

ICES WKOMSE REPORT 2009

ICES ADVISORY COMMITTEE

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Report of the ICES–STECF Workshop on Fishery Management Plan Development and Evaluation (WKOMSE)

28–30 January 2009

EEA, Copenhagen, Denmark



ICES

International Council for
the Exploration of the Sea

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1 Introduction

The workshop was convened jointly by ICES and STECF to improve planning, coordination and consistency of processes for developing and evaluating fishery management plans. The Workshop was co-chaired by the chair of the ICES Advisory Committee and the chair of STECF (Michael Sissenwine and John Casey, respectively).

The Workshop had a short to medium term focus. It dealt with improvements that can be implemented almost immediately and applied over the next few years. This Workshop should be followed by a second Workshop to focus on longer term issue, such as the evolution of plans from single stock Harvest Control Rule (HCR), to plans for fisheries defined by fleets and multiple species, and to Ecosystem Based Fishery Management plans. Since the second workshop is policy oriented, it should be convened by the EC or another policy/management entity.

The evaluation of MPs can be divided into two groups, Ex-post and Ex-ante evaluations. Ex-post evaluations look at future MPs and the likelihood that they will work satisfactorily. Ex-ante evaluations look at the how implemented MPs have worked after some years of being in place. During the present meeting the focus was on Ex-post evaluation.

A more detailed description of the background can be found in Appendix 4.

2 Terms of reference.

The ToRs for the present Workshop are given in Appendix 2.

ToRs 3 to 7 were dealt with in Breakout Groups (BGs) on the second day of the meeting. The following Breakout Groups were made:

- Priorities for evaluation of Plan backlog and for new Plans (Chair Mike Sissenwine)
- Practical modelling framework for short term priority evaluations (Co-Chair Carl O'Brien, Raul Prellezo)
- Evaluation criteria (Co-Chair Manuela Azevedo, Jesper Andersen)
- Roles and Responsibilities for future management plans (Chair John Simmonds)
- Alternative HCRs for advice according to the precautionary approach (Co-chair: Mike Sissenwine, Eskild Kirkegaard)

These Breakout Groups reported back to the plenary the following morning and the plenary discussed the issues identified and agreed on conclusions.

3 Review ICES and STECF experience with the development and evaluation of Fishery Management Plans, and summary of the status of current Fishery Management Plans and priorities for future Plans.

Patrick Daniel and Erik Lindebo presented an overview of the situation seen from the EC perspective.

John Simmonds made a presentation on ICES' experience with MP evaluation in recent years.

Hans Lassen made a presentation about the "ground rules" of the ICES advice referring to UN agreements, CFP, MOUs and the ICES implicit harvest control rule.

Christian Olesen presented the PelRAC view on how their MPs have been developed. The presentation was on the process rather than on the content of the plans.

The other RACs made verbal presentations of their view points.

These presentations initiated a lively discussion which raised points that was dealt with further and in more details in the BGs the following day.

4 Agree on short term priorities for evaluation of the backlog of existing un-evaluated Plans.

Mike Sissenwine presented the outcome of the BG on this issues (Appendix 5).

It was concluded that the cod long-term MPs should be evaluated before the 2009 assessment season so that they can be incorporated into the advice.

For the Baltic pelagic management plan request to ICES, the issue of whether a change to the cod-sprat regime should be included in the ICES evaluation was raised. It was also suggested that the Baltic request seem to be too limited, e.g. the dioxin issue is not included. So this might be a good example for more interaction between actors in the system. The Baltic RAC initiated this process and it was a disappointment to them that the request had still not been answered. There seems to be a need for clarifying the aim. The EC agreed to define more precisely what is required from ICES.

5 Agree on precautionary criteria for the Evaluation of Management Plans.

Manuela Azevedo presented the outcome of the BG on this issue (Appendix 6). Table 5.1 shows the conclusions.

Recovery should be to MSY before 2015. What kind of MSY is an open question at the moment. STECF 2005 and the EC Communication of 2006 focus on Fmsy rather than Bmsy, and implicitly seem to think of F as something that only can be changed gradually over years. The STECF opinion is e.g. that in order to achieve Bmsy by 2015, all age groups should have been fished at Fmsy for their entire lifespan by 2015, meaning that Fmsy should be implemented by 2009 if the age range in the fishery is age groups 2-8. However, the EC Communication states that if stocks are depleted,

lower Fs might be applied. ICES has not internally decided about MSY in relation to the PA.

It was discussed which assessment year should be used in an evaluation – that of latest/current year or that of the year of implementation of the HCR (MP). It was decided to use the most recent information.

Reference points: What to do when ICES has not defined limit ref points. One option is to define other types of limit reference point. It was agreed that if new ref points have been set and accepted by ACOM, these should be used in the evaluation. In the absence of defined limit reference points such as Blim, appropriate proxies (e.g. xlim derived from %SPR, or 0.5Bmsy, or 20%Bvirgin, ...) should be used.

Table 5.1 Criteria agreed during WKOMSE to be applied in the evaluation of Harvest Control Rules – Management Plans, HCR (MP) in relation to precautionary reference points.

