

AMAWGC recommends the addition of the following ToR for SGMAS 2008:

- e) review the consistency of previous and recent ICES evaluations of harvest control rules, e.g. starting from the cod recovery plan evaluations.

Mixed fisheries (section 6.1)

AMAWGC concluded that the work of SGMIXMAN was a valuable contribution and represented an important step towards the provision of mixed fisheries advice. The SGMIXMAN report provides useful inputs to the working groups and to the regional advice overviews. However, it is not yet possible to use the SGMIXMAN report as a basis for the regional fisheries advice in 2008 for all the areas.

The Fcube approach lends itself to an MSE style of analysis whereby candidate harvest control rules for mixed fisheries could be tested in a simulation framework. The current implementation of Fcube could be used and further investigated by SGMAS.

Ideally, the regional fisheries overviews should be conducted by expert groups that can oversee the whole region. At present, the organization of the working groups does not adhere to a strict regional orientation. Another idea would be to have Regional Fisheries Description group similar to WGRED for ecosystems.

ACOM is requested to provide more guidance on how the mixed fisheries analyses should be included in the advisory process and what role the current working groups should play in those analyses.

The future role of SGMIXMAN is unclear, but AMAWGC concluded that mixed fisheries analyses will continue to be an important aspect of an integrated advice and that the methodologies need to be further developed.

Multispecies modelling (section 6.2)

For some assessment working groups the issue of seal predation on cod was a largely unresolved problem, particularly in those areas where MSVPA estimates of M2 are not available. No new information was available on the subject. AMAWGC stated that any information or advice that WGSAM could provide on this subject would be gratefully received.

AMAWGC recommends that the following points be included in the terms of reference for consideration by WGSAM in 2008.

- The effect of seal-fish interactions
- The effect of variability in natural mortality (especially at the younger ages)

Links with PGCCDBS (section 7)

AMAWGC endorsed the principles of the quality assurance framework presented by PGCCDBS.

AMAWGC supports the development of the quality indicators. These will contribute to systematize sampling meta information and provide the feedback to data collectors and relevant EU/DCR bodies regarding the quality of input data for assessment. The implementation of the quality assurance framework should not increase the workload of stock coordinators and assessment working groups by making sure that efficient software tools can be used for the analysis (e.g. InterCatch)

AMAWGC supports the development of a data catalog to manage sampling meta information so that the sampling summaries can be generated automatically. The data catalog should contain information about and be available to all ICES member states sampling efforts.

AMAWGC replies to questions by ICES-EC Liason Meeting:

- 1) WG should consider the list of species for which probabilistic maturity reaction norms should be computed.
The basis of this request is not sufficiently clear. AMAWGC does not consider the assessment working groups an appropriate forum for recommending sampling strategies for probabilistic maturity reaction norms.
- 2) LM considers that the methodological aspects [regarding sampling recreational fisheries] should be addressed by forthcoming PGCCDBS/PGMed.
AMAWGC supports the proposal for a workshop on methods for sampling recreational fisheries because recreational fisheries could be having a larger impact on stocks that are at low levels.
- 3) SGRST proposed a pilot study to look at the problems encountered when linking catch and effort data at 'metier' level with fleet economic data, in order to produce a framework for the estimation of economic data at "metier" level. LM notes that the SGECA-SGRN workshop has linked the catch and effort data between the metier stratification and the fleet segmentation. In accordance with SGECA 08-03 recommendation, the linkage of all other variables still has to be explored and should be the subject of a study or a research project. In order to progress on this issue, LM agrees with SGECA 08-03 suggestion to draw the contour of such a project in a dedicated workshop including both economists and biologists.

AMAWGC supports the proposal for a joint workshop of economists and biologists that link the fleet economic data with metier biological data. This could be organized through a joint ICES-STEFC workshop.

Reference points (section 8)

The discussion about role of reference points in a multispecies context used the Baltic case as an example. The results of WKREFBAS suggest that a change is required in thinking: from single species reference points to multispecies reference points. AMAWGC recommends further (methodological) developments in this direction.

The specific WKREFBAS recommendations on reference point for Baltic cod should be considered by WKBFAS and are not an issue for AMAWGC.

WKREFBAS could not fully address the EC request on management plans for the pelagic stocks (herring and sprat) in the Baltic. AMAWGC recommends to the Advisory Committee that an ad-hoc group of experts should be set up to address the EC request. This group should preferably meet in the end of 2008 because the appropriate experts are already fully occupied with the regular work and the other requests.

