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TRADITIONAL MARINE CONSERVATION IN TOKELAU
Can it be adapted to meet today's situation?

by

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Introduction

Tokelau consists of three atolls set on a northwest-southeast axis between 8 and 10 degrees south latitude and 171 and 173 degrees west longitude. Each atoll is made up of a number of reef-bound islets encircling a lagoon. These islets vary in length from 90 metres to 6 kilometres and in width from a few metres to 200 metres. At no point do they rise higher than 5 metres above sea level.

The total land area is 12.2 sq km. Nukunonu, the biggest atoll, is 4.7 sq km. Fakaofo is 4.0 sq km and Atafu 3.5 sq km. The atolls are basically coral rubble and sand mixed with a thin layer of humus. Tokelau has an average mean annual temperature of 28 degrees C and an annual rainfall of 290 cm. The population is approximately 1700 for the three atolls.

Tokelau is highly dependent on its marine resources for protein and livelihood in general. The harvesting of marine resources is one of the most important aspects of the traditional Tokelau lifestyle, and there is a growing amount of literature on the subject. Conservation practices in Tokelau, however, have never been adequately documented.

Until fairly recently each of the three atolls of Tokelau had just one village. This may be one factor responsible for traditional conservation practices having a character somewhat different from other areas of the Pacific Islands. For example, the concept of reef tenure does not exist. This departure from the more typical conservation systems may have caused some researchers to assume that there were no explicit marine conservation strategies in Tokelau. Alternatively, because some of the practices are quite subtle, they may have been overlooked by outside workers.

An understanding of the governing structure in Tokelau is a requisite for a discussion of conservation. Central governing authority in Tokelau is vested in a Council of Elders, comprised of most adult males over the age of sixty years. The Council, about 25 people on each atoll, historically has had total responsibility for the management of marine resources. In recent times, however, this authority has been somewhat eroded.

Many of the current conservation issues involve species where there is some degree of concern over the present abundance. Often this involves turtles (Chelonia mydas and

Eretmochelys imbrica) and giant clams (Tridacna squamosa and Tridacna maxima). It is interesting to note that in Tokelau for the purpose of conservation, birds and land crabs are placed in the same category as marine organisms.

Marine Conservation Measures

In Tokelau traditional marine conservation measures can be thought of as falling into three categories: those that are specifically designed for conservation, those aspects of the Tokelau traditional system which indirectly result in a reduced amount of fishing effort on particular species, and finally the elaborate process of perfection of fishing skills which has the effect of reducing the need for destructive fishing.

Probably the most important explicit conservation measure is the "lafu" system whereby all types of fishing are banned in specific areas of the main reef. An example would be prohibiting activity on the entire windward reef shortly after the bi-annual change in direction of the prevailing wind. The decision to establish a "lafu" is made by the Council of Elders and an attempt is made to define the geographic area is such a way that no family will suffer a disproportionate amount of hardship by the ban.

A "lafu" could close a section of the reef like this to fishing

Although the "lafu" may be established for reasons other than a reduced abundance of a particular species, it is generally agreed that it results in a substantial increase in the availability of fishery resources in that area. At times a "lafu" may be established in anticipation of a future need. To assure that marine foods will be especially

plentiful at an important festival, fishing may be banned from a section of the reef until just prior to the event.

Another specific conservation measure is the rejection of undersized fish when captured alive in most types of fishing. Fishermen believe that the potential benefits of returning the fish to the sea are worth the reduced catch. Scolding by one's father and elders serves to re-inforce this practice.

For conservation purposes, destructive fishing methods are discouraged in the traditional system. The best example of this is the ban on the use of the toxins from beche-de-mer as a fish poison. Although the technique is highly effective in killing fish, it is thought that the use of the poison is detrimental to coral in the vicinity of its use and results in long term negative effects.

In addition to the specific conservation measures above, there are a wide variety of practices in the Tokelau traditional system which result in the conservation of marine resources through restricting the amount of specific fishing effort. Customs associated with turtle fishing illustrate how this can operate. Green turtles are relatively easy to capture when they are copulating in the open ocean, however not everybody is allowed to take turtles in this fashion, only certain highly respected masterfishermen. When somebody is successful in locating a turtle nest with eggs, he is traditionally obliged to capture the nesting turtle. As the exercise may require several nights of uneventful, boring waiting on the nest beach, it is in effect a deterrent to hunting for turtle eggs. Turtles in Tokelau are considered "sacred fish", meaning that a captured turtle must be divided among the entire community. This requirement results in a reduced incentive for an individual to participate in turtle fishing.

In Tokelau there is the perception that the pelagic fish (tunas and billfish) resources are far greater in magnitude than the reef and lagoon species. There are a number of mechanisms whereby offshore fishing effort is encouraged which, in effect, relieve pressure on the more vulnerable inshore species. The elevated status in the community of a good tuna fisherman serves to influence fishing effort. There is also the opinion that many of the lagoon species should be reserved for harvesting only when weather conditions do not allow journeys into the open sea.

There are examples of attempts at marine conservation in Tokelau which, although they have a doubtful biological basis, demonstrate an intent to manage marine resources for conservation purposes. When giant clams are harvested, there

Traditionally there has been the idea that offshore fishing, such as the skipjack poling shown, reduces pressure on lagoon resources

is a requirement that the string of clam meat must be towed around the reefs where they were collected in order to release eggs from the harvested meat.

