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REGIONAL REQUIREMENTS FOR RESOURCE ASSESSMENT AND CONSERVATION  
AND SOME ALTERNATIVE INSTITUTIONAL ARRANGEMENTS

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Introduction

The South Pacific Commission's Tuna and Billfish Assessment Programme is scheduled for completion on 30 September 1984. In view of this, governments now need to review their requirements for oceanic fisheries resource survey, assessments and possible conservation and decide on the most appropriate arrangements for meeting these requirements from October 1984 onwards.

A paper on this topic (Background Document No.1 for this meeting) was distributed to governments and to individual fisheries officers within the region in March of this year, and subsequently discussed at the Commission's Planning and Evaluation Committee Meeting in Noumea in May. The Planning and Evaluation Committee delegated considerable responsibility to this technical meeting by passing the following resolution:

The Committee recognised the importance to the region of the activities of the SPC Tuna and Billfish Assessment Programme and requested the 1983 SPC Regional Technical Meeting on Fisheries to consider alternatives for the continuation or otherwise of such activities in their present or a modified form with a view towards making detailed and specific recommendations for consideration by the Twenty-third South Pacific Conference. To assist the Technical Meeting on Fisheries in its deliberations the Committee directed the Secretariat to submit alternatives to the Technical Meeting in consultation with the FFA.

This paper presents opinions on the need for further resource assessments and possible conservation and resource management (in accordance with paragraph 75 of the Report of the Planning and Evaluation Committee Meeting) and outlines numerous alternatives for institutional arrangements.

The Need for Regional Tuna Resource Assessment and Possible Conservation

In considering the region's requirements for resource assessments and, if necessary, conservation, it has been assumed that the national interests of the numerous countries of the region dictate the reasons for regional tuna resource assessments and that the role of any international organisation(s) is merely to co-ordinate these assessments and to provide information in the appropriate form to the respective countries for which they work. National objectives are therefore fundamental to evaluation of the region's requirements.

When evaluating their individual alternatives, countries need to consider that even though the total resources may indeed be great, they are not infinite and catches in any one fishery will interact to varying degrees with other fisheries exploiting the same population of the same species. They therefore need to consider in combination their involvement, or possible participation, in the numerous types of fisheries which exploit tuna. These can be broadly classified into the following categories:

1. Subsistence fisheries. These have been of great traditional significance in many developing countries, particularly small Island states, and continue to be of immense social importance.
2. Artisanal fisheries. There is a great diversity of activities in this field, but skipjack and yellowfin tuna play an important role in small-scale fisheries of many countries.
3. Local commercial fisheries and joint-ventures. In many developing countries these are dominated by pole-and-line fisheries for skipjack which constitute major sources of employment and often represent a primary source of export earnings and foreign exchange.
4. Licensing of foreign fishing vessels. Since the acceptance of the principles of 200-mile zones of extended jurisdiction, the generation of license fees has become a major source of, or at least potential for, income in many developing states. For example, in the zones of many Pacific Island states, the value of catch by distant-water fleets exceeds the gross national product of the Island state.

Distant-water fishing nations are of course involved only with the last two categories and primarily the last one. Their interests differ from those of coastal states in being directed towards obtaining access to the resource and in maximising, or at least optimising, total yields. They do, however, share the same basic interest of coastal states in the conservation of the total resource.

When evaluating the interests of coastal states in these various types of fisheries, it is necessary to take account of the gross changes which continue to occur in tuna fisheries in the Pacific. In the 1950s, the only tuna fisheries in the area of the South Pacific Commission were the traditional subsistence fisheries and a few small-scale artisanal fisheries. Longlining was then introduced by Asian fleets, but these operated only on larger tuna species caught far from shore and there was therefore no detectable interaction between the longline fisheries and those of Island states. In the 1960s came the distant-water pole-and-line fleets from Japan and in the early 1970s local pole-and-line fisheries began to develop, largely on a joint-venture basis. In the late 1970s, purse-seining techniques improved dramatically and fishing effort increased to such an extent that by the early 1980s the tuna catch by purse-seining in the central and western Pacific exceeded that by all other gear types. As concluded by the South Pacific Commission Skipjack Programme, interaction between these various fisheries increases as catches increase.

Countries are therefore faced with the evaluation of three basic types of interaction:

1. Between various types of fisheries within individual countries; for example, between the large distant-water purse-seine and pole-and-line fleets, and the subsistence fisheries in the waters of any one country.
2. Between countries; this problem increases as fisheries cover more and more of the 200-mile zones of the various coastal states, therefore bringing vessels of neighbouring countries closer together.
3. Between gear types; this is most obvious for yellowfin tuna, where the purse-seine and longline fisheries compete for the same resource, yet yield products which sell at totally different prices.