Stocks for which no new advice will be generated in 2008 (section 9.1)

AMAWGC updated and agreed to the proposal of stocks for which no new advice will be provided in 2008 and where the advice from 2007 will remain applicable.

Benchmark workshops (section 9.2)

Benchmark workshops do not provide advice but provide the basis for the advice the year after the workshop. If a benchmark workshop is scheduled for the second part of the year, this does not mean that the working group should not provide an (update-) assessment and advice in the first part of the year.

Therefore, AMAWGC recommends that the following benchmark workshops should be organized in 2008 and 2009 (details can be found in annex):

2008

- **Workshop on Benchmark assessments for Flatfish stocks (WKFLAT)**
- **Workshop on Benchmark assessments for Roundfish stocks (WKROUND)**

2009

- **Workshop on Benchmarking for Real-time monitoring (WKREAL)**
- **Workshop on Benchmarking for length-based assessments (WKLENGTH)**
- **Workshop on Benchmarking of industry-based data in assessments (WKIND)**
- **Workshop on Benchmarking of survey-based assessments (WKSURV)**

The benchmark workshops are expected to start with a (one-day) Data Compilation Workshop (see below) that aims to bring all available data sources to the table.

The benchmark workshops are expected to produce a workshop report and updates of the quality handbook for the stocks considered.

The benchmark workshops will be reviewed by largely external reviewers who will focus on the scientific improvements. The workshop report and the review report are scheduled to feed information into working groups and advice in the next year.

Links with RAC focus groups (section 9.3)

Chairs of ICES working groups are increasingly requested to participate in RAC meetings (including focus groups). If the chairs of ICES working groups are expected to represent ICES during a RAC meeting, there will always need to be an explicit invitation through ICES to these chairs, indicating what the meeting is about and what the expected role of the chair would be in that meeting. In most cases the funding arrangements will be an agreement between the RACs and the chairs directly and will consist of travel and per diem.

W-drive (section 9.4)

AMAWGC recommends that an “Exploratory runs” folder should be added under each of the stocks on the W-drive

Standard graph database (section 9.5)

AMAWGC recommends that if changes are needed to standard graphs (e.g. removing recruitment numbers, changing SSB in final year) this should be done on the standard graph database itself and not on the Excel plots that are derived from the database.

AMAWGC recommends that discards should be included in standard graph database. This could be accomplished by modifying the data exchange format to the standard exchange format that has been proposed in doc 29.

InterCatch (section 9.6)

AMAWGC recommends a further development of an exchange format for assessment data that can be used by all groups working with these types of data. It appears that a proposal for such a format could be shortly forthcoming from groups working under STECF.

AMAWGC recommends that InterCatch should be further developed by extending its use to serve as the Stock Coordinator tool for deriving all assessment data from a national basis. InterCatch should develop to a open data model containing all relevant data and working methods for the assessment process. To ensure that data extraction can be reproduced, InterCatch should document all procedures leading to the assessment input data.

For the implementation of the recommended improvements the following list of priorities should be taken into account:

- a) Conversion of length aggregated data to age data within Intercatch for parameters used in stock assessments. This requires flexible allocation keys.
- b) Quality indicators on stock weight, sex ratio, maturity and CPUE should be included
- c) Discards raising
- d) Mixed fisheries to be able generate overviews of catches and effort by fleet/fisheries

The current implementation of InterCatch should be maintained during the development that is recommended by AMAWGC.

FLR (section 9.6)

AMAWGC recommends that an ICES-FLR group should be set up with the following tasks:

- to implement and maintain FLR routines that are of specific interests to working groups and study groups
- to oversee version control of FLR within ICES
- to be involved in the recommended workshop on Guidelines for Quality control of Assessment and simulation software.
- to update the software inventory for assessment software on the ICES homepage

Sharepoint (section 9.7)

AMAWGC recommends the development of the facility for downloading multiple files in one copy process. Groups had found that the time involved in downloading files created bottlenecks that would be avoided by improved file handling. The secretariat will look into the possibility; it may require changed permissions.

AMAWGC recommends that overwriting of the Check-in facility in Sharepoint should be remedied

Approaches to Nephrops (section 9.10)

The WGs should plan to carry out update-assessments in 2008 and provide advice along the same basis as in 2006. Annex 7 provides an overview of what approaches will be used for which stocks in 2008.

