

SOUTH PACIFIC COMMISSION

NINTH REGIONAL TECHNICAL MEETING ON FISHERIES

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COUNTRY STATEMENT - TONGA

DEVELOPMENT IN FISHERIES IN THE KINGDOM OF TONGA

by

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1. General:

During the year, the Kingdom's Five Year Development Plan was completed and approved by Parliament. During the planned period a considerable proportion of the Development Aid will be concentrated on the progressive and orderly Development of the Fishing Industry, involving a budgetary commitment of \$1,695,250 mainly from Bilateral Aid Donors.

The Aid will be used to set up an effective infrastructure in the form of cold storage depots, fish markets, refrigerated transport, modern fishing vessels, extension centres for training fishermen. The Plan is a flexible one, and alternatives have been written in to ensure, that, in the event of resources failure, for example, the facilities can be put to other uses of benefit to the community.

The Kingdom's main consumer and marketing centre is in Nuku'alofa which has a population approaching 60,000 people. The Northern groups - Vava'u and Ha'apai 100 - 150 miles north - are the centre of the best fishing areas. The demand for fresh fish in these islands is mainly for immediate subsistence needs. The lack of basic facilities for the holding and transport of the catch is a serious deterrent to Development.

The Sociological and Economic need to develop this infrastructure in these remote islands, to allow the fresh fish to be transported to where it can be sold profitably, i.e. in Nuku'alofa is an important one. Ice making facilities, storage depots, and transport is the key, and the Development Plan is aimed at providing these.

2. Current Developments

Loans to Fishermen:

Established in March 1974 with an initial input of \$5,000 from an unused Agricultural Credit Scheme, the fund has issued 61 loans valued at \$15,276 since its inception. This has been mainly for the purchase of engine, fishing nets and other equipment. The largest loan during 1975 was for the purchase of a 115 H.P. Diesel Engine unit and materials to build a 9-metre fishing boat for a local fisherman.

The Scheme has been reasonably successful, there have been the inevitable defaulters, and two engines have been repossessed. Mistakes in selection of applicants have been made, and only strict supervision has assured the modest success of the Scheme. The fund during 1975 has been augmented by a further grant of \$10,000 from the Government of New Zealand, and an added \$5,000 from the Tongan Government's own resources.

3. FAO/UNDP Marine Resources Survey:

This commenced in July 1975 with the charter of a 12-metre multi-purpose fishing vessel "Tropac" from an organization called Tropical Pacific Fisheries Research Corporation, based in Pago Pago, American Samoa. The stranding of the vessel in October 1975 was a serious set back to the Project, as there was a delay of some three months before repairs to the damaged hull could be carried out. The main objective at the survey is to assess the potential for demersal deep water species, and the distribution of the Skipjack tuna resource. The bottom fishing is carried out with a standard Caribbean-type manual reel and rig, and surface trolling with conventional outrigger poles with lines and lures at varying distance from the vessels.

During 25 operational days, from 1st August to 28th September, the "Tropac" landed 2770 kg. fish. The average catch per day increased from 98 kg. in August to 118 kg. in September. As is typical of tropical sea environments some 35 varieties of fish have been taken in the survey to date.

Parallel investigations have been carried out into the availability of suitable live bait to support a Skipjack pole and line fishery. A live bait specialist is being recruited under Japanese Aid Auspices, to fully assess the live bait availability within Tongan waters.

4. Long-Line Fishery:

The Kingdom's long-line oceanic fishing vessel "Ekiaki" had its most successful year since it commenced operations in 1970. The vessel has fished 107 days landing 117 tonnes fish by the end of October. A second long-liner has been donated by the Japanese Government, and will shortly leave Japan. This vessel will sell the bulk of its tuna catch overseas, providing a much needed source of foreign currency revenue for the Kingdom. Named "Tavake" the long-liner will have an all Tongan crew.

5. Conservation:

Legislation covering conservation of Marine Habitats has been promulgated during the year. This included the establishment of the Fanga'uta lagoon, covering an area of 7,000 acres on Tongatapu, as a protected area. This important nursery and breeding ground for fish, such as the Grey mullet (Mugil cephalus), has been subjected to severe pressure from the trap fishing, small mesh gill netting, and from the cutting of mangroves. A serious decline in the stocks of Grey mullet - an important seasonal source of protein - can be partly attributed to the fishing pressures in this lagoon area.

