

MICRONESIA

COMMONWEALTH OF THE NORTHERN MARIANAS

There is no longer any traditional community-based marine resource management in this country. Formerly, village chiefs controlled community fishing. The use of village territories was limited principally to villagers, although outsiders could be granted rights (Thompson, 1945; Dugan, 1956; Souder, 1987).

On Rota Island mackerel scad (*Decapterus* sp.) were caught by chumming and netting. For this, each village had its own allocated fishing areas. Chumming fish across another fishing territory was a capital offense (Freycinet, 1824).

References

Dugan, P.F., 1956.

The Early History of Guam, 1521-1698. San Diego, CA: California State College Press.

Freycinet, L. de., 1824.

Voyage autour du Monde. Paris: Pillet Aine.

Souder, P.B., 1987.

Guam: Land Tenure in a Fortress. In Crocombe, R. (ed.) *Land Tenure in the Pacific*, pp 211-225. Suva: University of the South Pacific.

Thompson, L., 1945.

The Native Culture of the Mariana Islands. Bernice P. Bishop Museum Bulletin 185. Honolulu: Bernice P. Bishop Museum.

FEDERATED STATES OF MICRONESIA

This nation will be considered under the heads of each three major islands or states, Yap, Chuuk (Truk) and Pohnpei (Ponape), and their Outer Islands. There is no information on Kosrae (McGrath and Wilson, 1987).

YAP STATE

The traditional fishing rights of Yap are among the most complex in the Pacific Basin, and this brief treatment can scarcely do them justice (Anon., 1987; Johannes, 1988; Smith, 1991). The supremacy of traditional rights is enshrined in the State Constitution for 12 miles seaward from an island baseline, "...a line following the seaward edge of the reef system..." (Yap State Code 18:27). Thus traditional leaders theoretically have total control over inshore waters, and the government is limited to intervening only for conservation and protection in the State Fishery Zone (Smith, 1991).

Sea Territories

The inshore waters are divided by village, in sections that extend from the beach across the lagoon and reef, into the high sea. Inshore water (*daay*) and stone fish traps (*ach*) formed an integral part of an "estate" that also included various types of agricultural land.

Lagoon waters are sub-divided and owned by particular families. They could engage freely in small-scale fishing, but communal efforts had to be sanctioned by the village chief. In Raang Village, extended families, usually from high ranking-estates, own and oversee all inshore fishing (Sudo, 1984). Traditionally, each family also owned a stone fish trap, although in Raang Village some have inherited several, owing to depopulation (Sudo, 1984). Many, if not most, stone traps are disused (Hunter-Anderson, 1981).

Boundaries

Seawards boundaries to exclusive rights fishing areas vary, although in 50 percent of the cases they extend to the drop-off, at beginning of the seaward slope, whereas a further 10 percent do not extend as far as the reef margin, at the seaward end of the reef flat, and 8 percent coincide with the seawards side of the reef margin (Anon., 1987). Boundaries in the lagoon are marked by channels or passages through the fringing reef.

RIGHTS

In a recent survey (Anon., 1987) three types of rights were documented: those acknowledged by villages claiming reef ownership, those claimed by villages outside of any reef-ownership claim, and those to catch flying fish. But, as noted by Falanruw (1991), the situation is more complex than that, with rights being held by villages or associations of villages, *tabinaw* (estates or households) and individuals to areas, habitats, sites, gear types, fishing methods, and species.

Traditionally, the individual Yapese fisherman was enmeshed in a complex set of rights and obligations. As Falanruw (1992a:9) describes his situation:

"Where he fished was determined by both the location and status of his village as well as the marine resources of the estate. How he fished was also determined by his social status, and [so] the methods available to him. When he fished was dictateded not only by seasonal marine phenomena, but the needs of leaders, and experience of fishing specialists.... Then, depending upon the fishing method, all or some of the catch may have been used to fulfil obligations to higher ranking villages, or to his own trustee who may in turn have contributed the catch to fulfil their obligation to others. If the catch was for family use, the best of our fisherman's catch would be presented to the head of his estate. Finally, within his own immediate family, he gives his wife the fish of her choice. In return he was provided with the finest of his wife's produce from the land and obtains the favour of his elders who will someday provide his inheritance."

Acquisition of Rights

Long-term fishing rights have been acquired in a variety of ways. In most cases they have been granted to the present rights-holders by the village or family that originally held them (see below). Although in some cases rights are permanent, most are subject to revocation if associated rules are infringed (see below). Acquisition is normally by patrilineal inheritance (Falanruw, 1982; 1992a).

Transfer of Rights

Of 66 rights-holding villages and families surveyed, 40 percent had been granted rights in return for the performance of routine duties of specific services (Anon., 1987). Of these, 69 percent were granted for making repairs to houses of high caste families, 23 percent for the performance of routine (unspecified) duties and 8 percent in return for serving as undertakers. The second main method of rights acquisition, involving 17 percent of the cases, was through a catch-sharing arrangement between grantor and grantee. Such arrangements varied widely (see below). Third in importance was acquisition of rights in exchange for traditional goods, specifically sails, rope, clay pots, spears, hats, and combs. This occurred in 15 percent of the cases. In 12 percent of the cases rights were acquired through warfare. Other minor means of acquisition included friendship between villages or families (6 percent), marriage (3 percent) and sorcery (1 percent).

Loss of Rights

In some cases rights were subject to revocation. This could occur in 70 percent of the cases surveyed (Anon., 1987). The principal reasons for revoking rights were failure of the grantee to fulfil responsibilities to the grantor (47 percent of the cases), offending or failing to show respect toward the grantor (28 percent) and failure to honour the fish-sharing agreement (13 percent). Other, less-common reasons are failure of the grantee to seek the prior permission of the grantor when giving or selling fish to third parties (7 percent) and the use of unauthorized fishing methods (5 percent).

Rights of Outsiders

According to some sources, outsiders had no fishing rights, and access is strictly forbidden. This, however, seems to be in error, as only one of 66 villages surveyed would not grant rights to outsiders to fish (Anon., 1987).