Element	Criterion	Notes
Time frame	2015: The performance of the HCR (MP) will be evaluated using as time horizon the year 2015 (in agreement with the Johannesburg Declaration)	The simulations will use as starting year the population parameter estimates from the most recent assessment (e.g. from WG or benchmark).
Biological Reference Points	Limit reference points: Evaluate the HCR (MP) based on Blim and Flim	If new limit reference points have been accepted (ACOM) these should be used in the evaluation; In the absence of defined limit reference points such as Blim, use proxies (e.g. xlim derived from %SPR, or 0.5Bmsy, or 20%Bo,)
Risk	5%: The HCR (MP) is considered to be precautionary if the probability of $SSB < Blim$ (or $x < xlim$) is less than 5%	Criteria for <u>management plan of stocks within safe biological limits</u> to be precautionary: no more than 5% of 10 year simulation runs having one or more years outside of safe biological limits. Criteria for <u>recovery plan</u> qualifying as precautionary: at least 95% of simulation runs recovering by 2015 (the year WSSD committed for rebuilding fish stocks). The 5% will be used unless managers specify another percentage.

Regarding the probability level to use in relation to avoiding falling below Blim, there was agreement on 5% as a default value. ICES will use that unless otherwise specified by the managers. This is consistent with the present PA ref points used by ICES.

Social and economic ref points are issues for the future and there are still very few examples in the entire world where these have been applied.

6 Agree on a practical modelling framework for short term priority evaluations (ToR 3) and to provide near real time feedback on HCR options during the process of developing future Plans.

Carl O'Brian presented the outcome of the BG on this issue (Appendix 7).

The main issue is to evaluate MPs against PA reference points in the immediate time perspective.

Existing software tools (c.f. SGMAS list) are basically similar for HCRs.

Which countries should do the work of the backlog evaluation was raised as a question.

Using a variety of models rather than using the same model for all was discussed. It would probably be preferable to use one model for all evaluations. It was suggested to let a workshop do it. But this might not be realistic. There seems to be special issues for each stock and therefore to use one model for all would be difficult. It has in all past evaluations been necessary to make smaller or larger amendment to models, including some coding or "tricks" with the software. A more unified model that fits most cases might be possible, but there was no consensus.

Various special issues were raised like:

- How much error do we need to include?
- How important is it to simulate the work in the assessment groups?
- For Baltic cod most of the work has been done last year and the analysis might still be useful.

There was no consensus on these issues.

7 Consider the roles and responsibilities of ICES, STECF, managers (e.g., EC) and stakeholders (e.g., RACs) in the development of future Management Plans.

John Simmonds presented the outcome of the BG on this issue (Appendix 8). There was consensus that the managers have the role of being responsible for the overall process of evaluating management plans. Furthermore, as much interaction as practical between all involved was regarded as important.

8 Consider alternatives to the implicit HCR used by ICES to give precautionary advice for stocks below Blim.

Mike Sissenwine presented the outcome of the BG on this issue (Appendix 9). Further work is needed on this issue.

9 Conclusions

The meeting had some excellent presentations. The meeting had 5 constructive Breakout Groups. A way forward on which stocks to evaluate was agreed and ICES will make appropriate arrangements with national institutes.

There will be an STECF group meeting in March working on software which could be an actor in the process of getting the MPs evaluated.

Criteria were clarified to a large extent.

The role and responsibilities in the process were clarified and are ready to be taken further.

ICES needs to arrange the work on the backlog of MPs evaluation with its EGs.

The issue of ICES advice in the absence of a MP was regarded mostly an ICES internal matter and good views were presented.

Should the MPs evaluations be joint with STECF and ICES? If we want to keep it integrated it should be joint. A common approach between the MPs is important.

It would be helpful if the EC formulate its expectation to what it needs, and ICES/STECF will consider its broader approach in the autumn.

The second workshop should be more EC driven and all were in favour of having such a meeting.

Appendix 1. List of participants

ICES-STEFC Workshop on Fishery Management Plan Development and Evaluation [WKOMSE]

28-30 January 2009

LIST OF PARTICIPANTS

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Appendix 2. Terms of reference.

- 1) Review ICES and STECF experience with the development and evaluation of Fishery Management Plans.
- 2) Summarize the status of current Fishery Management Plans and priorities for future Plans.
- 3) Agree on short term priorities for evaluation of the backlog of existing un-evaluated Plans.
- 4) Agree on criteria for the Evaluation of Management Plans.
- 5) Agree on a practical modelling framework for short term priority evaluations (ToR 3) and to provide near real time feedback on HCR options during the process of developing future Plans.
- 6) Consider the roles and responsibilities of ICES, STECF, managers (e.g., EC) and stakeholders (e.g., RACs) in the development of future Management Plans.
- 7) Consider alternatives to the implicit HCR used by ICES to give precautionary advice for stocks below Blim.

Appendix 3 Workshop Agenda

28 January (At EEA Kgs Nytorv 28)

1000-1015	Welcome and Introductions
1015-1030	Review of agenda and arrangements for the Workshop
1030-1115	Overview of EC Management Plans- <ul style="list-style-type: none">• Inventory of Plans• Status (evaluated or unevaluated)• Priority for development of future Plans
1115-1130	Break
1130-1215	ICES experience with Management Plans
1215-1300	STECF experience with Management Plans
1300-1400	Lunch
1400-1445	The Perspective of the RACs.
1445-1515	Discussion
1515-1530	Break
1530-1615	Priorities for evaluation of the backlog of existing un-evaluated Plans
1615-1700	Roles and Responsibilities for the development of future management plans
1700-1745	ICES precautionary advice- Do managers agree with the implied HCR?-

