INDO-PACIFIC TUNA DEVELOPMENT AND MANAGEMENT PROGRAMME

(INT/81/034)

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INTERIM REPORT

IPTP PROGRESS TO DATE AND OPTIONS FOR THE FUTURE

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INDO-PACIFIC TUNA DEVELOPMENT AND MANAGEMENT PROGRAMME

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1. PROGRAMME DESCRIPTION

The widespread extension of economic zones (EEZs) has increased the interest in tuna resources of the Pacific and Indian Oceans. Distant-water fishing nations are interested in continued access to tuna resources. Coastal nations are interested in receiving a fair return for providing the access and in the opportunities for developing local tuna fisheries.

However, tuna are nomadic species. Their wanderings can take individual fish in and out of the EEZs of several countries. Actions by individual countries to manage or develop their tuna fisheries must take account of actions by other countries exploiting the same resources. To make rational decisions concerning participation in the development and management of tuna fisheries, the countries must have ready access to comprehensive information on: the resources; fishing techniques; and markets.

The goal of the Indo-Pacific Tuna Programme (IPTP) is to establish a tuna data base from which information can be developed to support rational decision-making for management and development. The UNDP and Japan Trust Fund (JTF) projects which make up the IPTP (INT/81/034 and GCP/RAS/099/JPN) were established in recognition of the need to supply this information. Executed by FAO under the management of a single Programme Director, these complementary projects are designed to work towards the goal at different levels.

The UNDP project seeks to establish a tuna data centre and provide a forum in which discussion of development opportunities and management strategies can take place. This project, of necessity, relies on data submitted by the countries involved. As resources permit, the tuna data collection systems for selected countries may be evaluated and advice given on possible methods for improving the systems. However, the UNDP project has no intensive, long-term involvement in assisting any country with their data collection systems. The focus of the UNDP project's data centre is on collecting data at the national level for the entire area concerned.

The JTF project, while covering a similar geographic area, is designed to direct more intensive effort towards assisting selected countries to develop tuna data collection and analysis capabilities in order to provide more acurate and complete evaluations of their tuna fisheries. Thus, on a country-by-country basis, the JTF project is working to improve the data base, and the system that generates it, that is submitted to the inter-regional data centre. In addition, the JTF project assists the countries in the analysis of data and in planning and implementing corollary biological studies necessary for interpreting the basic fisheries data.

The JTF project was authorized in 1981 and field activities began late in that year. A one year preparatory assistance phase for the UNDP project was carried out in 1982 and the main project phase began in 1983. Thus the IPTP has been in existence for nearly three years and the need exists to summarize its progress and the prognosis for its future. This need is emphasized by the UNDP project review scheduled for December, 1984, and the impending departure of the present Programme Director at the end of December, 1984. The sections that follow provide this summary in the format of "Interim Reports" for the IPTP's constituent projects and a summary for the programme as a whole. It should be emphasized that these are not "Terminal Reports", as both projects are funded through 1985, but follow the format for interim reports as a matter of administrative convenience.

2. INTERIM REPORT: INT/81/034 - INDO-PACIFIC TUNA DEVELOPMENT AND MANAGEMENT PROGRAMME

2.1 Introduction

2.1.1 Background

Tuna and tuna-like species constitute an important fisheries resource, especially in the tropical Pacific and Indian Oceans. In those countries having little shelf area, they are often the only significant fisheries resource. According to FAO statistics, the 1980 catch of tuna and tuna-like species in the Indian and Pacific Oceans was nearly two million metric tons. A conservative estimate of the value of this catch at point of landing is US $1,500 million, in round figures. About three-fourths of the catch came from FAO's statistical areas in the Western pacific and Indian Oceans. Over one-half of the total catch was comprised of only two tropical species: skipjack and yellowfin tuna.

With the widespread extension of economic zones that occurred in the late 1970's and early 1980's the interest of coastal nations throughout the area in tuna resources increased greatly, particularly regarding the opportunity for development of local tuna fisheries, both small-scale and industrial. Furthermore, the coastal and island nations of the area gained increased opportunities to benefit through concerted actions in international negotiations, licensing of distant-water fleets and marketing of local catches. However, tuna are nomadic species, and their wanderings can take individual fish in and out of the EEZs of several countries. Some species may travel over long distances beyond 200 miles. Actions by individual countries to manage or develop their fisheries must therefore take account of actions by other countries exploiting the same resource. In particular, each country must have ready access to comprehensive information concerning the markets and distribution channels, resources, fishing techniques, etc. in order to make rational decisions concerning its participation in the development and management of the fishery.

In the developing fisheries, the need exists to match the appropriate fishing techniques with the tuna resources available and the target markets. The fisheries for tuna include the familiar purse seine, longline and pole-and-line fisheries of the distant-water fishing nations, which have been adopted by countries of the area in their developing commercial fisheries. In addition, a number of other techniques are used including trolling, hand-lining, gillnets, small purse seines, ring nets, etc., especially in the Western Pacific and Indian Oceans. The use of fish aggregation devices, a common technique in the Philippines, has been introduced to other areas and is becoming a widespread practice.

The decision to develop a tuna fishery by a developing nation requires careful analysis not only of resource availability and fishing techniques, but also of market structure and performance. The marketing and distribution system for tuna is complex. Japan, the United States and Western Europe represent the largest international markets, Japan consuming high-value raw fish and all using frozen fish for canned products. In Southeast Asia, a significant quantity of tuna, often the smaller species, is sold on the fresh fish market. Access to the export markets requires rigorous quality control, implying capital-intensive fishing techniques and distribution facilities. In addition, access to, and prices in the principle export markets may be highly variable due to protective national policies and/or the vertically integrated structure of fishing, processing and marketing companies in distant-water fishing nations.