Rights are granted to outsiders, provided that prior permission is sought from the rights-holders before fishing begins. For short-term use, permission must generally be sought from the village chief or elders. But, in most cases, permission can be obtained from any member of a rights-owning

family. In most villages it appears that permission can be granted by a range of villagers (Anon., 1987).

Rights to Habitats

Rights to fish in specific habitats were controlled (Falanruw, 1992a). In general, the prestige of a habitat increased seawards. Inshore habitats were the least prestigious and limited to the lowest social ranks, whereas the open ocean was the most prestigious and access rights to it were limited to the upper classes. Although there were exceptions, in general the lower classes had rights to use only rivers and tide pools, women and children were limited to reef gleaning and collecting in mangroves (Table 1).

Rights to Gear

The right to use specific gear was often specified in access rights that had been granted to users (see above). Gear rights differed by social class. For example, some members of the lower classes were restricted to using simple gear, like sticks and stupeficients in the riverine and tidal pool habitats to which they had access. Women and children could collect invertebrates near the shore and use a hook-and-line inside the reef. Hook-and-line was also open to other individuals. A method that employed mostly smaller gear was also available to individuals, including butterfly nets (*k'ef*), push nets (*manago*), small fish traps (*vinup*), bamboo fish traps (*sagel*), and stone fish traps (*ach*) (Falanruw, 1992a).

Table 1: Ranking of selected habitats by prestige level

Habitat	High Prestige	Medium Prestige	LOW OR NO PRESTIGE
Open Sea	X		
Lagoonal Holes	X		
General Lagoon Area		X	
Mangrove Channels		X	
Mangrove and Coastal Fringe			X
Rivers			X

(After Falanruw, 1992a)

Rights to larger gear and that which required a group to operate were vested in communities. These included large butterfly nets (*yerao*), stone fish trap and leaf sweep (*ruwol*), and many methods of net fishing (Falanruw, 1992a).

Prestigious techniques that required special rights were reserved for members of the upper classes. These included net fishing from canoes in deep water (*athing*), using hand nets from canoes to catch flying fish (*magal gog*) and trolling beyond the reef (*wayrik*) (Falanruw, 1992a).

Rights to Species

Particular rights governed the catching of flying fish. Not all villages or families had this right, and in most cases the right was qualified by catch-sharing rules. Thirty-six villages have rights to catch flying fish (Anon., 1987).

Most of those villages have a specific area over the reef seaward slope or drop-off area in which to catch flying fish. However, 30 percent did not have a specific area for catching them.

Catch-Sharing Rules

In many instances the transfer of fishing rights was accompanied by the requirement that the grantee's catch from the area transferred be shared with the grantor (Anon., 1987; Falanruw, 1992a). Many of the rights to fishing methods used by individuals carried the obligation to contribute the first catch to the overseer of the fishing area or method, to the trustees or to the village. When individual or special methods were used in the fishing territory of a higher status village, either the first catch or the portion of the catch had to be given to that village as tribute (Falanruw, 1992a).

Such obligations applied mostly to various forms of net fishing. In a survey of 36 instances of such rules, 72 percent applied to netting, 8 percent to line fishing, 6 percent to the use of stupeficients, and slightly less than 3 percent to each of spear fishing, trapping, the use of weirs, probing with a stick (presumably for octopus, although this is not stated in the source), and unspecified techniques (Anon., 1987). The allowed techniques were specified.

The amount of catch to be shared with the rights grantor varies considerably among the cases, from 100 percent to 1-2 percent, with further rules specifying the frequency of sharing, the species and sometimes the size of fish to be shared, and other details. Occasionally, where the use of more than one technique is permitted, those details are specified for each technique. Where 100 percent of the catch was specified, this is qualified by such riders as "when needed", "of larger fish", "of catch once a year" or "of first trip". Some such detailed rules specifying the percentage of one particular species (e.g., "50 percent of humphead parrot fish" [*Bolbometopon muricatum*]). Often they simply specify a certain percentage of any "preferred species" or of any "fancy species", a modern form of the traditional tribute.

Not all fish are suitable for use as tribute or to satisfy obligations entitled in rights. Those preferred for tribute comprise a class of fish that are taken mostly in the open sea using upper class techniques and which, in former times, were enmeshed in elaborate ritual prior to a fishing trip. These include green turtle (*Chelonia mydas*), blackfin needlefish (*Tylosurus acus melanotus*), marlin (*Makaira mazara*), wahu Scombridae), yellowfin tuna (*Thunnus albacares*), skipjack tuna (*Katsuwonus pelamis*), and humphead wrasse (*Chelinus undulatus*). Various mostly, but not exclusively, reef species are a multipurpose category that can be used as tribute, although they are not preferred. These include rabbitfish (*Siganus* spp.) unicorn fish (*Naso tuberosus*), seagrass parrotfish (*Leptoscarus vaigiensis*), butterfly fish (*Heniochus* sp.), rainbow runner (*Elagatis bipinnulata*), flying fish (*Cypselurus cyanopterus*), and mahimahi (*Coryphaena hippurus*) (Falanruw, 1992a).

Traditional Authority

Traditional fisheries management on Yap formed an integral part of the complex hierarchical social organization. Society is divided into some five social levels of villages. The principal administrative unit was and remains the individual village. Kin groups and villages were linked into

three paramount villages, each of which was linked with a village in another alliance. Each set of those villages had a network of ranked villages in its alliance (Falanruw, 1992a).

Marine resources were traditionally managed by various villages authorities, although sometimes one individual performed all roles. The highest, the village chief, exercised general supreme control over inshore waters. He directed community fishing activities. Particular fishing techniques were controlled from beginning to end by specialists. They led communal fishing outside the reef, and sometimes another person directed communal fishing in the lagoon. Yet another person was the magician who ensured the safety and good fortune of fishing, and other persons oversaw the distribution of the catch (Falanruw, 1992a).

In Yapese society, authority stems from the land: land is perceived of as the chief, and the man who inherits it serves as its voice. The basic social unit and traditional basis of land ownership is the *tabinaw* (lit. "one land"), which may be conceived of as an "estate" ideally including all important resource areas.

