

ACFM COMMENTS ON STOCK ASSESSMENT WORKING GROUP REPORTS:
A SUPPLEMENT (FOR WORKING GROUPS) TO THE ACFM REPORTS
OF NOVEMBER 1985 AND MAY 1986

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1. Introduction

This paper deals with assessment working group reports to the November 1985 and May 1986 meetings of ACFM. Thus, reports from Working Group meetings which have taken place after May 1986 are not commented upon since these have not yet been discussed by ACFM.

2. General comments

At the November 1985 meeting, it was suggested that ACFM should provide a description of the long-term potential for each stock as well as the past and present levels, possible future direction of and observed relationship between spawning stock biomass and recruitment. It was agreed to ask all Working Groups to include such a paragraph on each stock in their reports.

It was also agreed that all working groups should explore the possibility of using short-cut methods for stocks where analytical assessments are not possible.

At the May 1986 meeting, the question of where assessment working groups should hold their meetings was discussed. It was noted that the North Sea Roundfish Working Group, by virtue of its nearly total dependence at its 1986 meeting on portable microcomputers for data base and program storage, data analysis and word processing of its report, had expressed a desire to meet away from ICES headquarters.

It was also pointed out that several other working groups (e.g., Baltic Salmon, Fisheries Units in Sub-areas VII and VIII, Multispecies Assessments of Baltic Fish) have met or will meet away from ICES headquarters this year. However, these latter groups have not had a need for ICES computer facilities or data bases and have scheduled meetings in other locations to ensure greater participation or access to data.

ACFM was reluctant to establish a rigid policy for all working groups, but wanted to remain as flexible as possible. It was felt that working groups which did not require the use of ICES computer facilities and data bases should be free to hold their meetings away from Copenhagen. However, it was considered that most groups should meet at ICES headquarters, especially if the working group so requests, and it was stressed that the North Sea Roundfish Working Group, in particular, should meet in Copenhagen and should maintain up to date data files and current assessment programs on the ICES computer in case ACFM has a need to re-run any assessments. The absence of current working versions of the North Sea Roundfish assessment programs on the ICES computer at the meeting resulted in great inconvenience to ACFM and a delay in obtaining results from revised assessment calculations which had to be done in Aberdeen and telexed to Copenhagen. ACFM asked that the data files and programs of the Roundfish Working Group be transferred to the ICES computer.

Various working groups have made requests concerning the assessment programs at ICES, including such things as modifying

the standard VPA and prediction programs to run on a half year basis, tidy up the separable VPA program and include it as a part of the standard assessment package, modify the VPA program to include outputs comparable to that of the SVPA and to incorporate into the standard assessment package the set of VPA tuning programs which are available. ACFM agreed that the standard assessment package should include the SVPA and that the VPA program should be upgraded as necessary, but that the quantity and quality of effort or CPUE data available to working groups made it undesirable to introduce tuning programs to the standard package. It was agreed that VPA tuning programs should, however, be available on the ICES computer to those who need them. It was suggested that the set of tuning programs on the Lowestoft computer could be transferred to ICES if ICES would pay the expenses of a Lowestoft computer technician to do the job (e.g., 1 week).

3. Comments to assessment working group reports discussed at the November 1985 ACFM meeting

3.1 Arctic Fisheries Working Group

The assessments of the North-East Arctic cod and haddock were accepted by ACFM.

3.2 Atlantic Scandian-Herring and Capelin Working Group

ACFM accepted the assessment of the Norwegian spring-spawning herring and commended the Working Group for including a considerable amount of input data in their report. A number of questions were raised on technical aspects of the assessment including M at younger ages and interpretation of the conversion factor.

Also the assessments of the Barents Sea capelin and the capelin stock in the Iceland-East Greenland - Jan Mayen area were accepted.

3.3 Blue Whiting Working Group

ACFM noted that the assessment of the northern blue whiting stock has improved in the last 3-4 years and the Working Group should be commended.

