iotc ctoi Indian Ocean Tuna Commission
Commission des Thons de l'Océan Indien

Report of the Third Session of the IOTC Working Party on Tagging

Victoria, Seychelles June 28, 2001

TABLE OF CONTENTS

Opening of the meeting....1
Progress in the acquisition of funds for financing the tagging programs....1
The problem of bait....1
Development of specific plans for the pilot programmes....2
Goals of the pilot programme....2
Recommended research operations....2
Use of longlines to tag large tunas....3
Other areas planned in the 2000 report:....3
Tagging in sport fisheries....4
Equipment needed for the pilot studies....4
Tagging in Réunion and Mayotte....4
Publicity for the pilot projects....5
Review of the main IOTTP....5
The DG-Dev project....5
Identification and definition of the responsibilities of national liaison offices....6
The problem of estimating reporting rates....6
Other elements of the IOTTP programme....8
IOTTP slide show....8
Appendix I: List of Participants....9
Appendix II. Agenda of the Meeting....12

OPENING OF THE MEETING

1. A meeting of the WPT was held in connection with the 3rd Working Party on Tropical Tunas to refine plans for pilot tagging studies and to discuss the prospects of the Indian Ocean Tuna Tagging programme (IOTTP). Alain Fonteneau, chairman of the WPT, convened the meeting. The List of Participants is included as Appendix I and the Agenda of the meeting is listed as Appendix II. Pilar Pallarés was nominated rapporteur of this meeting

PROGRESS IN THE ACQUISITION OF FUNDS FOR FINANCING THE TAGGING PROGRAMS.

2. The Executive Secretary of IOTC described the existing funding situation. In the short term, approximately $170,000 of surplus IPTP funds are still held by UNDP which has recognised that these funds should be handed over to IOTC, but access to these funds is still uncertain.

3. Neither the EC, through the General Directorate for Fisheries, nor Japan, have committed contributions to this project (for either the pilot tagging or the main IOTTP). Japan apparently maintains an uncertain position towards the project and the EC may condition its funding to the Japanese financial support of the programme.

4. However, a new source of funds from the EC General Directorate for Development (DG-Dev) can now be envisaged in the short term. DG-Dev funds of EUR4.5 million are available to fund projects proposed by at least two countries of the western Indian Ocean area; the Seychelles and Mauritius have already transmitted a request to the EC These funds are not necessarily tied to the western IO region, but they require that any personnel employed be from EC or ACP States. The EUR4.5 million can be used to fund the pilot tagging and to run a "Phase 1" of the IOTTP, to be discussed by the WP. A detailed project document will be prepared before the end of 2001 by consultants experienced in EC procedures, and contracted by the EC. These consultants should work in close cooperation with the IOTC secretariat and the tagging WP. The EC has specified that these funds should not be used in co-financing with other funding sources, but could work closely with complementary projects.

5. A similar amount of money during a Phase 2 project could come from DG-Dev sources, under the *Commission de l'Océan Indien* (COI) framework, if the pilot projects and Phase 1 prove successful.

6. In addition, the Government of China has indicated to the Secretariat that $25,000 might be provided for tagging and could be used for some pilot programme elements.

7. Finally, the programme description has been transmitted by the Secretariat to the World Bank Global Environment Facility (GEF), with a request for funding under the "Large Marine Ecosystems" programme. To date, there has been no response to this request.

THE PROBLEM OF BAIT

8. The WP recognized that obtaining adequate bait supplies for the proposed large-scale pole and line tagging platforms was a potential problem. This is because bait resources are still poorly known in the Indian Ocean. Therefore, a comprehensive study of bait availability was added as a key component to the original pilot tagging programmes.

9. The WP recommend that the Secretariat should contract an expert on tuna baitfish and on the capture of tropical baitfish in the context of a pilot programme. This consultant should have a wide field expertise in tuna bait problems. The goal of this consultant is to identify potential live bait resources and to test and plan the most efficient ways to catch and to conserve them in *ad hoc* coastal facilities. The tagging pole and line vessels would later use this bait.

