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SOUTH PACIFIC COMMISSION

TWENTY - FIFTH REGIONAL TECHNICAL MEETING ON FISHERIES (Noumea, New Caledonia, 14-18 March 1994)

SPC COASTAL FISHERIES PROGRAMME

RESOURCE ASSESSMENT SECTION ACTIVITIES AUGUST 1992 - MARCH 1994

General

1. This Section is under the supervision of the Fishery Resources Adviser (FRA), and consists of two projects, the Inshore Fisheries Research Project (IFRP) and the Remote Sensing Project (RSP). The Remote Sensing Project is a new activity, approved by the South Pacific Conference but with funding still to be confirmed, and has not yet become active.
2. The IFRP was established in October 1987 in response to a growing need for research in support of management of inshore fishery resources in the Pacific Islands region. The Project's overall aim is to strengthen the capabilities of Pacific Island States to acquire and make use of the information needed for national inshore fisheries resource management, through a wide range of activities.
3. The IFRP comprises three full time positions (FRA), Dr Tim Adams, Inshore Fisheries Scientist (IFS), Paul Dalzell, and a Project Assistant (PA), Kay Legras. Staff and operational costs are funded by the British Government until mid 1994. This funding is supplemented by support for specific activities from other donors.
4. The IFRP provides assistance to member countries through in-country field research assignments by its scientific staff, the encouragement of scientific and professional contact and information-sharing amongst Pacific Island fishery workers, and a programme of literature research, data analysis and documentation activities at SPC headquarters.
5. Since the inception of the project, the IFRP has run two major workshops, undertaken over 40 collaborative in-country resource assessment or management projects, plus numerous small assignments, as well as 11 regional projects and longer term information gathering and dissemination activities. Over 100 Pacific Islands fishery workers have participated in IFRP field activities, either as local counterparts, overseas technical assistants, or attachment trainees.

National-level activities

Case study on the Aitutaki trochus fishery - Cook Islands

6. Trochus were introduced to Aitutaki from Fiji in 1957, with the support of SPC, and have become a major income-earner for the island since harvesting began in 1981. The IFRP was asked to coordinate and participate in a project that looked at the efficacy of different methods of assessing trochus stock density in this small, well-defined fishery by the 23rd RTMF, after an offer by the Cook Islands to host the exercise. Besides providing on-the-spot advice for the management of the 1992 Aitutaki trochus harvest, the assessment provided the information

necessary for the preparation of a management plan for the fishery. This work was extended during 1993 by additional tagging and biological monitoring by Aitutaki Fisheries staff and an assessment of the trochus resources of Rarotonga. It was also an opportunity to follow up on the 1991 IFRP Trochus Workshop, and provided several of the participants in that workshop with experience in practically applying different methods of stock assessment that would be of use in assessing trochus stocks across the Pacific.

7. Major contributions to the funding for this activity were made by ACIAR and by the FAO South Pacific Regional Aquaculture Development Programme (SPRADP). Apart from 6 Cook Islands fisheries staff, the assignment involved scientists from Vanuatu and Solomon Islands. One of the more significant findings of the sub-project has been the demonstration that mark-recapture methods are much more accurate for estimating trochus population size than the traditionally-used transect methods, for an equivalent level of survey effort, in this type of limited open season fishery. Preliminary reports from the study have already been utilised in developing trochus assessment and management approaches in other countries.

Collaborative investigations on pelagic fisheries resources- Papua New Guinea

8. The Fisheries Programme's Offshore Fisheries Development Project (OFDP) has been assisting the Government of PNG in the development of small scale fisheries for high value pelagic species, both for export and domestic markets. In Port Moresby, the OFDP assisted the DFMR in deploying a FAD on the Papuan Barrier Reef. This FAD has been used with great effect by the fishing community of Daugo Island and the IFRP was asked to assist in quantifying these benefits through a programme of catch returns from the fishermen. This was accomplished during the 1993 assignment of IFS to PNG, and estimates of catch rates and economic returns from troll fishing around the FAD were generated from the data, showing that revenues from fishing average 184 kina per day per boat, for an average outlay of 20 kina. This information will be used to support proposals for further FAD deployment and management of the fishery.

