

FISHERIES IN KOSRAE: TRADITIONAL AND MODERN

The following article is extracted from An Assessment of the Role of Women in Fisheries in Kosrae, Federated States of Micronesia by Lyn Lambeth and Rooston Abraham. Field Report No. 3. SPC Community Fisheries Section 2001)

The role of men and women in providing seafood for the family was very important in the past, before the introduction of cash economies. Increasing numbers of people are now involved in paid work and much of their food, local and imported, is now purchased from shops. However, subsistence fishing and the collection of seafood from reefs and mangroves still plays an important part in providing food for the family.

There is a strong demand for fish and fish products in the Federated States of Micronesia (FSM), and per capita consumption has been estimated at over 70 kg per year (FAO 1998); much of this is supplied by the subsistence sector. Artisanal harvesting of marine resources is also becoming more important as greater numbers of people, men and women, fish and collect to sell locally. The increasing mobility of people, both on land and at sea, has also given them access to more fishing grounds than in the past.

Land ownership and tenure is complicated within FSM and varies from state to state. Traditionally, the chiefs controlled the distribution and use of land resources and accessible marine resources. Rights could

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be given, earned and inherited. Ownership of shallow reefs and the intertidal flats and their resources was traditionally held by the adjacent landowner. This traditional ownership is no longer recognised in Kosrae and Pohnpei, but remains to a large degree in Chuuk and Yap (SPREP 1993).

Traditionally on Kosrae men were involved in farming and, less regularly, fishing beyond the coral reef. Fishing in the shallow waters of the lagoon was the domain of women. Net fishing was a varied and highly developed fishing activity practised by Kosraean women, with different nets designed for specific fishing techniques, marine habitat, tide, and number of people fishing. Up until the early 1970s over ten different net fishing techniques were in use on Kosrae. By the early

1990s these varied techniques and specialised gear had been replaced almost entirely by the use of monofilament gill nets (Des Rochers 1992).

On Kosrae women have traditionally been regular providers of seafood for the family, through their regular netting, handlining and reef gleaning activities. Men's contribution was mainly in catching those species that required fishing beyond the reef in boats, or in diving or spearfishing.

Harvesting

Subsistence and artisanal harvesting

The mean annual commercial production from coastal fisheries in FSM between 1989 and 1994 was estimated at 637 tonnes (1 mt = 1.1023 US ton) with a value of USD 1.5 million, while the mean annual subsistence coastal fisheries production for the same period was estimated at 6243 tonnes with a value of USD 11.2 million (Dalzell et al. 1996). For Kosrae, the estimated artisanal landings was 85 tonnes compared to 250 tonnes for the subsistence sector. Jobs in agriculture and fish-

Traditional management of land and marine resources

In the past there was a king or paramount chief of the whole island who understood 'magically' all the resources of the land and the sea. He divided the island into sections, with a chief for each section. That chief was responsible for looking after the resources in his section, from the mountains to the edge of the reef. If the people from one section were chasing a fish and the fish crossed over into another section, they would have to stop chasing it at the border between the two sections. The paramount chief had a deep understanding of spawning times and sites, and fishing was strictly regulated according to phases of the moon. If a chief failed to provide for the people in his section he could be killed — giving him a strong incentive to succeed.

Source: Rooston Abraham, *pers. comm.* 2000.

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eries account for around 18 per cent of the workforce in Kosrae (SPREP 1993).

Subsistence and artisanal fishing are important for their role in nutrition, informal employment and their contribution to the cultural identity of coastal communities. The contribution of subsistence activities and informal employment to the economic and social well-being of Pacific Island communities is sometimes overlooked in the drive towards development and the management of commercially important resources.

Invertebrates

The collection of shellfish, crabs and other invertebrates is still an important subsistence activity for many women. Mangrove crabs, *Scylla serrata*, **powa**, are a highly regarded food item and source of income for many families. They are caught by traps, by hand in the mangroves or using baited lines from adjacent rivers and estuarine waters (Smith 1992). The overharvesting of mangrove wood for firewood and building has reduced the mangrove crab's habitat and may have led to their reduced numbers.

