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Aide-Memoire on the Control of Fisheries¹

by

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This document contains no new information. It is a digest of papers previously presented to ICNAF which contain material relevant to Assessments Agenda. In preparing this summary the fundamental biological and economics concepts are taken as understood, but administrative problems of management, e.g. licensing, are excluded.

Aim of ICNAF

The preamble to the Convention says "to make possible the maintenance of a maximum sustained catch" which is interpreted in Article VIII (as amended by the 1969 Protocol Relating to Panel Membership and Regulatory Measures) "to achieve the optimum utilization of the stock", and implies the utilization of all stocks that can be harvested. Panel recommendations may be based on scientific, economic or technical considerations. The economic considerations contribute to the choice of regulatory measure but, because of fundamental differences in the economic criteria of Member States they do not define an economic optimum for utilization at the international level and the common interpretation of objective remains in the maximum yield in weight of fish per stock; the economic and technical aspects influence national attitudes to regulation related to that objective.

The concept is simple but its realization is difficult because:

- i) biological complexities causing the management of one species to be incompatible with management of others (the 10% exemption of by-catch recognises the need for composite regulation of species);
- ii) political and administrative difficulties in securing equitable non-discriminatory management to limit fishing activity which at the same time recognizes the right of nations to participate and develop their fisheries on the high seas.

Conservation Measures

Measures that may be considered affect either the size of fish caught or the level of fishing mortality for the purpose of:

- 1) maximizing the yield per recruit.
- ii) preventing fishery-induced reductions in recruitment.
- iii) realizing both economic and biological benefits of regulation (economists identify the former as the maximum net economic gain from all possible resources, i.e. the correct amount of end product using the most efficient gear by the most efficient units, leaving the incentive for further gains from product utilization and cost saving which will prevent the industry becoming ossified).

Regulation of the size of fish caught or of mortality are applicable to objectives (i) and (ii) but only regulation of mortality can be effective in (iii). Mesh regulations control fish size to maximize yield per recruit, sacrificing a present catch to ensure an improved future catch, but this implies an improvement in stock which will stimulate new entrants and tend to dissipate potential benefits. Management has therefore become centred on regulation of mortality to ensure economic as well as biological benefit. There are four methods:

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- i) efficiency of fishing gear.
- ii) closed areas/seasons.
- iii) catch quotas
- iv) effort quotas.

Regulation of Fishing Mortality

- i) Regulation of the efficiency of gear. Less effective than either (iii) or (iv) because the only benefit lies in the value of increased catches from the regulated stock; it loses the benefit of reducing the cost of the catch and the potential value of using alternative (additional) resources that might be harvested through improvement in technique within the same cost. Economists comment that there can be no rational defence of techniques to maximize inputs to produce a given product.
- ii) Closed seasons/areas. Used in isolation these are not necessarily effective: they do not prevent increased fishing intensity at other times or areas that can negate economic benefit; they may interfere with fisheries for other species and hence may prove discriminatory. Usually considered as back-up regulation. Closure of an open season for an unallocated quota represents a special form of closed season.
- iii) Catch and effort quotas.
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- iv) A. Advantages in regard to catch are:
 - a) Flexible through inherent variability of catches.
 - b) Lends itself to allocation.
 - c) Enforceable by an established means of implementation.
 - d) Leaves the national authority with more flexibility to secure the benefit of the regulation according to its own policy.
- B. Advantages in regard to effort are:
 - a) Positive, direct control.
 - b) Variability of fishing techniques complicates allocation.
 - c) Close control requires stringent monitoring to overcome lack of evidence of time spent fishing.
- C. Disadvantages:
 - a) Both imply regulation of fishing activity and hence, by the time they are implemented, problems in the redeployment of superfluous fishing capacity.
 - b) Quotas covering several areas/species may need supporting regulation to provide special protection for individual areas/species. Overall catch quotas most appropriate to vessels fishing a number of areas, effort quotas for fisheries based on several species in the same area. Precise control presupposes quotas by area and species.
 - c) There will be a tendency to increased competition for the available fishery by a shortening of the season (catch) or a shift in seasonality (effort) with overextension of men and ships and a deterioration of the product.
 - d) There are potential inequalities between nations due to shifts in seasonability in relation to the varying ability of fleets to use alternative resources.
 - e) If regulation causes redeployment of fishing, this may aggravate or generate comparable problems elsewhere.
 - f) There is a need to take account of the natural fluctuations in the stock (catch quotas) or improvements in the fishing power of vessels (effort quotas) tending to increased administration and certainly more meetings at both the Scientific and Commission levels.

- g) Both present problems of monitoring and enforcement:
- i) in the potential for misrepresentation of the time and area of catch or fishing;
 - ii) settling of closure dates;
 - iii) discarding at sea;
 - iv) by-catch of other species.

D. Current approaches to overcome the disadvantages:

- 1. Re Disadvantage C(a): by reduction of the amount of fishing (this is the objective to be solved by the complete package).
- 2. Re Disadvantages C(b) to C(e): by allocation of catch (effort) to stock (area) and country and, for fine control of effort, to seasons (principles of catch quotas allocation have been agreed and applied for some stocks).
- 3. Re Disadvantage C(f): by increased or reallocation of scientific and administrative resources.
- 4. Re Disadvantage C(g):
 - i) The international enforcement scheme is being implemented.
 - ii) Procedure controlling catch quotas has been established (*Redbook* 1971, Part I, p. 60).
 - iii) No satisfactory solution; suggested discards be included in quota or rendered a non-problem by increases in minimum mesh sizes.
 - iv) No solution; suggestions for (a) overall multispecies catch quota with weighting of the catch composition (of whales); (b) effort quota with catch per species superimposed (US proposal).

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