9. In East New Britain Province, the OFDP is assisting DFMR with the deployment of FADs and the establishment of a small scale longline fishery to exploit the tuna and billfish resources of the Bismark Sea. So that the benefits from the longline fishery are maximised, the OFDP is looking at the potential of a domestic bait fishery to supply bait for longline operations. The IFRP was asked to look at existing small pelagic fisheries around the Rabaul area of East New Britain and evaluate the potential for supplying bait. This was accomplished during the same 1993 assignment to PNG of IFS who conducted interviews and direct observations on local fisheries for scads and other small pelagics. These initial observations, which suggested that a bait fishery was feasible, may be followed by a more detailed investigation by DFMR's Research Branch, as recommended by the IFRP scientist

Assistance with fisheries technical report production - Papua New Guinea

10. Changes in the senior staff of the Research and Surveys Branch within the Department of Fisheries and Marine Resources (DFMR) have resulted in the loss of editorial skills necessary for in-house production of technical reports. This has led to a backlog of publications within the Branch and a consequent lack of information available to decision-makers for managing Papua New Guinea's marine resources.

11. An ongoing assignment by IFS, commenced in 1991, has resulted in the clearing much of this backlog of unpublished technical reports. During a five week assignment in February-March 1993, that covered both this and other activities (see above), five Research Branch technical reports were finalised and some editorial guidance was given for the Branch's annual report. Since 1991, a total of 15 reports have been completed and published in the Research Branch's technical report series.

12. Following the postponement of the the 25th RTMF, DFMR Fisheries Biologist, Augustin Mobiha completed a one week attachment to the IFRP in Noumea during August 1993 to finalise three further technical documents. The attachment was fully funded by DFMR.

Coastal fisheries data collection - Nauru

13. Following concern about the lack of information on the level of coastal fishing activity in Nauru, the Government of Nauru requested the assistance of the IFRP in establishing a catch monitoring system for the island. The Government of Nauru is particularly concerned at the high levels of fishing effort targeted on reef fish and bottom fish from the reef slope, and may introduce legislation to conserve stocks. Prior to the drafting of legislation, the Government wishes to have better information on which to base management decisions.

14. During a two week assignment of an IFRP staff member to Nauru in June-July 1992, a simple monitoring and catch sampling programme was established with the Department of Island Development and Industry (DIDI), that was planned to extend over a full twelve-month period. This visit was followed up at SPC HQ by the development of a database, programmed by the IFRP, for Nauru staff to collate the collected fisheries data and which was installed on Nauru during early 1993. A preliminary analysis of the information has been completed and an estimate of the total catch and the contributions from different sectors of the fishery have been assessed. It is envisaged that further analyses of the data will be conducted in collaboration with DIDI staff, and a report drafted for the Government of Nauru describing the coastal fishery and management options.

Advice to Marine Resources Division on management of fisheries research - Palau

15. During a two-week visit to Palau by SIFS in February 1993, the work programme of MRD's research section was reviewed, as a follow-up to IFRP assistance previously given, and some options for the management of certain invertebrate fisheries discussed. Some assistance was also given in programming a more user-friendly data-entry routine for the MRD commercial fishery statistics database, and in editing the 1992 Annual Report. The cost of the visit was offset by SIFS' attendance at a nearby sub-regional meeting on sea-cucumbers in Guam that was supported by U.S. funds.

Review of fisheries data collection - Vanuatu

16. Vanuatu has important small scale commercial fisheries for deep slope fish and for mother-of-pearl shell. Monitoring and research on these resources has, in the past, been mainly conducted by the French scientific organisation, ORSTOM, through an agreement with the Vanuatu Government. In 1992, a planned reorganisation of the Fisheries Division included an expansion of the Division's research section and a more direct role in fisheries research.

17. The assistance of the IFRP was requested in reviewing existing data collection procedures from coastal fisheries, including deep reef slope fish, shallow reef fish and mother-of-pearl shell resources, and to suggest terms of reference for the new post of Research Advisor. This assignment was completed during a two week visit to Vanuatu by IFS, towards the end of October 1992.

Stock assessment of deep slope fishery resources and longline baitfish resources - Tonga

18. During 1990 and 1991, IFRP assistance and attachment training had been given to Tongan fisheries scientists in analysing catch and length frequency data generated by a five year USAID project to assess the Tongan deep slope snapper fishery.

