Tonga Fisheries Bibliography

Robert Gillett

January 1994

Food and Agriculture Organization of the United Nations
Technical Cooperation Programme
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Introduction

During the late 1980s and early 1990s the Food and Agriculture Organization of the United Nations (FAO) produced fisheries bibliographies for most Pacific Island countries. As part of this series, R.Gillett, S.Zirkel, and S.Langi compiled the Tonga Fisheries Bibliography in 1988. For that project a total of 26 offices and collections in Tonga, Fiji, and New Caledonia were examined in March and April 1988 for both published and unpublished material appropriate for the bibliography. In addition, eight expatriate workers who had previously worked in a fisheries related field in Tonga were contacted. Three bibliographic computer searches were carried out and five major university libraries were asked for relevant material. That work resulted in a list of 506 references.

In 1993 FAO provided to the Government of Tonga a Fisheries Adviser. During the one-year assignment of the adviser, 113 additional references relevant to fisheries in Tonga were encountered. This information was incorporated into the original bibliography and listed by author and by subject. As the objective of the project was to produce a document as useful as possible to fisheries workers in Tonga, a "user-friendly" bibliographic style was adopted.

It is strongly recommended that Ministry of Fisheries personnel update this document periodically.
## Location of References

At the end of most bibliographic entries in this document an acronym is given indicating where the material was found. These abbreviations correspond to the following locations:

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<td>Institute of Marine Resources</td>
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<td>FAO UNDP Regional Fishery Support Programme, Suva</td>
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- Reports covers current government policies, investment incentives, industry situation, factors influencing development, estimated vessel profitability, benefits to the Tongan economy, options for the government, and recommendations.
- It is calculated that the most likely level of profit for a local tuna fishing company is T$15,000 per year. There is a 30% chance a company will actually lose money and a 90% that the annual profits are less than T$40,000.
- It is estimated that the government receives T$48,000 from the operation of a single longline vessel while the private sector receives T$25,000.
- It is suggested that the Tongan economy is receiving between 7 to 15 times the level of benefits received by the owner of a fishing vessel.
- Proposes the following options for the government to consider:
  - Maintain existing situation
  - Provide greater financial incentives
  - Ease existing license policies
- The report recommends:
  - A review of existing port facilities
  - A review of airfreight capacity
  - Establishment of a govt/industry working group to develop training strategies and programmes
  - Streamline existing export licensing procedures
  - Credit facilities be made appropriate for the fishing industry
  - Government charges be reduced or eliminated
  - Licensing policies be modified: allow locally based foreign fishing vessels, but giving local vessel priority. Optimum number of licensed vessels to be determined after consideration of port facilities and air freight capacity.


- Cites the constraints to domestic industrial development as regulation of involvement (now de-regulated), lack of certain skills (fishing, management, technical), access to markets, poor quality fuel, high cost of fuel, and limited air cargo space.
- Institutional constraints include non-transparent nature of the relevant policies of the various relevant ministries and high taxes on required imported supplies.
- In the Ministry of Fisheries, lack of clear policy in the fisheries sector results in a non-facilitating atmosphere.
- Concludes: “The government is taking a cautious approach which needs to continue without stifling initiative, or imposing too many regulations or financial burdens on the industry. With adequate human resources, infrastructure, financial, and institutional changes, the industry has the potential to contribute very significantly towards the achievement of national development objectives.

• Covers oceanography, a review of fisheries in/around Tonga, status of stocks, fisheries potential, and management considerations
• Primary and secondary productivity near the Tongan Archipelago are relatively low compared to high islands within the South Pacific.
• The single Tongan longline vessel operating 1982-1993 had similar for yellowfin, bigeye, and albacore as the Taiwanese and Korean vessels.
• Concludes that longline catches in Tongan waters and international waters to the south could be increased from the present level of about 450 mt to 5,000 mt. This assumes continued targeting of albacore; if yellowfin/bigeye is targeted then the potential yield may be reduced
• Suggests that the potential yield of surface skipjack could be about 14,000 mt per year.
• Recommends a monitoring programme as the longline fishery develops, including requiring all vessels to submit logsheet data and verify the data with inspection of landings.