There was still no assessment of the southern stock. However, it was hoped by ACFM that an assessment would be possible in 1986 given Spanish and Portuguese participation at the Working Group meeting.

Concerning the 1986 meeting, ACFM decided that the Working Group should ignore the second terms of reference specified in C.Res. 1985/2:3:20 (assess the effect of small-meshed industrial fisheries on the yield of the blue whiting stock), since it completed that assignment at its 1985 meeting.

3.4 Hake Working Group

Concern was expressed by ACFM as to the usefulness of the F-values determined for the Northern stock from length cohort analysis in view of recent changes in the exploitation pattern. Results from the length cohort analysis do not correspond to survey results with respect to recruitment levels. It was noted that, in spite of ageing problems, 80-90% of the catches were represented by ages for which there was good agreement, and that the assessment could be improved by using age data.

For the southern stock, even though a VPA was prepared by the Working Group, it was not considered reliable because of uncertainties in the input Fs and also the actual catches.

3.5 Ad hoc Study Group on Management Measures for the Small-Meshed Fishery in Division IIIA

The report was considered to include a large amount of very useful information.

3.6 Working Group on North Atlantic Salmon

ACFM reviewed the report of the Working Group meeting in Woods Hole in September 1985 which responded to anticipated questions contained in the draft report of the North American Commission of NASCO. Questions were raised by ACFM concerning some of the equations in the Working Group report. It was noted that this report contained, for the first time, US data tabulated by river system.

3.7 Harp and Hooded Seals in the Greenland Sea

The Working Group was unable to calculate yield estimates due to a lack of data. ACFM recommended that the Working Group should not meet again until the historical data bases for harp and hooded seals at the West Ice have been processed and analysed.

4. Comments to assessment working group reports discussed at the May 1986 ACFM meeting

4.1 Working Group on Methods of Fish Stock Assessments and Ad hoc Multispecies Assessment Working Group

At the May 1976 meeting, ACFM spent more time than in the past to review the report of these two Working Group reports.

Starting with the Methods Working Group, it was noted that the Working Group has generated considerable interest which reflects a significant amount of on-going thought and research at various institutes and laboratories.

Concerning the Working Groups discussion about the effect of discards on the assessment, ACFM concluded that it should be stressed strongly that discard data should be collected. Much of the available data now resides in only a few institutes.

The Working Group recommended that the common practice of estimating F on the youngest age(s) in the most recent years

based on an independent estimate of recruitment and catches is less consistent than merely using an average value of fishing mortality. This recommendation was questioned by ACFM as not always being valid and perhaps being too general as it depends on how large the catch is at the youngest age(s), how good the sampling is and how constant the exploitation pattern is from year to year.

ACFM fully agreed with the conclusion that the Working Group could benefit from some tighter guidelines. ACFM spent some time on discussing the terms of reference for the next meeting, and agreed to continue that discussion at the Statutory Meeting.

The discussion by ACFM on the report of the Multispecies Working Group focussed mainly on the future work and direction of the Working Group.

Firstly, it was felt that very careful thoughts should be given to the question of whether and when the various single-species working groups should adopt the recommendations from the Multispecies Working Group, and the final decision would have to be taken by ACFM.

Secondly, although considerable progress has been made, the MSPA is not fully acceptable in view of problems still remaining to be solved and it is not yet able to forecast in the steady state and provide long-term advice. It was felt, however, that even though results are preliminary, they cannot be ignored (e.g., M levels, rejection of $F_{0.1}$ and F_{max} for predators, etc.). However, the use or rejection of the yield-per-recruit reference points depends on whether one is primarily interested in a predator (e.g., cod) or the impact of that species on other stocks.

Concerning M levels, specific values of M at age need to be recommended for the North Sea stocks assessed by the various working groups.