There is no doubt that evaluation of the various forms of interaction will dominate discussions of optimal deployment of tuna fisheries in the western Pacific for some time to come. Problems will increase if catches continue to increase and will inevitably lead to various forms of tuna resource allocation, both between gear types within countries and between countries. In fact, many examples of such allocations already exist (e.g. the restriction of purse-seining in certain areas of the Northern Marianas, Solomon Islands and Fiji).

#### The Present Status of the Stocks

In view of dramatic changes in tuna fisheries which have occurred in the central and western Pacific in recent years, and the paucity of the available statistics, it is difficult to accurately evaluate the impact of the fisheries on the stocks. However, work by the Commission's Skipjack and Tuna Programmes has provided estimates for at least the major species. Skipjack resources have been estimated to be extremely large and considerable potential exists for increasing total yields, even though there is evidence of heavy localised exploitation in some areas. Interaction between existing fisheries has been shown to increase as total catches increase and fishing areas expand and grow closer together.

Preliminary evaluation of the yellowfin tuna resources suggests that the standing stock is greater than previously estimated from longline catch and effort statistics. However, there have recently been phenomenal increases in purse-seine catches of this species, and at the same time an apparent overall decline in catches by longline vessels. There have also been reports of declines in catches of yellowfin by subsistence fishermen in some areas. As yet the relationship amongst the catches of this species by purse-seine, longline and subsistence gears is poorly understood. It should be noted, however, that the purse-seine catch alone of yellowfin tuna in 1982 from the area of the South Pacific Commission was approximately equal to previous estimates of the total maximum sustainable yield of this species from the total central and western Pacific.

Largely because of the lack of differentiation between the catches of juvenile yellowfin and bigeye tuna, the available statistics on bigeye tuna are too poor to allow reliable resource evaluation. It should be noted that surface catches of this species have increased dramatically with the recent increase in purse-seining.

Total effort on albacore and billfish in the central and western Pacific has decreased with the decline in longline fishing, suggesting that the resources of these species may now be underexploited.

#### Future Requirements for Resource Assessment

Evaluation of interaction between the various fisheries exploiting tunas is now a key requirement for resource evaluation, perhaps even more important than assessments of the resource's ability to support total sustainable catches. Proper evaluation of interactions will need to take account of the status of the resources being exploited and the social, economic and political objectives of the countries involved. History suggests that there will be constant changes in the nature of the fisheries operating throughout the vast area of the tropical Pacific and that evaluation of fishery to fishery interaction will require ongoing assessment. Certainly the social, economic and political objectives of coastal states and foreign fishing nations can also be anticipated to change.

Because of the complexity of the many 200-mile zones which collectively span the central and western Pacific, and the natural variability apparent in resource abundance and distribution, precise evaluation of fishery interactions will always be extremely difficult. Furthermore, the highly migratory nature of the species being exploited necessitates that realistic resource evaluation take into account the effects of fishing over a much greater area than just the 200-mile zones of Pacific Island states. For example, little more than half of the 550,000 tonnes of skipjack taken from the total western Pacific in 1982 was from the area of the South Pacific Commission (accurate statistics available to countries in the SPC area cover only approximately 95,000 tonnes (17%) of the total catch).

The need to obtain input from nations additional to Pacific Island coastal states in evaluating the total resources, estimating fishery to fishery interactions and in formulating conservation policies, is therefore obvious. Wider involvement in resource evaluation issues should in no way detract from the ability of coastal states to act in concert when formulating management decisions arising from consideration of the comprehensive resource evaluations.

#### Some Possible Alternative Institutional Arrangements

Positive and negative aspects listed are assessed according to their implications only to the Island countries and territories in the area of the South Pacific Commission. Note that some aspects assessed as positive to Pacific Island states could well be negative to the interests of other fishing nations.

1. Within the Existing Framework of the SPC

1.1 Continuation of the Tuna Programme in its present form

Positive aspects:

- A mechanism is already established for the budgeting, implementation and management of such a programme and procedures for communicating the results to the countries of the region are already in operation.
- There are virtually no costs to Island governments.
- Donor governments are familiar with the Programme.
- Results from the Programme are extensively reviewed by individual countries, by the donor governments and by the SPC annual Regional Technical Meeting on Fisheries incorporating the Expert Committee on Tropical Tunas, the Planning and Evaluation Committee and the South Pacific Conference.
- The existing staff are well trained to undertake field programmes such as additional tagging to assist with the evaluation of interaction between fisheries.