The WKNEPHTV report should be externally reviewed particularly with regard to the used of the harvest ratio approach for advice and the conclusion that 20% suitable precautionary basis for the advice

Where UWTV surveys are used that the basis for assessment and advice this should be consistent across groups.

The assessments carried out by EG will be on Functional Units (e.g. stocks). The historical WGNPEH usage of the term "Management Area" should be discontinued in the EG and Advisory reports because it is unclear. The advice needs to be synthesised at a TAC area scale in the Advisory report.

Nephrops stocks should be addressed in thematic benchmark groups in 2009 on both length based assessments and survey based assessments (see Annex 7)

11.2 Specific recommendations

2008/ACOM00 **A Workshop on Guidelines for Quality control of Assessment and simulation software** (WKQASS (pronounce: kick ass) (Chair: xxxx) will be established and will meet in (Lisbon, date) for 3 days in 2008? to:

- a) Develop guidelines to control the correct performance of assessment and simulation software, to enable program developers to test and document the correctness of the results.
- b) Provide test data sets for quality checking.

WKQASS will report by xxxx 2008 for the attention of ACOM.

Supporting Information

PRIORITY:	A proper documentation of the quality of the software used for calculations as part of the advisory process is essential to ensure the correctness of the advise.
SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:	<p>Although quality standards for assessment software has been discussed over many years, there is still no clear procedures for ensuring that the software does what it intends to do. Some progress was made at in 1999. Since then a good deal new software has been developed, and to some extent used for assessments. In addition, large amounts of software is being developed to evaluate management plans.</p> <p>It is not likely that ICES will have the facilities to provide a full control of the software that is used for various purposes, nor is it likely that a forum like the WGMG will be in the position to do this kind of work in addition to its other tasks.</p> <p>As a minimum solution, those who provide software should be required to document that it operates correctly. The purpose of this workshop is to provide guidelines for preparing such documentation. This may be check-lists of things that should be controlled (with documented results) and artificial data sets with known properties, where the software should be required to produce known results.</p> <p>WKQASS supports directly ICES goals – to be finished ...</p>
RESOURCE REQUIREMENTS:	It is proposed that this task can be accomplished in one meeting, with some preparatory work for the participants.
PARTICIPANTS:	A selected small group of experts in developing assessment software and quality control. By invitation only.
SECRETARIAT FACILITIES:	None, other than formatting and publishing of the final report.
FINANCIAL:	There are virtually no financial implications
LINKAGES TO ADVISORY COMMITTEES:	The results will . This group feeds into the advisory process.
LINKAGES TO OTHER COMMITTEES OR GROUPS:	This work is closely related to previous work by WGMG. The results, in terms of quality standards is relevant to all groups dealing with assessment and management strategy, including ACOM.
LINKAGES TO OTHER ORGANISATIONS:	None

12 References

Anon. 2007 Final report of European Advisory System Evaluation (EASE), Q5CA-2002-01693.