• Quarterly or annual export licenses should be issued
• Customs/Fisheries cease inspection of every export shipment
• Export taxes should based on weight, not volume
• There should be a exemption or rebate on fuel taxes
• That the same tax concessions given agriculture be given to fisheries (eg. capital gear)
• All longline operator submit logsheet data
• Potential purchasers of longline vessels should solicit advice from SPC
• The proposed Manning regulations should be amended to allow for fishing vessels between 15 and 20 metres to have the qualified skipper also serve simultaneously as the required engineer.
• A specific programme of 1 to 3 week modules be developed by the marine training college for Grade 4 certificates
• Fishermen should be permitted to commence training on the above modules after 18 months of sea time, but certificates should not be issued until 3 years of sea time has been accumulated
• The proposed fishing vessel safety regulations be amended to apply to vessels of 20 metres or greater
• The suggested changes in the proposed fishing vessel safety regulations be submitted to the Secretary of Marine and Ports for consideration
• The Fisheries Department should cease using their vessels for commercial fishing
• The Fisheries Department should articulate the objectives and strategies of the research fishing activities
• No staff of the Fisheries Department should be employed by the private fisheries sector
• No staff of the fisheries department should abuse the confidentiality of priviledged information
• The Secretary of Fisheries should be appointed to the board of Sea Star Fishing Company
• Sea Star fishing company should not receive preferential treatment from government
• The Fisheries Department should hold with export processors to develop standards for exports establishments and facilities
• The Fisheries Department should work closely with the SPC Post Harvest Section in addressing the HACCP issue.
• The “loading/unloading area” be shifted to 30-40 metres on the eastern end of the Faua Wharf
• The Fisheries Department support the Ministry of Marine and Ports claim of jurisdiction over the land from the wharf to the road.
• Fishermen should work through one or two exporters/packers to maximise use of available work space
• The Fisheries Department should encourage the appropriate department to increase the number of flights from Tonga
• A cold storage facility should be built at the airport for storing perishable export products
• All airline ground crew be made aware of proper handling, storage, and stacking of cartons of fresh fish
• The Fisheries Department should approach the banking institutions to encourage longer term loans and grace periods to loan repayment.
• The Fisheries Department should seek funding for a workshop on tuna grading
• The Fisheries Department should approach the Japanese government for assistance in grading tuna for export
• The Fishermen should bulk order bait as a group to reduce prices and increase availability
• The Fisheries Department should research the baitfishing potential of Tongatapu lagoon
• The Fisheries Department should liaise with the Department of Marine and Ports over improvements in slipping facilities
• The Fisheries Department should encourage the training of individuals in the field of electric, electronic and diesel engineering for eventual work in the private sector
• The Fisheries Department should liaise with the Department of Marine and Ports over assistance to the fishing industry for purchasing/servicing of safety equipment
• The Fisheries Department should explore the possibility of using UNCDF funds for the development of the tuna longline fishery
• The government should be approached to relax the present rule banning work on Sundays.

Ministry of Fisheries (1997). Report of the meeting to discuss recommendations arising from the SPC study report on constraints to the development and expansion of a domestic tuna longline fisheries in Tonga.

• With one exception, all recommendations were either supported or referred to the Ministry of Fisheries for follow-up action. The recommendation concerning working on Sundays was not accepted


• one of the serious concerns of villagers in Ha’apai is that, even if a community attempts to conserve and manage adjacent marine resources, it may be a useless exercise because outsiders can move in and over-harvest. Consequently, a major development/management priority identified by the communities is that some form on increased control over local marine resources is urgently needed.
• The central problem concerns the open access nature of fisheries in Ha’apai. This system may have worked reasonably well when people were mainly subsistence fishers, but it has fairly recently collided with commercial realities and the limited nature of inshore marine resources. Recently there has been an increased amount of commercial fishing activity by individuals from outside the community. Given the limited production of
the inshore areas, the benefits from this outside commercial activity appear to be, at least to some extent, at the expense of the subsistence food supply.

- There are numerous indications that the incidence of conflict between local and outside fishermen are increasing.
- Views of the Ha‘apai communities were on increased community control over adjacent marine resources by limiting access. The main results of the discussions were:
  ✓ No opposition to the concept of increased community control over adjacent marine resources was encountered, not even from ‘Uiha whose commercial divers operate over a large area of Ha‘apai including inhabited islands.
  ✓ Most fishermen seemed to realise that their long-term economic livelihood depends on better management of the resource.
  ✓ There appears to be very little understanding of the fisheries regulations. For example, no one was aware of the minimum size limits for beche-de-mer, but conversely there was the widely held (but mistaken) view of some minimum mesh size regulations for gill nets.
  ✓ The idea of “ownership” of adjacent reef areas appears to be universal, despite the existing legal situation. It appears to stem not from a lingering traditional heritage from the period prior to the 1887 Royal Proclamation, but rather from the concept that the areas which have habitually supplied food to a village are a village resource and therefore “owned” by the village.
  ✓ The villagers’ concept of which islands and which fishing areas belong to which village appears to be well known and there appears to be only a minimal amount of disputed areas, at least in northern Ha‘apai.
  ✓ The fishing areas belonging to villages can be at considerable distance from the village. For example, ‘Uiha villagers consider the area around Limu Island (about 12 nautical miles by boat) to be theirs. Similarly, Lofanga villagers consider the Niniva Island fishing grounds (5 miles) and Foa villagers claim rights over Olofanga Island (10 miles).
  ✓ Most of the fishing at a community’s distant fishing grounds appears to be commercially oriented, rather than for domestic consumption.
  ✓ Every community has had some degree of negative interaction between fishermen from outside communities. This has ranged from frustration over the inability to control over-fishing by outsiders to physical confrontation.
  ✓ The communities generally feel that local control of their fishing grounds is a better management mechanism than marine reserves.
  ✓ The meetings gave the impression that whatever form of increased local control was implemented, the villagers expected it would involve all the inshore fishing area around the islands owned by the village/island, only the shallow waters (not deep water or open ocean), and the right to negotiate with outside interests over use of the area under local control
- Comments on possible legal arrangements are made including an evaluation of the appropriateness of three section of the Fisheries Act: Selective vessel licensing, Selective exclusion of commercial fishing, and Limited Entry. It is conclude that the latter option may be the best.
- The paper concludes that there is clear consensus among the Ha‘apai communities surveyed of the necessity limiting access to inshore fishing areas. There are numerous issues to resolve prior to implementing a fisheries management scheme in Tonga based on limiting access, each of which requires careful consideration. It is suggested that Ha‘apai area would be an appropriate location to begin implementation due to the consensus of the community, the severity of the fisheries management problems, the government commitment to the Ha‘apai Conservation Area Project, and the resources within that project to assist the Ministry of Fisheries in promoting community-based management.
There is the perception in the Ministry of Fisheries that many of the difficulties with fisheries management are related to inadequate Ministry of Fisheries resources or the organizational structure of the Ministry of Fisheries. Alternatively, the view is often expressed in villages that fisheries management authority should be de-centralized to a lower level.