For several years, the need for coordination of tuna fishery development, management and investigation activities in the Pacific and Indian Oceans had been discussed by both the Indo-Pacific Fisheries Commission (IPFC) and the Indian Ocean Fisheries Commission (IOFC) and in joint meetings of their respective tuna management committees. As a result of a recommendation by the fifth joint meeting of the IPFC and IOFC tuna management committees, FAO, with UNDP support under project INT/79/026, engaged a tuna specialist to investigate the availability of tuna data in the Indo-Pacific area and draw up a series of options for an IPFC/IOFC tuna management secretariat. The sixth joint meeting of the IPFC/IOFC tuna managemnt committees endorsed the funding by UNDP of a project to establish a permanent tuna data centre and serve as the focus for establishing a broad-based coordination programme for tuna development and management. Initially scheduled to begin in 1980, the FAO/UNDP Indo-Pacific Tuna Development and Management Programme (INT/81/034) got underway in 1982 as an initial stage in establishing an IPFC/IOFC tuna management secretariat.

2.1.2 Immediate Objectives

The immediate objectives of the IPTP project INT/81/034 as listed in the project document are:

1. To develop an information base through collection and analysis of historical and current fishereis statistical data as a basis for development and management of tuna fisheries.

2. To assist in making arrangements for the establishment and effective use of the project's fishery information system on a self-sustaining, long-term basis after the completion of the UNDP/FAO project.

3. To set the stage for, and encourage development of, tuna fisheries in the developing coastal states of the Indian and Pacific Oceans.

4. To promote (through TCDC and other means) consultation and cooperation between countries of the area in the development and management of tuna fisheries and to facilitate and support cooperative activities already under way at the request of the governments;

5. To develop and oversee as resources permit, as part of the UNDP/FAO Indo-Pacific Tuna Programme (IPTP), complementary projects including studies on national fisheries statistical systems and data management procedures, marketing and distribution patterns and from other funding sources studies of seasonal fishing patterns, stock structure, baitfish availability and other topics necessary for development and management decisions.

Based on a review of the various IPFC/IOFC meeting reports and documents, the first objective was accorded by far the highest priority with objective two on important carollary. The remaining objectives, while important, relate more to the broad-based coordination functions of an established tuna management secretariat.

2.1.3 Project Arrangements

The IPTP - INT/81/034 project was funded in 1982 under a UNDP preparatory assistance grant of US $294,945. The project document for the additional period 1983-1985 was signed by UNDP and FAO in January and February of 1984 and involved additional funding of US $990,000. Total project funding for 1982-1985 is US $1,284,945. In addition, an Hewlitt-Packard 1000 computer had been purchased for use by the project under a previous UNDP project INT/79/026.

The project is hosted by the Ministry of Fisheries of the Government of Sri Lanka which was to provide the necessary office and communications facilities for the efficient operation of an inter-regional project. The project moved from temporary quarters into permanent offices at the end of November, 1982. In July, 1983, The Ministry of Fisheries transferred administrative and technical counterpart responsibilities to its National Aquatic Resources Agency (NARA). In September, 1983, project offices were relocated to temporary quarters at the NARA facilities on the outskirts of Colombo. In October, the project was moved to its present site in the NARA facility and began development of its current offices which were completed in the first half of 1984. At present, facilities are adequate with the exception of reliable telephone and telex availability.

The project operations got underway in January, 1982, with the arrival of a senior statistician in Colombo and letters being sent to participating countries requesting nomination of liaison officers. The Programme Director was recruited in May, 1982, and took over management responsibilities from the Programme Leader for the South China Sea Fisheries Development and Coordinating Programme in Manila, Philippines. Due to delays in obtaining office and communications facilities in Colombo, UNDP did not authorize transfer of the Programme Director to Colombo until October, 1982. Computer systems managers (2) and an administrative assistant were hired at the end of 1982 and remaining local staff (7) were hired during the first half of 1983.

2.1.4 Related Activities

The IPTP, in addition to the UNDP funded core project, includes the Japanese supported five-year Trust Fund Project GCP/RAS/099/JPN. The South China Sea Programme, which initially provided an interim headquarters and management support for the IPTP, was able with supplementary funds from Norway to mount a joint tuna sampling programme in the Philippines and Indonesia. This work was continued and expanded in intensity and geographical area under the trust fund project. Work under the trust fund project has been expanded to include assistance to the countries of the southwest Indian Ocean area.

A number of complementary activities have been initiated in the IPTP area. The South Pacific Commission (SPC) has an active programme of tuna investigation in the Central and Southern Pacific. The South Pacific Forum Fisheries Agency (FFA) is actively proceeding in the development of cooperation among its member and observer states with regard to the management of tuna fisheries in the region and is collecting information on the economic aspects of tuna fisheries. The Inter-American Tropical Tuna Commission (IATTC) maintains a long-standing programme of data collection and analysis, primarily for the eastern Pacific but including some data for other areas.

Information on tuna prices and selected distribution channels is collected and distributed by INFOFISH (GCP/RAS/096/NOR), FAO's marketing information and advisory service for the Asia and Pacific area. The UNDP/FAO Project THA/77/008 finalised in 1981 a two-year investigation into the availability of bait and tuna on the west coast of Thailand. An FAO/TCDC project was initiated to introduce and test tuna aggregation devices in the Maldives. FAO, through its EEZ programmes continually provides technical assistance related to EEZ opportunities. The IPTP coordinates with these independent activities and uses the information available from them.

2.1.5 Project Reports

The IPTP has an extensive reporting system under which reports from both the UNDP and Japan funded projects are published. The report categories, types of reports and reports published to date (including the present report) are listed below.

Category	Type	Number to date
Working Papers	Authored papers on specific subjects	11
Data Summaries	Statistical summaries based on IPTP data files	02
General Reports	Meeting reports and anonymous general papers	06
Manuals	Data collection manuals	02
Periodic Progress Reports	Required six-month project progress reports for each IPTP managed project plus interim reports	11

Thus the IPTP has produced 32 separate reports to date. Approximately 700 copies of each report are required for distribution to a standing list of over 100 recipients in 54 countries. Additional copies are made available on request.