Legislation to set up Marine National Parks has also been promulgated and this will serve to protect selected reef areas from complete destruction by uncontrolled collection of shells, live coral, and sheer wanton despoilation by local fishermen. One particular method used by fishermen is to surround an area of coral with a small mesh net, - a group of fishermen will then break up the live coral with iron bars, sticks etc. The catch is half a dozen small perch-like coral fish locally called "Tukuku". The damage to the coral is irretrievable. The measures now taken will ensure some selected reef areas, at least, will be protected.

6. Training

With the considerable Planned Developments in Fisheries it is considered essential that Tonga has effectively trained local Officers to implement these Developments, and to rationally manage the industry in the future. Priority, therefore, has been given to training as many suitably educated local fisheries staff overseas as possible, this has resulted in an acute shortage of staff locally which has impaired on-going projects, and restricted active extension help to fishermen. The situation will improve with the return of fishery students in 1977.

7. Aquaculture:

In addition to continuation of a small pilot project to assess the suitability of various species of oysters for cultivation purposes in Tongan waters, efforts have also been made to introduce and cultivate the tropical mussel Mytilus smaragdinus. A consignment of this species was brought in from the Philippines in March 1976. The growth rates of the surviving stock was negligible and the mortality rate high. Tests undertaken by the Fisheries Research Division, Wellington, New Zealand, showed that these were mostly post-spawned stock, over 60% had gonads in the regressive phase with 25% in the spawning phase, heavy mortalities in transit occurred among the post-spawned stock, which were in poor physiological condition.

With the support of the New Zealand Fisheries Research Division, additional stocks of M. smaragdinus as well as M. viridis will be imported for trial purposes. Results from oysters growth studies have indicated that C. gigas of Japanese origin suffered a high 60% mortality at the Pangaimotu site. A similar experiment with the same species in the Fanga'uta lagoon, showed conditions here more favourable. The most successful species to date has been C. gigas on scallop shell culch imported from Tasmania. These have showed appreciable growth rates and low mortalities. Considerable investigation is still required to assess the future of oyster cultivation in Tongan waters. The absence of a naturally occurring local species must certainly be an inhibiting factor in future developments.

Other developments have been the introduction of the Mexican Mollie (Poecilia vittata). Twelve ponds (9m x 4.5m) and a concrete rearing tank with a capacity of 4,000 gallons have been constructed. Despite the lack of artificial aeration, the mollies have proliferated successfully. Sufficient mollies will be available to carry out field trials to assess their suitability as a live bait for the Skipjack tuna fishery. Plans to construct additional ponds for the cultivation of Milkfish and other brackish water species have not materialised, though an area has been set aside for this purpose. Trials in the existing half-acre pond have indicated that impounded fry of Chanos chanos can reach a marketable size of 279mm (11 inches) in 8 months/9 months. The Chanos have to compete with Tilapia mossambica which have inundated the brackish water areas of Tonga.

8. Trap Net Fishing:

Successful trials with donated Japanese (Teichi-ami) floating trap net, two more traps of a slightly modified design have been imported. One has been used continually at Pangaimotu near Tongatapu from March, 1976 until September, 1976. This produced a total of 14,246 lbs fish of which 53.2% were considered useful live bait for a Skipjack Fishery.

The catch comprised Selar crumenophthalmus, Herengula ovalis, Dussumieria sp. and Decapterus sp. Other interesting species taken included two 2.5 metre Tiger sharks (Galeocerda cuvieri) and two green turtles (Chelonia mydas). The bulk of fish taken in the trap had local sale value and found a ready market locally.

Bait such as Dussumieria sp. and Selar were kept for "Ekiaki's" long-line tuna operations. Catch rates when using this bait were highly encouraging compared with the Japanese imported Saury fish. It is intended that groups of local fishermen will be trained in the usage of these traps, which could have considerable community value, particularly in the Ha'apai and Vava'u Islands.