In practical terms, it is difficult to visualize that major improvements could be made in the effectiveness of management of inshore resources unless the villages are given at least some management authority.

Some types of fisheries management (e.g. offshore tuna fishery, deepwater snapper, and those inshore resources near the capital) are best done at the national level. Conversely, there needs to be recognition that some management functions cannot be effectively carried out centrally. Although limited government funds and geographically dispersed fishing areas can be cited as reasons why central management cannot function in some areas, the fundamental difficulty is the nature of the system; quite simply, central management is not part of the community.

In many cases, especially the outer islands and remote communities, the net result of well-intentioned central management of fisheries in Tonga is the absence of management.

The prevailing system of totally open access does not foster a long-term relationship with the resource and therefore inshore fishery conditions are likely to degenerate in the future.

Some form of community management and differential access is urgently required and it appears as though this can be accommodated within the existing Fisheries Act.


- States that many of the present activities of the Ministry of Fisheries that fall more appropriately in the domain of the private sector
- If the Ministry divests itself of private sector activities and concentrates on the management of Tonga’s fisheries, an atmosphere of confidence should develop in which the private sector could easier expand and develop
- A restructuring of the Ministry could remove constraints of further privatization; the major constraints to privatization are institutionalized in the Ministry
- Boatyard and engineering services: annual cost the Ministry is T$15,817; they should be privatized and there should be discussion among existing staff to determine interest in taking over facilities
- Tu’imatamoana market: annual cost to Ministry is T$48,500; it should be transferred to users of the market or to FIMCO
- Vessels: annual cost the Ministry of the three vessels is T$125,178; suggest that some sort of surveillance/research capability of the Ministry is required; the three vessels should be disposed of and replaced by one vessel
- Refrigeration facilities: should be privatized or transferred to local authority
- Aquaculture: none of the present projects are near to commercialization; an economic evaluation should be undertaken of the current aquaculture projects, environmental impacts of aquaculture projects should be carefully considered, and aquaculture project should be commercialized as soon as practical
- Tuna fishery: a plan incorporating development and management be prepared, that development constraints be identified through discussion with industry, government impediments are removed, UNCDF and US treaty funds be used to subsidize/encourage/assist existing operators, the UNCDF fund be used to assist
snapper vessels to equip for tuna fishing and to support the FAD programme, and the Ministry review its extension training activities in relation to tuna fishing techniques

- UNCDF fund: should be used for developing tuna resources through subsidizing exploratory fishing, conversion of snapper boats, and the FAD programme
- Structure of the Ministry: proposes a "once and for all" solution which has a structure of two parts. The boatyard, engineering, market, boats, and refrigeration functions are to be hived off on July 1, 1996
- Consultation between government and private sector: a fisheries advisory committee be established with representation from the Ministry, fishermen, and exporters