2.2 Results and Conclusions

2.2.1 Results

The project has established an historical data base on tuna fisheries of the Indo-Pacific for the period 1970 - 1982. Data available in the IPTP files are listed in Appendix I. This data collection was preceded and made possible by the creation of an IPTP liaison officer network covering 33 countries. A list of the IPTP liaison officers as of November 1984 is presented in Appendix II. Procedures were prepared (manuals) for the collection of historical data as well as data that are available on a current basis. A number of

country visits (to 15 countries) were made to observe national tuna fisheries, become familiar with data collection systems and collect tuna data, as well as to augment the liaison officer network.

The data base is being computerised and software developed to prepare various compilations for publication and to meet ad hoc requests. Two historical data summaries (one in draft form) compiled by hand have been published incorporating different levels of detail. An analysis of these summaries was prepared that highlights the major trends in the fisheries (see IPTP/84/WP/11). The more detailed draft will be completed once computer runs on the data base are made. With further development of software for the project's computer, more complex analyses could be undertaken to provide additional information to support tuna fishery development and management.

The project has provided a tangible focus for policy-level discussions that could lead to the establishment of a long-term, self-sustaining information support mechanism for tuna fishery development and management. An ad hoc meeting of policy level national officials was held during the FAO Committee on Fisheries (COFI) meeting in 1983 to discuss the problems faced by the project in attempting to establish a regional tuna fisheries data base. An expert consultation on establishing and maintaining a regional data base for tuna fisheries in the Pacific and Indian Oceans was held in 1984 to define the extent and scope of national data sets that could be made available on a regional basis (see IPTP/84/GEN/5). The consultation considered the questions of appropriate uses of a regional data base; data required for biological assessment purposes; levels of useful information that could be provided from a regional data base; and organizational arrangements for tuna management and scientific support machanisms. In addition, a workshop on tuna fisheries assessment was held that considered, inter alia, the state of the tuna data base and the status of national fisheries (see IPTP/84/GEN/6). The fact of the project's existence and the discussions and information engendered by these meetings should provide valuable assistance to participants in policy-level discussions on establishing a permanent, self-sustaining scientific support mechanism for tuna fisheries development and management. Discussions are expected to occur during various meetings held under the IPFC and IOFC regional bodies during late 1984 and in 1985.

The IPTP has attempted to assist development of tuna fisheries in the developing coastal countries of the Pacific and Indian Oceans in several ways. By providing an integrated summary of all available historical data, the IPTP has supplied basic information not generally available in the coastal states. The IPTP has distributed information to participating countries resulting from tuna fishery research activities in Indonesia and the Philippines under the Japan Trust Fund project as well as information on fish aggregation devices developed by

the South Pacific Commission. The IPTP presented a paper to and participated in "Tuna Update '83", a seminar on tuna fishing and development potential sponsored by the Association of Indian Fishery Industries. Responsibility for assisting in national tuna fishery development is primarily in the sphere of FAO's sub-regional projects as well as national projects. The IPTP cooperates with the FAO sub-regional projects, as well as with other projects funded by, for example, the World Bank and the Asian Development Bank, by providing information useful for development activities. In addition, the IPTP has responded to requests from countries and private companies for information on tuna fisheries. It should be pointed out that, given the capital intensive nature of most tuna fisheries and the depressed international market for tuna of the last several years, "development" does not necessarily mean direct national investment in fishing activities. Given the basic information to evaluate development options, much of which IPTP can supply, decisions may be taken that avoid uneconomic investments.

Promoting cooperation among countries in the development of fisheries is primarily the responsibility of FAO's sub-regional projects. However, to this end IPTP has participated in statistical workshops and training courses organized by the FAO Southwest Indian Ocean Programme, the South Pacific Commission and the Southeast Asian Fisheries Development Centre. The tuna assessment workshop sponsored by IPTP in August, 1984, is a major example of the efforts of IPTP to promote cooperation among countries concerned with tuna fisheries. The IPTP has maintained liaison with other international organizations concerned with tuna (e.g. the South Pacific Commission, Forum Fisheries Agency, Inter American Tropical Tuna Commission, International Commission for the Conservation of Atlantic Tunas) by attending meetings and correspondence.

The IPTP Programme Director manages the Japan Trust Fund project that is companion to the UNDP core project, with costs being shared between the projects. Proposals for additional research projects (possibly but not necessarily to be incorporated into IPTP) were discussed at the expert consultation and two proposals were presented by the U.S.A. representative as background papers to the tuna assessment workshop (see IPTP/84/GEN/6). Discussions have been held with officials in Japan regarding extension of the Japan Trust Fund project.

2.2.2 Problems

As the project collected the available historical data and established the contacts for an on-going international data collection system, it became apparent that the widespread extension of economic zones that occurred in the latter half of the 1970's had had a negative effect on the ability and willingness of the major tuna fishing nations* to provide data on the operations of their fleets. The reasons for this

* In 1980, the tuna fleets of six countries, including China (Taiwan), Indonesia, Japan, Korea, Philippines and the U.S.A., captured about 80% of the tuna taken from the Indian and Pacific Oceans.

are straightforward. Many of the countries extending their zones had little information on the tuna resources included and no easy way to evaluate them other than through data available from the major fleets. Needless to say, such information is valuable, if not essential, in negotiating access rights and license fees to best advantage. However, the relatively capital intensive, major tuna fishing fleets which would supply the data also seek the most advantageous terms of access and licensing arrangements. In several cases national industries have considered that providing data on an international level was not in their best interests. Cooperation of industry is, of course, necessary for national data collection. In summary, tuna fisheries operational data - in particular detailed catch and effort data of the type usually desired for stock assessment - have had strategic and tactical commercial value that outweighed advantages to be gained from international sharing of data for stock assessment purposes. The result has been that the major tuna fishing nations have declined to provide recent (e.g. within past 3 years), detailed (e.g. catch and effort by 1^{o} or 5^{o} squares) data to the IPTP on a unilateral basis.