An estate is headed by the eldest male of a patrilineage. He is nominally in control of the estate. Inheritance was generally through the male line (Falanruw, 1982; 1992a).

Management Techniques

Fishing in some areas is sometimes banned to allow fish populations recovery (Falanruw, 1982; Johannes, 1988). Fishing grounds could also be closed following the death of a landholder (Falanruw, 1982).

Enforcement

Responsibility for enforcement of fishing rights and associated rules varies. They are enforced at the village or family level, as appropriate to the tenurial arrangement, and responsibility is often divided among different parts of a village sea territory.

Only in one of the 66 villages surveyed was enforcement the direct responsibility of the chief (Anon., 1987). In 54 percent of the cases enforcement is carried out by any villager or family member, whereas in 43 percent it is done by a specific family member or villager.

Sanctions

The severity of punishment meted out for infringing on fishing rights varies according to the seriousness of the offense and on the kinship relationship between the trespassing individuals and those trespassed upon. Fishing trespass is punished, whereas persons in transit through an exclusive rights territory are not even intercepted.

Fishing without prior permission is the most serious offense; however, its seriousness varies by gear type used. Net fishing followed by spear fishing are regarded as the most serious offenses. In contrast, people seen collecting shellfish and diving were often not intercepted, and only in some areas are they punished.

There are various degrees of punishment but it is not mentioned whether or not they are applied in gradually increasing degrees of severity, depending on frequency of offending. Trespassing net fishermen are subject to confiscation of nets and boat in 34 percent of the 66 village or family areas surveyed, confiscation of nets and boats plus arrest in 9 percent, confiscation of just nets in 4 percent,

confiscation of land and gear in 4 percent, and either confiscation of gear or of land in 4 percent. In one village nets, boat and land or reef would be confiscated. Trespassers in one village would either have their nets and boat confiscated or would be killed. The use of physical punishment seems to have been to increase the severity of the punishment depending on whether or not the trespassers complained. That is, the initial punishment was confiscation of nets and boat. Then, if the man complained, he would be beaten in 12 percent of the villages or, as in one village, drowned. In contrast, in 22 percent of the rights areas, no punishment would be meted-out (this may be a modern phenomenon). Also, capital punishment is probably no longer applied, although it sometimes was in former times (Falanruw, 1982).

Spear fishermen elicit milder responses. In 21 percent of the cases they are not intercepted at all, in 26 percent of the cases they are merely intercepted and told to leave the area, and in 10 percent they are just forced to ask permission. In 46 percent of the areas where punishment would be meted-out, trespassers would have their gear confiscated, in 7 percent they would also have their boat confiscated, in 7 percent they would face both gear confiscation and arrest, and in a further 7 percent they would also face a beating if they complained. In one village the punishment would be either a beating or confiscation of land, in another both land and gear would be confiscated, in another land or reef in addition to gear would be confiscated, and in another trespassers would be subject to just arrest (Anon., 1987).

Only in 40 percent of the village- or family-owned areas would shell collectors be intercepted. In 44 percent of those they would simply be told to leave the area and in another 37 percent they would be forced to ask permission. Only in one village would they be arrested, in another they would have their gear confiscated and in another they would either forfeit their land or be subject to a beating (Anon., 1987).

In most cases (90 percent), persons who are merely trespassing in an area, such as by diving, but who are not fishing, are not even intercepted. In four areas where they are intercepted they would be told to seek permission, whereas only in two villages would they face the confiscation of all gear (Anon., 1987).

Traditional Conservation

Overfished areas are demarcated by the placement of coconut fronds, which indicates that they are under a fishing restriction to outsiders, and closed for periods to allow the resource to recover. Sometimes area closures were also used to ensure a good harvest required to provision a future important event (Falanruw, 1992a).

Conservation practises were extended to the raw materials required to manufacture fishing gear. An example is the use of the seagrass *Enhalus acoroides*, which grows in only a few localities, and the fibres of which were traditionally used to make nets. Children were forbidden from playing in the seagrass beds and from pulling-up the grass. When harvested, only one leaf per plant was removed (Falanruw 1992a; 1992b).

THE OUTER ISLANDS OF YAP STATE

There is slight variation in the organization of fishing rights among the outer islands, but they vary significantly from Yap (Smith, 1991). In all the Outer Islands, marine resources are managed and controlled by the chief(s) for the common benefit.

(i) *Dai mada hale*, by which families have ownership of waters adjacent to their landholdings. The lagoon area is defined by a seawards projection of the lateral boundaries of a family's landholding to the outer edge of the reef slope. Fish within this area belong to the family. Outsiders may obtain secondary rights after first seeking permission.

(ii) *Hada gima* and *hada ba*, are "place for clams" and "place for oysters", respectively. Shellfish are collected within and outside the reef and placed in a *dai mada hale*. Each *hada gima* or *hada ba* is then surrounded in a circular fashion by rocks and shells from 2 to 6 feet in diameter. There may be several such places within a family's marine area. These may be owned by individual family members or may be shared with relatives who do not possess a marine area of their own.

(iii) *Mamunoa*, a marker (*baeao*) system, using anchored, floating coconut husks, to demarcate areas within the lagoon. Other fishermen may not fish within about 30 feet of such a marker. These often mark coral outcroppings (*manuea*) along the perimeter of the lagoon, and around which fish aggregate. Some fishermen deliberately attract fish to a *mamunoa* by chumming.

(iv) In former times, fishing activities were managed by a fishmaster (*tautai*), whose responsibility it was to teach younger fishermen, locate important fish stocks, lead fishing expeditions, and serve on the fishing committee. Nowadays, the title is used informally simply to distinguish the most highly skilled fishermen.

In the past, however, the *tautai* established the maximum length of line for bottom fishing (50 fathoms), and would cut the lines of those who infringed the rule. This rule is maintained today, informally among the fishermen. The spearing of lobsters was forbidden by taboo on Nukuoro Island (Johannes, 1978).