- Describes the major inshore fisheries and proposes management plans: beche de mer, lobster, mullet, tridacna, aquarium fish, coral, and octopus as well as seven other inshore resources
- Proposes public awareness strategies and training required to implement strategies
- Concludes that "the answer lies with an effective extension section of the MoF supported by legal opinion"
- The major recommendations of the consultant were as follows:
  ✓ Existing regulations and start to find for breeches of the Act should be implemented;
  ✓ Appropriate legal minimum sizes for all traded species should be decided and these sizes should be gazetted.
  ✓ Extension activities should be increased;
  ✓ SCUBA and hooker gear should be banned as soon as possible;
  ✓ The number of exporters should be restricted, and
  ✓ Stock surveys, with the objectives of obtaining a comparison with earlier surveys, should be initiated and quotas should be set.
  ✓ Current and revised fisheries regulations should be implemented;
  ✓ A lobster liaison officer should be appointed and extension activities should be increased;
  ✓ Training workshops on catching and post-harvest care should be conducted and consumer education should be undertaken;
  ✓ Studies on facilitating air transport of live lobsters should be conducted;
  ✓ Monitoring and data collection should be increased, and
  ✓ A small economic study on domestic and export markets should be initiated.
  ✓ Existing regulations should be enforced and extend a closed season for fishing in some areas of the country should be implemented;
  ✓ The closed season for mullet should be maintained;
  ✓ The mullet fishery should be monitored regularly and
  ✓ A research officer from the Ministry should be assigned to work on the fishery.
  ✓ Fisheries regulations and fines should be firmly implemented;
  ✓ Export of giant clam for "domestic" consumption should be reduced to 10 kilograms per travelling party, pending further resource monitoring;
  ✓ The sale of clam meat in plastic bags should be prohibited;
  ✓ The use of SCUBA and hookah gear in the fishery should be discouraged;
  ✓ Damage to reefs while collecting giant clams should be discouraged;
  ✓ General extension work pertaining to the harvest of wild clam stock should be expanded;
  ✓ Areas as reserves where clam circles and ocean nurseries are established should be nominated;
  ✓ Surveys to ascertain the status of giant clam stocks should be undertaken.
  ✓ The aquarium fish management plan should be revised;
✓ No new wholly foreign owned companies should be permitted in the industry.
✓ Individuals wishing to commence aquarium fish exporting should be requested to demonstrate experience and ability to operate in a manner that does not threaten the health of the stock or damage the reef environment;
✓ Divers should be certified;
✓ Hammers and metal bars should be banned from collecting boats and chemicals banned to catch a fish, and
✓ Records of all fish collected and their value should be kept and submitted to the Ministry when the company applies for an export permit.
✓ Live hard corals should not be collected nor exported;
✓ Each company should have a quota of 100 tonnes per year for extraction and export, and
✓ Dead rock should not be taken from areas that fish have abandoned.
✓ Under water breathing apparatus for collection should be banned;
✓ Export of octopus should be limited or prohibited;
✓ The destruction of octopus burrows should be prohibited by legislation, and
✓ The better production and marketing of dried octopus for domestic and export sales should be encouraged.
✓ Plans for extension programmes involving the use of radio, newspapers, school curricula, teachers’ associations, simplified fisheries regulations, collaboration between government Ministries, churches, video, and television should be prepared.
✓ In the preparation of management plans for the inshore fisheries, those areas in the Ministry where skills are inadequate, or non existent, for implementing the plans, or where it is possible to redirect skills to other priorities areas, should be identified for follow-up action.
✓ The Ministry should identify inshore fisheries where community based approaches to management are appropriate.

Appendices on:
✓ Suggested amendments to fisheries legislation
✓ Use of SCUBA
✓ Need for economic studies of certain fisheries
✓ Need to investigate value of smoking/drying fish
✓ Need to provide support for the extension, management, and licensing sections of the Ministry
✓ Survey of village fishers
✓ Date issues


- Contains sections on status of fish processing, resources available, consumption patterns, production and marketing of fisheries products, scope for fishery-based industry, and action plan for development of industrial base for fish processing activities.
- Some of the information is highly suspect: “Spanish Mackerel” and “Trocjus” being commercial fish in Tonga (p.10), “scope for higher production with regulation” of snappers, rock cod and groupers (p.11), “presently there appears to be no indication of biological depletion due to over fishing except beche de mer in inshore waters” (p.11), etc.
- Much doubtful data is tabulated without giving the source of the information
- Some of the projects suggested are unusual: fish pickle project “In South Pacific countries like PNG, Fiji, Australia, and New Zealand the population is familiar with the taste” (p.38)
• Some of the conclusions are very wrong: “It appears as that setting up a medium-scale fish canning plant for canning of skipjack tuna or Pacific mackerel variety could be technically and economically viable” (p.45).


• Describes Japanese assistance to Tonga:
  ✓ JOCV celebrated 20th year of sending volunteers to Tonga; 36 volunteers in fish gear/methoda, aquaculture, marine engines, and refrigeration technology
  ✓ JICA had sent 12 long-term and numerous short- term fisheries specialists to Tonga in fisheries fields. The counterpart training scheme has provided many opportunities to study technical courses in Japan
  ✓ Japan grant aid: fishery training vessels, fish transportation vessels, refrigeration facilities, and tanks/facilities for aquaculture research
• Contains detailed descriptions of the Tongatapu, Ha’apai, and Vava’u fisheries
• Gives a history of fisheries development in Tonga [largely from the Japanese perspective]
• Contains sections on aquaculture development, refrigeration, and eating habits of Tongans
• Lists contents of volumes 1 to 4 of the Fisheries Research Bulletin of Tonga


• Proposes a new Ministry structure (3 divisions, 14 sections) and describes to functions of each section
• Describes the HRD process and summary of the findings of an appraisal
• Proposes “dual focus” approach and describes the nine steps of HRD planning
• Suggests that the people of Ha’apai jointly manage the inshore resources of Ha’apai with the government (p.41)
• Proposes programme targets for each of the sections of the Ministry
• Describes training needs for each of the sections and estimates costs
• Detailed training requirements, including identifying trainees and trainers and an annual training plan with timetable


   [this appears to be Chapter 3 of the previous Fakahau report]


• Performance deficiency analysis for 72 staff at the Ministry of Fisheries.
• For each staff lists the areas of work requiring special skills, performance deficiencies, and training priorities


• The reports suggests a new direction for the Tongan government’s efforts to develop and manage fisheries so that the focus is on the people that use the fishery resources
Indicates that when the new Ministry of Fisheries was formed, it adopted a top-down approach in fisheries development and management which excluded fishermen from policy decision making. This policy was reversed in May 1996.

States that in the late 1980s the Fisheries Division concluded that the under-achievement experienced in the country’s fisheries was due to the inadequate consideration of the needs, interests, concerns, and problems of resource exploiters and users. This conclusion has recently been confirmed by the international community when they discredited the use of the bio-economic model for fisheries management.