10. Seychelles was considered the best focal point for this baitfish pilot project, due to the ideal location of the country in the centre of the western Indian Ocean fishing zones and close to the Somalia FAD fishery. The availability of facilities, oversight and support of the IOTC headquarters and personnel of the SFA are additional positive factors. In regard to the requirements for equipment and vessels for the consultant, i.e. sonar, echo-sounder, different nets types (purse seines, bouke ami, beach seines), light, etc, the potential role of SFA was a particularly positive element. The possibility of utilizing the SFA research vessel l'*Amitié* or one of the two new research vessels shortly to he provided by Japan to the SFA was discussed. The new vessels could be available after their arrival in the Seychelles planned at the end of 2001 or beginning of 2002.

11. The cage facilities developed in La Réunion in order to keep live bait should also be examined and tested, in comparison with similar solutions used in others areas (Solomon Islands, Japan, etc). The possibility to develop in Seychelles such facilities for holding live bait should be studied.

12. Madagascar, Oman and the Maldives were also considered as areas to include in the baitfish consultancy as it will be necessary to have more than one area for bait. These areas are considered productive for baitfish and may be less seasonal than Seychelles. The consultant should visit these locations and have contacts with local authorities, scientists and fishermen to evaluate local potential to catch and to keep bait.

13. It was also considered that the expert should review the existing literature and prepare a summary of potential baiting sites in the Indian Ocean. This review should include species, seasonality, existing fisheries, historical data, and other relevant specifications.

14. It was considered that a 6 months consultancy is necessary. Nevertheless, taking into account that the catch of bait in the area is quite seasonal, the contract of the expert should preferably correspond with the season of highest abundance e.g. between May and November. This contract should then start in 2002, delaying until 2003 the beginning of tagging operations using a pole and line vessel.

DEVELOPMENT OF SPECIFIC PLANS FOR THE PILOT PROGRAMMES

Goals of the pilot programme

15. The main goal of the pilot tagging programmes proposed by the tagging WP in 2000 were to test the use of small scale alternate tagging platforms which would be used to test tagging methodology with various gears. The pilot tagging should be considered only as feasibility studies, and not as real tagging operations aimed at producing scientific results. These alternative tagging vessels would be of prime importance in the IOTTP to tag tunas with electronic tags, but also to tag significant numbers of tunas at various sizes in many coastal areas.

16. It was already agreed by the WP (cf Agenda Item 3) that studies concerning the availability of live bait should be added with a high priority to the goals of the pilot study.

Recommended research operations

17. Under this item, the group reviewed the actions which were planned in 2000 by the WP to investigate alternatives to the use of a baitboat and live bait for tagging. After considering the different areas and actions proposed in the 2000 WP report, the group is recommending including the following actions in the pilot tagging:

- Réunion-Mayotte: these two areas were considered to have high priority because of the possibility of experimenting tagging from longliners and also with handlines and trolling around anchored FADs. The experience of IFREMER scientists in tagging with LL is a good background to support this choice. The experiment could start in September during a planned IFREMER experimental tagging cruise targeting dolphinfish. The possibility of tagging using anchored FADs can also be investigated from Mayotte. This technique would be especially appropriate for large YFT.
- Seychelles: The Seychelles Islands should offer good conditions to conduct experiments on tagging using longlines and handlines. The cost of such a platform would be reduced by the availability of a SFA research vessel and small commercial longliners may be rented locally. It would also be desirable to test the feasibility of using dead bait for attracting fish aggregated under floating objects. An other possibility to investigate is the use of seamounts as areas for tagging, particularly for yellowfin and bigeye tuna (as seamounts have proven, in the Atlantic and Pacific oceans, to be effective areas to tag large numbers and a wide range of tuna sizes). The supply vessels anchored in the proximity of the “Coco de Mer” seamount could be used as platforms to investigate the possibilities of attracting tuna to the surface with dead bait. The crew of these vessels could also engage in tagging operations.
- “Tagging sampan” (see figure w): one major difficulty in most tagging operation of large tunas, is to haul these large fish on board quite large vessels (for instance a longliner) in order to tag them. A new idea discussed by the WP was to build tagging sampans, which could be used as a tagging unit by the tagging technicians. This idea was considered as a positive prospect, for instance on longliners and would permit tagging from a variety of vessels under identical operational conditions. It was therefore recommended to

include in the pilot programme a technical study and a feasibility study of the potential use of such tagging sampan.