Group fishing is coordinated by a fishing committee, headed by one or more *tautai*, who are responsible for organizing gear, boats and crews, and, together with the elders, for dividing the catch among the community members. Only men of proven skill - equal to that of existing committee members - are eligible to join the committee. The committee establishes and enforces the fishing rules. Among such rules are:-

- Fish must always be chummed before fishing begins;
- to prevent poaching, neighbours must be informed before a family starts building a "place for clams" or "a place for oysters";
- when fishing for octopus the coral must not be broken, but a black sea cucumber is pushed into the octopus hole and squeezed so that it emits a sticky white substance. This enables easy extraction of the octopus without damaging its habitat;
- during night fishing for flying fish, lights may not be illuminated until the fisherman is 100 yards outside the reef channel, and without deviating, boats must follow each other in a single line, usually led by a *tautai* or other older fisherman.

Enforcement and sanctions are in the hands of the fishing committee. Those who violate rules are prohibited from fishing for a length of time that varies according to the severity of the infringement.

(2) *Pingelap Atoll*

Unlike on Nukuoro Atoll, there is no evidence that a system of exclusive access persists on Pingelap Atoll, although elements of a former traditional system of community-based marine resources management remain in the management by the *nahnmwarki* of spear fishing and trolling, the imposition of seasonal closures, and, for conservation, bans on the harvesting of species (Foster and Poggie, 1992).

Spear fishing inside the lagoon is prohibited seasonally when small bait fish enter the lagoon, and is replaced by bottom fishing in the lagoon or just off the seaward slope of the fringing reef. This is done to ensure that the larger fish that prey on the bait species will not be scared-off by spear fishermen, and that the period of their presence will be extended, thereby permitting a longer harvest period.

As a conservation device, spear fishing is also closed for a three-month period to allow recovery of reef species. However, such a ban may be lifted to permit fishing to supply holiday feasts. This includes easter week, *mwuonjomwong* (the holiday marking the beginning of the breadfruit season) and *songomwuar* (the holiday marking the beginning of consumption of a new batch of preserved breadfruit).

Night trolling for tuna and other pelagics may be banned to prevent the scaring away of night-feeding pelagics. This is done to ensure easier and larger catches on the following day.

All fishing may be banned for two or three week periods to permit the bait fish known as *bokuta* (not identified in source) to become established, and so to attract the predators, which are the targets of fishing activities. Fishing is reopened once sufficient numbers of the target species are estimated to have arrived.

Several conservation measures are practised. The harvesting of small cowrie shells, depleted by the demands of the tourist trade, has been banned by the *nahnmwarki*. This will remain in effect until stocks are judged to have recovered. Men using casting nets (*deleia*) release undersized (4" and less body length) goatfish and *kolau* (*Acanthurus triastigus*).

Traditional authority is exercised by the *nahnmwarki* and his assistant (*penik*). The latter relays the *nahnmwarki*'s commands; for example, that to begin fishing after a closed period.

References

Anon., 1987.

Survey of Reef Ownership, Ownership Enforcement, and Fishing Rights in Yap Proper: 1986. Colonia: Marine Resources Management Division, Yap State Department of Resources and Development.

Alkire, W.H., 1968.

An Atoll Environment and Ethnography. *Geographia* 4:54-59.

Falanruw, M.V.C., 1982.

People Pressure and Management of Limited Resources on Yap. In McNeely, J.A. and Miller, K.R. (eds.), *National Parks, Conservation and Development: The Role of Protected Areas in Sustaining Society*, pp. 348-354. Washington D.C.: Smithsonian Institution Press.

- Falanruw, M.V.C., 1991.
Management of People's Use of Marine Resources. Paper presented to the Third Workshop for Yap State's Marine Resources Coastal Management Plan. Colonia: Marine Resources Management Division, Department of Resources and Development Yap State.
- Falanruw, M.V.C., 1992a.
Traditional Use of the Marine Environment on Yap. Paper presented at the Science of Pacific Peoples Conference, University of the South Pacific, Suva, July 5-10.
- Falanruw, M.V.C., 1992b.
Seagrass Nets. *Atoll Research Bulletin* 364: 1-12.
- Fischer, J.L., 1958.
Contemporary Ponape Island Land Tenure. In de Young, J.E. (ed.), *Land Tenure Patterns in the Trust Territory of the Pacific Islands*, pp. 76-159. Agana: Trust Territory Government.
- Foster, K.B. and J.J. Poggie, 1992.
Customary Marine Tenure Practises for Mariculture Management in Outlying Communities of Pohnpei. In Pollnac, R.B. and Weeks, P. (eds.), *Coastal Aquaculture in Developing Countries: Problems and Perspectives*, pp. 33-53. Kingston, R.I.: International Center for Marine Resource Development, The University of Rhode Island.
- Goodenough, W.H., 1966.
Property, Kin, and Community on Truk. Hamden, Conn.: Archon Books.
- Hunter-Anderson, R.L., 1981.
Yapese Stone Fish Traps. *Asian Perspectives* 14:81-90.
- Johannes, R.E., 1978. *Improving Ponape's Reef and Lagoon Fishery*. (unpub. ms.).
- Johannes, R.E., 1988.
The Role of Marine Resource Tenure Systems (TURFs) in Sustainable Nearshore Marine Resource Development and Management in U.S.-Affiliated Tropical Pacific Islands. Agana: University of Guam.
- McCoy, M.A., 1974.
Man and Turtle in the Central Carolines. *Micronesica* 10(2): 207-221.
- McGrath, W.A. and W.S. Wilson, 1987.
The Marshalls, Caroline and Mariana Islands: too many Foreign Precedents. In Crocombe, R. (ed.) *Land Tenure in the Pacific*, pp 190-210. Suva: University of the South Pacific.
- Nason, J.D., 1971.
Clan and Copra: Modernization on Etal Island, Eastern Caroline Islands. Ph.D. diss. Seattle: University of Washington.
- Smith, A., 1991.
Tradition and the Development of the Marine Resources Coastal Management Plan for Yap State, Federated States of Micronesia. In Freeman, M.M.R., Matsuda, Y. and Ruddle, K. (eds.), *Adaptive Marine Resource Management Systems in the Pacific*, pp. 29-39. Chur: Harwood Academic Publishers.

