

VI. Marine Resources

Samoans utilize a tremendous variety of marine species within the National Park, from ocean fish to limpets. Though there is deep-water access in a few areas, notably on Tutuila, most of the creatures taken in the Park are inshore, reef species. Here as elsewhere in Polynesia, there is a marked gender division of labor in fishing and marine gathering. Women do not fish from boats, but are the specialists in reef gathering, particularly of octopus. Deep-water fishing is categorically men's work. When men and women do fish on the reef, they usually employ different methods. Women use a stick or short spear and carry a bag for their catch. Men are more likely to fish with a net or a pole, and to dive using goggles and a spear propelled by a rubber sling.

On Tutuila, Pago Pago villagers appear to utilize Park marine resources less often than the people of Afono, Fagasa, and Vatia. This is not surprising, given the boundaries of the Park. The area from the Pola islands toward Afono is the most heavily used fishing ground. On Ta'u, Fitiuta villagers regard the reef and sea areas within the Park as the best local fishing grounds. There is apparently little to no use of marine resources in the Park by Faleasao residents. On Ofu, the reef at To'aga is rich in fish and shellfish and is heavily utilized by local residents, many of whom send a portion of their catch to relatives on Tutuila.

Tutuila Unit.

Several Tutuila informants remarked that nowadays few young people are interested in learning how to fish. Adults generally commented that they go fishing less frequently now than in previous years; work was often cited as a reason. Many indigenous methods are also falling into disuse. Even net fishing is not as frequent on Tutuila as formerly. A high-ranking chief lamented the loss of traditional fishing methods during his lifetime. Trolling for octopus with cowrie-shell lures is now rarely practiced, in part, he asserted, because men are no longer building canoes. Frozen octopus from Asia is also available in town. In fishing as in other subsistence pursuits, purchased foods are steadily supplanting home-produced and gathered foods in American Samoa. This trend is more advanced on Tutuila than on Ta'u and Ofu.

For most Tutuila residents, fishing and reef gathering are more recreational activities than subsistence pursuits. Nevertheless, they are a source of low-fat protein in the diet and are considered culturally significant activities by Samoans. Some informants explicitly linked fishing and diving to physical

fitness and health. Many view these activities as an important part of Samoan tradition. One teacher from Vatia takes her students on weekly field trips to collect shellfish, which she uses to teach language, both Samoan and English. Marine species mentioned include alogo, filoa, gatala, papa, pone, malauli, mala'i, savane, ula (lobsters), pa'a (crabs), faisua (giant clam), and fe'e (octopus), as well as sea urchins and sea cucumbers (see freelist data below for complete itemization).

Samoans use a variety of fishing methods to take marine species from Park areas. Men still dive from canoes (paopao), although boats are preferred if the family can afford one (slide 8). We were told that a "Samoan spear" is used to fish during the day, and a three-pronged "Hawaiian spear" at night. The Samoan spear is long (ca. 7 feet), thick, and heavy enough to stop a good-sized moving fish. The Hawaiian spear is used at night with a flashlight, when the fish are less active. Both types are used with a rubber sling. For bottom fishing, a weighted string with hooks several inches apart is dropped from a boat. Deep-water fish such as masimasi, marlin, and tuna are caught by trawling from a motorboat. Informants knew of 'enu fishtraps, but stated that they are no longer used on Tutuila. Within the memory of adult informants, sharks were caught by a method called lepamalie. Several young men dragged a dead animal behind a boat as bait, snared the shark with a noose and a hook, and then clubbed it to death. Three or four sharks would be caught at a time. The village council waited in assembly during this dangerous business. According to our informants, sharks have not been snared locally in this fashion for twenty to thirty years.

We were told that most of the fish caught locally are consumed at home or given to relatives and neighbors, but several informants reported selling their catch in the village or in Pago Pago town. One Vatia resident reported that he "makes his living" by fishing, but this is unusual. Many villagers offer a prayer before fishing or diving, and some observe the custom of presenting the largest fish to the minister (faife'au). Deep-water fishing from a boat may bring in enough aku or other large species to sell in town, but most of this activity probably takes place outside the Park boundary. One informant reported that, on infrequent occasions, he catches and sells \$500-600 worth of tuna.