Realizing the need for an institutionalized mechanism for consultation with the resource users, the Fishermen’s Association was formed in 1988 after discussions for more than two years.

100% of the fishing cooperatives in the country collapsed due to the difference in how individual vs group needs are identified. The Fisheries Division recommended dividing into the “haves” and “have-nots”.

Because the civil service employs over 90% of the better educated Tongans, “A positive long-term vision would be to utilise civil servants to make effective contributions toward the development of the private sector by means of (i) human resource development and (ii) direct participation in business operations and management.”

An HRD has been prepared for the Ministry, the next step is to do one for the fisheries sector.

The establishment of community-based management would be a long and difficult process and would entail the government devolving some management powers and supporting it with appropriate legislation.

Farming of pearl oysters in Vava'u (would alone fetch T$7 to T$10 million) but would require a naval architect on the Ministry staff to design proper rafts.

Fisheries management is about people in island and coastal communities so it is not necessary for most of the staff to work in one building in Nuku'alofa, Vava'u or Ha'apai.

Indicates adequate space in the existing fishing harbour, but effective management is lacking.

Need for a fish market at Vuna Wharf.

Discounts a conflict of interest situation where public servant also are involved in private entrepreneurship.

If the current policy of restricting tuna fishing to Tongan nations is to continue, it should be supported with incentives.

Section on considerations for fishery policies, including general guidelines (not specific to Tonga) for fisheries policy.

Current fisheries policies include: sectoral objectives in the national development plan, MoF Strategic plan, and some cabinet decisions.

A discussion of the relationship between the EEZ and Royal Proclamation box is appended.

assessments, monitoring, protection, coordination of fisheries development planning, and provision of necessary support services (extension, specialty training).

- Concludes there is no case for the establishment of a central commercially managed agency to manage the existing government involvement in fisheries.
- Indicates that the construction of subsidized vessels for bottomfishing should cease.
- If the government involvement in boatbuilding ceases, there would be an opportunity for providing instruction to the private sector in boatbuilding.
- There appears to be little interest in the private sector of acquiring the Sopu boatyard.
- A second generation bottomfishing boat should be designed/tested.
- Suggests that FIMCO take over the fish marketing at Faua.
- It is recommended that the refrigeration equipment be operated on a temporary basis by the extension staff until local management arrangements can be made and that the fish collection vessels be operated by the Fisheries Division until private sector interests can be identified.
- It is recommended that seaweed culture cease until the buyers offer a better price.
- There should be a comprehensive basic fisheries law, and a review of the structure of the Fisheries Division.


- With respect to aquaculture, staff have acquired useful skills from past projects, although few tangible development benefits have resulted. Of the current work programme, it is concluded that trochus introductions and pearl oyster culture have the best chance of technical and economic benefits. There is a need for projects to be monitored in terms of costs and benefits.
- With respect to finance, the current position of the Ministry could be improved if there were to be a reduction in vessel operations, increased charges for subsidized services, and greater use of flexible aid funding.
- Staff development of the Ministry seems to be on a reasonable course. A number of new posts are identified and the suggestion is made that in-service training of more than one year should be planned to meet specific needs of the Ministry.
- There was difficulty in producing concrete proposals for improving the image of the Ministry.


- Argues that granting Sea Star Fishing Company an exclusive right to exploit tuna may be inappropriate.
- Approved by Cabinet in September 1993


- The project agreement was signed by the UNDP Resident Representative on behalf of UNCDF on December 16, 1981 and by the Secretary to the Tonga Government on March 23, 1982. The agreement specified a Government contribution of US$270,000, a UNCDF input of US$850,000, and bilateral assistance from Japan of US$280,000 in the form of engines, fishing gear, and safety equipment.
• The project agreement specified that the project will construct two boatyards at Ha’apai and Vava’u and provide materials and labor costs for the construction of 40 boats under a Revolving Fund arrangement.

• The report contains information on:
  ✓ Project Implementation Arrangements
  ✓ Financial Information
  ✓ Fishing Vessel Construction
  ✓ Present Status of the UNCDF Vessels
  ✓ The Bottomfish Fishery in Tonga
  ✓ Project Reviews
  ✓ Achievement of Project Objectives
  ✓ Future Vessel Construction
  ✓ The Future of the MAFF/UNCDF Revolving Fund


• In May 1992 the Prime Minister and Minister of Fisheries requested assistance in the form of a fisheries adviser from the Technical Cooperation Programme (TCP) of FAO. The Director-General of FAO approved the Prime Minister’s request and the project officially commenced on April 9, 1993. The Fisheries Adviser arrived in Tonga on April 19.

