

5th Consultation Meeting between the NSRAC Working Group/ North Sea Commission Fisheries Partnership and ICES, Copenhagen, Denmark, October 3-4, 2005

Preliminaries

The chair, Tony Hawkins, opened the Consultation and thanked ICES Secretariat for once again hosting the Consultation Meeting. He thanked David Griffith in particular and congratulated him on his imminent retirement. David had largely been responsible for the close cooperation that now existed between the Partnership and ICES. The chair reminded members that this year we had to be aware of the existence of the new North Sea Regional Advisory Council (NSRAC), which in future might take over some of the functions of the Partnership. However, there was strong support for the continuation of the Partnership in promoting contact between scientists and fishers and over the next year thought would be given to how the Partnership could continue, with new funding.

The Chair introduced Coby Needle, the chair of the ICES Working Group on the Assessment of Demersal Stocks in the North Sea and also Mark Dickey-Collas, chair of the Herring Assessment Working Group for the Area South of 62° N, who would deal with the herring assessments. The external experts, Jean-Jacques Maguire and Paul Medley were welcomed to the meeting. Manuela Azevedo the chair of the ACFM Review Group and other members of the Review Group were also present and were invited to participate in the discussions. The chair reminded participants of the ground rules: the assessments should be considered provisional because they have not been seen by ACFM. They should therefore not be discussed outside the meeting. He also reminded participants that the Partnership operates under Chatham House Rules. This means that participants speak freely and openly on the understanding that they *“are free to use the information received, but neither the identity nor the affiliation of the speakers, nor that of any other participant may be revealed; nor, may it be mentioned that the information was received at a meeting of the Partnership. The benefits of Chatham House Rule is that they allow people to speak as individuals, and to express views that may not be those of their organisations, and therefore it encourages free discussion”*

Participants in the meeting introduced themselves.

Introduction

Coby Needle started with a general presentation on the assessment techniques which had been applied and spoke about the general background to the procedures for developing the advice. Additional stocks had been added to the Working group this year. There had been 28 WG participants from 9 countries. He explained that ICES advice is now based on mixed fisheries, and that management of the haddock fishery therefore had to take account of the state of cod. The degree of linkage between fisheries was not always easy to determine.

North Sea Haddock

The North Sea haddock was still dominated by the large 1999 year class which had been followed by a sequence of poor year classes. Initial information indicated that the 2005 year class appeared to be good. Fishing mortality (F) on the 1999 year class was quite low and it would appear that the reductions in fleet size have had a marked and beneficial effect. The spawning stock biomass (B) was well above B_{PA} . However, the 2005 year class would not be expected to have an effect upon spawning stock biomass until 2007 and even 2008. The spawning stock biomass was currently declining from its peak and should be expected to decline further. The results of the Fishers' Survey conducted by the Partnership had been evaluated and showed stable or declining fishable biomass in most areas, confirming the perception from the scientific assessment.

Fishers asked whether there had been any indication of a significant increase in the size of the fleet exploiting haddock in the North Sea as a result of reduced deep water fishing opportunities. In fact, the low F did not indicate any growth in exploitation and the information on fishing effort indicated a clear reduction.

This year the WG had been asked to review the reference points for haddock and to develop a long term management plan. The EU/Norway Agreement had set a minimum level of spawning stock biomass and a fishing mortality of no more than 0.3. However, the WG had not had time to run management simulations for haddock. If WGs were to be required to give such information in the future then something would have to give – perhaps there should be less tinkering with the assessment models. It was suggested that the NSRAC should make the point to the Commission that it was not necessary to address the haddock assessments in great detail. A rougher, probabilistic assessment might suffice. The quality of the data for carrying out assessments of North Sea demersal stocks had declined with time and yet the WG terms of reference had increased in scope and complexity. The landings data were unreliable, there had been changes to the management regime, and the ability of the surveys to track stocks – especially when they were sparse – was in doubt. The setting of new reference points and the development of management plans had lost out. This problem should be addressed by the Commission and by ICES. Possible solutions were to review the assessments inter-sessionally and to concentrate on forecasting and the evaluation of management measures. Tools for the analysis of mixed fisheries would need to be developed.

Concern was expressed by both scientists and fishers that with a new year class emerging there was a risk of heavy discarding, especially by the fleets using 80-90 mm mesh nets. Heavy discarding would be very damaging. The Commission would wish to look at this potential problem.