The project was unable to rapidly develop a computerized data processing capability which may have had an adverse impact on the short-term credibility of the project as a tuna data centre. This inability resulted from three inter-related decisions with regard to equipment (computer) selection, project siting and professional staffing. Prior to the present project staff being recruited, an Hewlitt-Packard 1000 computer was selected and purchased as the project computer although no service facilities were available in Sri Lanka and the manufacturer stipulated at the time of sale that he would not be responsible for local service in Sri Lanka. This computer selection followed precedent set by the South Pacific Commission (in Noumea, New Caledonia) and the Forum Fisheries Agency (in Honiara, Solomon Islands) which operate similar equipment without local support by the manufacturer. However, both of those organizations employ full-time professional systems managers with experience in HP-1000 systems to operate and maintain the computers as well as professional systems analysts/programmers to develop and maintain software. (The HP-1000, as configured in 1982, was a remarkably stark machine in terms of commercially available, general purpose software packages as compared with the situation in 1984.) The decision had been taken to recruit systems managers locally and train them in manufacturer's courses with the expectation that an experienced professional would be available to supervise and work with them. Unfortunately, a project budget reduction announced in June, 1983, resulted in the scheduled professional post of systems analyst/programmer remaining unfilled. In addition, the arrival and installation of the equipment was delayed almost a full year (to the beginning of 1983) due to shipping delays and lack of office facilities on arrival. On installation, a number of hardware faults were discovered and a lengthy process of repair began which involved bringing a consultant to Colombo and exchanging parts through FAO headquarters

with the manufacturer's representative in Rome. This process proved unsatisfactory and the computer was finally shipped to the manufacturer's representative in Singapore for repair. With the equipment repaired and local systems managers being trained in manufacturer's courses, the problem still remains of lack of an experienced professional to develop and run the computerized data system. Presumably, this deficiency can be partially offset by acquiring general purpose data management software now available and the use of consultants.

2.2.3 Conclusions

The Indo-Pacific Tuna Development and Management Programme (IPTP) was established in response to discussions in the joint tuna of the parent commissions. The primary supporting project is financed by the United Nations Development Programme (UNDP). The IPTP includes a complementary project funded by the Government of Japan. Both projects are executed by the Food and Agriculture Organization (FAO) of the United Nations.

The primary objective of the IPTP is to develop an information base through collection and analysis of historical and current fisheries statistical data, and to design and implement a synoptic fishery information sytem for relevant resources assessment and economic studies, as a sound basis for development and management of tuna fisheries. The historical data collection activity has been implemented through the appointment of liaison officers in the countries of the region, who have been requested to provide historical and current data.

When the IPTP was established, the presumption was that the pattern of reporting tuna data by countries and the processing, compilation and dissemination of data by the project would follow the general precedent set by a number of long-established fishery commissions, such as the International Commission for the Conservation of Atlantic Tunas (ICCAT). Comprehensive and detailed catch and effort data, e.g. by months and 5° or 1° squares, would be submitted by countries in such a way that any desired summary and extract of data could be presented. In practice this has not occurred, and the submission of data by countries has been less comprehensive and detailed than had been hoped.

This situation is not unique to IPTP. Worldwide there has been a decline in the quality of statistical data generally available, despite increased demands for data. There are various reasons for this. Where catch quotas or similar regulations are in force there have been incentives to misreport the quantity caught. After the declaration of EEZ's, distant water fishing countries are reluctant to report data - particularly concerning the location of catches - which might be used to their disadvantage in negotiations with coastal states.

The IPTP has therefore modified its approach and attempted to identify those key data elements which are essential for preliminary stock assessment and planning for regional development or management, and which should be included in the regular output from the project (printed tables, etc.). These are the data necessary to identify trends in catch and national participation in the fishery, and which would alert countries to changes in the fishery and the possible need for further detailed investigations. For the time being other types of data, such as detailed catch, effort and fish size required for general stock assessment methods, which may be more difficult to obtain from countries or which may be useful for only a limited number of institutions or individuals, are being catalogued to indicate where they are available (in the IPTP files, or national or regional institutions).

When the proposal for the IPTP was being discussed, the area of interest apparently included the Pacific and Indian Oceans and this area of coverage is reflected in the project document. In fact, the IATTC carries out a comprehensive programme of data collection and research for its legally mandated area in the eastern Pacific. The IPTP has not attempted to duplicate this effort and maintains liaison with the IATTC. In the central and southern Pacific, the South Pacific Commission has followed its highly successful skipjack tuna tagging and assessment project with a tuna and billfish assessment programme that has as its major activity the establishment and maintenance of a tuna data base for the South Pacific Commission area. In addition, the Forum Fisheries Agency collects certain tuna data to assist Forum countries in the development and management of their tuna fisheries. The IPTP does not attempt to collect data directly from the South Pacific Commission island countries but relies on contacts with the SPC and FFA to arrange data exchange and ensure completeness of data. In reality it is unlikely that the IPTP could effectively collect detailed data directly from the south Pacific island countries given their relationship with the SPC and FFA as well as the stringent confidentiality requirements of some of the licencing agreements in that area. With this in mind, it would perhaps be useful to revise the IPTP UNDP project document to more clearly define the expectations from the project in the Pacific Ocean.