Figure 1: Tagging sampan made of 15mm Ø PVC pipe

- Anchored FADs in Seychelles: Anchored FADs are not currently used around Seychelles, as there is no local small-scale fishery targeting tunas. Efficient FADs can now be deployed at a moderate cost and the WP recommends that a limited number of anchored FADs should be deployed in Seychelles waters in order to test how much they could facilitate the local tagging operations.
- Test of multiple trolling lures: Various fishing techniques used in other areas could allow tagging significant numbers of tunas using small boats without live bait. This is, for instance, the case for the multiple trolling lures used in Sri Lanka. The pilot programme should test the potential to use such a technique to tag tunas.

Use of longlines to tag large tunas

18. Based on tagging experiments done in other oceans, the WP considered that a well designed longline operation (using monofilament longlines with short sets, vertical longlines, etc.) should permit tagging significant numbers of large tunas using rented commercial longliners or research vessels. The use of hook timers is highly recommended in such tagging operation as this permits estimating how long a tuna was on the line (document WPT-01-02).

Other areas planned in the 2000 report

19. Taking into account the present budget limitations of the pilot studies, various areas proposed by the WP in 2000, such as Oman, Maldives and India were discussed by the WP:

- Oman: the importance of Oman in the main project was highlighted as a very good area for tagging medium sizes YFT in the NW Indian Ocean (cf Lewis report, 1995) and then as an interesting area to investigate studies between gears. During the pilot study it should then be interesting to visit Oman to have an estimation of the number of fish available for tagging each day from handline boats and to assess the baiting situation. This information will allow taking decisions about the possibilities of conducting tagging in the area.
- Maldives: the Maldivian fishery should offer excellent tagging opportunities (primarily on skipjack but also seasonally on yellowfin and bigeye), as has been proven in two successful previous tagging programs

already done in Maldives. However, the WP considered that such tagging does not require any further testing and could be incorporated in the IOTTP with a very good probability of success.

- India: the WP was not in position to plan any pilot studies due to the lack of information on these fisheries

Tagging in sport fisheries

20. Taking into account budget limitations for the pilot studies, the WP recommends that the feasibility test of tagging from sport fisheries, which was recommended last year by the WP, should be postponed for the main IOTTP.

21. The potential for tagging of tunas by sport fisheries remains very promising, as many sport fisheries are active around the Indian Ocean and may offer a good potential to tag large tunas at a very low cost (as it has been done in many areas worldwide). The main purpose of such tagging is to estimate movement patterns through long-term recoveries.

22. The present WP recommendation is that a further study should be done as soon as possible by the IOTC secretariat in order to allow listing all the sport fisheries active in the Indian Ocean area, trying to identify those open to future collaboration with the IOTTP. The tagging by sport fishermen and its budget should then be kept at a full scale in the IOTTP

Equipment needed for the pilot studies

23. As the pilot tagging experiments could start soon in various areas, the WP recommend to the IOTC Secretariat to purchase a minimal set of tagging equipment, such as tags, applicators, tape recorders and tagging mattresses, which would be available as needed for pilot tagging operations.