North Sea Whiting

With whiting, there had been inconsistencies between the assessments and the surveys for many years. Overall, North Sea catches were declining with time. The surveys also showed a decline but were not consistent. Last year it had not been possible to achieve sufficient consistency to do a proper assessment. There may be problems with stock identity in the North Sea requiring the assessment of separate sub-stocks. There were also problems with determining the age of whiting, and discard data were limited – some of the discard data being collected were not even reaching the WG. There was a suspicion that discarding was high in the southern North Sea.

Fishers believed that whiting were locally abundant in the southern part of the North Sea. Very high densities were being encountered in some areas. Fishers believed that there were problems with the way the scientific surveys were conducted. They also restated their belief that the falling landings of whiting in the northern North Sea indicated that recent increases in mesh size had effectively excluded whiting from commercial catches.

The WG had concluded that the available information was insufficient to evaluate the spawning stock in relation to the precautionary approach reference points. The assessment was indicative of trends only. The stock was estimated to be at or near the lowest observed level. Landings were at an historical low, but fishing mortality was also low.

Comments on the North Sea Cod

The latest assessments were largely based on the results of scientific surveys, which had yielded inconsistent results. The surveys indicated a declining spawning stock biomass reaching the lowest level ever. Recent recruitment has been below average in most years. Trends in fishing mortality were very uncertain. The results from recent surveys had shown significant differences, and the analysis of a later survey was now being brought forward to provide additional information. The Scottish survey had shown local concentrations of the 2005 year class along parts of the Scottish east coast.

The results of the Fishers' Survey had not shown any major changes in the fishable biomass of cod.

The results of the scientific surveys indicated that some year classes of cod had been depleted faster than one would expect from the estimated catches. The source of this apparent disappearance of cod could not be determined, and the term 'unallocated removals' was being applied. There is still concern that the smaller mesh fisheries in the North Sea, where effort restrictions have been less stringent, may be catching cod. It is curious that the management measures implemented to protect cod appear to have been successful in reducing F for haddock, apparently without also reducing F for cod.

Even with a zero catch of cod it would not be anticipated that spawning stock biomass would rise above B_{LIM} .

Comments on North Sea Plaice

Although spawning stock biomass for plaice was increasing it was still below B_{PA} . Fishing mortality was at or close to F_{PA} . Recent recruitment had been below average. Fishers pointed out that they would like to see fuller use made of CPUE data in preparing the assessments.

Comments on North Sea Herring

The ACFM advice on herring had already been published. In general, herring were being exploited in a sustainable way, but there was some concern that recruitment in recent years had been poor

General Discussion of the Assessments

Concern was expressed over the pressure that was being placed on WGs and their inability to develop long term management plans and new reference points. There was general agreement that the division of assessments into benchmark and updated assessments had not greatly reduced the workload. The point was made that if there were long term management plans set in place then it would not be necessary to polish the assessments so much each year. Currently too much attention was being paid to analysing the 'noise' surrounding the assessments. The management system should be one which recognised that uncertainty existed. At the moment the choice of particular model could not always be justified. It would be better to provide a range of possibilities than to try to present an assessment that could be regarded as definite and incontrovertible. ACFM had been commenting to the Commission on this issue.

Opening up of ACFM

Fishers had appreciated the opportunity to observe parts of the ACFM meeting. Observing the process had given them insight into how decisions were arrived at. However, although limited observer status was a step in the right direction it did not go far enough.

Poul Degnbol, the chair of ACFM drew attention to the formal evaluation of the limited opening-up which had taken place. Members of ACFM had been very happy with the way it had gone. They had not been intimidated by the presence of observers and did not feel that the integrity of the process had been damaged. ICES would discuss the position internally and would consider whether observer status should be widened. Amongst those present at this meeting there was a strong feeling that there should be wider participation. The initial step had been largely ad hoc, and there was scope for those not invited to take part to complain. Although it would be important to develop mechanisms to guard against interference it was important for ACFM to be transparent.

It was suggested that there was also a need to open up STECF. The recent opening of STECF sub-groups had certainly proved successful and had been considered valuable by fishers.

The RACs and ICES

The chair described the new RACs and explained that during their early operation it had become apparent that they had a strong need for sound scientific and technical advice. Responses to the Commission from the RACs had to be evidence based, coherent, and based on the best possible advice. Although the NSRAC had been very successful in obtaining support so far it was clear

that there were already strong pressures upon the government research institutes. Having to provide advice to the RACs as well as ICES and STECF would place a heavy additional burden upon them. It was agreed that there was a need for a joint Working Group involving the RACs, the Commission, ICES and the Member States to address these problems. In the future, coordination and the avoidance of duplication were going to be very important. There was already some duplication between the advice rendered through Member States, through ICES and through STECF.