Progress in collecting data from the coastal states in the western Pacific (South China Sea area) and Indian Oceans has been satisfactory. In the southwest Indian Ocean, the island states in particular have exhibited an increasing interest in establishing a sub-regional data base, following the rapid increase in surface tuna fishing activities by European distant-water fishing nations. However, it has become increasingly apparent (see IPTP/84/GEN/5 and IPTP/84/GEN/6) that detailed and current data will not, at least for the time being, be forthcoming on a voluntary basis from the distant-water fishing nations, especially for the central and western Pacific. Coupling this with the disparity in information and research activities between the Pacific and Indian Oceans, and the apparent lack of significant interaction between the tropical tuna fisheries of the two oceans, one can conclude that there is a greater need and more scope for the project to concentrate its activities in the Indian Ocean.

Based on the operational experience of the project, a number of conclusions can be drawn. In terms of staffing for a data centre project, systems analyst/programmer and statistician posts are equally necessary. Given the number of countries and coordination work required, a project manager's post is necessary although the cost of this post can be shared with complimentary projects as in the present case of the Japan Trust Fund project. Alternatively, the project could be managed by one of the sub-regional projects in the area, providing that the sub-regional project is not too complex or disparate in terms of focus. Finally, for a computer-based project, it is highly desirable that either equipment be chosen for which local support is available, or a site be chosen where support is available for the equipment in hand.

2.3 Recommendations

Given the situation with respect to exploitation of tunas and jurisdictional claims coupled with the absence of a formal mechanism for managing tunas in which all concerned parties have a voice, there is not likely to be sufficient cooperation from the major tuna fishing countries to enable the establishment of a detailed data base for the Indo-Pacific tuna fisheries. Notwithstanding this, a regional data base, containing rather less detail, could perhaps be compiled that would be adequate to identify major trends or changes in the Indo-Pacific tuna fisheries. The primary usefulness of this data base would be to alert the concerned countries to these trends or changes in order that they might have the opportunity to take further action, either collectively or individually, as they deemed necessary.

With respect to the work of the IPTP, the long-run activities depend heavily on the evolution of an institutional structure for tuna management and development in the Indian and Pacific Oceans, and the provisions made for accomplishing the necessary scientific support work including data collection. In the short run (i.e. through 1985) the IPTP could be most productive by: finishing the data summary currently in draft, implementing the system for compiling the non-detailed summary data that might be available, organizing and holding a tuna assessment workshop concentrating on the Indian Ocean, and working to support the establishment of a continuing mechanism to provide the scientific support necessary for management and development decisions.

The view has been expressed that an institutional structure to deal with management and the required support work on assessments should be established first and then data requirements specified and met as part of the assessment process (see IPTP/84/GEN/5 p.6 para 3.1.3.). This process could take several years, judging from the amount of time taken to formalize ICCAT. It is also likely to be unworkable to include the central and western Pacific area with the Indian Ocean in a single

management structure. However, the project at present is funded only through 1985 and is charged with developing a self-sustaining mechanism for carrying on its information support activities. Establishing a self-sustaining scientific support mechanism is a long-term proposition requiring long-term support. There seems to be little chance of reaching this goal in the absence of external funding beyond 1985. There would seem to be several options, however, some of which could improve the chances of reaching this goal.

Option 1: Continue the project as is for the Indo-Pacific area.

Advantages: This option would continue to provide the broadest possible coverage for the tuna fisheries.

Disadvantages: As this option is not likely to result in a self-sustaining scientific support mechanism for the entire area in the forseable future, it would be unlikely to attract continued UNDP funding. By attempting to include the areas in which SPC, FFA and IATTC are active, it would be duplicative of ongoing work.

Assessment: This is probably not a viable option for extending the project work beyond 1985 and could result in the loss of momentum attained to that point. Were this to happen, it could be difficult to restart a similar activity at a later date.

Option 2: Close the project at the end of 1984.

Advantages: This option would have the marginal advantage of saving some funds although this would be partly offset by the costs involved in the unscheduled closing.

Disadvantages: Any opportunity for this project to assist in establishing a self-sustaining mechanism would be lost. It would be even harder to restart similar work at a later date. In addition, there would likely be many administrative and policy objections to an early closing.

Assessment: This is not a viable option for attaining any of the project objectives.

Option 3: Formally revise the project to reflect realistic data expectations, delimit the area to include the South China Sea and Indian Ocean, and extend external support through 1987 subject to achievement of milestones toward a self-sustaining mechanism.

Advantages: This option would eliminate the areas of overlap with FFA, SPC and IATTC. The project would be more clearly focussed on areas of concern to developing countries (i.e. would exclude U.S., Japan and open ocean areas of the Pacific).

Disadvantages: To the extent that the South China Sea countries have different interests and concerns from the Indian Ocean countries (border countries excepted), there may still be some difficulties in forging a single, self-sustaining scientific support mechanism. At least an additional two years of external support would be required.

Assessment: This would seem to be a viable option for attaining the project objectives, given the disadvantage cited.

Option 4: Formally revise the project to reflect realistic data expectations, restrict the area to the Indian Ocean and extend external support through 1987 subject to achievement of milestones toward a self-sustaining mechanism.

Advantages: This option would focus the project on a relatively homogeneous area and eliminate overlap with competing organizations. This option could also incorporate the management of the project by one of the sub-regional projects as discussed above, probably the Southwest Indian Ocean Programme.

Disadvantages: This option would leave a significant gap in coverage of tuna fisheries by omitting the significant South China Sea fisheries. As in Option 3, at least an additional two years support would be required.

Assessment: This would be a viable option for achieving the project objectives in the Indian Ocean.

There are a number of imponderables in considering these options. If there is absolutely no hope of extending funding beyond 1985 nor of revising the project in terms of scope and extent, then Option 2 may be the most cost-effective. If additional support and revision is possible, then Option 3 would seem more consistent with the overall goals of the IPTP. If revision is possible but little or no extra support is available, then it would seem preferable to choose Option 4 with transfer of project management to the SWIOP and a scaling back in annual expenditures to stretch the available funds through 1987. The only recommendation to be made at this point is that these considerations should be thoroughly discussed during the next meetings of IPFC, IOFC and their relevant subsidiary bodies as well as during the IPTP project review in order that some mutually agreeable and feasible path be identified.

