

INTERACTIONS OF PACIFIC TUNA FISHERIES: FAO-led Cooperative Research

TUNA FISHERIES in the PACIFIC

Tuna fisheries in the Pacific are of great importance to both developed and developing countries. Small-scale tuna fisheries exist in many developing countries, while the large industrial tuna fisheries (purse seining, pole and line fishing and longlining) produce the bulk of the catch.

The annual catch of all tuna and tuna-like species in the Pacific reached 2.8 million tons in 1990, representing about 67 % of the world's catch of these species. The most economically valuable species are albacore, bigeye, northern and southern bluefin, skipjack and yellowfin tuna. This group of species, with the combined annual catch of 1.8 million tons in 1990, is of most relevance to the project.

The increased catches reflect both the expansion of existing fisheries and the development of new fisheries, which have gradually created a potential for significant direct and indirect fisheries interactions.

SCIENTIFIC PROBLEM

It is often the case that two fisheries operate, for example, on overlapping geographical areas during the same season, targeting fish of the same size ranges of the same stock. Changes in the fishing intensity or the fishing pattern of one of the fisheries may affect the catches of the other one. However, predicting such effects is a serious research challenge.

Many tuna species are capable of very rapid, long distance movements or migrations across or even between oceans. Consequently, fisheries operating in different exclusive economic zones and high seas at different seasons may significantly affect each other. In addition, separate fisheries targeting different age-classes may have a substantial impact on one another.

The knowledge of such fisheries interactions is essential for rational management of fisheries. A need for such information has become evident at various regional fisheries meetings, stimulating FAO to initiate the project.

PROJECT OVERVIEW

Objective

The purpose of the project is to enhance the regional and national capacity of countries, especially developing countries involved in tuna fishing in the Pacific for addressing scientific problems of interactions of these fisheries. Underlying the formulation of the project is the understanding that research on tuna fisheries interactions should be a long-term activity. The ultimate goal is to optimize benefits from tuna fisheries to the countries of the region.

TUNET Network

TUNET, a network of ten Working Groups has been established to implement the project. This reflects the need for the involvement of scientists from many countries in addressing scientific problems of tuna fisheries interactions. The topics of Working Groups are:

- Methods for Studying Tuna Fisheries Interactions
(Convenor: Dr Pierre Kleiber),
- Interactions of Pacific Skipjack Fisheries
(Convenor: Dr Richard Deriso),
- Interactions of Western Pacific Yellowfin Tuna Fisheries
(Convenor: Dr Ziro Suzuki),
- Interactions of Eastern Pacific Yellowfin Tuna Fisheries
(Convenor: Dr Richard Deriso),
- Interactions of South Pacific Albacore Fisheries
(Convenor: Dr Talbot Murray),
- Interactions of North Pacific Albacore Fisheries
(Convenor: Dr Norman Bartoo),
- Interactions of Pacific Bigeye Tuna Fisheries
(Convenor: Dr Naozumi Miyabe),
- Interactions of North Pacific Bluefin Tuna Fisheries
(Convenor: Dr William Bayliff),
- Interactions of Southern Bluefin Tuna Fisheries
(Convenor: Dr Tom Polacheck) and
- Interactions of Pacific Small Tuna Fisheries
(Convenor: Mr David Ardill).

The Working Groups include 65 scientists from 23 countries. However, information about the project's implementation is distributed to a wider group through Circular Letters.

Base and Duration

In the first year (1991/2), the project was administratively based at the FAO/UNDP Regional Fishery Support Programme in Suva, Fiji, but its technical activities were coordinated from FAO's Headquarters in Rome, Italy. Since then, the FAO Headquarters has become the operational base of the project. The completion of major activities of the project is expected at the end of 1994.

First FAO Expert Consultation

Before the First FAO Expert Consultation on Interactions of Pacific Tuna Fisheries, information on tuna resources, fisheries and research in the Pacific was scattered, difficult to access and not integrated. This was largely due to the lack of a single tuna fishery body encompassing the entire Pacific. As a result of the Consultation, this information including that on fisheries interactions and methods for their studying was collated and reviewed and recommendations were made for future activities. This very substantial body of information will be published in the Consultation's Proceedings.