• The progress report covers:
  ✓ Tuna
  ✓ Bottomfish
  ✓ UNCDF Boats
  ✓ Fishery Regulations
  ✓ Refrigeration Facilities
  ✓ Extension Services
  ✓ Management Plans
  ✓ Research Activities
  ✓ Training
  ✓ Creation of an Environment Conducive to Private Sector Development
  ✓ Surveillance
  ✓ Review of national fisheries policies
  ✓ Measures to strengthen the capacity to develop and manage fisheries sector
  ✓ Advise on staff training needs
  ✓ Assess constraints to fisheries development and management
  ✓ Provide advice on the structure of the Ministry
  ✓ Programmes to strengthen the Ministry and the sector
  ✓ Advice on commercialization of fisheries


• Resources: The three categories of fisheries resources in Tonga (offshore, bottomfish, and inshore resources) vary in magnitude and are subjected to different levels of for the future, management of the fishery will be necessary. The inshore resources such as lobsters, beche de mer, and giant clams are mostly over-exploited in Tonga. Management and conservation action such as minimum sizes, export controls, closed seasons, and closed areas are required immediately. Any increase in benefits from Tonga’s inshore resources will probably be from increasing the quality of the product through, for example improved processing or exploitation. The offshore resources, primarily four species of tuna, are only lightly utilized and form part of a large regional resource. They should be considered as Tonga’s main opportunity for increasing the
volume of fish landings. The bottomfish found on the deep-slopes and seamounts are the target species of what is presently the most important commercial fishery in Tonga. The resource appears to be fully or near-fully exploited at present and it is unlikely that catches could be substantially expanded on a sustained basis.

- The Structure of the Ministry of Fisheries: The main organizational problems of the Ministry appear to be:
  - Absence of an individual to enforce the policies and directives of the senior management of the Ministry
  - Limited contact with fishermen
  - Lack of monitoring/supervising of performance of the sections
  - Reduction/elimination of important activities within the sections due to the interest/capability of the section heads
  - Lack of a functional Extension Section; it is presently combined with legislation, enforcement, surveillance, and management and consequently suffers from neglect.
  - Over-reliance on the Principal Fisheries Officer
  - Lack of capability for monitoring donor projects
  - Training frequently not relevant to the work programme

- Fisheries Management and Conservation: Tonga faces many challenges in fisheries management and conservation. Unlike other Pacific Island countries, there is no strong heritage of traditional marine resource management. Although the Fisheries Act 1989 provides for regulations with management authority, they have not yet been approved. Inshore resources, heavily exploited for many decades, are under increasing exploitation due to new technologies and markets. Bottomfishing, the most important commercial fishery of the country, is at the stage where management is now required. Although there is a legal requirement for management plans for all fisheries, none exist to date. The management section of the Ministry of fisheries is not well developed and there are no staff with training in, or exposure to, fisheries management. Important and logical management measures have encountered substantial opposition from business interests.

- Fisheries Development: It is concluded that the tuna resources offer the greatest opportunity for future fisheries development in Tonga. The pilot fish aggregating device (FAD) programme initiated by the project has been effective in increasing the benefits of the tuna resources to small scale fishermen. For medium-scale fishing operations, longlining for high quality sashimi-grade tuna offers the greatest promise. Changes in the Government policy on tuna exploitation which occurred during the project have had a large impact on tuna-oriented development, as evidenced by the substantial amount of new investment by Tongans in small-scale longlining.

- Aquaculture: the potential for commercial aquaculture in Tonga does not appear to be great, at least in the medium term. The portion of the Ministry's development budget devoted to various aquaculture activities, 50%, appears out of proportion to the possibility for commercial development. In addition, a substantial amount of staff time, donor support, and training activities are dedicated to aquaculture development.

- Fisheries development efforts of the Ministry have been constrained by ineffective fisheries extension, limited contact with the private sector, and the commercial activities of the Ministry. It also should be noted that few of the Ministry's current development projects are resulting in private sector development. The Ministry has, however, recently encouraged the formation of various fisheries groups (beche de mer exporters, FAD users, bottom-fishermen, fish fence owners, aquarium fish exporters) which has increased contact with the private sector.

- Recommendations:
  - It is recommended that the Ministry take measures to accelerate tuna-oriented development.
The Ministry of Fisheries should constantly review its role, as indicated in the Sixth Development Plan, as a creator of an environment conducive to the development of private sector involvement in fisheries. Even with the best intentions, the Ministry staff is not able to create the optimum private sector environment without the views of the private sector.

Considering the organization-related problems of the Ministry, certain changes in its structure: (1) a mechanism, possibly through the creation of another senior management position in the Ministry, be established to assure that the policies and directives of the Ministry are enacted (2) the Principal Fisheries Officer to assume more of a supervisory role (3) the creation of a separate Extension Section headed by an individual with substantial experience and interest in extension and (4) separating the Research Section from the Aquaculture Section and re-naming the section Stock Assessment and Monitoring. A Cabinet-level decision on the issue of re-structuring would assure that the proposed changes would be enacted.

Because of the lack of a heritage of fisheries management/conservation, traditional or modern, it is recommended that a public awareness campaign on the objectives and benefits of fishery management be carried out.


- Little of the current workplan of the Ministry of Fisheries is predicated on the achievement of the objectives in the National Development Plan.
- Lists historical constraints to effective development and management, including: open access to fisheries, emphasis on large scale projects, technical assistance to the sector is often not effective, inhospitable business environment, the civil service regulations inhibit productive use of resources, lack of functional link between the Ministry and fishermen, the operation of three vessels drain Ministry resources, regulations are not being enforced.
- Concludes that the constraints are many and varied
- Offers suggestions on each of the constraints


The major recommendations of the consultant were:

- The total investment in the new or second hand boat appropriate for use in Tonga would be in the cost range of T$300,000 - 400,000;
- The selection of skippers for vessels should be based on proven performance in the snapper or longline fishery, and
- Fish quality standards should be rigorously maintained, especially for export markets.