3. INTERIM REPORT: GCP/RAS/099/JPN - INVESTIGATION ON INDIAN OCEAN AND WESTERN PACIFIC SMALL TUNA RESOURCES

3.1 Introduction

3.1.1 Background

Developing countries around the Indian and Pacific Oceans wish to increase the benefits they obtain from the tuna in the waters off their coasts, either by increased direct participation in the fisheries, or from licensing or similar arrangements with the large fishing countries. To support planning for development and management of tunas in the Western Pacific and Indian Oceans, information is urgently needed on the magnitude and distribution of stocks, the location and timing of productive fishing grounds, and catch rates to be expected by different types of fishing gear. Because of the reportedly large catches in the areas of the Western Pacific and the poor statistics from that area, the Philippines and Indonesia fisheries were initially identified as priority areas for an intensive effort to improve the information base. The recent marked increase in surface fishing for tuna in the southwest Indian Ocean area has given that area a high priority for improving national and sub-regional tuna statistics.

3.1.2 Immediate Objectives

The purpose of the project is to supplement the work of the Indo-Pacific Tuna Development and Management Programme (IPTP) in the preparation for long-term management and development of tuna and tuna-like species in the Western Pacific and Indian Oceans. Initial work concentrated in the Philippines and Indonesia. Based on the experience gained in this and other work and in view of country support and funding availability, project revisions extended this work to the southwest Indian Ocean. Work carried out addresses the following immediate objectives:

1. Assist government research organizations in selected countries to design and implement sampling programmes to collect data on tuna catch, effort, species composition, length frequency and additional biological characteristics as may be required.

2. Assist in the development and implementation of routine procedures for analysis and interpretation of historical and current sampling data. This includes providing computer equipment and developing necessary software.

3. Assist in the design and implementation by government research groups of studies on maturity, spawning, juvenile development, feeding habits and other biological studies of tuna as may be necessary to interpret basic statistical data.

4. Assist in the development of field manuals for the identification of tunas (especially the juvenile forms) that may be used for field sampling and data collection activities.

5. Assist in the design and implementation of tuna tagging experiments compatible with the fishing techniques used especially in the Philippines and Indonesia.

3.1.3 Project Arrangements

The Japan Trust Fund (JTF) project GCP/RAS/099/JPN was conceived as a five year project to be carried out in 1981 - 1985 with funding of US $1,000,000. Project approval has been for one year at a time in funding increments of US $200,000 with revisions submitted annually to include the following year's work and funding.

The project is managed by the Programme Director of IPTP and project experts are located either with the sub-regional FAO projects (i.e. the South China Sea Programme in the Philippines and the Southwest Indian Ocean Programme in the Seychelles) or the government tuna research group (i.e. the Research Institute for Marine Fisheries in Indonesia.) This arrangement has allowed the experts to concentrate on the technical aspects of their work with a minimum of administrative involvement.

Through the end of 1984, the JTF project will have supplied 27 man-months of expert assistance to the Philippines; 34 man-months of expert assistance to Indonesia; and 6 man-months of expert assistance to the Southwest Indian Ocean countries with an expert based in the Seychelles. In addition, six man-months of project management activities have been supplied from the IPTP. In addition, local staff have been hired during the implementation and testing of field sampling activities in Indonesia and the Philippines as well as for data entry activities. Micro-computers and appropriate software have been provided to the tuna research groups in Indonesia and the Philippines and a micro-computer will be provided for the expert in the Seychelles to develop compatible systems for countries in the southwest Indian Ocean.

3.1.4 Related Activities

The JTF project works in close collaboration with the project for the Indo-Pacific Tuna Development and Management Programme being funded by the UNDP and forms a part of the Indo-Pacific Tuna Programme (IPTP). The JTF project concentrates at the national level on the collection, analysis and dissemination of statistical and similar data including stock assessment data. As part of IPTP, the project maintains close liaison with ongoing work by the South Pacific Commission, Forum Fisheries Agency and the FAO regional projects in the Indo-Pacific (i.e., South Pacific, South China Sea, Bay of Bengal and Southwest Indian Ocean Programmes). The project gives attention to the biological studies necessary to properly interpret the statistical information.

Specific annual workplans are executed by arrangement under the immediate direction of the Programme Leader for the Regional Programme for Fisheries Development and Management in his area of assignment (i.e. South Pacific, South China Sea, Bay of Bengal or Southwest Indian Ocean, as appropriate). The FAO sub-regional projects are concerned with fisheries in general, including tuna, in their areas. Thus the experts under the JTF project are able to interact with staff in the sub-regional projects in integrating the tuna-oriented work into the overall fisheries research programme of the country.

3.1.5 Project Reports

Reporting is accomplished under the reports format for the IPTP as discussed in section 2.1.5 above. Of the 32 reports prepared by IPTP to date, eight working papers, two general reports and six progress reports have originated from or been concerned with the JTF project.

3.2 Results and Conclusions

3.2.1 Results

Philippines

Working with the Bureau of Fisheries and Aquatic Resources tuna research group, a field sampling system was designed and implemented to collect data on tuna catch/effort and species and size composition in the major tuna landing centres of the Philippines. A micro-computer was provided, software developed, and analyses carried out on the sampling data as well as historical data. A description of the Philippine tuna fishery was prepared and analyses were carried out to evaluate the effects of alternative fishing strategies.

Biological studies were designed and implemented on the food and feeding habits of yellowfin tuna around fish aggregation devices as well as on the maturity and breeding cycles of yellowfin and skipjack tuna. A field manual for the identification of small and juvenile tunas was prepared for use by the field data collectors. A description of the tuna fishing gears used in the Philippines was prepared. A workshop was held on Philippine and Indonesian tuna research activities resulting in plans for coordination of tuna tagging experiments.