Sudo, K-I., 1984.

Social Organization and Types of Sea tenure in Micronesia. In Ruddle, K. and Akimichi, T. (eds.), *Marine Institutions in the Western Pacific*, pp. 203-230.

Ushijima, I., 1982.

The Control of Reefs and Lagoon: Some Aspects of the Political Structure of Ulithi Atoll. In Aoyagi, M. (ed.) *Islanders and their World: A Report of Cultural Anthropological Research in the Caroline Islands of Micronesia in 1980-81*, pp. 35-75. Tokyo: St. Paul's (Rikkyo) University.

KIRIBATI

Kiribati has a rich inshore fisheries tradition and lore that includes detailed local traditional rights and regulations. Many traditional management practices have been codified by island by-laws, and so incorporated into contemporary management.

Rights Territories

Clan lands usually extended as narrow strips across islands, from the ocean reef (*maran*) to the lagoon shore (*nama*), or from one ocean reef to the next, on reef islands, like Makin (Lambert, 1987). Sections of the adjacent reef were apportioned to rights-holding households. In the 1930s, on Beru Island, in the Gilbert Group, all lagoons were divided into a complex pattern of clan fishing rights, the boundaries of territories following lagoon floor contours and reef channels (Maude, 1977).

Boundaries

On Beru Island, the boundaries to fishing rights areas were marked with sticks (*rabu*) stuck in the sand of the lagoon floor (Maude, 1977). Boundaries between the rights areas of settlements were determined by prominent and named physical features. That between Betio and Bairiki villages, on Tarawa Atoll, for example, is designated by a distinctive, named rock formation, called *nei teba* (Teiwaki, 1988).

Primary Rights

Each *kainga* (clan; group of households living on the same plot of land) had its own plots of land and designated sea areas. A *kainga* in a village might have access rights to specified lagoon and/or deep sea areas, to which its members alone had exclusive rights of use or passage. Unless rights were held in other areas or permission sought, these were the only areas they could exploit.

Acquisition of Rights

Primary rights were obtained by birth into a *kainga*, and through subsequent inheritance. Rights are normally inherited by the eldest son of a *kainga* or *utu* (nuclear family), who, since he had equal rights to all other sons, was the "first among equals". Women were not usually given such rights, as they would marry into another *kainga*, where the husband would have rights.

Secondary rights could be acquired in the area of another *kainga* through marriage or through a gift. A woman could acquire fishing right through *tinaba*, a special category of gift bestowed to one who gave sexual hospitality to a close male relative of her husband (usually the older brother), uncles or *unimane* (village or clan elders) (Teiwaki, 1988). If a woman married a man who had no rights in his *kainga*, she would petition her brothers to allow him to join them in theirs.

Persons away from their home island could obtain fishing rights by a recitation and verification of their genealogy. Acceptance of such an account by the clan elders (*unimane*) enabled the claimant to take his sitting place (*boti*) in the meeting house (*maneaba*), and so to identify his relationship with others using the same *boti*. Those who had the same *boti* probably belonged to the same *kainga*, and so would have shared land and sea rights. The newcomer could then share these rights. This traditional practise is still observed in some outer islands, but is now rare in the urban periphery (Teiwaki, 1988).

Apparently, rights to unclaimed areas can be claimed by usufruct. Koch (1986) mentions that one family constructed a stone fish trap in the passage between Aranuka and Buariki, on Tabiteuea. Owing to the considerable labour involved, the exclusive use right of this family was not challenged, and the area is regarded as its private property.

Loss of Rights

Failure of a wife to petition her brothers on behalf of her husband who lacked sea rights would, if her husband fished, be regarded as poaching. If continued it would strain intra-familial relations and could result in the wife losing her rights (Teiwaki, 1988).

Rights of Outsiders

Access to fishing grounds, reef channels, pools, and lagoon could be attained only through socially acceptable practises. Outsiders, like refugees or transitory residents, with no local traditional rights, could use other rights areas, traps or ponds after first obtaining permission from the rights owners. A sense of obligation made refusal rare (Teiwaki, 1988).

This is backed-up by statutory law: "fishing without authority in any sea, lagoon or on any reef forming part of an ancient customary fishing ground of any *kainga* is illegal" (*Kiribati Fisheries Ordinance*, 1978). This regulation was passed intentionally to protect native customary rights (Yeeting, 1988). The *Kiribati Fisheries Ordinance (1978)* protects traditional rights-holders by prohibiting the taking fish from any traditional rights area of a *kainga*, *utu* or any other social unit unless a license has been obtained from the Minister, who may grant or refuse it, at his discretion.

Rights to the Catch

The males of a clan were normally those who fished. They had the customary obligation to provision their nuclear family. Sharing of the catch within a family is culturally very important. Offspring are obliged to feed their elders; disinclination or failure to do so could lead to disinheritance, as enshrined in the *Native Lands Ordinance (1956)* (Teiwaki, 1988).

Rights to the catch, that express traditional notions of equity of access to resources, were embodied in the social norms and regulations governing the harvest of flying fish. In this fishery the use of nets was forbidden, because they both disturbed the fish and would unfairly disadvantage those who lacked nets (Teiwaki, 1988).

In purse-seining, within the lagoon, fish (or cash proceeds) are distributed equally among the fishermen when they are from different households. Owners of canoes and nets receive a larger share, to compensate for the use of their equipment. Reciprocal sharing of fish with other households is practised if catches are large.

The concepts embodied in the ownership of stone fish traps (*te-ma*) demonstrate an intricate pattern of reciprocal sharing and obligation in the construction of the trap and division of the harvest. Distribution of fish caught in stone traps is done by the trap owner, or his representative (who first consults with him). The catch size is estimated and divided into three lots: 75-85 percent goes to the owner of the trap and the owners of the coral blocks (*te inaki*) of which it is constructed. The remainder is given to those who assisted with the harvest. On Tarawa, as was customary, villagers are still allowed to harvest freely from the traps during the fishing season.