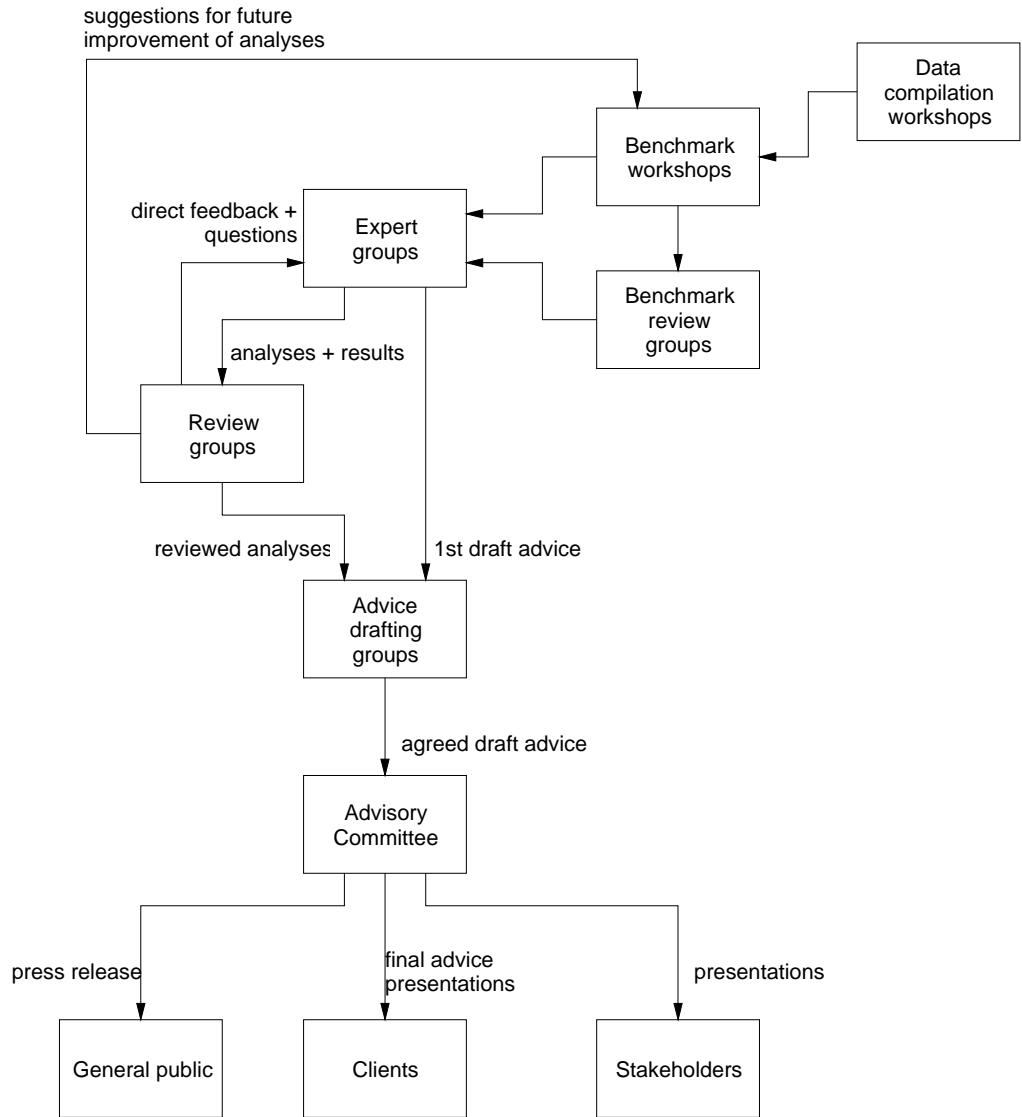
Annex 1: List of participants

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Annex 2: Flow-chart of ICES Advisory Services



Annex 3: Details on the PGCCDBS proposal for Quality Assurance

Issues about quality assurance are included in the current MoU between EC and ICES committing ICES to communicate any problems regarding data collected under the DCR and be responsible about the quality control of the aggregated data used for assessment.

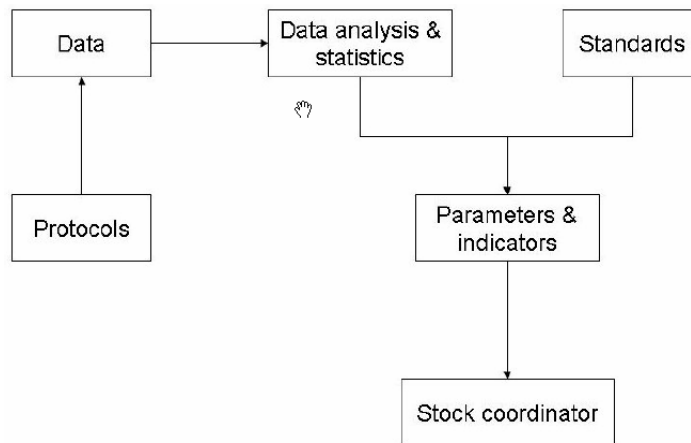
The main objectives of the Quality Assurance Framework (QAF) suggested by PGCCDBS are:

- i) to guarantee the quality of the raw data used for assessment,
- ii) promote transparency of the process of compiling parameters at the stock level and
- iii) give feedback about the usage of the data available.

The approach proposed by PGCCDBS is based on a set of quality indicators computed for each parameter available for stock assessment. Such indicators can be qualitative or quantitative. At the moment three indicators are proposed (ICES CM 2007/ACFM:09): (i) compliance with protocols, (ii) coverage of the sampling achieved and (iii) precision of the estimates. These quality indicators are under development in ICES within two dedicated workshops, WKACCU in 2008 that will deal with (i) and (ii) and WKPRECISE in 2009 that will deal with (iii).