19. Follow-up assistance was requested by the Government of Tonga during 1992 in the form of participation by an IFRP scientist in a workshop to draft a final report for the snapper stock assessment project, and to develop a management plan for Tonga's deep slope fishery. A second component of the same workshop was concerned with preliminary analysis of experimental baitfishing data designed to look at the potential of domestic bait supply for small scale long-line fishing. Tuvaluan fisheries staff also participated in the workshop in order to become familiar with the methods used and problems encountered in the Tonga project, in view of a forthcoming deep-slope fishery development programme in Tuvalu.

20. An IFRP staff member participated in the snapper and baitfish workshop held in November 1992. All travel costs were provided by the US Agency for International Development under its Pacific Island Marine Resources project.

Survey of beche-de-mer and trochus resources - Solomon Islands

21. The IFRP was asked to assist the Solomon Islands Fisheries Department with a invertebrate survey in the Western Province and report particularly on the status of beche-de-mer and trochus resources. The survey team found almost all of the surveyed resources to be extremely impoverished in the areas visited.

22. Recommendations were made both to the Western Province Government for measures to rationalise exploitation, for the control of companies exporting inshore marine products and for the strengthening of traditional management measures, and to the Fisheries Division for the monitoring of resource status and the conduct of further surveys.

23. The Solomon Islands Government covered all vessel and equipment use costs during the survey, and the survey benefitted from the experience of specialist national fisheries biologists from Papua New Guinea and Vanuatu, whose participation was financed from IFRP funds.

Survey of fish and invertebrate resources - Pitcairn

24. Pitcairn is a remote island with poor communications with the outside world and a small population (56) dependent for income on British Government funds, stamp sales, occasional licencing of foreign tunaf vessels and remittances. Joint-venture commercial fishing operations in the Pitcairn EEZ could be a significant income earner for these islands. A fishing trial has been conducted in the past in the Pitcairn EEZ by a New Zealand company, but no information was actually submitted before the operation folded.

25. In 1992 the IFRP was requested by the Governor of Pitcairn to assist in the design and implementation of data-reporting mechanisms from future commercial trial-fishing operations, to ensure that future information is accurate and useful in deciding resource potential. The British Government provided additional funds to assist in the placement of a scientific observer on board any trial fishing vessel licensed to operate in Pitcairn waters in 1993/4. Following receipt of proposals for exploratory commercial fishing from several New Zealand fishing companies by the Governor of Pitcairn, the IFRP recruited a consultant familiar with the New Zealand fishing industry to assess the company best suited to conduct survey fishing. A confidential report was provided to the Office of the Governor of Pitcairn.

26. When commercial trial fishing takes place, the IFRP will be responsible for recruiting an observer for the fishing vessel that visits Pitcairn, overseeing the collection of data and drafting a report for the Pitcairn Government on the assessment and management of fisheries resources.

Fisheries resource assessment of Beveridge Reef - Niue

27. Beveridge Reef is a partially emergent oval reef within Niue's EEZ. Beveridge Reef has been fished intermittently in the past and for a few months in 1987 was the focus of a small commercial fishery for fish and lobsters. In 1993, a New Zealand-based fishing company expressed interest in conducting a commercial fishing trial of the Beveridge Reef, and the Niue Department of Agriculture requested the IFRP to assist the Fisheries Division in conducting the fisheries resources survey of Beveridge Reef from a fishing vessel chartered by the New Zealand company.

28. It was initially planned to spend between 7 and 10 days at the reef surveying the deep-slope fishes, pelagic fishes, lobsters, giant claims and beche-de-mer. IFS went to Niue to assist with the survey, with funding provided by the Forum Fisheries Agency. Unfortunately, a prolonged period of bad weather prevented the survey being conducted during the time available and the fishing vessel decided to leave Niue anyway to go long-lining for albacore. The IFRP scientist spent the remaining time on Niue collecting information on fishing at Beveridge Reef from Fisheries Division files and through interviews with fishermen who had visited the reef. This information has been compiled into a supplement to the earlier fisheries resources survey of Niue island, conducted by the IFRP and SPRADP in 1990.

