

Report of Fourth Session of Special Meeting  
on Measurement of Fishing Effort

The fourth session was devoted entirely to a general discussion of all topics raised in the first three sessions and also on the conclusions which could be drawn from the meeting.

The meeting itemised those factors which were recognised as contributing to the variability of catch per unit effort statistics. These were taken to be

- a) fishing unit characteristics (vessel and gear)
- b) methods of gear operation (tactics)
- c) fish abundance
- d) fish availability
- e) economic desirability
- f) "error"

The latter factor was interpreted as a "portmanteau" term including, in particular, the skill or talent of the skipper and crew. These factors were recognised as being inter-related in many ways and hence the effects of each could not always be separately studied. The meeting noted the results of the many studies aimed at measuring the degree of association between fishing success and vessel characteristics, a number of which were presented in the papers to the meeting.

The meeting felt that from both a biological and economic viewpoint the classes of data currently collected and published for certain methods of fishing were broadly satisfactory for the understanding and interpretation of effort statistics but that there could be important sources of error in some of these, particularly statistics of gross registered tonnage. The meeting noted a need for a uniform classification system of fishing vessels. The meeting also stressed the need, in this field, for continued close collaboration between biologists, economists and technologists. For fisheries in which aimed trawling formed a major component of effort there was at present no satisfactory measure of fishing effort and the meeting agreed the need for information on searching time. The meeting also noted the need for continued studies on how to relate different types of effort to one another. The meeting agreed that hope of abundance estimation free from the shortcomings of commercial fishery statistics lay, in the future, in the increased use of alternative methods. Methods which hold out promise in this way include various survey techniques such as research vessels, submersibles, acoustic devices underwater television and resource satellites. Recent encouraging progress in the use of acoustic techniques in population estimation was noted.

The meeting was aware of a possible increase in the use of quota controls as a method of fishery regulation and recognised that this called for accurate methods of short-term forecasting of both stock abundance and fishing effort. Analyses presented to the meeting by economists indicated that the total production and total value in some mixed fisheries which have been studied are capable of a high degree of explanation in terms of fishing power and fishing time statistics. This implies that in making predictions for quota regulations biologists may have to adopt the economists method of taking a mixed fishery as a unit system. That is, aggregate data may offer a greater possibility for reliable short-term prediction of productivity level than do data for individual species.

This still leaves the problem of quota allocations for individual species and reinforces the need for independent measures of stock abundance.

Given an independent measure of abundance, the allocation of quotas may be the only feasible method of achieving a desired level of fishing mortality. In such a case, knowledge of relative fishing power of different gears is essential for individual countries in apportioning their share of the mortality among fishing units. To obtain and interpret this information requires the close collaboration of biologists, economists and technologists.

The meeting discussed the problems which are likely to arise in the allocation of fishing mortality among various species and gears. Of particular importance to individual nations will be adequate information on the diversity of catches in relation to fishing tactics. This will require more extensive sampling of commercial catches for species size and age; composition by gear, location and season.

### Main Conclusions and Recommendations

1. The value of fishing gear classifications was recognised as important to the interpretation of both biological and economic statistics. The meeting had for consideration two proposed classifications (Doc.No.2a and No.8). It was recommended that the Secretary of the CWP undertake a study of both systems in consultation with appropriate experts with a view to presenting a proposed single classification for consideration by national and international statistical agencies.

2. The meeting noted the desirability of attempting to introduce a uniform classification of fishing units for the reporting of catch and effort statistics. It was agreed that a draft classification be drawn up by the CWP and be submitted to ICNAF, ICES and other International Agencies in 1971.

3. The meeting had before it a recommendation from ICNAF R&S Sub-Committee on Statistics and Sampling that the usefulness of the effort measure "days on ground" be considered. The meeting was informed that the reporting of "days on ground" was redundant as it is given also either as "days absent" or "days fished". The meeting accordingly recommended that the item "days on ground" be deleted from both STATLANT 1W and 1E.

4. The meeting recognised the importance for measuring the element of searching time fishing effort. It noted that the present effort report "number of days fished" includes both fishing time and searching time. It is important to maintain this series unaltered. The meeting requested that the Secretary of the CWP to contact national agencies in order to ascertain the possibility of reporting "searching time" as an additional statistic.

5. The meeting recognised the common interest of biologists, technologists and economists in the catch and effort statistics reported to national and international agencies. The importance of close collaboration among them, in the interpretation and analysis of these statistics, was clearly borne out by the papers submitted to the meeting. The meeting recommended that international agencies continue to foster and support such collaboration.