The indicators can be computed at the national level or stock level. For stock assessments the indicators at the stock level are most important.

An overview of the system is shown in the following diagram:



Data collectors provide meta data about the sampling carried out for each parameter to a public online data catalog and provide data aggregated at the required level to stock coordinators. This could be based on InterCatch in the future. Stock coordinators compile input parameters for stock assessment and compute quality indicators. The meta information about sampling and the quality indicators should be documented by the stock coordinator (see example in tables 7.1 and 7.2). This will:

- i) provide additional info to advice process;
- ii) report back to data collectors;
- iii) report to PGCCDBS to evaluate possible problems.

The tasks of the compilation of data at the national level and the upload of meta data to the data catalog should be under the remit of each Member State. The analysis of

the meta data at the national level will not be an ICES responsibility (could be under the remit of STECF/SGRN). Tasks regarding the stock coordinators' procedures shall be under the remit of ICES.

Table 7.1 Sampling summary by parameter and country

Section by stock

Length distribution of landings or retained part		Country 1	Country 2	Responsibility	
Conformity with protocol						
Coverage	Time (Q)	1			Automatic from catalog	
		2				
		3				
		4				
	Space (ICES Div.)	Via				
		Vib				
		Vic				
		VIIa				
		VIIb				
		VIIc				
	Tech/metier	Trawl 50mm				
		Trawl 90mm				
		Nets 120mm				
Pots						
Sampling effort	No. of sampled trips					
	No. fish measured					
	No. different vessels					
Methods	Sampling strategy					
Data	Available				Stock coord.	
	Processed					
	Used					

Table 7.2 Sampling summary by parameter and stock

Section overview

Length distribution of landings or retained part		Stock 1	Stock 2	Responsibility	
Conformity with protocol						
Coverage	Time (Q)	1			Automatic from catalog	
		2				
		3				
		4				
	Space (ICES Div.)	Via				
		Vib				
		Vic				
		VIIa				
		VIIb				
		VIIc				
	Tech/metier	Trawl 50mm				
		Trawl 90mm				
		Nets 120mm				
Pots						
Sampling effort	No. of sampled trips					
	No. fish measured					
	No. different vessels					
Methods	Sampling strategy					
Inference	Methods				Stock coord.	
	Bias quality indicator (WKAACCU)					
	Precision quality indicator (WKPRESISE)					

Annex 4: RAC focus groups 2008

The following RAC focus groups have been planned for 2008:

RAC	Focus group	Meeting	ICES representative	ICES participation on national basis
BSRAC	Pelagic	Tallinn, 21 January		
	Salmon	Copenhagen, 12 March		
NWWRAC	Cod Avoidance Plans for ICES area VIa	Dublin, 13 February		
	Deepwater Gillnets	Paris, 5–6 February		
	Deepwater Species	Paris, 5–6 February		
	Northern Hake Management	Bilbao, 21 February		
	Data Collection	Manchester, 12 March		
	?	?, 5 May		
	?	?, 7 July		
PRAC	Horse Mackerel			
	Mackerel	Amsterdam, 31 January	Martin Pastoors	
SWWRAC	Anchovy	Paris, 27–29 February		
NSRAC	<i>Nephrops</i>			
	Windfarms			
	Saithe			
	Gillnet			
	Monkfish			

Annex 5: Proposal for stocks on which not to provide new advice in 2008

The proposal for stocks for which no new advice is provided in 2008 is based on the evaluation of the 2007 advice and the understanding that ICES has insufficient information to provide an annual advice for those stocks. In those cases the advice for 2008 will also be applicable for 2009.