Research Activities

Following the recommendations of the First Consultation and subsequent discussions within TUNET, the activities of the project focus particularly on skipjack and yellowfin tuna. They emphasize:

- (a) improvement of existing methods and development of new methods for studying tuna fisheries interactions and
- (b) examination, testing and application of methods for addressing typical tuna fisheries interaction problems occurring in the Pacific.

Such a program is likely to lead to the greatest benefits to developing countries of the entire Pacific region because

- (a) very few methods have been developed for scientifically addressing problems of tuna fisheries interactions and their applicability has been mostly unknown and
- (b) the species selected have been most important to developing countries of the region.

As part of the activities of TUNET's Working Groups, proposals for research on Pacific tuna interactions have been prepared and refereed. The progress in the execution of the proposals supported by the project is monitored by FAO and TUNET.

Some of the specific studies undertaken by the project include:

- (a) modelling movements of skipjack tuna and resulting interactions of fisheries in the western Pacific,
- (b) simulating the dynamics of tuna fleets and fisheries interactions in the eastern Pacific,
- (c) examination of the status of tuna stocks and interactions of tuna fisheries off the Federated States of Micronesia, off Kirabati and off Indonesia and Philippines and
- (d) species identification of small juvenile tuna in the catches of Philippines fisheries.

The project has also financed the publication of an indexed bibliography of papers on tagging, which is a major tool for studying tuna fisheries interactions.

Second FAO Expert Consultation

A Second FAO Expert Consultation to be held in the middle of 1994 will

- (a) review and integrate the outcome of the executed proposals,
- (b) summarize various approaches to studying tuna fisheries interactions,
- (c) formulate detailed guidelines on their applicability and reliability,
- (d) discuss the likely extent of tuna fisheries interactions and make some generalizations regarding this extent, if possible and
- (e) make recommendations on future research.

This information will be documented in Proceedings of the Second Consultation.

Follow-up Activities

Subject to the availability of funds and recommendations of the Second Consultation, some follow-up activities may be carried out.

BENEFITS to DEVELOPING COUNTRIES

The membership of TUNET incorporates both scientists from developing and developed countries studying tuna fisheries interactions. Such a composition facilitates the transfer of research methodologies, information and advice from developed to developing countries.

The First FAO Expert Consultation on Interactions of Pacific Tuna Fisheries was well attended by scientists from developing countries, most of whom were financially sponsored by the project. The Consultation provided these countries with comprehensive information on tuna resources and fisheries in the Pacific as well as their interactions and methods for studying them. Previously, this information was dispersed and extremely difficult to access.

The research activities sponsored by the project are of direct relevance to developing countries. Scientists from developing countries have been involved in the formulation of the research plans and expressions of support from their governments have been received.

In addition, developed countries involved in tuna fisheries in the Pacific also benefit from the project, especially from the resulting methodological developments.

INTERNATIONAL COOPERATION

The execution of the project has been possible due to very close collaboration among scientists of the Pacific region. Funds for the project have been provided by Japan under the FAO Trust Fund arrangement. The South Pacific Commission (SPC), with cooperation of the Office de la Recherche Scientifique et Technique Outre-Mer (ORSTROM), hosted the preparatory meeting and the First FAO Expert Consultation on Interactions of Pacific Tuna Fisheries in Noumea, New Caledonia in Dec. 3 to 11, 1991. Japan has expressed interest in hosting the Second Consultation.

FAO has executed the project and provided supplementary funding and research and organizational leadership.

A number of regional and national institutions have contributed technical expertise, data, computer facilities and funds for staff participation in the Expert Consultations. These institutions have included:

- Commonwealth Scientific and Industrial Research Organization (Australia),
- FAO/UNDP Regional Fisheries Support Programme,
- Fisheries Research Center (New Zealand),
- Inter-American Tropical Tuna Commission,
- Indo-Pacific Tuna Development and Management Programme,
- National Marine Fisheries Service (USA),
- National Research Institute of Far Seas Fisheries (Japan),
- Office de la Recherche Scientifique et Technique Outre-Mer and
- South Pacific Forum Fisheries Agency.

in addition, national research laboratories of many countries of Latin America, Southeast Asia and South Pacific have also significantly contributed to the project.

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