29 January (At ICES HQ, H. C. Andersens Boulevard 44-46)

0900-1230 Breakout Groups

- 1) Practical modelling framework for short term priority evaluations (Baltic, 4th floor, Co-chairs: Carl O'Brien, Raul Pallezo)
- 2) Evaluation criteria (Kattegat, 4th Floor, Co-Chair Manuela Azevedo, Jesper Andersen)
- 3) Alternative HCRs for advice according to the precautionary approach (Henrik's Office 1st floor, co-chair: Mike Sissenwine, Eskild Kirkegaard)

1230-1320 Lunch

1515-1730 Breakout Groups

- 1) Practical modelling framework for short term priority evaluations
- 2) Roles and Responsibilities for future management plans
- 3) Priorities for evaluation of Plan bag log and for new Plans

30 January (At EEA Kgs Nytorv 28)

0900-1030 Reports from Breakout Groups

1030-1200 Next steps

- An *ad hoc* group to conduct short term priority evaluations
- A second Workshop to consider long term issues

1200-1300 Open Discussion

1300-1330 Break

1330-1430 Summing up- Workshop Conclusions

1430 Workshop Adjourns

Appendix 4. Background document

Prospectus for ICES–STECF Workshop on

Fishery Management Plan Development and Evaluation

Introduction

ICES and STECF will convene a workshop on 28-30 January (at the ICES Headquarters) to improve planning, coordination and consistency of processes for developing and evaluating fishery management plans. The Workshop will be co-chaired by the chairs of the ICES Advisory Committee and STECF (Michael Sissenwine and John Casey, respectively).

The Workshop will have a short to medium term focus. It should deal with improvements that can be implemented almost immediately and applied over the next few years. This Workshop should be followed by a second Workshop to focus on longer term issue, such as the evolution of Plans from stock specific Plans primarily specified by a Harvest Control Rule (HCR), to Plans for fisheries defined by fleets and multiple species, to Ecosystem Based Fishery Management Plans. Since the second workshop is policy oriented, it should be convened by the EC or another policy/management entity. Annex 1 contains an extraction from the report of the November 2008 Plenary meeting of STECF which gives the rationale for the two workshops.

Participation of scientists, managers and stakeholders is required for the Workshop successfully fulfill its tasks. In particular, managers must buy into priorities for evaluations, evaluation criteria (it is a management responsibility to decide on risk criteria and rebuilding time tables), and roles and responsibilities for the development of future Plans. The November 2008 STECF Plenary anticipated about 40 in total with scientists from ICES and STECF, managers from the EC and/or ICES member states (e.g., Norway, Russia), and stakeholders from RACs.

Background

Multi-annual management plans are an important feature of the CFP and they are increasingly used by EU and/or ICES member countries, and worldwide. However, the processes for developing and evaluating these Plans have been ad hoc and inconsistent. There is a backlog of Plans to be evaluated and several additional plans are under development or development is anticipated soon.

The following topics need to be considered if management plans are to achieve their full potential:

- 1) Scope- current management plans are narrow in scope. They are primarily a HCR for setting TACs on a stock by stock basis. What about management plans for fisheries or management plans that address ecosystem concerns? How many plans are needed? What's their priority?
- 2) Process- Most plans have been developed by managers with little interaction with independent scientists (those outside the management agency) or stakeholders. Some plans have been initiated by stakeholders (i.e., RACs) with a lot of scientific input but relatively little formal involvement of

managers. Recently, ICES has been asked to prepare a management plans without guidance on roles and responsibilities of stakeholders, scientists and managers.

- 3) Models- There are a wide range of evaluation models from relatively simple to complex models that incorporate a lot of realism and account for many sources of uncertainty. Unfortunately, the later type of models are very time consuming and managers and stakeholders may not know if their proposals will work until the end of a long development process.
- 4) Evaluation criteria- ICES is usually asked to evaluate a management plan relative to the precautionary approach. However, the precautionary approach is not well specified in terms of acceptable risk over a specific period of time, and the time table for achieving objectives is usually unspecified. These specifications are a management responsibility. They are not up to scientists.

The four topics above very important for getting the management plan development and evaluation processes on track for the future, particularly 2-4 which require immediate attention. Topics 3-4 need to be addressed to deal with the current backlog of Plans. These ICES need to be evaluated so that those Plans that are acceptable can be used as the basis of advice instead of precautionary advice based on an implicit HCR corresponding to rebuilding above Blim by the end of the next TAC year. While managers seem to have given tacit approval of this implicit HCR, they do not find the advice useful when it results in a recommendation for a zero TAC. The specification of the precautionary approach is a management responsibility, and if managers do not agree with the specification ICES is using, they need to accept responsibility for some other specification.

Management plan evaluations have three key component sub-models. One component describes the fish stock. The second component describes the assessment method used to derive the population size and fishing mortality rate estimates that are used in the HCR. The third component translates a legalistic HCR text into computer code. Recent experience has indicated that this third component is often problematic because HCRs are complex, and the legal text may not be clear. However, most HCRs have a similar structure, and this may make it feasible to create a relatively simple simulation approach for HCRs. It might also be helpful in prioritizing evaluations, with priority being given to older plans, those where stocks are in poor condition, and those with a HCR that is amenable to a relatively standardized simulation approach. A scheme for classifying HCRs is given below with a worked example for EC North Sea Cod.