WorkingGroup	FishStock	Name
afwg	cod-coas	Norwegian Coastal cod
	ghl-arct	Greenland halibut in Sub-areas I & II
	smn-arct	Sebastes mentella in Sub-areas I & II
	smr-arct	Sebastes marinus in Sub-areas I & II
hawg	spr-ech	Sprat in Divisions VII d,e
	spr-kask	Sprat in Division IIIa
wganc	ane-pore	Anchovy in Division IXa
wgbast	sal-32	Salmon in the Gulf of Finland (Sub-division 32)
wgbfas	bl-2232	Brill in Sub-divisions 22 to 32
	dab-2232	Dab in Sub-divisions 22 to 32
	fle-2232	Flounder in Sub-divisions 22 to 32
	her-30	Herring in Sub-division 30, Bothnian Sea
	her-31	Herring in Sub-division 31, Bothnian Bay
	ple-2232	Plaice in Sub-divisions 22 to 32
wgef	tur-2232	Turbot in Sub-divisions 22 to 32
	demersal elasm	Demersal elasmobranchs in the azores and mid atlantic ridge
	demersal elasm	Demersal elasmobranchs in the Barents Sea
	demersal elasm	Demersal elasmobranchs in Iceland and East Greenland
	demersal elasm	Demersal elasmobranchs in the Norwegian Sea
wghmm	shortfin mako	Shortfin mako in the NE Atlantic
	tope	Tope in the NE Atlantic
wghmm	anb-78ab	Anglerfish (Budegassa) in Divisions VIIb-k and VIIIa,b
	anb-8c9a	Anglerfish (Budegassa) in Divisions VIIIc and IXa
	anp-78ab	Anglerfish (Piscatorius) in Divisions VIIb-k and VIIIa,b
	anp-8c9a	Anglerfish (Piscatorius) in Divisions VIIIc and IXa
	mgb-8c9a	Megrim (Boscii) in Divisions VIIIc and IXa
	mgw-78	Megrim (Whiffiagonis) in Sub-area VII & Divisions VIIIa,b,d,e
	mgw-8c9a	Megrim (Whiffiagonis) in Divisions VIIIc and IXa
wgnssds	cod-rock	Cod in Division VIb (Rockall)
	meg-scrk	Megrim in Sub-area VI (West of Scotland and Rockall)
	whg-iris	Whiting in Division VIIa (Irish Sea)
	whg-rock	Whiting in Division VIb (Rockall)
	whg-scow	Whiting in Division VIa (West of Scotland)
wgnssk	nop-scow	Norway pout in Division VIa (West of Scotland)
	ple-kask	Plaice in Division IIIa (Skagerrak - Kattegat)
	san-kask	Sandeel in Division IIIa (Skagerrak - Kattegat)
	san-scow	Sandeel in Division VIa
	san-shet	Sandeel in the Shetland Area
wgnssk	whg-kask	Whiting in Division IIIa (Skagerrak - Kattegat)
	had-7b-k	Haddock in Divisions VIIb-k
	ple-7b-c	Plaice in the West of Ireland (Areas VIIb and VIIc)
	ple-7h-k	Plaice in the Southwest of Ireland (Areas VIIh and VIIk)
	sol-7b-c	Sole in the West of Ireland (Areas VIIb and VIIc)
	sol-7h-k	Sole in the Southwest of Ireland (Areas VIIh and VIIk)
wgnssk	whg-7b-c	Whiting in the West of Ireland (Areas VIIb and VIIc)
	whg-7e-k	Whiting in Divisions VIIe-k
wgwide	hom-nsea	Horse mackerel in the North Sea Area (Areas IIa, IV and IIIa)

Annex 6: Benchmark workshops in 2008 and 2009

2008

The **Workshop on Benchmark assessments for Flatfish stocks (WKFLAT)** (Chair: NN, Country) will meet at ICES HQ, ----- November 2008 for 7 days to:

- a) Evaluate the appropriateness of data and methods to determine stock status and investigate methods for short term outlook taking agreed or proposed management plans into account for the following species and areas:
 - i) Plaice in Sub-area IV and VII
 - ii) Sole in Sub-area VII
 - iii) Megrin in Divisions VIIIc and IXa
 - iv) Megrin in Sub-area VII & Divisions VIIIa,b,d,e
- b) Evaluate the relevance of environmental drivers for stock dynamics
- c) Evaluate the use of estimates of discarding or misreporting on the assessments
- d) Evaluate the role of stock identity and migration.
- e) Agree and document preferred method for evaluating stock status and (where applicable) short term outlook.

WKFLAT will report by 1 December 2008 for the attention of ACOM, RMC, LRC and PGCCDBS.

The **Workshop on Benchmark assessments for Roundfish stocks (WKROUND)** (Chair: NN, Country) will meet at ICES HQ, ----- November 2008 for 7 days to:

- a) Evaluate the appropriateness of data and methods to determine stock status and investigate methods for short term outlook taking agreed or proposed management plans into account for the following species and areas:
 - i) Cod in IIIa, IV, VI and VII
 - ii) Haddock in IIIa, IV, VI and VII
 - iii) Whiting in IIIa, IV, VI and VII
- b) Evaluate the relevance of environmental drivers for stock dynamics
- c) Evaluate the use of estimates of discarding or misreporting on the assessments
- d) Evaluate the role of stock identity and migration.
- e) Evaluate the role of multispecies interactions on the assessments
- f) Agree and document preferred method for evaluating stock status and (where applicable) short term outlook.