Concerning the four possibilities suggested by the Working Group for the long-term future of multispecies assessment work in ICES, ACFM decided to adopt option 1: the ad hoc Working Group could carry on as constituted, at least until the 1987 data can be fully analysed, with assessment advice being given by the relevant single-species working groups. It was felt that the Working Group should be given specific instructions to aim towards giving long-term advice. Communication, interaction and mutual support between the single-species working groups and the Multispecies Working Group should be encouraged. The next meeting of the Multispecies Working Group is scheduled for November 1986, with the following meeting perhaps not until June 1988. It was also suggested that the Working Group be given permanent instead of ad hoc status.

4.2 Working Groups on North Atlantic Salmon

ACFM accepted the findings of the Working Group.

One of the questions asked by NASCO pertaining to the North-East Atlantic Commission Area was inadvertently omitted from the final typing in Procés-Verbal and consequently was not addressed by the Working Group. ACFM acknowledged that oversight in its report and offered to consider the question at its May 1987 meeting.

4.3 Mackerel Working Group

The Working Group decided this year to make a combined assessment of the Western and North Sea mackerel, including a catch projection for 1987. In the ACFM, there was considerable discussion whether to provide any advice relative to a 1987 TAC and an area breakdown of the TAC at its May meeting. It was finally decided to postpone such an advice until the November meeting and not present the Working Group's projection in the report.

Since the egg survey estimates are essential in both areas, the Working Group should examine carefully maturity ogives for the two stocks.

Concerning the EEC request for an evaluation of the Cornish Box and advice relative to its continuation, enlargement or repeal or to alternative measures, ACFM had great difficulty. The Working Group suggested repealing the Box and instituting more widespread protection for juveniles to be implemented by minimal levels of catch in particular areas. However, the Working Group did not include Division VIaN in the areas to be subjected to reduced catches even though over half of the juvenile catch comes from there. Furthermore, there was very little information presented on the present distribution and relative abundance of juveniles on which to base closed area recommendations. It was felt that the Cornish Box continued to be an area where juveniles are present (e.g., 1985 year class) and although other areas clearly required protection, ACFM was not in a position to advise on this.

4.4 Herring Assessment Working Group for the Area South of 62°N

Concerning safe biological limits, the Working Group tended to base its advice on the historical record of each stock rather than on stock-recruitment relationships which is considered to be poorly defined at present. ACFM felt that the Working Group should have a closer look at stock-recruitment relationships.

Values used for M at ages 0 and 1 for herring in the North Sea should come from recommendations by the Multispecies Working Group.

For herring in Divisions IVa,b, the Working Group should include 1-ringers in its projections, assuming different F-levels. For herring in Division IVc and VIId, ACFM would like to see a VPA going back to 1949.

Concerning herring in the Celtic Sea - Division VIIj, ACFM could not accept the assessment since there was no basis for selecting an F or stock size in 1985.

4.5 Industrial Fisheries Working Group

Values used for M at age should be based on recommendations from the Multispecies Working Group.

Neither the analytical assessment nor the "SHOT" estimate for Norway pout were considered reliable for reasons explained in the ACFM report.

ACFM could not accept the assessment of sandeel in the northern North Sea because of the very limited amount of effort data.

4.6 North Sea Roundfish Working Group

The sharp increase in survey catchability at age 1 in 1984 for North Sea cod, whiting and, to a lesser extent, haddock should be investigated.

Inconsistencies in catch tables in the Working Group report were noted for North Sea whiting, North Sea saithe and West of Scotland saithe (e.g. inconsistencies between Tables 23.1 and 23.2 for North Sea saithe). These should be cleared up.

The Working Group did not present yield-per-recruit calculations for any of the stocks because of the recommendation of the Multispecies Working Group that F_{\max} or $F_{0.1}$ should not be used as reference points for predators. ACFM decided to present catch options for $F_{0.1}$ and F_{\max} for each stock and to include the set of four standard graphs (including yield per recruit) for each stock in the report. It should be stressed that a Working Group is expected to produce such standard graphs when it is possible.