We received variable reports on whether there are fewer fish nowadays than previously. A Pago Pago resident told us that commercial fishing resulted in a "total wipe-out" of marine life in the coastal areas of Afono, Fagasa, and Vatia during the mid-to-late 1970s and into the 1980s. Many local residents blame Tongans for over-exploitation and for using chlorine bleach to poison the fish. Several informants said that there are fewer

fish now and fishermen must go farther out to catch them. Others claimed that the fish supply today is about the same as in earlier times, but the fish are smaller in size. Informants claim that Tongans and other outsiders still come to the north shore to fish commercially, but only at night. North-shore residents are concerned about the local impact of commercial fishing, and some hope that the Park Service will police the activity more effectively than the Department of Marine Wildlife has in the past.

According to a Fagasa resident, currently the only village fishing restriction is on atule (mackerel). Atule must only be caught by the village as a group, not by individual fishermen. However, this informant stated that the last time the village caught atule communally was about ten years ago. When the atule appeared, the entire village mobilized immediately. Men cut coconut fronds, jumped into their canoes, and attempted to circle the fish while the rest of the village took to the water. Were the atule to reappear today, this informant asserted, people would still know what to do and would automatically know their roles. 'Anae and ume were also caught by this communal method; indeed, there was a sa on individuals catching these school fish. The atule are particularly significant to the people of Fagasa because of the legend of Sina and the dolphins, summarized above. Fagasa villagers view the dolphins as their "friends," and believe that dolphins chase the atule into the bay. According to informants, dolphins are still seen, but less often than before. The communal fishing surround also seems to have lapsed. We were told, often regretfully, that people nowadays catch atule and 'anae individually with nets, with no fear of punishment.

In this report we usually discuss bird species in the context of the forests and "bush" wildlife. However, the fua'o seabirds that frequent the Pola islands are intimately associated with the coast at Vatia, and it seems appropriate to discuss them with marine activities. Vatia is famous for hunting and eating the fua'o. The village considers the bird sacred, and its racing longboat (fautasi) was called the Fua'o. The feathers were used for mats, titi skirts, and headdresses. A knowledgeable informant told us that the term fua'o actually refers to three different birds. The fua'o that nest on the Pola are manu'olau or manu'ula, which have red feet and claws and fly far from land. Fishermen use these birds to locate schools of fish. The second type of fua'o is called ta'i'o. It has black feet and is similar to a seagull, but is so wild that it will not come near fishermen. The third type is atafa. The ta'i'o and atafa are aggressive, "killer" birds who do not normally live in the Pola, but will chase away the manu'olau if they go there.

In the past, on special occasions the Vatia village matai would send the 'aumaga to climb the Pola for fua'o, which nest

and sleep in small pua'avai trees at the top of the ridge. The Pola were reached by boat--a difficult and dangerous passage that could take up to three hours--and the young men climbed the steep cliffs. The birds were snared with thin loops made from the midrib of the coconut leaflet (alava) and attached to a fishing pole. The "fua'o hitting stick" is used by Afono people to catch the birds from boats. The stick is called the la'au ta fua'o, and we were shown one (slide 9) made from olasina gathered on Park land. One of our informants claimed to be the youngest person ever to have climbed the Pola, a feat he performed when ten or twelve years old. His paternal uncle planted the two coconut trees on the top of the ridge. Three hunters could catch thirty to fifty fua'o at a time. In previous eras, individual hunting of the birds was prohibited and anyone not from Vatia could be killed for climbing the Pola to hunt the fua'o. We were told that there are fewer fua'o today than before the cyclones. They are not hunted on Polatai since hurricanes damaged the trail. Polauta is easier to climb but has far fewer birds. Individual fishermen sometimes catch fua'o today simply by hitting them with their canoe paddles.

An Afono resident told us that his village is allowed to hunt the birds, but not with guns. He reported that he sells the freshly caught fua'o to other villagers for two dollars each, or three dollars if cooked. October is said to be the optimal time of year to take the fua'o because they are lololo 'fat' then. The birds are frequently served on White Sunday. People who take the birds at other times are considered "greedy." An Afono informant told us that Vatia villagers use guns today while only the Afono people know how to use the fua'o stick. Informants described large communal hunting expeditions to the Pola, the last one having taken place around 1968. As many as ten boats would set out for the Pola around three in the morning, and would wait offshore. When the birds began to leave their nests at dawn, the men would cry like the fua'o, luring them down where they would be hit with the sticks or caught with the snares. As each bird was pulled into the boat, a man would kill it by biting its head. Typically such an expedition would catch hundreds of fua'o. The birds were then cooked and distributed to the village.