Regional-level activities

Ciguatera research and management

29. Following endorsement from the 22nd RTMF in 1990, the IFRP has been involved in an inter-disciplinary committee (involving the SPC Health, Nutrition and Fisheries Programmes) whose aim is to ensure co-ordinated approaches to ciguatera problems in the region. Ciguatera case histories are forwarded to the Commission by a network of national health and fisheries workers, and stored in a database maintained by the IFRP.

30. To date over 500 case histories have been collected from 8 countries in the region. The ongoing publicity of the database was widened during 1992 and 1993 to include national and international press and radio, and medical journals in PNG and Fiji.

31. A review of ciguatera in the region and its impact on fisheries development was presented by the IFRP at the IVth International Ciguatera Conference in Tahiti during 1992. Further analyses and information from the ciguatera database were presented at a Ciguatera Management Workshop held in Australia during April 1993. Attendance at the workshop by IFS was partially funded by the organising committee. IFS was also invited to participate in the 14th SPC Regional Conference of the Heads of Health Services to emphasise the importance of ciguatera case history data collection to senior medical staff in the region, and a recommendation from that meeting urged national health departments to improve the reporting of ciguatera occurrences.

32. Continued attention will be given to improving the reporting of case histories and future activities will include country summaries of information of species responsible for poisonings, seasonality of poisonings and maps showing reefs where poisonous fish were caught, based on the information in the database.

Backstopping FAO South Pacific Regional Aquaculture Development Project activities

33. In August 1992, the South Pacific Regional Aquaculture Development Project (SPRADP), established by FAO, reached the end of its funding cycle. A new funding cycle was planned to commence in mid-1993, however, there were several country requests for assistance still outstanding that required action. To cover these interim activities, UNDP asked the IFRP to be responsible for 'backstopping' aquaculture activities in the region and established a small fund at the Commission for this purpose. This was endorsed by the 24th RTMF and later by the 32nd South Pacific Conference. The Forum Fisheries Agency offered to assist in executing the projects.

34. Between August 1992 and June 1993, the IFRP provided assistance from SPRADP funds for several aquaculture related activities in the region. These were; a tilapia demonstration farm in Western Samoa, a SCUBA training course on Kiribati, tilapia fingerling transfer from Fiji to Cook Islands, a coconut crab video in Niue and overseas training in seed production for a PNG trout farmer and extension officer.

35. Responsibility for aquaculture support was to revert back to SPRADP when the project was re-established by FAO during 1993. However, this has not yet happened and requests for further backstopping funding have not been successful.

Remote Sensing Project

36. The SPC Remote Sensing Project will establish a small facility (computer equipment and a specialist staff position) to analyse data acquired through satellite remote sensing, and to develop a computerised multi-disciplinary geo-referenced resource database. Both these tools will be used principally to improve the effectiveness of resource assessment and management projects in which the Fisheries Programme is involved.

37. The EU has maintained an interest in funding a remote sensing programme at SPC since it was first proposed by the Commission. A collaborative project proposal worth 900,000 ECUs has been submitted to the Regional Overseas Countries and Territories envelope of the 7th European Development Fund. This budget would finance both the SPC component of the project, as well as a substantial sum for the promotion of regional cooperation involving the image analysis laboratories in New Caledonia (Laboratoire de Traitement des Images Caledonien) and French Polynesia (Station Polynesienne de Teledetection).

AIDAB phase III giant clam pre-feasibility study

38. AIDAB received a project proposal from Cook Islands, Fiji and Tonga, coordinated by James Cook University of North Queensland, for a phase III giant clam project. Phase I of the giant clam project started in 1984, funded by ACIAR, and involved Australia, Fiji, Papua New Guinea and Philippines. Phase II, also funded by ACIAR, saw Papua New Guinea withdraw from the project and Cook Islands, Tonga and Kiribati come in. This phase III would be to scale up experimental clam hatcheries to production levels, and to see operations become sustainable.

39. SPC was funded by AIDAB to provide a pre-feasibility study on the proposal, and the IFRP coordinated country visits to Cook Islands, Fiji and Tonga, in February 1994, and the production of a report to AIDAB. After editing, AIDAB intends to release this report.

Advisory services

40. Staff of the IFRP continued to respond to requests for advice and technical information from Fisheries Officers of the region and from scientific and technical institutions carrying out fisheries research related activities in the region and beyond. Staff of the IFRP also represented the Commission during 1993 at a number of national and international gatherings concerning different technical aspects relating to fisheries. Amongst these were the ACIAR Underwater Visual Census Workshop, held in Fiji in September, the SPREP Integrated Coastal Zone Management Workshop in Apia during May, and the SPC Sexual Awakening Workshop in Nouméa in December.