For each plan

Name of Plan	EC North Sea cod
Year put forward for evaluation	2008
Assessment type	age structured
Simulation forecast available	yes
Bcur/Blim	less than 1.0
Conditional on SSB/biomass*	yes
Continuous function	no

Discrete (constant within zones)	yes
Number of zones	3
F _{targ}	yes
Rate of change in F	no
Fixed schedule	no
Relative to F _{cur}	yes
Relative to running average	no
Number of years in running average	NA
TAC constraints	yes

*The F_{targ}, Rate of change in F, and TAC constraint may be conditional on biomass. They may vary according to biomass zone (i.e., constant within zones, but different between zones; known as discrete conditional). They may also be conditional according to a continuous function (continuous conditional). If they are not conditional or continuously conditional, the number of biomass zones is 1.

Annex 1

Extracted from the Report of the November 2008 Plenary Meeting of STECF

Multi-annual recovery plans and management plans (collectively referred to as management plans) are an important element of the Common Fisheries Policy. While the increasing application of management plans is seen as a positive development, there are concerns about the ad hoc way the plans are been developed and evaluated.

To date, management plans have been developed for individual stocks or closely related stocks, with most of the attention on a harvest control rule for setting annual TACs and fishing effort levels. The development of the plans has in general not been coordinated and there are examples of plans involving the same fisheries which are incompatible.

Several different processes have been used to develop management plans, such as:

- Fishery manager led development- Some plans have been developed internally within the European Commission or Regional Fisheries Commissions with limited involvement of stakeholders and scientist,
- Stakeholder lead development- In some cases, stakeholders under the auspice of a Regional Advisory Council, have developed plans with scientists strongly involved.
- Scientist lead development- There are also examples of the management plan development process being lead by scientists and cases where ICES has been requested by the EC to develop a management plan.

At present, the roles and responsibilities of scientists and scientific organizations in the development and evaluation of management plans (e.g., STECF and ICES), management authorities (e.g., EC), stakeholders and stakeholder organizations (i.e., RACs), and member states are not well understood.

Similarly, evaluation processes for management plans have been ad hoc. Some plans have been evaluated by ICES and other plans by STECF. There are inconsistencies in the methodologies used for evaluations between ICES and STECF, as well as within each of the organizations. In particular, the evaluations are not consistent with respect to:

- **Methodology-** The evaluations range from qualitative judgments to simple deterministic models to highly complex stochastic simulation models that are pioneering science. There are tradeoffs between applying simple models and complex models in terms of realism, practicality, and transparency. An important consideration is that the more complex the models are, the more difficult it is to use them interactively with managers and stakeholders during the plan development process. This means that in the process of developing a management plan it may be necessary to guess what will work and what will not, until after they have agreed on a proposed plan.
- **Criteria-** Regardless of the methodology, the acceptance or rejection of a management plan should be based on its expected performance relative to objectives and risk considerations. Objectives and risk criteria are rarely given in management plans with adequate specificity to be used for evaluation. Scientists are sometimes asked to evaluate plans relative to the precautionary approach, which is only partially specified for some situations, and unspecified for others. Thus, there are ad hoc judgments about evaluation criteria, which have led to inconsistencies.

Some other aspect of management plans that merits consideration are:

- **Management plan units-** Currently, management plans are applied to individual stocks or a few closely related stocks. There does not seem to be a common understanding of how many plans are needed to cover the fisheries concerned or a priority for developing plans. Alternatively, plans could be developed for management units specified by fisheries or ecosystems.
- **Scope of management plans-** The most important element of current management plans are harvest control rules for setting TACs and fishing effort limits. Some plans also address control and compliance questions while technical measures most often are not integrated in the plans. Rarely do the plans address multispecies consideration, bycatch issues, ecosystem considerations such as habitat effects of fishing, or economic and social aspects of fisheries.
- **Adaptive management-** The performance of management plans should be monitored and evaluated. This should lead to an adaptive management approach where aspects of the plan that do not work are corrected, and new information that accumulates during the life of the plan is applied to improve the plan.

Two workshops are proposed to address these issues. The first workshop should be geared toward agreeing on a consistent framework for evaluation of existing management plans and proposals for new plans expected to be implemented in the near future. The key issues to be addressed in this workshop are scientific. Therefore it should be convened by scientific organizations, but it is critical that managers and other stakeholders be involved to clarify and sometimes specific evaluation criteria, including risk levels.

The second workshop should have a longer term perspective so that it can address management plan units, scope of management plans, and adaptive management, in the context of an ecosystem approach. It is recommended that this workshop should be convened by the European Commission since the workshop's primary focus should be on policy issues but participation by Stakeholders and scientists is vital.

Proposed Workshops:

Workshop on a consistent process for development and evaluation of current and proposed management plans-

Objective: Agree on a consistent framework for the evaluation of management plans to be applied to existing plans and during the process of developing additional plans, during the next year or so. The objective of this workshop is to address the backlog of existing plans and to assist with the development of plans in the short term.

Conveners: STECF and ICES with co-chairs

Participants: About 40 in total with scientists from ICES and STECF, managers from the EC and/or ICES member states (e.g., Norway, Russia), and stakeholders from RACs.

Venue: Copenhagen 28-30 January (following a planned meeting between ICES and RACs)

Terms of Reference:

- 1) Review existing frameworks on management plan development and evaluations
- 2) Propose (for adoption by STECF and ACOM) a practical methodology and criteria for consistent evaluation of existing management plans to be applied during 2009.
- 3) Describe implementation issues or confounding factors that are not usually modelled, but nevertheless should be addressed during management plan evaluation.
- 4) Propose roles and responsibilities for managers, stakeholders, and scientists for the development and evaluation of management plans over the next year or so.