Tutuila villagers are generally aware of the prohibitions against using chlorine bleach, dynamite, or fish poisons such as futu or 'ava niu kini. Although local people previously took coral rocks and sand from the beaches for their building needs, today there is widespread recognition that such practices cause erosion. There is still some taking of sand, but coastal residents and village matai now discourage or forbid these activities. Volcanic cinder is now readily available for purchase, and is said to be better for mixing cement than beach sand.

The crown-of-thorns starfish (lalomea) caused widespread destruction of reefs throughout Samoa in the 1970s. Several informants recalled damage to local reefs during that period, but reported that the lalomea is no longer a problem. We were told a proverb that refers to the characteristics of this pest: "E fofo e le lalomea le lalomea." 'The lalomea heals itself.' If you step on this starfish, you will get poison and thorns in your foot. But if you then turn the lalomea over and press it against the wound, it will suck out all of the poison and the thorns. Matai quote this proverb to make the point that if people make trouble, they must resolve it themselves.

Ta'u Unit.

The Park area is an excellent fishing and reef foraging ground, and is regularly used by local residents. Informants explained that they tend to alternate between the Saua coastline (within the Park) and the other side of the village (toward Faleasao), depending on weather and sea conditions. Saua tends to be calm from October to March, and was described as "the best" place to fish and gather because the reef there is large; when the Saua side is rough, residents utilize the other fishing ground. Fishing methods include the full range documented for contemporary Samoa and for other villages participating in the Park: pole fishing, diving with a speargun or slingshot spear, walking the reef with a stick or a three-pointed spear (tao), and throwing nets (slide 10). Locally caught fish are an important low-fat protein source for many Fitiuta residents; there appears to be an abundance of fish available for the taking, and some people sell fish to neighbors and/or to the market in Pago Pago. The predominant fish species are detailed in the freelist data, discussed below. The favorite fish for eating are the gatala, 'anae, and malau. As elsewhere in Samoa, the annual palolo run is an eagerly anticipated event.

For the most part, spear diving, pole fishing, and throwing nets are methods employed by men. Women walk the reef, probing the holes for fe'e and gathering shellfish, sea cucumbers, and sea urchins (slide 11). The alili shellfish is particularly prized, and is best gathered at night. Men, women, and children collect this species. We were told that it is possible to gather three to four buckets of alili at a time. Matapisu is also a favorite food, and is scraped off the rocks with a knife. Usually eaten raw, the alili and matapisu are preserved in bottles of salt water and kept in the refrigerator (slide 12). Some men also forage for shellfish, especially for the alili. One informant said that he sells a bottle of alili for ten dollars, a larger bottle for twenty, and a quart bottle for forty dollars.

The Park area is a significant source of diversity in the diet for Fitiuta villagers; informants recognize local marine resources as a freely available alternative to store-bought foods. A meal of 'ama'ama crabs can, for example, be quickly gathered at night with a flashlight. Coconut crabs are also abundant in the Park area, and are hunted at night, when there is no moon (slide 13).

Purportedly, some have used chlorine bleach as a fish poison in the past, but virtually all of our informants condemned this practice. Used indiscriminately, the bleach destroys the tissue of the fish and gives it a foul taste. If the use of bleach is evident, stores in Pago Pago will refuse to buy the catch. Here as elsewhere, Tongans from outside tend to be blamed for employing such destructive practices.

Fitiuta residents take coral from the beach for use around their houses, and sand is used to mix cement. We received no reports of dynamiting the reef or the taking of live coral. Informants were generally aware of practices that harm the reef.

Ofu Unit.

