Paris, the 10th of December, 2009

INFORMATION NOTE

ICES working group on the formulation of scientific recommendations WKFORM, Lisbon, 1st - 3rd of December 2009

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The ICES organised a working group on the formulation of scientific recommendations in order to envisage the evolution of such documents, particularly in relation to maximum sustainable yield targets. This working group was open to scientists, and representatives of the Commission, ICES member states, and finally to RACs (NGO and professional). The CNPMEM attended this meeting as a representative of the North Western Waters RAC. The "Small Pelagic" RAC was also represented as well as the "Sea at Risk" NGO and the WWF.

Currently, position papers are based on the precautionary principle. The limit values B_{lim}, F_{lim}, F_{pa} and B_{pa}[1] are used in recommendations on stocks, where these reference points exist.

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[1] *A few reminders first of all (a simplified schematic diagram is found at the end of this note):*

Flim = fishing mortality limit, beyond which there is a very high probability that the stock will be reduced and will not be able to ensure sustainable fishing,

Fpa = fishing mortality threshold that should not be exceeded so as to avoid any risk of exceeding Flim (taking into account various uncertainties),

Blim = spawning biomass limit, below which there is a high probability that the reproductive capacity will be reduced (risk of collapse),

Bpa = spawning biomass threshold, below which the level should not fall so as to avoid any risk of falling below the Blim (taking into account various uncertainties),

Fmax = fishing mortality level allowing the growth potential of a cohort to be fished to a maximum (taking into account the actual fishing diagram),
Implicit hypothesis: constant recruitment

F0.1 = fishing mortality level where the marginal yield gain (for one mortality unit) per recruit is a tenth of the marginal gain on a virgin stock.

If the actual biomass (B_{act}) is less than B_{pa}, the recommendation is that measures be taken so that the biomass is reconstituted as quickly as possible (during the following year): this can result in a recommendation of zero catch rate. If B_{act} is greater than Bpa, the recommendation is that fishing be set at the fishing mortality level F_{pa}. Currently the precautionary limits match the targets to be reached. The ICES also observes that the recommendations of "zero catch rate" are rarely followed.

The main purpose of the meeting was to discuss how to integrate the Joannesburgh commitments on reaching the Maximum Sustainable Yield (MSY) for different stocks, into recommendations. The conclusions of this meeting should be discussed at the ACOM ("Advisory Committee") meeting of the following week.

Several questions were addressed. They concerned:

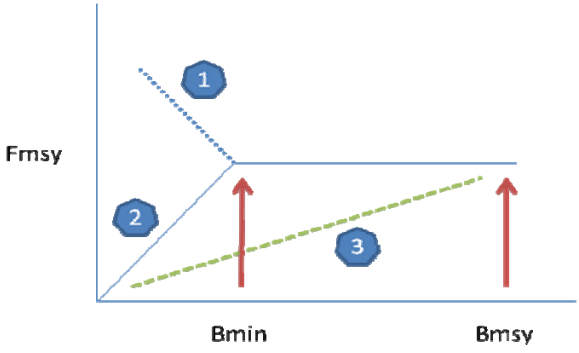
- <u>The introduction of MSY in the formulation of recommendations:</u>

It was proposed that MSY fishing mortality targets be introduced into recommendations, but that these targets be applied using a precautionary approach. Thus scientists wish to retain the biomass precautionary limits as "indicators" (B_{pa} ?, B_{lim} ? or a B_{min} based on a fraction of the B_{msy} ?) and not to set a single target for fishing mortality (F_{msy}).

For several stocks, it will be difficult to estimate the F_{msy}. For example, the use of single specific or multi-specific models can totally change the MSY estimate. Proxies (i.e. estimates) would probably have to be used: several possibilities, to be studied case by case, will be possible: $F_{0.1}$, F_{max}, M (natural mortality). Certain participants expressed the wish that guidelines be given in relation to the best estimates of F_{msy}. This would be very restrictive knowing that currently the target F is often the F_{pa}.