Workshop on the evolution of management plans as comprehensive tool for an ecosystem approach to fisheries management-

Objective: To consider the potential to use management plans as a comprehensive tool for an ecosystem approach to fisheries management, and to identify concrete steps to be taken to advance this potential.

Convener: The European Commission with assistance from STECF and ICES.

Participation: Managers, policy people including politicians, stakeholders, scientists

Date and venue: TBD

Candidate Terms of Reference:

- 1) Consider the scope of a management plan.
- 2) Consider criteria to define management plan units.
 - See the work of the STECF SubGroup on Research Needs

- See reports of the ICES WG on Fisheries System
- 3) Consider the process of developing a management plan.
 - 4) Consider an approach for monitoring and evaluating plan performance in the context of adaptive management.
 - 5) Consider all of the above in terms of an ecosystem approach to fishery management.

Appendix 5. Summary of Breakout Group on Management Plan Priorities.

Slide 1

Management Plan Priorities

Considerations-

- Type of need- Plan development, prospective evaluation, retrospective evaluation.
- Type of evaluation- HCR or broader, qualitative based on routine stock assessments or new simulation models.
- Drivers- Commission request, stakeholder expectations, desire to escape from ICES current framework for precautionary advice.

Slide 2

Short term priorities

- HCRs of un-evaluated cod stocks by simulations modeling. Drivers- Stakeholder expectations, ICES commitments, desire to escape current precautionary TAC advice. Need in time for 2010 advice.
- Review of several existing Plans. Rather than prospective simulation evaluation of HCRs, need evaluation of performance of plans to date.

Slide 3

Plans in need of performance evaluation in 2009 (Commission will make requests)

- Bay of Biscay Sole
- Western Channel Sole
- Southern Hake and Norway lobster
- North Sea Sole and Plaice
- Baltic Cod

New modeling is not expected.

Slide 4

**Approach for 2009
performance evaluations**

Evaluations should include consideration of:

- Implementation of HCRs
- Response of the stock (e.g., is there evidence that recovery plans are moving the stock in the right direction? Is it there yet?)
- Validity of reference points in the HCR. Are they still valid? Are they right for purpose?
- Adequacy of the Plan with respect to other applicable policies (e.g., MSY Policy, bycatch policy, rights based management policy, other policies and norms. These should be highlighted in request

Slide 5

**Approach for 2009
performance evaluations**

- ICES expert groups should have ToR to contribute to the performance evaluation as appropriate.
- Options:
 - ICES stock specific advice addresses MP performance from a biological perspective.
 - ICES sets up an ADG specifically to advise on the biological performance of the five plans.
 - Joint ICES/STECF workshop to evaluate performance of the five plans including the “human dimension.” ACOM will need to approve ICES advice on biological performance.

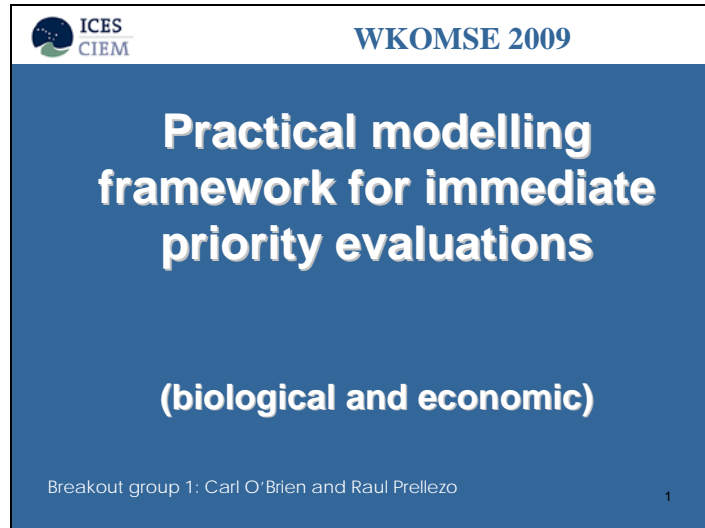
Slide 6

**Priority for Plan Development: Baltic
Pelagics by April (?)**

- ICES has received a complex request. It has responded stating what's doable.
- Models of herring production conditional on cod abundance (probably 3 levels) will be produced. These could be the basis of HCRs. However, such models are not necessarily predictive.
- Some other biological questions will be addressed.
- What next? Is the Commission considering “ecosystem manipulations” in favor of either pelagics or demersals? Who will decide which to favor? Who will prepare a management plan? What is the role of stakeholders? Does ICES need to evaluate the plan before it is approvable?
- ??????? !!!!!!! ????????? ?!!!!!! ????????? !!!!!!!!!!!!!!!

Appendix 6. Summary of Breakout Group on modelling.