Traditional Authority

There was a considerable difference in the pattern of traditional authority structures between the northern and southern Gilberts. Authority in the latter area has been described as more democratic, being held by the elders of the meeting house (*maneaba*). On those islands, land-owning clans also held tenure to adjacent reef and lagoons. In contrast, the social organization of the northern Gilberts was more hierarchical. There, one man controlled a large area of land and adjacent reefs and lagoons, the rights to which he dispensed to local clans (Zann, 1985; 1990; Lambert, 1987).

During the fishing season (*te ikabuti*), catching was controlled and synchronized by one person, the *te tia katau*, who, positioned atop a coconut palm, monitored the movements of the shoals and instructed the fishermen to start harvesting (Teiwaki, 1988).

Conflict and Conflict Resolution

Conflict results from trespassing on another clan's fishing rights area without first having obtained permission. Conflict occurred particularly over the location of rock traps, as in North Tarawa, where deaths resulted from the fighting that ensued. That conflict was partly resolved by the then British High Commissioner (Arthur Grimble; R.E. Johannes, pers. comm.).

Sanctions

Infringement of land and sea rights could be punished by death (Bate *et al.*, 1979). For example, on Tarawa Atoll, Betio villagers killed a fisherman from Bairiki for persistently fishing in their rights area (Teiwaki 1988). Monetary fines were imposed for breach of island fisheries by-laws (Teiwaki, 1988).

Traditional Conservation

There was no evidence of a traditional conservation ethic on Nonouti Island where, in places, the worm *Sipunculus indicus* is "being wiped out without a second thought" (Koch, 1986). Immature clams and other animals were also harvested and, occasionally, the reef is broken-up with a crowbar to extract octopi from their holes (Koch, 1986), thus exhibiting no evidence of notions of resource sustainability. However, in contrast, some inhabitants of Nonouti Island harvest immature clams (*Hippopus hippopus*) with the intent to transplant them to a more convenient site, where they are grown to harvestable size (Koch, 1986). On Tarawa, a common practise is to stock excess cockles (*Anadara maculosa*) near the shore for grow out and future use (Zann, 1985; 1990).

Fisheries Legislation

Most of the customary fishing rules of the islands of the Gilberts Group were embodied in the *Tuan Aonteaba (Islands Regulations)* of 1950, whereby different local fishing cultures would be reflected. Each island had different customary rules that regulated fishing methods, locations, seasonality, behaviour before, during and after fishing, and for distribution of the catch.

This legislation was repealed in 1967, when the Island Council system of local government was introduced, under the *Local Government Ordinance 1966*. Each Island Council henceforth was responsible for fisheries management, but their by-laws were subject to Central Government approval. Open access was now favoured by the colonial authorities. However, some Island Councils succeeded in having by-laws enacted covering their own customary rights areas, in particular those concerning

stone fish traps. For example, both Tabiteuea North and North Tarawa prohibit fishing or sailing within one mile of a fish trap during the fishing season.

Island Councils have been responsible for introducing conservation regulations. In particular, they have restricted the introduction of modern gear regarded as harmful. For example, several councils, like that of Tamana Island (Lawrence, 1977) have prohibited the use of pressure lanterns to lure flying fish when dip netting, since these are more effective than the traditional coconut frond flares; monofilament gills nets have been banned on several islands (Tikai, 1980); and steel-hooked or imported lures used in tuna fishing, which reportedly damage the jaws of fish that escape, are banned on several islands (Lawrence, 1977; Tikai, 1980; Kearney, 1983). Catch size and fishing times have also similarly been restricted. A catch limit on flying fish was introduced off Ukiangang by the Butaritari Island Council (Sewell, 1976).

Other local regulations are aimed at promoting orderly fishing as well as protecting fish schools. At Ukiangang Village, Butaritari Island, during nocturnal spring tides, reef gleaners must work in groups and not singly, lest the lights of earlier gleaners scare the fish. The lanterns of those who break the rule are smashed (Sewell, 1976); on Onotoa Island luring flying fish with flares was prohibited when schools of *Caesio* sp. entered the lagoon, since they are disturbed by them (Banner and Randall, 1953).

Other regulations promoted orderly fishing and equitable fishing. In the southern Gilbert Group for flare fishing of dip netting for flying fish at night, the number of canoes in a line was limited, and the position of canoes was changed in a specific order; thus all fishermen could share equally in the best spots (Zann, 1985; 1990). On Tamana Island, disturbing a feeding tuna school by dropping a paddle, releasing a fish or letting a pole tip touch the water was a severe offense. Originally the offender could be banned from fishing for a season or have his canoe wrecked. These days milder punishments are enforced by a \$20 fine or a maximum of six months imprisonment (Lawrence, 1977).

The *Local Government Ordinance* 1966 was repealed and replaced by the *Local Government Act* 1984. Among the functions the 1984 Act empowered Local Government Councils to perform are those to develop and manage local fisheries, and to pass conservation regulations by restricting gear type, fishing techniques, fishing hours, area closures, and fishing behaviour.

The Local Government Councils of each island recognize the traditional ownership rights of village, clan or family head, and punish breaches of them (Tebano, 1992). They manage inshore fisheries, which are not regulated by the Central Government (Tebano, 1992).

References

Banner, A.C. and J.E. Randall, 1953.

Preliminary Report on the Marine Biology of Onotoa Atoll, Gilbert Islands." *Atoll Research Bulletin* 13:

Bate, K., *et al.*, 1979.

Traditions: Ancient Gilbertese Society. In Talu *et al.* (eds.) *Kiribati, Aspects of History*. Suva: Institute of Pacific Studies and Extension Services, University of the South Pacific, and Ministry for Education, Training and Culture, Government of Kiribati, pp. 18-43.