24. The WP decided to use the well-established model of conventional dart tags used by the SPC and other organizations. Conventional tags manufactured in Australia seem to be presently the best choice. It is recommended to use two different sizes of dart tags, for small and large fishes. A clear IOTC protocol of colour, legend and numbering should be used for these tags; this protocol should preferably follow the practice of other tuna bodies in this matter, for instance use of yellow tags as primary colour, texts in English on the tags, identification of each tag with two letters plus a 4 digit number. A first order of 1,000 to 5,000 dart tags is needed, with 300 to 500 applicators and approximately 10 tagging mattresses. The plans of the ideal tagging mattresses can be obtained from Hawaii or SPC. If funds are available, it would also be useful to add a limited number of other accessories, such as tape recorders and video cameras (to keep track of the tagging conditions), to this basic set of tagging equipment.

25. All this material should be centralized with the IOTC Secretariat and made available to scientists doing the pilot tagging. This equipment should preferably be available in September 2001 in order to be used by the first tagging cruise planned in La Réunion in September 2001.

26. The Working Party recommended that internal archival tags (which are presently the least expensive and more reliable models, cf. recent Australian and IATTC results) be tested on experimental LL and HL tagging platforms. Dummy archival tags should be used in initial experiments and in training taggers to minimize pilot study budgets.

Tagging in Réunion and Mayotte

27. Document WPT-01-02 was presented, describing a tagging program, which is shortly to be implemented in Réunion and Mayotte. This program is primarily designed to target dolphin fish, but IFREMER has offered to tag tropical tunas on an opportunistic basis. A number of gears will be used, including vertical long lines both around anchored FADs and with the drifting FADs offshore. Some complementary equipment will be needed for tagging tunas and it would be highly desirable for IOTC to provide an experienced tagger to help train technicians when the first offshore trip takes place early next year. The tagging operations will be filmed with the video camera and in the visual material will be provided to the next working party meeting for analysis.

Publicity for the pilot projects

28. Publicity was discussed for the pilot projects. The WP agreed that it would be essential for the success of the WP to develop before and during the IOTTP an active wide-scale international publicity campaign concerning the tagging operation and recoveries. Such a campaign is of prime importance in the Indian Ocean because many fishermen active in this ocean are not aware of tagging programs.

29. The group agreed to use the pilot study as a good way to initiate this publicity and to verify its impact in different sectors. As a first step, the experimental publicity should be limited to a few languages (English and French) and areas, with focus mainly in the areas under study (and in the main landing or fish processing spots such as Seychelles, Thailand and Madagascar). These posters should be very similar to the other poster used for many years by other tuna bodies (ICCAT, IATTC, SPC, CCSBT, Hawaii, etc.). Rewards, tailored to local conditions, should be given by IOTC for recoveries obtained during the pilot programme. Deliveries of rewards for tags recovered during the pilot programme should be planned and organized during the pilot tagging.

REVIEW OF THE MAIN IOTTP

30. The WP considered that the global framework of the original programme which was proposed by the WP in 2000 and approved by the Scientific Committee, e.g.; a 5-year large scale programme covering the entire Indian Ocean and three target species (yellowfin, bigeye and skipjack) at an initial cost of about US$16M, should be maintained. The cost needed now to run the full IOTTP would be reduced to about US$12M. This full programme is estimated to be essential to obtain the scientific knowledge, which is necessary for a good assessment and safe conservation of tuna stocks.

The DG-Dev project

31. As a first step, the WP reviewed the objectives and activities that might be undertaken under the proposed DG-Dev funding of EUR4.5 million. Two scenarios were envisaged, the first being to maintain the objectives of the original IOTTP, reducing the scale of operations and the geographical coverage to fit the available funding, and the second to concentrate on more limited objectives.

32. The WP agreed that such a project must have clear objectives, performance criteria, milestones and risk elements to secure funding from the EC. This poses a problem for tagging programmes, as it is the number of tag returns rather than the number of fish tagged that will determine the success of the programme. There will therefore be a time lag between the close of funding for the first phase before its success can be evaluated. This could create a situation where, in a phased program, there would have to be short-term objectives measurable in the number of fish tagged and long-term objectives that might only be addressed in a second phase that would cover an objective increase in the knowledge of the situation of the stocks under consideration. It was also clear that a lack of success in the first phase would severely compromise chances of obtaining funding for the latter phase and might even make it difficult to obtain funding for complementary projects amounting collectively to the whole IOTTP. It was therefore critically important for the DG-Dev project that attainable medium and long-term objectives should be chosen.