Negative aspects:

- The data coverage, even with the relatively wide membership of the SPC, is inadequate for total resource evaluation and conservation purposes.
- A major aspect of the Tuna Programme has been the provision of first estimates of the magnitude of the resources. This task should be completed by September 1984 and present staff levels would be excessive unless major additional fieldwork is undertaken.

1.2 Modification of the present Tuna Programme

1.2.1 A decrease in total Programme activities

Positive aspects:

- The positive aspects of continuation of the Tuna Programme listed in 1 above would still be applicable except that the ability of staff to undertake additional fieldwork would be reduced.
- Staff levels could be reduced by two professional positions until such time as new field projects were commenced, resulting in a decrease in total expenditure.

Negative aspects:

- The Programme would effectively be reduced to processing and commenting on statistics.

- The data coverage would still be inadequate for accurate evaluation of the total resources.
- The Programme would be less able to respond to requests from governments for individual assistance.
- The Programme would not be able to undertake even minor new regional research projects.

#### 1.2.2 An increase in total Programme activities

##### Positive aspects

- All positive aspects of continuation of the Tuna Programme listed in 1 above would still be applicable.
- After completion of initial resource estimates, additional work could be undertaken to more fully evaluate interaction between fisheries or other objectives as directed.
- The total output of information to countries of the region could be increased.

##### Negative aspects

- The catch and effort data coverage would still be inadequate.
- The total cost of the Programme would be increased which would make it more difficult to obtain the necessary funding.

#### 1.3 Continuation of the statistical programme only, within the SPC

##### Positive aspects:

- Total cost to donors would be reduced. However, if the statistical programme was to be incorporated into the regular work programme of the SPC, Commission members would have to bear the cost.

##### Negative aspects:

- Statistical coverage is already inadequate, and without associated research and resource conservation activities, there would be no mechanism for encouraging other parties to contribute statistics.
- The interpretation of statistics produced by the programme would not be possible without input from competent tuna resource biologists. It would therefore be extremely dangerous to provide processed statistics to Island countries without description of the causes of variability in the data.
- There would be no mechanism for combining statistical and biological data in order to evaluate the status of the resource.
- Other organisations might undertake the biological research with its implied resource conservation activities. Such work would not necessarily be subject to the review of the numerous SPC meetings.

- It would be extremely difficult to maintain scientific input from all coastal states and to represent the common interests of coastal states within the SPC area in resource conservation issues.
- The continuity of expertise in oceanic fisheries established within the Commission would be lost.

1.4 The SPC to have no ongoing involvement in oceanic fisheries

There appear to be no positive reasons for such a course of action unless all of the existing SPC services are continued by another organisation capable of carrying them out at least as well as under the present arrangement (as would supposedly occur under 2 below).

Negative aspects:

- All of the negative aspects listed under 1.3 above would still apply.
- Fisheries are central to the development aspirations of all Pacific Island countries and as such are an integral part of the Commission's work programme. It would be difficult to argue that the Commission's integrated work programme would be comprehensive without appropriate oceanic fisheries involvement.
- The success of the Commission's fisheries projects has significantly contributed to the value of the Commission to the countries of the region and, given appropriate support, will continue to do so.

2. Beyond the Existing Organisation of the SPC

2.1 Creation of expanded membership to allow full participation of foreign fishing nations and coastal states, while still remaining under the general umbrella of the SPC

Positive aspects

- Increased membership should increase statistical coverage and involvement by all countries involved in the resource conservation and management issues.
- There should be an increase in input of other scientific data and analyses on resource evaluation issues.
- It should be possible to obtain at least some additional funding from non-SPC states.

Negative aspects

- It could be difficult to accommodate increased membership while remaining under the general umbrella of the SPC.
- Such an arrangement might increase membership, but still not overcome the legal requirements of the United States of America with respect to an international treaty covering tuna fisheries.



2.2 The establishment of a separate international body

Positive aspects:

- Input could be obtained from all nations with an involvement in the fisheries. This would greatly improve the coverage of the available statistics.
- It would be possible to carry out research over a much greater part of the area of distribution of the total resources.
- Much of the funding could possibly be obtained from distant-water fishing nations.

Negative aspects:

- The formation of such a body requires political action which could require further consideration before a decision is made.
- If the body so established does not have a competent and unbiased secretariat, then results from it could possibly be influenced disproportionately by the countries with the greatest input from their own scientists. This necessitates consideration of the type of body required and of the mechanism for formulating conservation recommendations. For example, a comparison of the structures and methods of operation of the Inter-American Tropical Tuna Commission and the International Commission for the Conservation of Atlantic Tunas could be useful.
- The members of the South Pacific Commission may have less than complete control over the operation of the body.