The reef at To'aga (slide 14) is very heavily used for marine gathering and fishing, largely by people from Ofu. Although an older informant claimed that Olosega people do not have the right to fish on the reef, others said that anyone is allowed to fish anywhere, without asking permission. Ofu villagers see a working automobile as a necessity for fishing at To'aga, given the distance from the village. But if the family car is inoperative people catch rides with friends. During our stay on the island we often saw men and women on the reef during the day (slide 15); at night we witnessed groups of young men returning to Ofu with fish in the back of their pick-up trucks. Edible marine species are extraordinarily varied and abundant in the Ofu Unit of the National Park. Several informants mentioned sending or taking fish from Ofu to relatives in Pago Pago, and it is common to see large coolers containing fish loaded on the planes bound for Tutuila. The Tutuila relatives send back pisupo, chicken, and other store-bought goods in return. Marine resources from Ofu are thus an important component in Samoan in-kind reciprocities with family and friends.

Many people fish and gather often enough so that they always have fresh seafood in the diet. Some residents preserve their surplus in deep freezers for family use. Others sell their catch to other Ofu villagers, or to middlemen who take the fish to Pago Pago to sell. However, in the past the village council has prohibited commercial fishing; the prevailing ethic is that the local marine foods should be shared and given rather than sold. The importance of marine resources from the Park as a source of

food for local residents should not be underestimated, particularly in light of the scarcity of jobs in Manu'a and the structure of the age pyramid. Permanent residents of Ofu and Olosega tend to be either very old or very young. Many Ofu families depend materially on indigenous subsistence activities, certainly more so than is the norm on Tutuila. One informant stated: "A lot of people hardly ever go buy food from the store. They get their food from the ocean."

As Ofu informants described, the gender of division of labor in fishing and marine gathering conforms to a long-established Samoan, and more broadly, Polynesian, pattern. Women (and fa'afafine) gather figota 'shellfish'; men do not. Men fish by snorkeling, diving with a spear, or angling with a rod; women take fish that dig under the sand. Men use nets while women do not. Men hunted turtles; women did not. Both men and women use the 'enu fish basket (slide 16) to catch small school fish, notably the i'a sina (goatfish). The use of the large 'enu fish traps distinguishes Manu'a from Tutuila, where these baskets are rarely used at present. To'aga is an ideal site for using 'enu because it has a sandy bottom. We were told that there are people in Ofu, Olosega, and Ta'u who still know how to make 'enu from sennit and 'ie'ie, a woody vine. Each family has its own 'enu. To trap fish, the basket is buried in the sand, baited with crushed hermit crabs, and left for an hour or two.

Men fish on the reef with rods, upega (nets), and with spears while diving. Young men do most of the diving; older men and matai tend to fish with poles while walking on the reef. Malau was frequently mentioned as a favorite eating fish, as was laea. There are different names for the different sizes of ulua, and malauli (a mid-sized ulua) is particularly prized. Most of the frequently mentioned fish and shellfish are available at all times of year, but some marine species are seasonal, notably the palolo, lo, i'a sina, pala i'a (the small pone), sesema, and atule. Some informants observe the practice of giving the best fish of the catch to the pastor, and several reported that they usually offer a prayer before going fishing.

Parties of women and fa'afafine go out to To'aga virtually on a daily basis to collect shellfish (figota), as well as octopus, seaweed, and small types of fish (slide 17). The category figota is not equivalent to the English word 'shellfish'; it does not, for example, include crabs and lobsters. One woman defined figota as "anything you put in a jar," including sea slugs, alili, and faisua. The technology of women's reef gathering consists of a stick or spear (tao), which is poked into the sand and under rocks. Bags and bottles are brought along to hold the catch. The ofaofa and vana sea urchins are stored in jars and refrigerated for later consumption. Many younger women take along cooked bananas and eat some of their

catch raw, while out on the reef, but others--older women particularly--believe that it is bad luck to eat while fishing.

When atule (mackerel), i'a sina, or other school fish are running, it is forbidden for individuals to go out and net the fish with upega. The village undertakes a communal surround using a lau made of coconut leaves. The lau may bring in up to 11,000 fish, which are brought to the malae and counted by the 'aumaga and the matai, and then distributed to all. The atule are expected to come once a year, around June, but in recent years their appearance has become less predictable. They last appeared in Ofu in 1991 or '92, and we were told that the last lau at To'aga was held in the 1950s. Lau surrounds are still held elsewhere on Ofu, outside the Park boundary.