WKROUND will report by 1 December 2008 for the attention of ACOM, RMC, LRC and PGCCDBS.

2009

The **Workshop on Benchmarking for Real-time monitoring (WKREAL)** (Chair: NN, Country) will meet at ICES HQ, ----- November 2009 for 7 days to:

- a) Evaluate the role of real-time monitoring and management for the following short-lived species:
 - i) Sandeel in IIIa, IV and VIa
 - ii) Norway Pout in IIIa, IV and VIa
 - iii) Anchovy in the Bay of Biscay
 - iv) Sprat in the North Sea
 - v) Capelin in the Barents Sea
- b) Evaluate the data and methods needed to carry out real-time monitoring.
- c) Evaluate the relevance of environmental drivers for stock dynamics
- d) Evaluate the role of multispecies interactions
- e) Agree and document preferred method for evaluating stock status and (where applicable) short term outlook.

WKREAL will report by 1 December 2008 for the attention of ACOM, RMC, LRC and PGCCDBS.

The **Workshop on Benchmarking for length-based assessments (WKLENGTH)** (Chair: NN, Country) will meet at ICES HQ, ----- November 2009 for 7 days to:

- f) Evaluate the appropriateness of length-based data and methods to determine stock status and investigate methods for short term outlook taking agreed or proposed management plans into account for the following species and areas:
 - i) Nephrops
 - ii) Anglerfish
 - iii) Megrin
 - iv) Hake

The **Workshop on Benchmarking of industry-based data in assessments (WKIND)** (Chair: NN, Country) will meet at ICES HQ, ----- November 2009 for 7 days to:

- a) Evaluate the appropriateness of industry-based data (CPUE, fisher's survey, questionnaires) and methods to determine stock status for the following species and areas:
 - i) *to be done*
- b) Evaluate the balance of industry-based data and science-based data for stock assessment.

The **Workshop on Benchmarking of survey-based assessments (WKSURV)** (Chair: NN, Country) will meet at ICES HQ, ----- November 2009 for 7 days to:

- c) Evaluate the appropriateness of survey-based data and methods to determine stock status and investigate methods for short term outlook for the following species and areas:
 - i) *to be done*

- d) Evaluate the balance of survey-based data and other types of data for stock assessment.

Note: relate to FisBoat project, UWTV surveys for Nephrops

Annex 7: Approaches and recommendation for Nephrops Stocks

The knowledge base, data quality, assessment approaches, stock size, status, dynamics and fisheries for various *Nephrops* stocks are very heterogeneous (see section xx). The approach for handling the *Nephrops* stocks in 2008 was discussed in AMAWGC and the following recommendations were made:

Table A7. An overview of the assessment method and advice basis for *Nephrops* stocks in 2008 by WG as proposed by AMAWGC.

WG	FU	FU name	XSA	LPUE	Mean size	Trawl Survey	UWTV	Comment
WGNSSK	3	Skagerrak		X	X			
	4	Kattegat		X	X			Pilot UWTV in 2007
	9	Moray Firth					X	
	10	Noup		X				
	7	Fladen		X	X		X	
	5	Botney gut		X	X			
	33	Off Horn Reef		X	X			
	6	Farn deeps		X	X		X	
	8	Firth of Forth		X	X		X	
32	Norwegian deep		X	X				
WGNSDS	11	North Minch		X	X		X	
	12	South Minch		X	X		X	
	13	Clyde		X	X		X	
	14	Irish Sea east		X	X			Pilot UWTV in 2007
	15	Irish Sea west		X	X	X	X	
WGSSDS	20-22	Celtic Sea		X	X		?	Pilot UWTV in 2006 & 2007
WGHMM	16	Porcupine bank		X	X			
	17	Aran grounds		X	X		X	
	18-19	Irish coast		X				
	23-24	Bay of Biscay	X	X	X			
	25	North Galicia	-	X	X			
	31	Cantabrian Sea		X	X			
	26-27	West Galicia North Portugal		X	X			
	28-29	S & SW Portugal	X	X	X	X		
30	Gulf of Cadiz		X	X				