The question was asked whether it was satisfactory that the advice was coming only from a small number of government-owned institutes. Was there a political dimension to the advice because of this? Some believed that there was, and that where the RACs were supplied with advice by only one Member State there was a risk that it might support a particular point of view. Quality assurance and peer review was an important aspect of the provision of scientific advice. If the RACs were able to obtain their scientific advice through ICES they would be assured that it would be of higher quality.

In conclusion, David Griffith said that ICES would like to work with the RACs. They had a commitment to the Commission to participate in meetings with the RACs. It was ICES' intention to invite the RACs to have a dialogue with ICES on where we wanted to go in the future, and how we would get there. Tony Hawkins thanked David for the support given by ICES, Coby and Mark for their contribution to the discussions of the assessments and the external experts for their participation.

Report of the Invited Experts to the Consultation Meeting

Summary

The 2005 North Sea Commission Fisheries Partnership Consultation met to review the assessments of haddock and whiting with updates on plaice and cod. The Partnership also received a briefing on North Sea herring. The following report contains a summary of comments from the invited experts.

Survey data

The available survey data are not treated consistently across stock assessments. For haddock, both the English and Scottish survey series have been split into two separate parts to account for changes in vessels, while the International Bottom Trawl Surveys (some components of which are expected to be affected by the change of vessels in the English and Scottish surveys) was used as a single series. For whiting, only the most recent 15 years of those three survey series have been kept as single series, because they appeared to better match the reconstructed populations from sequential population analyses based on catch at age. The cod assessment was not considered final, awaiting the results of the quarter 3 English survey results. However, at the time of the NSCFP Consultations, neither the English nor the Scottish surveys had been split to account for changes in vessels. Although we do recognise that the assessment working group has done considerable exploration of various models, model configurations, and data series, the particular choices made for haddock, whiting and cod appear somewhat ad hoc rather than scientifically based. An in-depth analysis of the survey series, independently of the assessment, should be made to assess whether the new vessels have different catchability for these species, and at what sizes. As suggested below, commercial catch per unit of effort could be one source of data to make such analyses.

The survey indices could benefit from further analysis leading to standardisation. Fishermen could provide information on what they believe are key covariates for particular species, such as vessel speed, gear characteristics. It may also be useful to vary covariates on some trawls (such as vessel speed or gear characteristics) to improve parameter estimation and hence correction. Historical covariate data would allow retrospective correction. Standardisation of survey and CPUE indices could be undertaken using generalized linear models independent of the main assessment as an interseasonal activity. In this context, fishermen present at the meeting strongly believed that the current fishing gear, designed for smaller vessels, is unfit to the vessels currently used in the English and Scottish surveys. This is worth further investigation.

There is a need to build confidence in survey indices above the models. Currently, a poor fit to a model leads to suggest there is something wrong with the data. This could be the case, but using poor model residuals as an argument for introducing another parameter (i.e. split the time series in two parts) to correct the time series is probably not a good idea. Independent analyses of indices, as suggested above, could lead to a more reliable index with greater confidence that it has a consistent relationship with stock density.

Should independent analyses of the survey data indicate that there has been a change in catchability around the time the vessels were changed, the surveys should be corrected for the estimated changes and used as a single series over the available time period.

Commercial catch per unit of effort

The commercial CPUE data have not been used for fitting models in the last 3-4 assessment of these stocks because of changing fishing practices and gear over time and the fact that commercial CPUE being from the main fish aggregations may not represent fish population densities over their full range. In general, it should be up to the working group to decide in which abundance indexes they have the most confidence. However CPUE is more than just an index of stock size, and its behaviour, particularly in response to stock size, should be of interest to management.

While CPUE may not provide a good long term index of stock size, it may still provide a way to bridge gaps across changes in survey design and implementation as suggested above. The change in the CPUE index from gear and fishing practice modifications is probably an ongoing process, but between any two years it is likely to be small. Selected commercial CPUE data could be a useful addition to other covariates for applying corrections to the survey indices.