33. The WP identified three areas of uncertainty. These include the mortality (natural and fishing) of young and large fish, the growth rates of the fish throughout the whole size range and the movement patterns and stock structure. The discussion that followed established that a large number of fish would have to be tagged in a rigorously controlled experiment to estimate these age specific mortalities properly, and that this could not be attained with the funding level available for the DG-Dev project. There was therefore consensus that this project should concentrate on estimating growth rates for yellowfin and bigeye tunas, and in investigate interactions both through movement patterns established by dart tags and behaviour as well as movement, independently of fisheries, using archival tags on large tunas. Skipjack will also be tagged in this programme, but with a lower priority and on a more opportunistic basis.

34. The study of both growth and interactions would be attained by tagging fish in a wide range of sizes over a wide geographical area. It was recognized, however, that this project would most probably have to focus its efforts in the Western Indian Ocean basin, extending from the Southwest Indian Ocean to Maldives and across to Oman. There was also consensus that a wide range of platforms and fishing techniques might have to be used, and that the results of the pilot projects would provide information on the best techniques to use.

35. Recognizing that pole-and-line was the preferred gear to tag large numbers of small fish, the WP recommended searching for a smaller pole and line vessel because of the present lack of funds. If an appropriate boat can be found at a reasonable cost, it will have a limited bait capacity and autonomy. In order to minimize the uncertainties linked with these characteristics, the WP recommended equipping this boat with various fishing devices, which could be used to tag tunas if the boat faces problems of bait shortage. This fishing equipment could be, among others, trolling lines, handlines and dead bait, drifting and anchored FADs.

36. Following this discussion the WP agreed that it would be necessary to revise the programme schedule produced by the previous session in 2000, and instructed the Secretariat to do this together with the chairperson of the WP.

Identification and definition of the responsibilities of national liaison offices.

37. The working party agreed that the Secretariat should, through the Commission liaison contacts in each country, request the appointment of national liaison officers, who would have the responsibility of determining, within each country, which tuna landing points could be adequately covered for tag recoveries. They would also assist in designing, produce and distribute suitable publicity. This would use posters as the primary method but might include television or radio coverage. It was agreed that both publicity and rewards should be tailored to the specific requirements of each country. The national liaison officers should also identify staff entrusted with tag recovery at the landing points and administer the recoveries and provision of rewards within the country.

38. It was suggested that including publicity for the tagging in logbooks given to the fisherman to record their activities could be effective in attaining fishermen. It was also suggested that it was even more important to provide information to a fisherman returning a tag on where and when the fish was tagged than to provide a reward. It is also important that both feedback and rewards be provided with a minimum time lag.

The problem of estimating reporting rates

Collection sites

39. The WP recognized that it was probably unrealistic to expect being able to adequately cover a large number of landing points where artisanal fisheries land relatively few tropical tunas, essentially as bycatch, with publicity and tag recovery personnel. It was therefore necessary to give priority to the major landing ports which handle large quantities of tropical tunas. Collection should also be organized at canneries handling tuna from the Indian Ocean. Finally, priority should also be given to landing sites where medium-sized fish are caught, such as ports in the northwestern Arabian Sea, and that both contracting and non-contracting parties should be covered.

Data collection in tag recovery sites

40. In view of collection of detailed tag information from a limited number of fish landing sites, the WP called to the attention of the Working Party on Data Collection and Statistics that it was necessary to obtain data on tuna landings for each site independently. It was recognized that these data already exist for the main purse seine ports and for the sites where IOTC conducts sampling, but, for some ports, it might be necessary to take specific steps to obtain the necessary figures.

Observer programmes and tag seeding

41. There was consensus to the effect that observer programmes could not be used to estimate reporting rates because of low observer coverage and the probability that crew on vessels carrying observers might not act in a normal manner. It was also agreed that seeding could be conducted in purse seine fisheries to estimate recovery rates at landing and in canneries, but was impossible in longline fisheries where the crew handle fish individually and are certain to see any tags recovered.