The palolo swarm in the National Park area in October or November. The whole village goes out at one or two in the morning. Men, women, and children carry flashlights and stay out for hours, until the palolo stop rising. The worms are scooped out of the water and into buckets (paelo) with home-made strainers, fashioned from a stick of fau bent into a circle and covered with screening or mosquito netting. Alternately, people simply hold both ends of a window screen. The process of scooping is called ka. The palolo are well strained as they are collected because the more water, the more diluted they are, and the poorer the quality. The Ofu people fill plastic bags, tie them, and freeze the palolo for home use. They also fill coolers with palolo and send them to Pago Pago to be sold; during the season vendors stand along the roadside on Tutuila, offering a handful in foil for ten dollars. There is also, however, an ethic that the palolo is "a gift from God" and should not be sold. Some families receive five or ten dollars from their Tutuila connections for the palolo, but this recompense is considered a gift rather than a payment. The quantity of palolo varies from year to year, and during some years, the palolo are less plentiful at To'aga and more abundant in other locations, such as near the airport.

Sea turtles are also common inside the Park boundary, and they lay their eggs in the sand. Residents are aware that taking the turtles is illegal, but people do sometimes eat the eggs, either raw or roasted in the sand. Fishermen have seen lalomea, but they do not believe that they are a problem at present.

Informants asserted that no one has used chlorine bleach to catch fish at To'aga. In the past 'ava niu kini was used as a poison but the chiefs have now forbidden it because it kills the young fish. Residents are aware that there is a sa on taking fish that are too small (less than a hand's length). We received conflicting reports on the use of dynamite. Residents know that this practice is forbidden and that it destroys the reef, and

most deny that it goes on any longer. However, we were also told that people dynamite the reef at To'aga once or twice a year when the atule or mullet are running. There was a sand mining operation at the Olosega end of the Ofu road, and the area is remote enough from the villages to enable such activities to go largely unseen. The dynamite can be obtained from construction workers and thrown into the sea, killing large quantities of fish. A matai reported that two men were caught dynamiting at To'aga earlier in the year and were given a warning in court, but not fined; according to this informant, the fine is in any case only \$25.

We were told that villagers continue to take sand from within the Park at To'aga to put around their houses and to mix cement. 'Ili'ili (smooth coral pebbles) are also taken from the beach and mixed with cement. While visiting the reef, we met a woman who showed us a large spider shell which she intended to sell. This is the sort of activity that, in our opinion, merits some attention by Park officials. In other parts of Samoa such shells are commonly marketed to tourists. Obviously, if local residents began gathering such shells in quantity, in anticipation of tourist demand and/or to sell in Pago Pago, the species would be depleted.

Visitors to the Ofu Unit should be forewarned that the reef has dangerous currents and channels (aua), and that the entire To'aga area has legendary and spiritual significance for Samoans and should be respected accordingly. Many mysterious happenings have been recorded there, involving papalagi as well as Samoans, and local residents feel strongly that decorum must be observed when visiting the area. Although men do go fishing at To'aga at night, they do not do so alone. Whether day or night, no one should make loud noises or behave in an arrogant, mocking manner while at To'aga. As elsewhere in Samoa, women should not dress scantily even while bathing; a lavalava tied around the waist while swimming would be a sufficient and culturally appropriate cover-up. We were also cautioned that women should not wear their hair long at To'aga, again out of deference to legendary mysteries.

Summary.

The National Park of American Samoa includes very rich fishing and marine gathering grounds. Food species abound, and the Park is heavily utilized by Samoans for fishing and marine foraging. The methods, division of labor, and preferred species do not significantly differ from one island to another. The gender division of labor follows the customary Polynesian pattern; men dive and perform deep-sea fishing, while women do most of the inshore gathering of reef species. The use of the 'enu fish trap is a distinctive indigenous technique now largely

restricted to the island of Ofu. Though rubber slings and modern casting rods are used today, these methods are adaptations of older technologies and do not significantly change the scale of marine exploitation. We uncovered no evidence that Samoans are overusing or depleting local marine resources. On Tutuila, fishing and marine gathering are primarily recreational activities, but on Ta'u and Ofu, residents rely heavily on local marine resources for their daily food. Ta'u and Ofu residents also commonly send coolers of locally caught fish to their relatives in Tutuila as part of a cycle of in-kind reciprocities. Although some surplus fish and shellfish from the Park are sold by individuals to neighbors and/or to merchants in Pago Pago, there is no large-scale commercial exploitation of marine resources within the Park.