Slide 1



ICES
CIEM

WKOMSE 2009

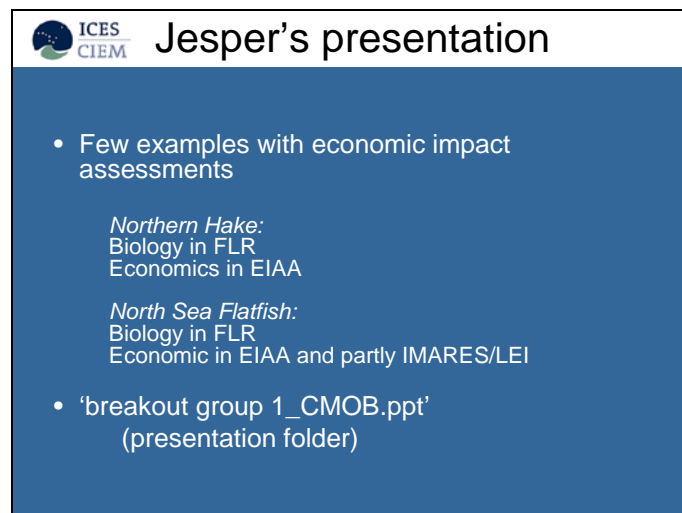
Practical modelling framework for immediate priority evaluations

(biological and economic)

Breakout group 1: Carl O'Brien and Raul Prellezo

1

Slide 2

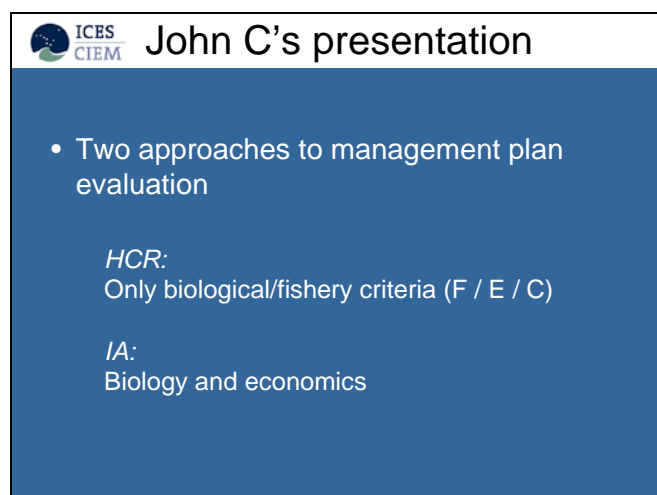


ICES
CIEM

Jesper's presentation

- Few examples with economic impact assessments
 - Northern Hake:*
Biology in FLR
Economics in EIAA
 - North Sea Flatfish:*
Biology in FLR
Economic in EIAA and partly IMARES/LEI
- 'breakout group 1_CMOB.ppt'
(presentation folder)

Slide 3



ICES
CIEM

John C's presentation

- Two approaches to management plan evaluation
 - HCR:*
Only biological/fishery criteria (F / E / C)
 - IA:*
Biology and economics


Slide 4



Mike's identified priorities

- Backlog of plans:
 - Cod stocks
 - Baltic
 - Kattegat
 - Irish Sea
 - West of Scotland
 - North Sea
- Decision needed between HCR versus economic impact assessment framework
- Guided by past/recent ICES' and STECF's experiences


Slide 5



1) Immediate backlog

- Three questions to be addressed:
 - How to evaluate immediate priority evaluations now?
 - Which computer software to adopt?
 - Timescale?


Slide 6



Discussion (immediate)

- How to evaluate immediate priority evaluations now?
 - Past backlog is the main concern so economics is not necessarily the issue now but is more for future development of MPs
 - **Main issue is to use evaluations to assess MPs against PA**
 - HCR not economic impact assessment (EIA)
 - MPs for backlog of cod stocks provide a starting point for immediate HCR evaluations by ICES/STECF
 - Additionally, candidates for EIA investigation:
 - Review past experience with Norwegian spring-spawning herring (possibly, RAC-led initiative)
 - Review past experience with North Sea flatfish (STECF-led)


Slide 7



Discussion (immediate)

- Which computer software to adopt?
 - Existing software tools (c.f. SGMAS list) are basically similar for HCRs
 - Ideally, need to incorporate observation model within evaluation and assessment model
 - AGCREMP approach using FLR may not be appropriate
 - FPRESS has been used to evaluate Irish Sea cod MP
 - Careful conditioning (SGMAS, 2008 – sections 2.2 and 5.2)
 - Cod stocks for immediate evaluation:
 - Baltic
 - Eastern – ICES (Latvia and Poland) – Is this necessary given that there are no biomass reference points now?
 - Western - ICES (Denmark)
 - Pre-benchmark – FLR (Denmark) – Is this necessary?
 - Post-benchmark - SMS or HCS (Denmark/Germany)
 - Kattegat – YPR-type analysis (ICES WGBFAS)
 - Irish Sea – guided by SGMAS list (Ireland)
 - West of Scotland – guided by SGMAS list (UK - Scotland)
 - North Sea – guided by SGMAS list (UK - England & Wales)
 - Pre- or post-benchmark – Which is appropriate?
- Timescale? ... before mid-March 2009 but dependent on evaluation criteria (breakout group 2)

Slide 8



2) Future/unknown MPs

- Two issues to be considered:
 - Approach to future developments and evaluations
 - Considerations for second Workshop


Slide 9



Discussion (future ideas)

- Approach to future developments and evaluations:
 - Economic considerations are of prime importance
 - Timeframe(s) for management
 - Biological rebuilding versus investment plans
 - Discount rates
 - Capital investment (private) versus un-investment (public and private)
 - Stock focus versus fishery focus
 - Separation of fishers; e.g. whitefish, Nephrops ... etc.
 - Effort management
 - Days-at-sea with limited restriction on activity
 - Costs of trading days and changes in fishing practice
 - Fishers' behaviour
 - Species switching
 - Area switching
 - Conservation initiatives that may change historical practices
 - Discard/high-grading practices
 - Enforcement regime
 - Degree of compliance