Publicity campaign

42. The IOTTP is likely to be undertaken in three phases: the pilot phase, a Western Indian Ocean program and the main phase. This will presumably result in publicity being also implemented in a phased fashion that could depend on the sizes and species of fish tagged. It is clear, however, that it is urgent to implement the first step and it would be desirable to obtain from other agencies having undertaken tagging studies copies of the posters they have designed to assist the Secretariat in designing effective posters.

Training and Development

43. The WP recognised that implementation of tagging from a wide variety of platforms would have implications in terms of training, both of tagging technicians and of scientists. The role of the core staff of taggers in such a situation will consist largely in ensuring that each country has competent tagging technicians and scientists who will implement the in-country tagging programmes. While it is generally recommended that a minimum number of taggers be involved in a tagging programme attempting to estimate mortality rates in order to reduce variability, this question is less critical where the primary purpose is to estimate growth, movement and stock structure, as is the case in the initial DG-Dev project.

44. The WP also agreed that there might be some useful by-products from the pilot projects and the Western Indian Ocean tagging program. These could include the development of tuna fishing techniques for introduction to the small-scale fisheries. In that respect, it was recognized that a bait boat would have little value for development.

Swordfish tagging

45. Swordfish is among the four species originally targeted by the IOTTP. However, it is well known by scientists worldwide that swordfish are very difficult to tag, because they are difficult to catch in significant number, because they are very active and dangerous to tag, and are easily killed by anoxia during the tagging operation.

46. The difficulties already faced by tagging in other oceans have been recently confirmed by experimental tagging done on five swordfish by IFREMER (France) and SFA (Seychelles) (document WPT-01-02). Although the results of this tagging experiment were unsuccessful, the analysis of the causes of this failure will help improve the success of future tagging operations from commercial longliners. The WP discussed of the causes of this failure, the most important identified being the long duration of sets from commercial vessels.

47. The WP was also informed of the successful tagging operation recently conducted in the Western Pacific on two swordfish by Japanese scientists. These fish were tagged in shallow waters with a harpoon archival tag, and one of them was recovered 11 months later with complete information on vertical and geographical movements of this fish, stored in the archival tag. This tagging mode by harpoon would obviously be ideal for swordfish (no stress), but it seems that this very shallow behaviour of swordfish, which is essential for harpoon tagging, is often observed in other oceans but has very rarely been observed in the Indian Ocean.

48. The present recommendation of the WP is that tagging of swordfish using archival tags should be kept as a goal (for instance to know the vertical and geographical movements of swordfish better), but that this should not be included in present IOTTP plans because of the high cost and high probability of failure and because the expected results were more relevant to development than to conservation or management.

Fine-scale studies of fish behaviour around FADs

49. The programme approved in 2000 targeted, among other goals, a better understanding of the potential consequences of the increasing and massive use of FADs by purse seiners. However, there were no practical scientific plans in the 2000 programme to conduct this type of fine-scale study. A proposal for a detailed programme targeting the association between tunas and FADs was presented to the working group (document WPT-01-01). This proposal was considered interesting, as the expected results would greatly help to evaluate the role and consequences of FADs on stocks and fisheries.

50. However, the WP was not in position to incorporate the planned budget in the present and still provisional IOTTP framework. This planned research, its feasibility, plans and budget, would need to be further discussed

in detail by the IOTC experts before any formal approval and budgeting, but this FAD project is considered as being potentially of great interest for the planned IOTTP and its future incorporation in the programme and budget should then be considered positively.

Other elements of the IOTTP programme

51. Following some general discussions, the WP recommended to the Scientific Committee to call on all countries fishing for tunas in the Indian Ocean to actively encourage tagging conducted on an *ad hoc* basis. An example of this is the provision of tags by the Korean fisheries authorities to longline fishermen, destined to tag undersized tuna that were released from the lines. Mention was also made of 20,000 skipjack tagged in the Atlantic from Japanese vessels. In any such cases, the IOTC Secretariat should be provided with data on fish tagged, to permit response in the case of recoveries.