The assessments appear focused on providing information on two indicators, F and SSB. These are very important indicators on the state of exploitation and on stock status, and should play a key role in making decisions about the fishery. The idea of simplifying a complex system into indicators and reference points is good, but the simplification can be overdone and a clear criticism from the fishing community and others is that these two variables do not capture adequately the state of the fishery. It would be worthwhile for the working group to consider expanding the indicators and reference points it reports on.

A simple step in expanding relevant performance indicators would be to report on catch rates. Catch rates (CPUE) are linked to stock size as well as an important measure of economic performance of the fishery. Scientists in cooperation with the fishing industry may be able to develop reference points for these measures, such as break-even points for the different fishing fleets. This also could lead to developing target reference points that are directly relevant and easily interpretable by the fishing industry and other interested parties.

Currently, limit and precautionary reference points exist on the basis of avoiding poor states of the fishery, and do not address the issue of where the fishery wants to be. Target reference points would encapsulate the aspirations of the fishery, and can be used to provide common goals, leading to better co-operation between science, industry and government.

Uncertainty and process

It was noted at the previous meeting that the presentation of uncertainty could be improved. Presentation of uncertainty was limited to confidence intervals to indicate precision and thereafter general discussion as to the reliability of the results based on the data and model assumptions. While this gives a broad indication of where greatest uncertainty lies, more specific information could make it easier to incorporate uncertainty in the decision making. However, it is recognised that this is easier to suggest than actually do, given the added complexity introduced to advice taking account of uncertainty.

Offering indications of uncertainty will be most useful if decision-makers are given a clear way to use it. Otherwise they are simply aware that the best guess may be wrong, but are probably forced to use it anyway, effectively ignoring the uncertainty. Presenting uncertainty should give options to decision-makers so that they can reduce risks as well as go with the most likely options.

To take account of risks, decision makers not only need to know the probability, but also the costs and benefits of outcomes. This may require extending the current models to describe simple bio-economic variables, such as catch revenue, effort costs and profitability. This would be a major step away from current ICES approach, and would probably need a step-wise approach through developing indicators which have an economic meaning. A fishery-based as opposed to stock-based approach would require considering the state of several species at once in the mixed species fishery.

Decision tables provide a way to present representative scenarios simply and could be a good technique to introduce more formal techniques for dealing with uncertainty. Scenarios should be constructed so that they represent equally likely outcomes. They also provide an opportunity for the assessment to account for the views of fishers. Scenarios are by their very nature subjective, and therefore offer a method for providing a precise definition of what different groups believe could be the state of nature. It would be up to the scientific working group to ensure only likely scenarios are adopted. This would also give ICES a clear way of showing that they are listening to the NGOs and others.

The main problem with developing decision analysis techniques is that the science and technical working group require feedback from the management and decision-makers. In most cases, decision-makers expect a one-way system of advice. Under the current system, it seems unlikely that feedback can be obtained from decision-makers. However, the new system, in particular the RACs, may be able to construct sets of management options which the working group can use as the basis for a decision table.

Some limited evaluation of the management controls was presented. To evaluate management actions, management will need to make its intentions clear when applying a control. For example, when setting a TAC in line with scientific advice, it will be expected that the fishery will produce a particular F regarded as desirable. It was clear that in some cases F was not reduced, but discarding increased (plaice). This should be highlighted as a management failure, so that alternative provisions can be introduced to achieve precautionary or limit reference points.

Specific points

The haddock assessment may be as good as it is going to get. Aside from resolving the issue of possible changes in survey catchability as a result of vessel changes, scientific effort could be more usefully re-directed towards defining targets for fishery management. This should be done in a multispecies context.

The whiting assessment remains highly uncertain. Last year, the working group did not agree on a final assessment. It is not clear to us what has objectively improved between last year and this year. Until the discrepancy between the survey only assessment and those using commercial catch at age are resolved, we believe that the perception of the developments in the stock should be based on the survey only assessments.

It is difficult to understand how the management measures designed to reduce fishing mortality on cod have been considerably more efficient for haddock than for cod. For haddock, the working group estimates that fishing mortality decreased from above 1.0 in 2000 to about 0.30 in 2003 and 2004. Although a final assessment was not available for cod, the decrease in fishing mortality over the same time period is considerably smaller. For 2003, the difference has been attributed to unallocated removals of cod estimated within the assessment framework, which are not believed to have occurred in 2004. The unexplained discrepancy reduces the credibility of both assessments. A further credibility problem arises from the uneven treatment of unallocated removals estimated within the assessment framework: for cod, the unallocated removals are accepted and included in the assessment; for haddock, they are not included in the assessment.