- <u>The future of precautionary limits in recommendations,</u>

The idea is to conserve a biomass threshold limit (B_{min} to be determined, probably B_{pa}), beyond which the steps to be taken should be defined: several options were mentioned (see schematic diagram below):



- Progressively reduce F (option 1),
- Set an F target that is lower than F_{msy} (option 2),
- Restore biomass to B_{msy} in x number of years (option 3),
- 0 catch rates…

The group did not state a clear position on the options, except the fact that one should be preferably thinking in F, i.e. a preference for either option 1 or option 2.

In relation to the introduction of the notion $B_{msy,}$ certain participants expressed their concern regarding the negative impact that this could have on professionals while scientists do not really know how to estimate this value (it could be very high for certain stocks). Thus the B_{msy} will remain more of a indicative biomass for a situation aimed at over the long term.

- Estimation of reference points and, in particular, MSY reference points,

There should be guidelines for the "benchmark" meetings (meetings for compiling data from different sources that were put into place since 2009 in the new system for issuing ICES scientific recommendations – professionals can participate). Certain participants expressed the wish that guidelines should also be given in relation to the best estimates of Fmsy. The participants in the group also expressed the need to have indicators in relation to the quality of the reference points and more transparency in relation to the way in which these are obtained.

These reference points should be set for a defined period of time and revised if necessary.

- Taking into account climate change ("regime shift [2]") in the formulation of recommendations and, in particular, the reference years that need to be taken into account,

One of the difficulties in taking into account "regime shift" in recommendations, by for example changing the reference years used in the models (example: using only the last ten recruitments), is how to assess if "regime shift" has actually taken place and if it is relevant to change reference. For instance, for scientists there is problem with the fishery assessment model for North Sea herring and the reference should be changed. This is not the case for other species where one can observe problems in relation to stock assessments.

Everyone seems to agree that one should take it into account, but it is not yet clear how to do so. It is difficult to establish a systematic procedure.

[2] Definition of regime shift: reorganisation of an ecosystem from one balanced state to another. This phenomenon is associated with climate change.

For scientists, the best would be to have management plans as at ICCAT indicating the parameters and not calculated figures, but it is difficult for managers to accept this where they want certain guarantees when commiting to the plan (a certain level of visibility is necessary in the negotiations).

- Taking into account prey/predator interaction in the formulation of recommendations: (taking into account aspects that are more ecosystemic, using multi-species models)

Certain models, where the biomass of certain fish is aggregated, are used by scientists in the United States, but not yet by the managers. These models raise, among other things, the question of the different values of species within the same group. Currently, managers do not use recommendations produced by this type of model. However, multi-species TAC could be better considered and eventually used.

It would be interesting if model testing was carried out by a group of dedicated experts.

- Assessment of management plans within the new MSY framework and taking them into account in the formulation of recommendations (for example: what to do when several management plans are proposed for the same stock),

The current long term management plans have not all been assessed and, for those that were, the criteria used was the precautionary approach rather than aiming for MSY between now and 2015. It is the desire of the ICES that a calendar be put into place in relation to the plans and their assessments. In addition, the ICES also wonders about the possibility of being more proactive in their formulation.

In certain cases, the plans had not been approved by all of the stakeholders, or still, several plans are proposed. Consequently, it was proposed that, in their recommendations, the ICES make several catch proposals depending on the plans or the application of the new framework for formulating recommendations, so that the managers have all the information available to chose the option that they wish to put into place.

- The frequency of ICES recommendations (multi-year or annual),

The Commission asked ICES to identify the stocks for which it would be relevant to establish multi-year TACs. The ICES did not reply to this enquiry.

- Which framework should be used in the case of stocks for which one does not have sufficient information to develop an analytical assessment of the stock?

The Commission proposed a general policy approach for stocks for which no assessment exists. The ICES did not study the question. During the meeting it was proposed that a working group be created on this subject before April, and if possible, before the "deepwater species" benchmark meeting, an example of where one has limited data to carry out an assessment per stock.

General conclusions:

The members of the group agreed on the necessity of putting in place a more interactive process for formulating recommendations (which is not easy in the strict ICES framework).

The conclusions of the group will be presented to the Advisory Committee meeting (ACOM), which will decide on the continuation of work on the formulation of recommendations.

Finally, even if ACOM decides to modify the framework for formulating recommendations, a transition period will be necessary.

- Schematic diagram of the significance of the different objectives