41. It is notable that there is an increasing number of informal requests from member country fisheries administrations for advice on how to deal with commercial fishery investment proposals, and on the most appropriate management approaches to realise the sustained commercial potential of inshore fisheries resources.

Publications

42. During 1993, greater emphasis was put on publishing the results of field assignments. The fisheries resource assessments of Niue and Woleai Atoll were both published during 1993. Stock assessment of the Palau coral reef fishery and the Aitutaki trochus fishery will be published during 1994

43. Staff time was devoted to the production of a French-language edition of the popular Trolling Handbook which was published in late 1993. Presently in preparation are the proceedings of the 1990 Workshop on Trochus Resource Development and Management and the 1991 RTMF Workshop on Traditional Fisheries Management.

44. Numerous other reports were produced at a less formal level. All IFRP activities and, where possible, results of field assignments are regularly documented in the SPC Fisheries Newsletter. Comprehensive draft reports of all IFRP country-specific activities were forwarded to Fisheries Departments and other relevant bodies, usually within one week of completion of field work.

45. If the reports present results of broader importance, and if the commissioning country approves, these reports can then be edited for publication as IFRP technical documents. Other IFRP contributions resulting from the attendance of workshops and conferences are published in the respective proceedings of these meetings.

Future activities

46. IFRP activities in the coming year are likely to include:

- Continued support for aquaculture in the region until re-commencement of SPRADP, should funding be forthcoming;
- Support to SPC member country fisheries scientists with the analysis of resource assessment data and the preparation of technical documents;
- Resource assessment fieldwork and management advice on trochus, beche-de-mer, pearl oyster and other economically important, fragile, or rapidly-changing fisheries;
- Strengthening of national catch monitoring and fishery data gathering systems and operational development of the regional inshore fisheries statistical database;
- Collaborative work on ciguatera case history data collection and analysis.

47. The project will also continue to develop regional initiatives in response to the expressed needs of SPC member countries, and to respond to specific requests for assistance as they are received.

Evaluation

48. The work of the IFRP and, when established, the Remote Sensing Project, is to assist countries to acquire the data needed for the development of appropriate inshore resource management plans. Considerable progress has been made in this area, with a significantly improved capacity on the part of many national fisheries departments to undertake and report on resource assessments. This has largely been achieved through an increased emphasis on applied, hands-on resource assessment and management training carried out both by the IFRP and by other agencies working in this field.

49. Compared with five years ago, when the IFRP was first established, there is also a vastly increased awareness by technical fisheries department staff of the need to consider the biological limits of marine resources as part of the development process, again as a result of both the marine resource training and information dissemination activities undertaken by SPC and by other agencies.

50. There is, however, still a gap between fisheries technical workers on the one-hand, and the management decision-makers on the other, including politicians, senior civil servants, and technical civil servants working in government investment or business advisory bureaux. As a result, there are still many private business ventures and development projects that are implemented without adequate consideration of resource issues. Where management occurs, it is still usually in response to a problem, or, when it is not, is often a result of a decision or representation by a local community that has decided to take its own action rather than depend on government. This situation arises because government decision makers frequently do not seek advice from technicians in fisheries departments, or because the departments themselves have not put in place mechanisms to ensure that decision-makers are fully aware of resource issues.

51. To resolve this situation, there is a need for greater emphasis to be placed on putting the results of resource assessment into practice, through more active programmes of public information dissemination and the development of fishery management plans as an integral part of the resource assessment process. It would be logical to address this topic area on a regional basis since there is much to be gained through the sharing of management experiences, successes and failures, and because many inshore marine resource issues are common to groups of countries.

52. At present, funding for the IFRP is assured until June 1994. The 24th RTMF recommended that the Commission *make every attempt to secure continued funding for the project so that its activities could be continued without interruption when the present funding expired*, and this recommendation was endorsed by the 32nd South Pacific Conference. The Secretariat has therefore sought further funding for a new project phase which, while not abandoning technical aspects of resource assessment, will place increased emphasis on supporting countries in their attempts to carry research through to the resource management stage.