Another category of marine conservation is the elaborate process of perfection of fishing skills which has the effect of reducing the need for destructive fishing. The title "tautai" known in many areas of Polynesia, is conferred on those individuals who have spent years or decades under the instruction of an older tautai. This long, intensive training refines the skills used in the capture of hundreds of types of fish. In effect, those individuals who have acquired this knowledge prefer to use the "proper" technique, rather than anything that may work. For example, in octopus fishing, a knowledge of octopus behaviour, the manufacture of an octopus stick and its use, eliminates the need for crushing coral or using fish poisons.

Each of these "Tautai" have studied for years under an older relative

Traditional octopus fishing skills reduce the need for destructive fishing

Modern Problems with the Traditional Conservation System

Recently there have been difficulties with the traditional marine conservation system in Tokelau. Probably the most serious is a general reduction in the authority of the Council of Elders which results in less effective management of marine resources. This diminished power is due to several factors including the introduction of a cash economy lowering respect for the now-salaried elders, venturing by the Council into non-traditional areas such as budgetary processes, having Tokelauans present on the atolls who were raised in New Zealand outside the traditional system, less severe punishment for violators which could consist of a relatively painless cash payment, the presence of an educated elite who can more easily escape the wrath of the system, and the convenient option of escaping the authority of the Elders by departing for New Zealand.

Another difficulty with the traditional conservation system concerns the development of overseas markets. The isolation of Tokelau has until recently resulted in all harvesting of marine resources for exclusively local use. There was no incentive for accumulating surpluses in excess of domestic needs. The improvement in the transportation situation has created the possibility of marketing marine products in Western Samoa. The demand for giant clams has grown tremendously, and is now far greater than what the resource can support, resulting in a marked drop in clam abundance.

The introduction of modern fishing gear has also created conservation problems. The virtual absence of pearl oysters in the lagoons has been attributed to diving goggles, unknown in traditional times. Gill nets and spearguns have

also presented difficulties which the traditional system has yet to resolve.

Introduced fishing gear, even as simple as diving masks, has created as yet unresolved problems for traditional management

With changes to the economic and educational systems there has been a marked deterioration in the level of fishing skills. Fishing effort is becoming more concentrated in the "easy" fisheries while the types of fishing requiring special knowledge or intense physical effort, such as chasing giant maori wrasse or eel fishing, are being practiced much less often. The end result is an excess of fishing effort on certain easy-to-capture fish, such as parrotfish.

Since the deterioration of traditional fishing skills is having a negative impact on marine conservation, there have been attempts to document the knowledge associated with particular fisheries. This has included the tuna, nearshore pelagic, and bottomfisheries in both written and photographic forms. There are plans to continue this work for reef and lagoon species. It is important that aspects of this documentation be introduced into the curriculum of primary and secondary schools. There is some opposition to this concept from those well-intentioned workers who have laboured so hard to introduce an effective western-type educational system to Tokelau. Additionally, there is the perception of the superiority of the western curriculum and that the educated elite might lose some status when having to rely on formally uneducated masterfishermen.

There was an attempt to include instruction by Elders on fishing and marine resources at the primary school level,

but the valued was downplayed by the educated elite and the instruction was transferred out of the primary school system to a less recognized institution which has since become defunct.

Adapting Traditional Marine Conservation to Modern Realities

The people of Tokelau feel that the traditional conservation system has served them well over the centuries. They are also aware, however, of the need for modification of the system to reflect recent changes.

Some Tokelauans believe that the foremost need with regards to traditional marine management is to restore the authority of the Council of Elders. Although this is an area of great controversy, many educated Tokelauans feel that this could be at least partially accomplished by restricting the Council's activities to those areas of their expertise and delegating responsibility for subjects alien to them, thus preserving the perception of the wisdom of the Elders. Alternatively, another option would be to have a Tokelauan with a substantial background in fisheries biology act as technical adviser to the Council.

It is also believed that the effective management of marine resources by the Elders could be improved by establishing a more effective system of punishment for violators which could deal with both the traditional and introduced aspects of Tokelau life.

Tokelau law is now undergoing major changes. Former defacto legal practices are now being codified (ironically for approval by the parliament of New Zealand). Unfortunately much of this work is being done by individuals without an appreciation of the positive value of traditional marine management. It is important, however, that the authority of the Council of Elders over marine management should not only be recognized, but strengthened in the new code.

It is believed that biological information from stock assessment studies could be used to enhance traditional management. Scientific studies have been carried out in Tokelau on tuna, baitfish, turtles, clams, beche-de-mer, coral, bottomfish, and crabs. Although output from these studies has been utilized to some extent, a mechanism should be established so that the results are more fully incorporated into the Council of Elders' management plans.

The realities of modern life in Tokelau are that most bright young Tokelauans spend a substantial portion of their educational years overseas. Unfortunately, those are the years in which a major portion of traditional knowledge would have formerly been acquired. Recognizing this,

consideration should be given to modifying the age at which traditional education begins.

It is essential that the educated elite be convinced of the positive value of including traditional knowledge instruction within the primary and secondary school curriculum.

The positive value of traditional marine conservation in Tokelau is undisputed by the residents. The future challenge will be to modify the traditional framework to allow flexibility for the realities of modern life and to establish a mechanism for the consideration of results from scientific studies.

The 1700 residents of Tokelau feel that the traditional management system has served them well, but is in need of some changes