- Contains chapters on the most important fisheries resources of Tonga: lobsters, aquarium fish, deep-water snappers, tunas, shallow water reef fishes, mullet, small pelagics, other pelagic fish, sharks, giant clams, oysters, ark shell, venus shell, octopus/squid, seaweeds, turtles, sea cucumber, corals.
• For each of these resources the available information is summarized: the resource, the fishery, stock status, management, and references.


• Three broad and alternative options for the fishery objectives are discussed: maximizing participation, maximizing yield, and maximizing economic return
• Regulatory options are discussed: minimum lengths, closed seasons, closed areas, rotational closures, gear limitation, vessel limitations, limiting vessel numbers, and catch quotas
• States that whatever objectives and regulatory options are chosen some form of monitoring will be required to ascertain the condition of the resource. CPUE is one of the most important condition indicators.


The report recommends:

• The establishment of a separate Fisheries Department
• A comprehensive legislative review
• A manpower development and training programme
• Provision of adequate resources to the Department including active approaches to the aid agencies
• The attachment of core staff to organizations


• The USA is very important as a market for Tongan seafoods. If American Samoa is included (all Tongan fish sold in American Samoa is for the tuna canneries and virtually all of the production of the canneries is for the USA), the USA market represents about 72% by value of all fish exports.
• Ministry officials are well aware of the up-coming FDA deadline in December 1997 and of the general need for major changes to satisfy US requirements. The details of those requirements are less understood. The most aware of the fish exporters have received information on the US requirements from consultants and courses, but how the requirements translate into implementation is causing some confusion. On the other hand, the more marginal exporters, despite having attended Ministry-organized HACCP courses, appear only vaguely aware of the US requirements. Especially for the smaller exporters, there appears to be a focus on obtaining new processing facilities (or access to such facilities), rather than on the more abstract items such as hazard analysis and HACCP plans.


• Includes sections on:
  ✓ Country Profile
  ✓ Overview of Law of the Sea and state practice in the region
  ✓ Brief overview of fisheries
✓ Boundary delimitation issues
✓ Fisheries Legal Regime
✓ Customary fisheries management
• The report erroneously states that no regulations have been made under the Fisheries Act 1989 (page 13)


Contains sections on:
✓ Human resource development planning
✓ Constraints to human resource development planning
✓ Draft human resource development plan
✓ Summary of training priorities
✓ Organizational perspectives
✓ Financial support for the training policy
✓ Local training opportunities


Contains sub-project on integrated management of coastal fisheries – Ha’apai Group containing the following outputs:
• Training needs
• Inventory of coastal resources
• Establishment of database
• Disseminate information on stakeholders
• Development of coastal fisheries management plans/strategies
• Develop capability of local communities to assess and monitor resources
• Review relevant legislation
• Awareness campaigns
• Assess options for financing eco-tourism


The objectives of DP7 are given:
• Efficient and well structured government sector, with the qualities of good governance and accountability
• Efficient, well structured state-owned enterprises (public utilities)
• Well maintained physical infrastructure
• Sound and encouraging environment for the development and increased involvement of the private sector in economic activity
• Development benefits being distributed equitably
• Well educated and skilled labour force and healthy population
• Low crime and guaranteed national security
• Stable macro-economic environment with reduced reliance on official foreign assistance
Development strategies:

- Ensuring that economic policies facilitate the improvement of Tonga’s comparative advantage and competitiveness of domestic exports
- Facilitating the development and enhancement of the private sector
- Rationalising the services of both government and public enterprises
- Developing human resources
- Maintaining and improving physical infrastructure
- Improvement of access to government services in rural areas and outer islands
- Raising domestic savings
- Regulating the utilisation of natural resources and the environment
- Managing the development of urban areas
- Employment creation

Improvement of Tonga’s competitive position:

- Ensure that the exchange rate is appropriate
- Change the basis of indirect taxation from trade taxes to consumption based taxes
- Ensure that company taxes do not raise the cost of production unduly
- Minimise trade distortions and barriers
- Ensure that wage rates are determined by productivity
- Optimise the price of domestic utilities supply to reduce the current unit cost of production

Selected quotes:

- [The government] should not crowd out the private sector…. The public sector should not compete in domestic production with the private sector. Activities which could be undertaken effectively and efficiently by the private sector should be transferred accordingly…. The government should, therefore, complement the efforts of the private sector by ensuring that the relevant infrastructures and services required to facilitate the development and enhancement of the private sector are in place and well maintained.
- Reducing the development gap between the rural and urban areas and also between Tongatapu and the outer islands should be a major focus

- Sector priorities for policy development are: agriculture, fisheries, tourism
- Fisheries: Tonga has under-utilised resources, and there are high hopes these can be translated into expanded, viable industries. The areas for policy attention include resource management, access to expertise and capital, assessment of infrastructure requirements and methods of provision and marketing. Enhancing the capacity of the domestic fishing industry is an immediate priority.


