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(Noumea, New Caledonia, 13-17 August 1984)

COUNTRY REPORT - COOK ISLANDS

SUMMARY

In early 1983, the Fisheries Department changed its name to the Ministry of Marine Resources, but despite some initiatives, the majority of difficulties and dilemmas remained with the body. All developmental work remains dependent on outside financial or technical assistance.

The proposed artisanal fisheries developments in the Northern Group have largely failed due to transportation difficulties, and the reluctance of the fishermen to make fishing a full-time profession. The emphasis for artisanal fisheries, and the continuing FAD programme has shifted to the Southern Group. The Pinctada margaritifera industry remains based on harvesting of wild shell, despite the obvious economic and ecological benefits of shell farming and pearl culture. Trochus niloticus is still limited to sporadic harvesting on Aitutaki.

Developmental strategies for all these areas are outlined, including also introduction programmes for Tridacna gigas and Turbo marmoratus.

INTRODUCTION

In early 1983, the Cook Islands Government took the step of separating Fisheries from the Ministry of Agriculture and Fisheries, and created an independent Ministry of Marine Resources. More than just an administrative change, the establishment of an autonomous fisheries body reflected an increased awareness of the potential of the reefs, lagoons and oceans of the Cook Islands, and was accompanied by an influx of personnel, and, with assistance from FFA and FAO consultants, initiation of the writing of comprehensive supportive legislation to enable the Ministry to fulfill its responsibilities. Unfortunately, the heightened status for fisheries in the Cook Islands did not extend to the Treasury, and the Ministry is still heavily reliant on the generosity of regional and foreign-aid organisations for the provision of expertise and capital to affect its developmental strategies.

There are three broad areas of emphasis for the development of Cook Islands fisheries. These are; (a) the encouragement and provision of necessary infrastructure for the establishment of artisanal fisheries, aiming primarily at the pelagic species; (b) the encouragement of a shift in the rationale of exploitation of the stocks of black-lipped

mother-of-pearl oyster (Pinctada Margaritifera) in the lagoons of Manihiki and Penrhyn, involving emulation of the French Polynesian example of pearl-farming, and the production of culture pearls; and (c) geographical expansion, and diversification of other marine mollusc industries, currently restricted to a Trochus niloticus industry on Aitutaki, but potentially involving Turbo marmoratus (Green snail) and Tridacna gigas (Giant Clam) on all of the suitable islands of the group.

A. Artisanal Fisheries

(i) Outer Island Freezers: Even in the populated islands where the fisheries resources are least exploited and most productive, there is some market demand for fresh fish. On the main island of Rarotonga, there is a large demand which, although possibly satiable by the encouragement of a larger scaled industry on Rarotonga itself, socio-economic concerns decree be filled primarily by the establishment of artisanal fisheries on the outer islands.

A programme funded by FAO and New Zealand bilateral aid was begun in 1981 to construct freezer plants, of up to 10-tonne capacity, on Penrhyn, Rakahanga, and Palmerston. These plants were originally intended to operate in conjunction with a privately operated 100ft ex-long lining vessel which as well as running a reefer service to Rarotonga and

Pago Pago, would undertake its own fishing activities. Fairly predictably, after a single voyage the company concerned went into receivership, and filed a law-suit against the Cook Islands government for breach of contract, which was equally predictably unsuccessful. The reasons for the failure of the venture lie not only with the unsuitability of the vessel for its task and the long distances involved in the shipments, but also with the fishermen of the islands involved, who were reluctant to elevate their fishing effort above the "subsistence and some Saturdays" level.

In an effort to stimulate interest in fishing as a full-time occupation, the freezers continued operation under a Ministry trading account, but the sporadic availability of reefer vessels reinforced the fishermen's disinterest, (with, in one instance, 6 months producing 3 tonnes of fish and 0.5 tonnes of octopus) and the low turnover produced unacceptably high overheads in diesel costs and wages. The plants have currently closed, and the Ministry of Outer Island Affairs have expressed an interest in assuming responsibility for their operation; a proposal which the Marine Resources Ministry heartily endorses.

An interesting aspect of the freezer programme was the increased recognition of the value of fish on the

islands, with fish often being sold on the beach at prices well above those offered at the freezer, so at least some market demand is being filled.

In an attempt to overcome the infrastructural difficulties involved in such long distances, the focus for artisanal fisheries has shifted to the Southern Group islands, which have perhaps fewer available resources than the Northern islands (with more marked and shorter seasons for pelagic species), but possess a broader population base, and are connected by daily air services, (air-freight rate US\$0.40/kg, and Rarotongan market price up to US\$1.80/kg), and more frequent shipping.

(ii) FAD programme: The FAD programme was begun in 1982 with the deployment around Rarotonga of four aluminium-catamaran bouys, with standard galvanised chain and polypropylene mooring, and double cement block anchor. Funding was provided by the Canadian government. These bouys proved highly successful, and with regular maintenance, two of the devices lasted almost 18 months, and another was recently washed ashore after over two years in operation. In 1983, an Australian grant provided for the expansion of the programme, with up to 25 FADs to be deployed around all the islands. The bouys consisted of 55-gal plastic drums filled with polystyrene foam and encased in a polypropylene

rope "net". The mooring and anchoring systems were retained unchanged. These FADs were less successful. Although one remains after over a year in the water, the average life-span for this design is less than three months. The high attrition rate is attributable to a number of factors:

1. The problem of suitably siting any FAD on the steep external reef slope present on most outer islands.
2. Stretching of the polypropylene rope "net", which would pop the bouy free of the mooring.
3. With greater drag and less bouyancy, strong currents may pull the bouy under to depths where the pressure may cause it to implode. Evidence, and one actual observation indicate these bouys are pulled under even by light currents.