- Kearney, R.E., 1983.
Skipjack Tuna and Other Migratory Fishes. Paper presented to the Exclusive Economic Zone Management Course. Suva: Institute of Marine Resources, University of the South Pacific.
- Koch, G., 1986.
The Material Culture of Kiribati. Suva: Institute of Pacific Studies, University of the South Pacific.
- Lambert, B., 1987.
Kiribati: Micro-individualism. *In* S. Arutangai and R.G.Crocombe (eds.), *Land Tenure in the Pacific*, pp.164-189. Suva: University of the South Pacific.
- Lawrence, R., 1977.
Tamana Report. Wellington: Victoria University of Wellington.
- Maude, H.E., 1977.
The Solution of the Gilbertese Boti. Suva: Institute of Pacific Studies, University of the South Pacific.
- Sewell, B., 1976.
Butaritari Report. Wellington: Victoria University of Wellington.
- Tebano, T., 1992.
Marine Resource Management in Kiribati: A Great Concern for the Nation, Fishermen and the Unemployed. Paper presented at the FAO/Japan Expert Consultation on the Development of Community-Based Coastal Fishery Management Systems for Asia and the Pacific. Kobe 8-12 June.
- Teiwaki, R., 1988.
Management of Marine Resources in Kiribati. Suva: Atoll Research Unit and Institute of Pacific Studies, University of the South Pacific.
- Tikai, T., 1980.
The Development of the Artisanal Fishery in a Small Island State. Paper presented to the Second Expert Conference for Economic Development in Asia and the Pacific (ms.).
- Yeeting, B.M., 1988.
A Summary of Fisheries Legislation in Kiribati. Paper presented at the Workshop on Pacific Inshore Fishery Resources, South Pacific Commission, Noumea, New Caledonia, 14-25 March, 1988.
- Zann, L. P., 1985.
Traditional Management and Conservation of Fisheries in Kiribati and Tuvalu Atolls. *In* Ruddle, K. and Johannes, R.E. (eds.), *The Traditional Knowledge and Management of Coastal Systems in Asia and the Pacific*, pp.53-77. Jakarta: UNESCO-ROSTSEA.
- Zann, L. P., 1990.
Traditional Management and Conservation of Fisheries in Kiribati and Tuvalu Atolls. *In* Ruddle, K. and Johannes, R.E. (eds.), *Traditional Marine Resource Management in the Pacific Basin: An Anthology*, pp.77-101. Jakarta: UNESCO-ROSTSEA.

MARSHALL ISLANDS

The principal source of information on traditional community-based marine management systems in the Marshall Islands is Tobin (1952, 1958). Unfortunately, he mentions them only briefly.

Traditional systems of community-based fisheries management continued until 1934, when the Japanese administration declared all waters below the high water mark to be Japanese government property. This was continued under U.S. trusteeship, and is now generally accepted (Tobin, 1952). However, the rights to resources on reefs surrounding an atoll are still regarded as the prerogative of the inhabitants of that atoll (Tobin, 1958).

Throughout the Marshall Islands the paramount chief claimed productive reefs as his personal property (Tobin, 1958). Rights to other areas belonged to lineages who owned the adjacent land (Tobin, 1952). The seaward extent of rights for commoners was usually to waist depth, where a person could stand to fish with a pole.

Sanctions

Infringement of the rights of the paramount chief was punishable by either death or expulsion of the offender from his land.

Traditional Conservation

Uninhabited islands and their surrounding reefs were used as reserves, harvested only when specified by the chiefs (Tobin, 1952).

According to Johannes (1981), on Likiep Atoll, customary law forbids the consumption of predatory species that beach themselves while pursuing prey into shallow water. Rather, they must be returned to the sea, so that they continue to drive prey into the shallows, where they can be gathered easily. This is a rare conservation measure, and has been recorded also for Palau (Johannes, 1981).

References

Johannes, R.E., 1981.

Words of the Lagoon: Fishing and Marine Lore in the Palau District of Micronesia. Berkeley: University of California Press.

Tobin, J.A., 1952.

Land Tenure in the Marshall Islands. *Atoll Research Bulletin* 11:1-36.

Tobin, J.A., 1958.

Land Tenure in the Marshall Islands. In de Young, J.E. (ed.), *Land Tenure Patterns in the Trust Territory of the Pacific Islands*, pp. 1-75. Guam: Trust Territory Government.

PALAU

In Palau, the traditional community-based marine resource management system has slowly eroded since the Japanese administration formally appropriated the area below the high water mark. These rights were reinstated and protected under the *U.S. Trust Territory Code* (Title 67) of 1970, which further noted that "Nothing ... shall withdraw or disturb the traditional ... right of the individual, clan, family, or municipality to control ... marine areas" (Trust Territory Code 1980:179). Regardless, old family tenure rights are now ignored (McCutcheon, 1981), traditional rules are flouted, the traditional conservation ethic largely abandoned, traditional authority ignored, and poaching widespread (Johannes 1981, 1991; McCutcheon, 1980; 1981).

Fishing Rights Territories

Each of the 16 formerly autonomous village-state clusters (*beluu*), formerly municipalities and now States, has the right to limit access to its fishing grounds. In one State, Ngaraard, waters were sub-divided to give each individual village control of the adjacent sea territory.

Boundaries

The seaward boundary of rights areas is the seaward slope of the reef. Exploitation of the open sea (*ngoao*) was free to anyone, and the area was considered neutral, as exemplified by the custom of travelling past enemy villages outside the reef (McCutcheon, 1981).

Until about a century ago, when deep sea shark fishing died out, the theoretical seaward limited coincided with the outermost foraging limit of seabirds resident on Palau, some 75-100 miles offshore (Nakayama and Ramp, 1974).

Lateral boundaries of tenured inshore waters are an extension of State lateral boundaries to the seaward slope of the reef.

Fishing Rights

Subsidiary rights of individuals of corporate kin groups (*kebliil*) for fish traps or to particular fishing areas formerly existed within tenured areas (Johannes, 1981; McCutcheon, 1981). But these have lapsed and are now barely remembered (McCutcheon, 1980; Johannes, 1988). Temporary usufruct to *delachel* (lit. "place for putting something"), vested in the individual, lasted as long as the trap remained in place.