The study showed that:

- Fry of the mainly small Liza macrolepis are available throughout the year, while fry of larger Mugil cephalus and Valamugil seheli appear only sporadically and in small quantities
- The durable pens constructed have a lifetime of 5 years if properly maintained.
- The squash/copra feed had no effect on growth rates
- Mugil cephalus grew much faster than Liza macrolepis
• A study in the early 1980s showed that sales of pond cultured mullet in Vava’u would not even cover operating expenditures, but pen culture entails a smaller capital cost than pond culture and fish may be raised at a higher density
• Average mullet price is T$4.00/kg but a high protein food for the mullets would cost about T$3.00/kg, suggesting that the culture of mullets should be done without feed in Tonga
• The size of the market suggests that only small-scale cultivation would be possible
• [note p.5 missing]
• The Ministry should be able to sell fry for about T$.09 apiece
• Shows that the culture of L. macrolepis could be financially viable if done in pens of at least 1.5 ha


The report states:

• “In spite of the concerns on the mullet resource condition, no management programme has been effective in Tonga to date. To help solve this problem, a feasibility study of pen culture was started…”
• Introduction of mullet culture as a management tool is apparently predicated on the assumption that mullet culture should reduce the fishing pressure on the mullet resource
Reports (other than Tonga fisheries reports) of relevance to the Tonga Fisheries Sector

Anon (1997). Tonga-Australia Environmental Planning and management project – feasibility study report and project design document. AusAID,

- The report presented the findings of a project design study aimed at strengthening environmental planning in Tonga using the Fanga’uta Lagoon as a focus for training
- Of special relevance to the Ministry of Fisheries is the section in the report (Section 2.4.4) on lessons learned from similar activities:
  - Responsiveness to clients and improved performance requires a fundamental shift in institutional culture to embrace a service and output achievement orientation
  - Strong external pressure for reform is required
  - A commitment to the change management process by top management is required
  - Improved awareness of appropriate models will enhance commitment to change
  - Successful institutional strengthening requires a careful mix of short- and long-term inputs
  - A common corporate vision and involvement of the managers in the corporate planning process is vital for ownership and sustaining change
  - Early demonstration of achievements in terms of visible outputs can assist the project and target institution to gain credibility
  - Improved management procedures which match available resources and achieve results more efficiently are essential building blocks of the strengthening process
  - Formal long term overseas training courses are generally not cost effective in a project context, but short-term placement in an appropriate agency under twinning or sharing arrangements can be an effective means of widening experience and developing new work attitudes
  - The pace of change and intensity of training activities need to match the absorptive capacity of the target institution
  - The provision technology under aid projects needs to match ongoing recurrent budget capacity to operate and maintain equipment

- Also of relevance is the section in the report on risks:
  - Resistance to institutional change will block or reduce the effectiveness of government programmes to reform the public sector to achieve a more responsive and results oriented organisation
  - A rapid deterioration in Tonga’s economy may bring pressure for short-term development activities
  - Past constraints of effective coordination are not overcome under various public sector reform programmes


Introduction
Overview of Fisheries Sector
- Physical
- Social
- Economic
- Institutional
- Development plans and fishery development

Review and Analysis of Sectoral Performance

Food and Agriculture Organization of the United Nations
Technical Cooperation Programme
Page 103
- Resource base
- The fishery
- Fish production
- Fish collection
- Fish utilization
- Export and marketing of fish
- Support facilities and services
- Fisheries institutions
- Manpower in fisheries
- Impacts of sectoral developments on the country

Key Policy and Strategic Issues
- Fishery Resources and Fishery Policy Issues
- Production
- Zonal distribution of catch
- Price structure and pricing policy
- Privatization

The Proposed Fisheries Development and Investment Programme
- Programme concepts and objectives
- Strategy options: 3 options
- Programme components: investment component, policy reform component, institutional reform component
- Technical assistance component
- Cost estimates and financing Implementing arrangements
- Program risks and benefits
- Conclusions


- Background: general, the role of the fisheries sector in the economy, external linkages, internal linkages, institutional infrastructure
- Review of recent fisheries: the production sector, fish landing/handling/processing facilities, consumption/marketing/trade
- Future domestic fisheries demand: domestic fisheries demand, export prospects
- Resources, development potential, constraints: industrial fisheries, artisanal/small-scale fisheries, inland fisheries, aquaculture, subsistence fisheries, summary
- Future fisheries development policy and strategy
- Fisheries development issues: fishing – national priority, resource availability, constraints to coastal fisheries development, coastal fisheries development, industrial fisheries, technical skill and expertise, the role of the public sector, the role of the private sector
- Proposed development objectives and strategies
- Fisheries development objectives
- Proposed development strategies: elements of strategy, development strategies, proposed priorities, immediate action, investment strategies.
- Appendices: economic data, DFMR, research and surveys division, highlands aquaculture prospects, sedentary resource exploitation, sport fisheries, aquarium fisheries, economics and marketing branch, policy/planning/monitoring branch, education and training, inspection and surveillance, extension and supporting infrastructure, sociology, domestic fish consumption, export market prospects, high value export market prospects, data collection and analysis, external assistance to the fisheries sector, coastal fisheries development, provincial profiles, activity profiles