The above bouy design was abandoned. The programme is currently hampered by lack of funds, but further deployments around Rarotonga have been conducted, and are intended. One presently in place consists of a 2' diameter, 6' long polystyrene filled cylinder constructed of aluminium plate. Further deployments will utilize bouys consisting of three 44-gal drums encased in a welded angle-iron frame.

Trials are currently underway for the use of bamboo

platform attracting devices, after the Filipino design. Plastic streamers and old netting are also being used as attractors.

Corresponding with the shift in artisanal fisheries emphasis to the Southern Group islands, funding is currently being sought to allow continuation of the FAD programme around the southern islands only. It is intended to revert to the aluminium-catamaran bogy in future. One of the difficulties faced in obtaining funding from the local government is the lack of comparable catch-effort statistics to prove the value of FADs, and although previous attempts have met with little success, further steps are being taken to obtain catch records from local fishermen.

(iii) Fishing vessel design: The widely recognised lack of suitably designed fishing vessels for use by island artisans is of particular concern in the Cook Islands, where the majority of fishing is conducted from 8'-10' plywood or dug-out canoes of traditional outrigger design. Many of the islands of the Cooks have boat passages only suitable for mono-hulled (and preferably aluminium) craft. There is very limited traditional background for the introduction of sail-powered craft.

However, with the identification of suitable vessel design or designs, it is intended to create a revolving

fund to provide loans for their purchase, and to construct them locally.

B. Pearl-farming

The price of pearlshell has continued to rise, and today stands at almost US\$3,600 per tonne. Shell production has remained fairly stable however, due to a corresponding increase in copra prices. The industry remains based on only two island lagoons, Penrhyn and Manihiki, and a transplanting programme from Manihiki to Rakahanga has met with little success (1).

Harvesting of shells is conducted primarily by free divers, although one hooka rig still operates in Penrhyn. The island council of each island controls the level of harvesting.

The industry is destined to remain in such a developmental doldrum for as long as it takes the locals of these islands to realize the economic potential of pearl-farming. In French Polynesia, 93% of production originates from private farms (2). French Polynesia has been most considerate in hosting three fact-finding visits from the Cook Islands, involving both Ministry personnel and those with private interests, but so far only one pearl-farm is fully operational, a privately owned farm on Manihiki. The Ministry intends to establish pilot farms on Manihiki, Penrhyn, and eventually

(1) Sims, H.A. (1984), a) P1

(2) Angell, C.L. (1984) p36

Rakahanga and Pukapuka, and funding for this programme is currently being sought. The demonstration of the feasibility of pearl farming and the production of cultured pearls will hopefully encourage the residents to make the temporal and financial investments necessary. Estimated cost for a 2,000 oysters per annum farm is almost US\$10,000 while projected revenue (dependant on the success rate of pearl culturing) is between US\$20,000-30,000 per annum, after a five year interim period (3).

C. Other Marine Molluscs

The history, present status, and projected development of the Trochus niloticus industry in the Cook Islands will be presented later at this meeting (4). Briefly, however, sporadic harvesting of trochus on Aitutaki has continued. Seedings to the high islands of the Southern Group, with narrow, exposed fringing reefs have largely failed. Seeding of the atoll islands of the Northern Group is intended, and funds are presently being sought for the construction of a large scale trochus hatchery on Aitutaki, in emulation of the work conducted at M.M.D.C. (5). In view of the recent feasibility study of hatchery culture in Vanuatu, (6), an experimental hatchery may be established on a small scale in the near future.

(3) Angell, C.L. (1984) pp52-53

(4) Sims, H.A. (1984, b) 14p

(5) Heslinga, G.A., and A. Hillman (1981) pp35-43

(6) Martin, J.L. (1984) 4p

Although Tridacna gigas (Giant clam) is not found in the Cooks, it is intended, with the establishment of hatchery facilities, to introduce the species. This species' suitability for hatchery culture, benign ecological niche, and economic potential are widely recognised (7 and 8).

The introduction programme for Turbo marmoratus (Green snail) to the Cook Islands is continuing, thanks to the co-operation of French Polynesian fisheries authorities. In 1981 an initial seeding of twelve individuals was made on Aitutaki which was followed up by a further shipment of 22 individuals early this year. Fourteen of these were seeded in the same location on Aitutaki, and eight were accidentally seeded on Rarotonga during trans-shipment. Although there are as yet no indications of the success, or otherwise, of this programme, further seedings are intended, with the continuing co-operation of French Polynesia, as inferences of the density dependence of breeding success indicate that the larger the seeded population, the greater the probability of the species establishing itself. Once the green snail is established on Aitutaki, seedings to other islands in the Cooks will begin.

(7) Munro, J.L., and J. Gwyther (1981) pp633-636

(8) Munro, J.L., and G.A. Heslinga (198) pp1-11

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