IOTTP SLIDE SHOW

52. As it was recognized that the IOPTTP would need wide and efficient international communication with a large target group, among others tuna boat owners, IOTC Commissioners and potential sponsors, the Chairman of the WP had prepared a PowerPoint slide show, which was reviewed by the WP. This presentation explains the general goals, methods and results of tuna tagging programmes, and describes the tagging programme developed by the WP. It was decided that such presentation would be very useful to facilitate communication concerning the IOTC tagging programme. It was recommended that this slide show should be first modified in order to take into account the conclusions of the present meeting, then circulated on CD to each participant of the tagging WP, to each national tagging correspondent, or to any interested party.

APPENDIX I: LIST OF PARTICIPANTS

David Ardill
Secretary
Indian Ocean Tuna Commission
P.O.Box 1011
Fishing Port
Victoria
SEYCHELLES
Phone: (+248) 225494
Fax: (+248) 224364
E-mail: iotcsecr@seychelles.net

Juan José Areso
Spanish Fisheries Representative
Oficina Espanola de Pesca (Spanish Fisheries Office)
P.O.Box 14
Victoria
SEYCHELLES
Phone: (+248) 324578
Fax: (+248) 324578
E-mail: JJAreso@seychelles.net

Iñaki Artetxe
Jefe Seguimiento Pesquerias
Fisheries Resources Department
Fisheries and Food Tecnological Institute
Txatxarramendi ugartea, z/g
Sukarrieta 48395
SPAIN
Phone: 34 94 607 44 00
Fax: 34 94 687 00 06
E-mail: iartetxe@suk.azti.es

Rose-Marie Bargain
Industrial Fisheries Research Manager
Seychelles Fishing Authority
P.O. Box 449
Fishing Port
Victoria
SEYCHELLES
Phone: (+248) 224597
Fax: (+248) 224508
E-mail: sfasez@seychelles.net

Alicia Delgado de Molina
Biologa
Centro Oceanográfico de Canarias
Apartado 1373
Sta. Cruz De Tenerife 38080
SPAIN
Phone: (+37-922) 54 94 00
Fax: (+37-922) 54 95 54
E-mail: alicia.delgado@ieo.rcanaria.es

Alain Fonteneau
Scientist
Seychelles
Institut de recherche pour le développement
P.O. Box 570
Victoria
SEYCHELLES
Phone: +248-22 47 42
Fax: +248-22 45 08
E-mail: irdsey@seychelles.net

Michel Goujon
Scientific Counsellor
51 rue Salvador Allende
Nanterre 92027
FRANCE
Phone: 33 1 47750101
Fax: 33 1 49000604
E-mail: mgoujon@comite-peches.fr

David Itano
Research Associate
Joint Institute of Marine and Atmospheric Research, University of Hawaii Manoa
1000 Pope Road, MSB 312
Honolulu 96822
HAWAII
Phone: (91) 808 956 4109/4108
Fax: (91) 808 956 4104
E-mail: ditano@soest.hawaii.edu

Geoffrey Kirkwood
Director
Royal School of Mines
Renewable Resource Assessment Group,
Imperial college
Prince Consort Road
London SW7 2BP
ENGLAND
Phone: 44-207-594-9273
Fax: 44-207-589-5319
E-mail: g.kirkwood@ic.ac.uk

Xu Liuxiong
Researcher
College of Engineering and Technology
Shanghai Fisheries University
334 Jun Gong Road
Shanghai 200090
CHINA
Phone: 86 21 65710203
Fax: 86 21 65710203
E-mail: lxxu@shfu.edu.cn

Olivier Maury
Researcher
Institut de recherches pour le
développement-CRHMT
B.P. 171
Av. Jean Monnet
Sète CEDEX 34203
FRANCE
Phone: 33 (0) 4-99-573228
Fax:
E-mail: maury@ird.fr