Land crabs, *Cardisoma* sp., **aieng**, live in burrows in the forest and come out at night to feed. These crabs migrate to the sea to release larvae from their eggs at spring tide. They emerge at dusk, a few days before the full moon. Women collect land crabs at night by hand, especially during their spawning migrations. Coconut crabs, *Birgus latro*, **aie**, are similarly collected for subsistence at night with coconut meat baits laid in the bush, or by searching for burrows with sticks during the day or night. The growth of coconut crabs is slow and recruitment is low and highly variable, making recovery of heavily exploited populations slow.

Giant clams, *Tridacna* sp., **netula**, were an important traditional food although *T. gigas* has become locally extinct due to overharvesting. *T. maxima* is the most common species found throughout FSM but numbers appear to be declining. *T. squamosa* seems to have disappeared from Kosrae though low numbers may still be found in Yap, Chuuk and Pohnpei. The four states of FSM are now involved in various hatchery and restocking projects using *T. derasa*, *T. gigas* and *Hippopus hippopus* supplied by the National Aquaculture Centre on Kosrae. Giant clams are collected while spearfishing outside the reef or while reef gleaning.

Women harvest the mangrove clam, *Anodontia edulenta*, **popol**, at low tide by searching in the mud with their feet. The clams are mostly used for family consumption. Trochus, *Trochus niloticus*, **takasungai**, only endemic to Yap, was successfully introduced over 70 years ago and is now found in all four states. Trochus are collected by

both men and women during the limited open season. Kosrae maintains sanctuary areas within which harvesting is not permitted.

Octopus, *Cephalopoda*, **koet**, are caught using a metal hook to remove them from their holes. Spiny lobsters, *Panulirus* sp., **ungung**, are speared by men while diving in deep water during the day, or may be speared or caught by hand at night during a full moon at low tide. Spearfishing is done only by men.

Only one species of sea cucumber, the curryfish, *Stichopus variegatus*, **wurur**, is harvested by women for their own use in Kosrae, although other species for collected for export have been overharvested. Curryfish internal organs are collected by cutting a small slit with a knife, or using the finger to make a hole in the underside to remove the intestines. The sea cucumber is then returned to the water where it regenerates its internal organs after an unknown amount of time.



Lyn Lambeth

Handlining on the reef flat, Lelu

Shells are collected by people walking over the sand or coral at low tide or, for the larger shells, by diving in deeper water. Ornamental shells such as cones and cowries, various shells used in handicrafts (money cowries and helmet shells), and specimen and rare shells such as the golden cowry are collected for the tourist market (Smith 1992).

Fish

Inshore fish species, harvested mainly by women using monofilament gillnets, include snappers (Lutjanidae, **srihnac**, **niahluh**), emperors (Lethrinidae, **sriknap**), groupers (Serranidae, **kalsrik**), parrotfish (Scaridae, **mwesrik**), rudderfish (Kyphosidae, **won**, **ikensahk**, **eloh**), rabbitfish (Siganidae, **mulap**, **mweosra**, **luhluhk**), surgeonfish (Acanthuridae, **kaput**), trevallies (Carangidae, **lalot**, **sraprap**), mullet (Mugilidae, **ac**, **kuhraf**), squirrelfish (Holocentridae, **ollol**), and goatfish (Mullidae, **futfut**).

Handlining on the inner reef flat is popular with both men and women, and in areas such as Walung women often provide enough fish for the family in a few hours of fishing. Species caught include emperors, groupers, snappers and triggerfish. Small fish, curryfish intestines or tuna meat can be used for bait. Spearing is often done at night, using torches.

Poison fishing with the roots of *Derris* sp., **op**, a traditional practice once used with hibiscus fibre handnets, is still used in some areas today. The root is gathered and placed in a small bundle, pulverised to release a milky sap and then fanned near a rock or coral head. The drugged fish are then caught with a gill net or picked up off the surface (Des Rochers 1992). Liquid bleach is also reportedly

used by some people to catch fish. Under national and state law the use of poisons is prohibited, but reporting of infringements is rare and enforcement difficult.

Locally made canoes are still popular for fishing, with or without an outboard motor. Night spearfishing is best done without the use of an outboard motor. Men and women use canoes, though women less often and almost always without an outboard motor.