Indonesia

A thorough review of the field sampling research programme was carried out and analyses carried out on the historical data. Papers were published for two fisheries. A micro-computer was provided and software developed and adapted for analyses of data by the tuna research group.

A tagging experiment was designed and field-tested. After adjustments were made, the tagging experiment was implemented and approximately 6,500 yellowfin and skipjack tuna were tagged in eastern Indonesian waters.

Plans are being made to assist the Indonesian tuna research group to implement an improved field sampling programme. Assistance will be provided in analyzing the data and using the results to interpret and adjust the national statistical data.

Seychelles/Southwest Indian Ocean

A study of the data processing requirements of the Seychelles Fishery Authority was carried out and recommendations provided for a cost-effective data processing system. A paper was prepared on the data collection, processing and compilation system of the Seychelles. A study was begun on the Indian Ocean tuna longline fishery. Inquiries were begun to assess the feasibility of establishing a monitoring system for tuna longline catch transhipments.

3.2.2 Problems

No significant problems were encountered in project implementation. Delays were encountered in recruitment of experts partly due to misunderstandings in FAO Headquarters of developments in the tuna fisheries. Some difficulties were encountered in providing administrative support to staff in Indonesia from the project. However, the FAO Representative's office in Indonesia provided valuable assistance that effectively eliminated any problems.

3.2.3 Conclusions

The project objectives have essentially been met in the Philippines. Follow-up visits are being undertaken to assess the continuing performance of the work started by the project and to assist the Philippine tuna research group with additional improvements. In Indonesia, the tuna tagging experiment was successful and included participation by Philippine tuna biologists. A number of areas for improvement in the field sampling programme have been identified. Further work will concentrate on assisting the Indonesian tuna research group with these improvements and in analyzing and interpreting sampling and historical data. Work has only started in the Seychelles for the southwest Indian Ocean tuna fisheries. However, there appears to be opportunity for establishing coordinated national data collection systems that will result in an effective sub-regional tuna data base for the area.

3.3 Recommendations

it is recommended that assistance be provided to the Indonesian tuna research group in 1985 to improve the field data collection system as well as to establish routine procedures for evaluating, analyzing and publishing the resultant data along with statistical data available from other sources.

It is recommended that assistance in the form of follow-up visits be provided to the Philippines tuna research group. In addition, it is recommended that the research proposals presented to the IPTP tuna assessment workshop (see IPTP/84/GEN/6, list of documents) be reviewed carefully and proposals prepared for cooperative work on tuna fisheries among the Philippines, Japan and the U.S.A. Assistance to the Philippines in carrying out cooperative work under these proposals could be incorporated into an extension beyond 1985 of this project.

In the southwest Indian Ocean, it is recommended that the work presently planned for 1985 be carried out and a proposal prepared to extend the work under the present project through 1987. The objective of this work would be to provide as comprehensive assessment of the Indian Ocean tuna fisheries as possible based on available data and data that should become available from the expanding tuna fisheries in the southwest Indian Ocean.

4. SUMMARY

The UNDP-funded support project for IPTP was initiated to establish a regional tuna fisheries data base for the Indo-Pacific area to support management and development decisions, and to work toward establishing a self-sustaining mechanism for providing this support. The complementary JTF project aims to assist the developing countries of the Indo-Pacific having significant tuna fisheires to improve their internal statistical systems so that they have accurate and comprehensive information on their tuna fisheries.

The IPTP has successfully established a system for collecting data on a regional basis and has assembled on historical data base for the Indo-Pacific. The project has been successful in obtaining current data as it becomes available from the participating coastal developing countries in the far western Pacific Ocean and the Indian Ocean. The IPTP has not been successful in obtaining current data from the distant-water fishing nations.

At least part of the reason for the success in obtaining data from the developing coastal states with significant tuna fisheries has been the activities undertaken by the Japan Trust Fund (JTF) project. Under the JTF project, experts have provided considerable assistance to the tuna research groups in the Philippines, Indonesia and, now, the countries of the southwest Indian Ocean.

Given that the problems of obtaining data from the distant-water fishing nations, especially in the western Pacific, cannot be easily solved, the scope and extent of the UNDP project must be reconsidered and the project focussed on areas and objectives where political solutions to serious allocation problems are not prerequisite to project success. The successful activities of the JTF project should be continued as planned in Indonesia and the project extended in time to accomplish similar results in the southwest Indian Ocean. A project extension could also involve support for the Philippines in cooperative tuna research activities with Japan and the U.S.A.

On the whole, the Indo-Pacific Tuna Programme has been a successful programme. To the extent that the objective of establishing a current regional data base on tuna fisheries has not been met, the IPTP has brought into sharp focus the problems currently precluding the free sharing on an international basis of tuna fisheries data. The activities and experience of the IPTP to date should set the stage for further discussions on the conditions and possible mechanisms required for effective international cooperation in the development and management of Indo-Pacific tuna resources.