Acquisition of Rights

Primary rights are acquired through matrilineal inheritance. Persons affiliated with a corporate group through fulfilment of obligations or marriage had usufruct rights to the group's *kebliil*, nested within the village sea territory (McCutcheon, 1980).

In former times, marine boundaries were apparently flexible, and sea areas were bartered, given away, or taken as the spoils of war (McCutcheon, 1980). Sometimes, richer States made an outright gift of fishing grounds to less well-endowed villages. For example, in about 1930, Ngeremlengui gave its fishing rights to two surplus reef and lagoon areas to Ngatpang (Johannes, 1981; 1988). Similarly, Melekeok had plenty of trochus-rich reef whereas Ngchesar, its neighbour, had none so, through a long-standing agreement, Idimes reef, although owned by Melekeok, was used by Ngchesar. With

the increased commercial value of trochus, poaching on the reef became an annoyance to Melekeok, hence the chief of Ngchesar paid fines to acknowledge the wrong-doing as well as to assure his village's use rights of the reef in perpetuity. Thus, commercialization resulted in the explicit definition of the two villages' respective rights (McCutcheon, 1981).

Further, fishing grounds may be shared by two villages. For example, Jyangel and Ngercherong villages have traditionally shared the use of Kossol and Ngerael reefs. There are also reciprocal rights. An example is the use by Ngeremlengui and Ngardmau of each other's trochus resource, beginning three days after the opening of the season (Kaneshiro, 1958; Johannes, 1981).

Some villages acquired rights through government orders. For example, during the Japanese administration, a head tax was levied on Palauans. Often this was paid by selling trochus shell for button- and jewellery-making. Because the western Palau villages of Aimelik, Peleliu, Ngatpang, and Ngardmau were lacking in trochus-rich reefs, the Japanese ordered the villages of Ollei, Ngeremlengui and Koror, which monopolized trochus-rich reefs, to allocate portions of their reefs to those four villages (Johannes, 1981).

Rights of Outsiders

With prior permission and payment in part of the catch, neighbouring villagers were sometimes permitted to exploit waters of those villages with surplus resources. Commercial exploitation is nowadays forbidden by some States.

Traditional Authority

Fishing rights are controlled by chiefs on behalf of their villages. The chief also issued permits to outsiders and adjudicated disputes (McCutcheon, 1980).

The senior male of the group was the trustee for the total holdings of the corporate kin group (*kebliil*). With the village chief's approval, he allocated it to eligible persons (McCutcheon, 1980). The chief title holder of the corporate kin group gave temporary usufruct rights to members of his clan to use the *delachel*.

There has been a diminution of the power of the chiefs to manage marine areas, resolve disputes and impose punishment (McCutcheon, 1981).

Sanctions

Nowadays potential poachers are warned-off by radio broadcasts (Johannes, 1981; 1988). Continued poaching results in cash fines being levied by one of the traditional high chiefs against the offender's chief. The offender's clan is then made to pay the fine, generally in cash (Johannes, 1981). In earlier times, when a state of war existed between neighbouring villages, offenders were killed (Johannes, 1981).

Traditional Conservation

Traditionally, Palauans employed various conservation regulations (*bul*) in their tenured fishing grounds (Johannes, 1981; 1991). Specific measures were reinforced by a general conservation ethic that condemned waste and catching more fish than were required for immediate consumption.

Among specific conservation measures were a prohibition on taking nesting turtles or their eggs on Ngerur Island (Johannes, 1981). On Peleliu Island, harvesting of milkfish (*Chanos chanos*) from a large brackishwater pond was restricted to periods of inclement weather. Similarly, in Ngeremlengui, sea cucumbers and giant clams were reserved for use in the season when fishing is poor.

Stupefacients were used sparingly. For example, it was known that too much Derris root applied locally kills corals, leading to an eventual diminution of the local fish resource. Thus bundles of derris were not tucked under coral heads (Johannes, 1981).

Prohibitions have also been invoked to protect the spawning reef fish. For example, At Ollei Village, some species, especially the rabbitfish *Siganus canaliculatus*, were allowed to aggregate for spawning undisturbed for one day, before harvesting started. In that way some of them would spawn.

In northeast Babeldaob, an unusual conservation measure protected Jacks, especially *Caranx melampygus*. At certain times of the year this fish pursued dense shoals of the herring *Herklotsichthys punctata* into very shallower waters, sometimes even forcing them onto the shore, where they could be easily gathered. In their frenzy, Jacks, a favoured food fish, also sometimes beached themselves. However, the customary law stated that beached Jacks had to be returned to the water, so that they might drive more herrings ashore (Johannes, 1981).

References

Johannes, R.E., 1981.

Words of the Lagoon: Fishing and Marine Lore in the Palau District of Micronesia. Berkeley: University of California Press.

Johannes, R.E., 1988.

The Role of Marine Resource Tenure Systems (TURFs) in Sustainable Nearshore Resource Development and Management in U.S.- Affiliated Tropical Pacific Islands. Agana: University of Guam.

Johannes, R.E., 1991.

Some Suggested Management Initiatives in Palau's Nearshore Fisheries, and the Relevance of Traditional Management (unpub. ms.).

Kaneshiro, S., 1958.

Land Tenure in the Palau Islands. In Anon (ed.), *Land Tenure Patterns in the Trust Territory of the Pacific Islands*, pp. 288-339. Agana: Trust Territory of the Pacific Islands, Office of the Staff Anthropologist.

McCutcheon, M.S., 1980.

Changing Systems of Resource Procurement from Lagoon and Reef in Palau. Paper presented at the Annual Meeting of the American Anthropological Association, Washington D.C.

McCutcheon, M.S., 1981.

Resource Exploitation and the Tenure of Land and Sea in Palau. P.D. diss. Tuscon: University of Arizona.

Nakayama, M. and F.L. Ramp, 1974.

Micronesian Navigation, Island Empires and Traditional Concepts of Ownership of the Sea. Saipan: 5th Congress of Micronesia.