Trolling is mainly practised by men, although sometimes women will accompany them to catch tuna. Species caught include: yellowfin (*Thunnus albacares*, **olwol**), skipjack (*Katsuwonus pelamis*, **katsuo**), mackerel tuna (*Euthynnus affinis*, **makurul**), dogtooth tuna (*Gymnosarda unicolor*, **silo**), albacore (*T. alalunga*), bigeye (*T. obesus*), frigate tuna (*Auxis thazard*) and bullet tuna (*Auxis rochei*).

Albacore, bigeye, frigate and bullet tunas are not common and have no Kosraean names. When caught, albacore and bigeye may be referred to as **olwol**, frigate and bullet tunas as **makurul**. Dolphinfish (*Coryphaena hippurus*, **sirami**), barracuda (Sphyraenidae, **tola**) and wahoo (*Acanthocybium solandri*, **al**) are also commonly caught by trolling.



Flying fish (Exocoetidae), **mokol**, **ik sok**, are caught by scoop net at night, with one boat able to catch up to 200 flying fish in one night.

In Malem district there is limited reef area compared to other districts, and no channel or harbour. This restricts the fishing in that area and the residents tend to target different species from other districts. Very small fish species such as gobies (Gobiidae), **ik sroso**, and damselfish (Pomacentridae), **sruh**, generally not eaten in other areas, are caught by women in Malem using hands and sticks. Saltwater eels (Muraenidae), **semis**, and freshwater eels (Anguillidae), **ton**, are also targeted nowadays not only by people in Malem but those in other municipalities. The area outside the reef flat is particularly good for fishing, presumably because the lack of access has prevented heavy fishing, and people from other areas travel by boat to fish there.

References

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Fishing Medicine and Magic

As in many areas of the Pacific, Kosrae had a number of beliefs and practices concerning fishing. The belief in the use of special medicines and magic for fishing may have been popular in the past but this is not the case today. In the past, some families were known to have special medicine and magic for fishing. For example, women were able to call eels to them, or used secret recipes to attract fish to their net. The use of local or traditional medicine for the treatment of injuries from fish or other marine resources may still be practised today.

Source: Rooston Abraham, pers. comm. 2000.

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List of commonly caught fish and invertebrates

English name	Scientific name	Kosraean name
Fish		
Yellowfin tuna	<i>Thunnus albacares</i>	olwol
Skipjack tuna	<i>Katsuwonus pelamis</i>	katsuo
Mackerel tuna	<i>Euthynnus affinis</i>	makurul
Dogtooth tuna	<i>Gymnosarda unicolor</i>	silo
Dolphinfish	<i>Coryphaena hippurus</i>	sirami
Barracuda	Sphyraenidae	tola
Wahoo	<i>Acanthocybium solandri</i>	al
Flying fish	Exocoetidae	mokol, ik sok
Snapper	Lutjanidae	srihnac, niahluh
Emperors	Lethrinidae	srinkap
Groupers	Serranidae	kalsrik
Parrotfish	Scaridae	mwesrik
Rudderfish	Kyphosidae	won, ikensahk, eloh
Rabbitfish	Siganidae	mulap, mweosra, luhluhk
Surgeonfish	Acanthuridae	kaput
Trevallies	Carangidae	lalot, srapsrap
Mullet	Mugilidae	ac, kuhraf
Squirrelfish	Holocentridae	ollol
Goatfish	Mullidae	futfut
Gobies	Gobiidae	ik sroso
Damselfish	Pomacentridae	sruh
Saltwater eels	Muraenidae	semis
Freshwater eels	Anguillidae	ton
Invertebrates		
Mangrove crabs	<i>Scylla serrata</i>	powa
Land crabs	<i>Cardisoma</i> sp.	aieng
Coconut crabs	<i>Birgus latro</i>	aie
Spiny lobsters	<i>Panulirus</i> sp.	ungung
Giant clams	<i>Tridacna</i> sp.	netula
Mangrove clam	<i>Anodontia edulenta</i>	popol
Trochus	<i>Trochus niloticus</i>	takasungai
Octopus	Cephalopoda	koet
Curryfish	<i>Stichopus variegatus</i>	wurur