Julio Morón
Assistant Director
Organizacion de Productores Asociados de
Grandes Atuneros Congeladores (OPAGAC)
C/Ayala 54, 2º A
Madrid 28001
SPAIN
Phone: (+34-91) 435 31 37
Fax: (+34-91) 576 12 22
E-mail: opagac@arrakis.es

Tsutomu Nishida
Research Co-ordinator of International
Resources Management
National Research Institute of Far
Seas Fisheries
5-7-1, Orido
Shimizu-shi 424-8633
JAPAN
Phone: +81-543-366-000
Fax: +81-543-359-642
E-mail: tnishida@enyo.affrc.go.jp

Praulai Nootmorn
Chief of Marine Resources Survey
Unit
Department of Fisheries
Andaman Sea Fisheries Development
Center
Maung District, 77 Sakdidej Road
Phuket 83000
THAILAND
Phone: 66-76-391138, 391140
Fax: 66-76-391139
E-mail: afdec@phuket.ksc.co.th

Pilar Pallarés
Fisheries Biologist
Instituto Español de Oceanografía
P.O. 130
Corazón De María 8
Madrid 28002
SPAIN
Phone: 34-91-347 3620
Fax: 34-91-413 5597
E-mail: pilar.pallares@md.ieo.es

Jose Ignacio Parajua Aranda
Director
Asociacion Nacional de Armadores de
Buques Atuneros Congeladores
(ANABAC)
Txibitxiaga, 24 - entreplanta - Aptdo.
49
Bermeo 48370
SPAIN
Phone: (+34-91) 571 55 14
Fax: (+34-91) 571 56 51
E-mail: indemar@tetemail.es

Renaud Pianet
Chercheur Oceanographe
Institut de recherches pour le développement-CRHMT
B.P. 171
Av. Jean Monnet
Sète CEDEX 34203
FRANCE
Phone: 33 (0) 4-99-573228
Fax:
E-mail: pianet@ird.fr

Richard Rumpet
Fisheries Research Officer
Fisheries Research Institute,
P.O.Box 2243
93744 Kuching
Sarawak
MALAYSIA
Phone: 6082-334144
Fax: 6082-331281
E-mail: friswak@po.jaring.my

Marc Taquet
Chef du Laboratoire Ressources Halieutiques
IFREMER, Délégation de la Réunion
B.P. 60
Rue Jean Bertho
Le Port Cedex 97822
LA REUNION
Phone: (+262) 42 03 40
Fax: (+262) 43 36 84
E-mail: marc.taquet@ifremer.fr

Ali Waheed
Fishing Technologist, Marine
Marine Research Centre, Ministry of Agriculture and Marine Resources
P.O. Bag 069
Maldives Post Ltd
Malé
MALDIVES
Phone: (+960) 327024
Fax: (+960) 327024
E-mail:

Brent Wise
Fisheries & Forestry Sciences Division
Bureau of Rural Sciences
P.O. Box E11
Kingston ACT 2604
AUSTRALIA
Phone: (+61-2) 6272 5534
Fax: (+61-2) 6272 4014
E-mail: brent.wise@brs.gov.au

APPENDIX II. AGENDA OF THE MEETING

1- Opening of the Meeting

2- Progress in the acquisition of funds for financing the tagging programmes

3- The Problem of Bait

4- Development of specific plans for the pilot programmes

- *Goals of the pilot programme*
- *Recommended research operations*
- *Use of longlines to tag large tunas*
- *Other areas planned in the 2000 report:*
- *Tagging in sport fisheries*
- *Equipment needed for the pilot studies*
- *Tagging in Réunion and Mayotte*
- *Publicity for the pilot projects*

5- Review of the main IOTTP

- *The DG-Dev project*
- *Identification and definition of the responsibilities of national liaison offices*
- *The problem of estimating reporting rates*
- *Other elements of the IOTTP programme*

6. Review of the slide show to promote the IOTTP.