ACFM re-ran the North Sea cod projections with a lower 1985 year class but deferred the final advice to the November meeting.

Cod and whiting in Division VIIg are already handled by the Irish Sea and Bristol Channel Working Group and should not be included in any data bases developed by the North Sea Roundfish Working Group. (The data for Division VIIg were deleted from the respective catch tables in this section of the ACFM report).

4.7 North Sea Flatfish Working Group

The Working Group was unable to assess North Sea plaice and sole due to a lack of catch and age composition data for 1985 from one of the major fishing countries. After being assured that such data would become available later in the year, ACFM agreed to postpone its advice until November. The Working Group will meet at ICES headquarters 15-17 October.

4.8 Irish Sea and Bristol Channel Working Group

It was pointed out that the forecasts for all Irish Sea stocks are highly dependent on recruitment estimates. The Working Group reported on progress being made in reviewing available data and methods of estimating recruitment and in devising improvements. The forecasts for Irish Sea stocks will be updated at the November meeting of ACFM in the light of survey results.

The Working Group should have a further look at the relationship between effort and F for Irish Sea cod.

4.9 Division IIa Demersal Stocks Working Group

For the cod stock in Skagerak, it was questioned why CPUE was regressed versus spawning stock biomass and not total biomass when a lot of the catch is young fish.

Although the Working Group performed an analytical assessment of plaice in the Kattegat, ACFM did not accept it, but instead recommended a precautionary TAC.

4.10 Sardine Working Group

The Working Group estimated F for sardine in 1985 from results of acoustic surveys. The overall correspondence between VPA and acoustic survey results was good and ACFM accepted the assessment.

The Working Group should have closer look at M for sardines as the value of 0.5 may be too high.

4.11 Working Group on Assessment of Pelagic Stocks in the Baltic

The relationship between fishing effort based on trapnet CPUE and F should be further examined as a basis for predicting terminal F for herring in Sub-division 31 E.

ACFM felt that the Working Group would be unable to provide any realistic picture of stock distribution in the coming years given the lack of appropriate data and that this question should no longer be included in its terms of reference.

4.12 Working Group on Assessment of Demersal Stocks in the Baltic

Concerning cod in Sub-divisions 22 and 24, ACFM could not accept the estimates of the 1983 and 1984 year classes as provided by the Working Group or the corresponding low F values at ages 1 and 2 in 1985. ACFM revised the assessment, obtaining lower estimates for these two year classes from a relationship between German Democratic Republic survey indices and VPA estimates at age 1 forced through the origin, and appropriately higher F values at ages 1 and 2 in 1985 consistent with previous values. Mean weights at age in the catch had also increased in the last several years, so 5-year averages were used in the forecast. The 1985 year class was assumed to be at the same low level as the 1983 year class.

ACFM observed that recruitment may be overestimated by the Working Group in Sub-divisions 25-32 because of the high intercept of the regression of VPA estimated year class strength against survey indices. The F at age 3 in 1985 used by the Working Group was considered by ACFM to be too low, considering that the F at all age groups in 1985 except age 3 was higher than the 1980-84 average. ACFM revised the assessment accordingly, which produced a lower 1982 year class and, hence, lower estimated 1984 and 1985 year classes from the recruitment curve.

4.13 Baltic Salmon and Trout Assessment Working Group

The Working Group did not recalibrate the assessment model because of a lack of Swedish data for 1985 (the model was based on Swedish tagging data) and, therefore, no assessment was done. ACFM was concerned that no revision of the model was attempted using pre-1985 data.

The assessment model must be revised to reflect changed assumptions regarding smolt growth parameters, sex ratios, migration patterns, etc.

It was proposed that one day should be added to the 1987 Working Group meeting to accommodate an ad hoc workshop on the standardization and intercalibration of the scale discrimination technique.