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.

The Terms of Reference

The ToR for the this Workshop are:

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 modeling 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 $B_{lim.}$

Workshop Participation

Participation of scientists, managers and stakeholders is required for the Workshop successfully fulfill its ToRs. 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.

Workshop Agenda

The agenda for the Workshop is:

28 January

1000-1015 Welcome and Introductions

1015-1030 Review of agenda and arrangements for the Workshop

1030-1115 Overview of EC Management Plans

- 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 (including economics)

1300-1400 Lunch

1400-1445 The Perspective of the RACs

1445-1515 Discussion

1515-1530 Break

1530-1730 Breakout Groups

1. Short term priorities for evaluation of the backlog of existing un-evaluated Plans.
2. Practical modeling framework for short term priority evaluations (including biological and economic considerations).
3. Evaluation criteria (including biological and economic considerations).

29 January

0900-0945 Preliminary reports from breakout groups

0945-1045 Roles and Responsibilities for the development of future management plans

1045-1100 Break

1100-1200 ICES precautionary advice- Do managers agree with the implied HCR?

1200-1300 Lunch

1300-1500 Breakout Groups

2. Practical modeling framework for short term priority evaluations.
3. Evaluation criteria
4. Alternative HCRs for advice according to the precautionary approach.

1500-1515 Break

1515-1730 Breakout Groups

2. Practical modeling framework for short term priority evaluations.
4. Alternative HCRs for advice according to the precautionary approach.
5. Roles and Responsibilities for future management plans.

30 January

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

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? What about plans that address the human dimension of fisheries? 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. ICES seems to be expected to play an increasing role in the prepare 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. The consistency and practicality of models used to evaluate the economic performance of management plans also need to be considered.

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. Also, STECF evaluates the economic performance management plans, but criteria to judge the acceptability of plans are lacking.

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 B_{lim} 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
Ftarg	yes
Rate of change in F	no
Fixed schedule	no
Relative to Fcur	yes
Relative to running average	no
Number of years in running average	NA
TAC constraints	yes

*The Ftarg, 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 lead 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 addresses 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 addition 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 modeled, 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.