Slide 10



Discussion (future ideas)

- Considerations for a second Workshop:
 - Inclusive (biologists, economists, stakeholders and managers (EU and non-EU))
 - Clear aims for fisheries in 2015 and beyond
 - Social
 - Economic
 - Biological
 - Workshop must have clear management questions
 - Dealing with in-year management issues?
 - Dealing with long-term fisheries concerns?
 - Development of ideas for new future plans?
 - Review of past examples and experiences of EIAs
 - Strengths and weaknesses
 - Framework for comprehensive EIA
 - Improved integration of economic, social and biological modelling
 - Roles, responsibilities and leads identified
 - Other burning issues
 - Keeping up with developments in relevant methodology
 - Integration of ecosystem-based fisheries management

Slide 11



Collated questions

- Cod stocks for immediate evaluation:
 - Baltic
 - Eastern – ICES (Latvia and Poland) – *Is this necessary given that there are no biomass reference points now?*
 - Western - ICES (Denmark)
 - Pre-benchmark – FLR (Denmark) – *Is this necessary?*
 - North Sea – guided by SGMAS list (UK - England & Wales)
 - Pre- or post-benchmark – *Which is appropriate?*

Appendix 7. Summary of Breakout Group on Evaluation Criteria

Slide 1

WKOMSE

Breakout Group: Evaluation Criteria
(29 Jan, 09:00-13:00)

Focus: short term priority evaluation of implemented HCR (MP)
Participation: Biologists, Economists, RACs, Managers

Summary

Slide 2

DG Mare (Patrick Daniel):

An intermediate evaluation or an *ex-post* evaluation of recovery and/or management plans HCR already in place, to be assessed in the short term

- **against objectives and/or reference points defined in such plans and related to the precautionary approach**
- **but also by taking into account**
 - **MSY objectives**
 - **socio-economic impacts observed during the implementation on**
 - profitability and employment
 - the dynamic of fleets
 - fishing strategies
 - **the efficiency of the implementation process, e.g.**
 - enforcement
 - administrative costs

Slide 3

- **The group addressed Biological and Economic criteria;**
- **Biological criteria discussions concentrated on 3 main elements:**
 - (i) reference points;
 - (ii) acceptable risk;
 - (iii) time frame
- (i) Reference points**
 - Blim and Flim;
 - xlim (indicator of the effect of fishing pressure, stock productivity)
 - mean length/mean weight in the stock,
 - %SPR, ...,
- (ii) Risk**
 - Agreed that in the absence of specification by managers on the risk level, a 5% is to be used (SGMAS-ICES recommendation);
 - “... the HCR (MP) is considered to be precautionary if the risk of $SSB < Blim$ (or $x < xlim$) is less than 5%”

Slide 4

(iii) Time frame:

- **Computation purposes (the percentage of simulated populations that go below Blim or xlim): 10 year period (SGMAS-ICES recommendation)..**

- **Evaluation of management objectives: The main goal should be MSY rebuild by 2015**

According to STECF (2005) all age groups should have been fished at FMSY by 2015 !

*Text in STECF report autumn 2005 about 2015 MSY:
"In order to reach the goal of Johannesburg declaration, STECF considers that the biomasses of fish stocks in year 2015 should consist of year classes which have been recruited to the stocks as a result of applying FMSY earlier on in the management.*

Slide 5

Other issues related with the evaluation framework:**- Revision of BRPs:**

evaluate the HCR (MP) based on the BRPs as agreed in the HCR (MP) and/or according to new/revised BRPs

- Starting year for the analysis:

current year (latest assessment) or the year of the implementation of the HCR (MP);

Slide 6

- Economic considerations

(i) No HCR has included specific economic objectives;

(ii) Distinction between HCR (MP) and the overall management of a fishery. The latter includes allocation decisions at MS level which affect economic outcomes;

(iii) Currently, ex ante analysis (of TAC changes, for example) assumes, implicitly, that the management instruments employed at MS level are unchanged;

(iv) Ex post evaluation cannot necessarily distinguish between the effects of the HCR (MP) and other factors, including the allocation mechanisms adopted by individual MS, levels of enforcement, input and output prices, etc.

Slide 7

- Economic indicators

Standard indicators are available and can (in principle) be calculated from DCR data. These include:

- *Value of landings* ~ revenues from sales of fish
- *Gross Cash flow* ~ income minus costs (excluding capital costs).
- *Gross Profit* ~ income minus all costs, including capital costs.
- *Gross Value added* ~ contribution to GNP (income minus all expenses except crew cost).
- *Fleet size and composition*
- *Employment*

Appendix 8. Summary from Breakout Group on Process, Roles and Responsibilities.