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STATUS OF IPTP HISTORICAL DATA COLLECTION AS AT 30 SEPTEMBER 1984

COUNTRIES	CATCH STATISTICS (1)	FISHING BOAT STATISTICS (2)	CATCH AND EFFORT STATISTICS BY MONTH/FISHING GROUND (3)	SIZE FREQUENCY (4)
1. AUSTRALIA	Catch by species (1970 - 1982)	Number of boats for southern bluefin tuna fishery by type of gear (1976 - 1983)	No data provided	Catch by age for southern bluefin tuna (1980 - 1982)
2. BRUNEI	Tuna data requested not available.			
3. BANGLADESH	No tuna fishery has been explored.			
4. CHINA (TAIWAN)	Catch by species and gear (1970-1982)	Tuna longline by size class of boat (1970-82)	Tuna longline (1971-1982)	Probably available at the end of 1984
5. FRANCE	Catch by species and gear (1982)	Number of boats (1982)	No data provided	No data provided
6. HONG KONG	Catch by species (1970 - 1982)	No specific tuna fishery exploited	Trawl by-catch (1974-1982)	Euthynnus affinis (1968 - 1969)
7. INDIA	Catch by species & States (1970-1982)	No data available	Gillnet at Tuticorin (1979 - 1981) Gillnet and handline at Vizhinzam (1970 - 1979)	No data provided

COUNTRIES	CATCH STATISTICS (1)	FISHING BOAT STATISTICS (2)	CATCH AND EFFORT STATISTICS BY MONTH/FISHING GROUND (3)	SIZE FREQUENCY (4)
8. INDONESIA	Catch by species (1974 -1980) Catch by species and gear (1979 and 1982)	Number of boats by gear (1974 - 1980)	Pole and line (1976-1982) Purse seine (1981 - 1982) Trolling (1981 - 1982) Gill net (1980 - 1982) Seine net (1980 - 1982) Longline (Yearly data) (1973 - 1982)	Gillnet (1981 - 1982) Seine net (1981- 1982)
9. IRAN	Catch by species (1965 - 1982)	Number of boats (1982)	No data available	No data available
10. JAPAN	Catch by species and gear (1969 - 1982)	Number of boats by gear and size of boat (1969 - 1982)	Tuna longline (1962 - 1980) Skipjack pole and line (1969 - 1980) Purse seine data from Central & Western Pacific not provided	Tuna purse seine (1967 - 1974)
11. KOREA	Tuna longline catch by species (1970-1981)	Tuna longline (1971 - 1981)	Tuna longline (1966 - 1970) (1975 - 1979)	Not provided
12. KENYA	Catch by species (1980 - 1982)	Tuna Lineline (1980 - 1982)	Data not available	Data not available
13. MALAYSIA	Catch by species for whole country including Sabah & Sarawak (1970 - 1982) Catch by species and gear (1971-1982)	Data not provided	Trolling at a landing center (Aug. 1982 - July 1983)	Trolling at a landing center (Jan.-June 1983)

COUNTRIES	CATCH STATISTICS (1)	FISHING BOAT STATISTICS (2)	CATCH AND EFFORT STATISTICS BY MONTH/FISHING GROUND (3)	SIZE FREQUENCY (4)
14. MALDIVES	Catch by species and gear (1970 - 1983)	Number of boats by gear (1970 - 1983)	Skipjack pole and line (1971 - 1983) Trolling (1971 - 1983) Above two types of gear's statistics for 1970 are under preparation	Data not provided
15. MAURITIUS	Catch by species for purse seine (1979-82)	Number of boats (1979-1982)	Purse seine (Dec. 1979 - Mar. 1983)	Data not available
16. NEW ZEALAND	Catch by species and gear (1970-1983)	Number of boats by gear and size class of boat (1976-1983)	Purse seine (1974-1983)	SKJ for purse seine (1974-1983) ALB for trolling (1970-1981) SBF for pole and line (1980 and 1983)
17. PHILIPPINES	Catch by species (1970 - 1975) Catch by species and gear (1976 - 1982)	Number of boats by gear (1978 - 1981)	Purse seine (1980 - 1982) Ring net (1980 - 1982) Handline (1980 - 1982) Above data were collected at 4 sampling sites From the national statistics catch and effort data by type of gear, fishing area, tonnage class and month were collected.	Purse seine (1980 - 1982) Ring net 1980-1982) Above data were collected at 4 sampling sites
18. REUNION	Landings of Taiwanese Longliners by species (1971 - 1982)	No data provided	No data provided	Albacore (Dec. 1983)

COUNTRIES	CATCH STATISTICS (1)	FISHING BOAT STATISTICS (2)	CATCH AND EFFORT STATISTICS BY MONTH/FISHING GROUND (3)	SIZE FREQUENCY (4)
19. Saudi Arabia	Catch of species (1982)	Number of boats (1982)	No data available	No data available
20. SEYCHELLES	No data provided	No data provided	Licenced Longliners (Koreans) (1979 - 1983)	No data provided
21. SPAIN	Catch by species and gear (1981 and 1982)	Number of boats (1982)	No data provided	No data provided
22. SRI LANKA	Catch by species (1970 - 1981) Catch by species and gear (1982)	Number of boats (1982)	Data are under preparation	Data are under preparation
23. TANZANIA	Catch by species (1970-1982)	Number of boats (1982)	No data available	No data available
24. THAILAND	Catch by species and gear (1970 - 1982)	Number of boats by gear registered (1970 - 1982)	From the national statistics, catch and effort data by month gear and fishing ground (1971 - 1982)	Thunnus tongol, Euthynn affinis and Auxis thaza (1976-1978) Scomberormo commerson (1974 - 1976)
25. U.S.A.	U.S. purse seine fishing data for the Central and Western Pacific not available to the U. S. Government and thu not provided to IPTP			
26. P.D. REP. YEMEN	Catch by species (1982)	No data provided	No data available	No data available

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IPTP/83/GEN/4	Report of the workshop on Philippine and Indonesian research activities Manila, Philippines. 3 - 8 February, 1983. Indo-Pacific Tuna Development and Management Programme, February, 1983.
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IPTP Manual No.2	Manual for Statistical Data Collection on Tuna and Tuna-Like Species in the Indo-Pacific Region, (Draft). Indo-Pacific Tuna Development and Management Programme. February 1984

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IPTP/PR/82/2 HOOKER, P.J. Project progress report for the Indo-Pacific Tuna Development and Management Programme, project GCP/RAS/099/JPN. 1 January 1982 - 30 September 1982.

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