Slide 1

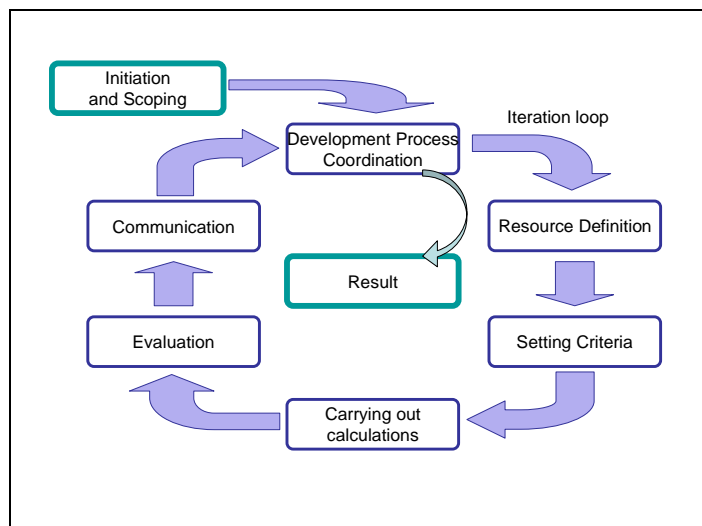
**Process –
Roles and Responsibilities**

- General definition of management plan taken as an example from (EC 2002)
- Four groups of players identified
 - Policy makers - Managers / (politicians)
 - Implementers (including POs) / control agency enforcers / legal experts
 - RACs / Industry / NGOs (media)
 - Experts Biological / Social / Economic Scientists

Slide 2

- Roles / responsibilities in the process proposed
- A basic procedure for evaluation is proposed including an initiation and scoping phase and followed by a iterative loop which is expected to be followed a number of times
- This has been refined by conceptually considered with some examples:
 - NS Flatfish
 - Baltic Pelagics

Slide 3



Slide 4

- **Initiation (Decision makers (mainly now) RACs+others)**
 - Attempt at discussion amongst all coastal states
 - Scope the problem (Decision makers, Experts, RACs, Implementers)
 - Decide who is involved and what biological/environmental /social / economic / other aspects should / can be involved. Decide what approach is feasible interactively.
- **Development process (Coordination – responsibility is the initiators)**
 - Define Resources (Decision makers, Experts, (Implementers))
 - Time frame
 - Personnel resources
 - Set criteria and analytical aspects (Decision makers RACs (facilitator experts))
 - Carry out calculations (Experts, (Implementers) (All))
 - Needs transparent – but needs to be quality checked
 - May not be possible interactively
 - Carry out evaluations (all)
 - Communicate discuss (all)
- **Iterate around the loop as required.**

Appendix 9. Summary of Breakout Group on Alternative HCRs for advice according to the precautionary approach.

Slide 1

Framework for TAC Advice

Advice should be consistent with international norms and the policies that apply to the stocks for which advice is given.

Current Framework:

- For stocks above Bpa, ICES advises a TAC based on Fpa
- For stocks below Blim, ICES advises a that the TAC should be set to recover the stock above Bpa in the next management year.
- If there is a management plans with a HCR that ICES deems consistent with the precautionary approach, it advises according to the HCR.
- Since the 1990s, ICES advice has emphasized the precautionary approach (which is ONE international norm).

Slide 2

What's the Problem?

- The current framework ignores other international norms and policies such as the MSY strategy.
- Based on the current framework, scientists are implicitly picking a risk tolerance when the stock is below Blim that managers usually reject. Deciding on the risk tolerance is a management responsibility, not a scientific determination.
- The overall framework for giving advice is not conducive to a smooth transition from year to year advice to a advice under a multiyear management plan. It results in abrupt changes.

Slide 3

An Alternative Framework

- The desired state of the system should be in accordance with the MSY strategy (fisheries at about Fmsy, Bmsy).
- For stocks in an undesirable state, the TAC should be set such that there is a high probability of moving toward the desired state.
- Precaution should be applied in specifying the desired state and the probability of moving toward it.

Slide 4

**Comparison of Frameworks:
Which is more conservative in terms of
the state of the resource?**

- Short term- Current framework is more conservative because it leads to more rapid recovery above B_{pa} if implemented (which has not been the case).
- Long term- Alternative framework is more conservative because it leads to a higher B ($B_{msy} > B_{pa}$) and lower F ($F_{msy} < F_{pa}$).

Slide 5

**Toward Specification of
the Alternative Framework**

- Estimate a conservative or precautionary fishing mortality (F_{msy-pa}) that will produce the highest long term average yield with low risk of depleting the stock. In practice this will usually be a common F_{msy} proxies, perhaps reduced for added precaution.
- For fishing at F_{msy-pa} , estimate the lower limit of B that corresponds to natural fluctuations in a stock ($B_{msy-lim}$)

Slide 6

**Toward Specification of
the Alternative Framework**

F_{msy-pa}	Set TAC such that there is a high probability that: F decreases And B increases	Set TAC such that there is a high probability that F decreases
	Set TAC such that there is a high probability that B increases	Set TAC based on F_{msy-pa}
	$B_{msy-lim}$	

Slide 7

What does high probability mean?**Two considerations:**

- Risk tolerance of managers- Do they want to be confident the situation is improving (say 95% probability) or are they risk takers (a 50-50 chance is good enough)?
- How well can scientists measure change?- For the best of assessments, a 90% confidence intervals might be +/- 20%.

To have a 95% probability of going in the “right direction”, TACs will usually need to be set based on projections (deterministic or median) corresponding to at least a 20% improvement.

Slide 8

Transition to Management Plan

- MP should also set objectives corresponding to a conservative or precautionary MSY strategy.
- Being multi-year, the focus of an MP will be on the cumulative risk over several years instead a series of annual risk decisions.
- Thus, an MP should result in a smoother transition toward MSY.
- An MP can be designed for a more rapid recovery of the stock.
- An MP can be designed to for a more stable catch.
- In most cases, the change “alternative framework (described in the previous slides) should be less abrupted than with the “current” framework for a recovering stock.