

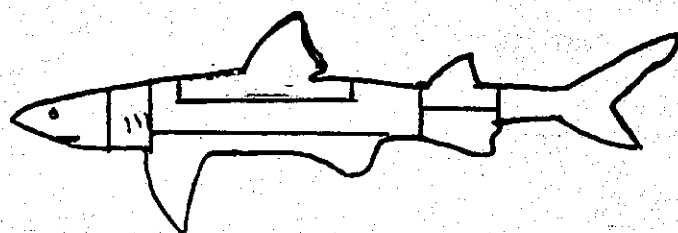
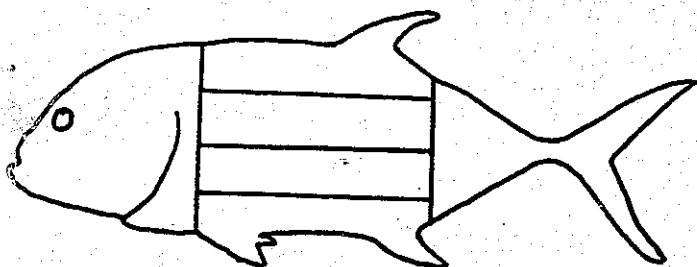
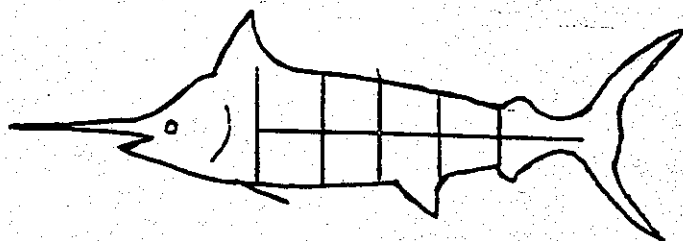
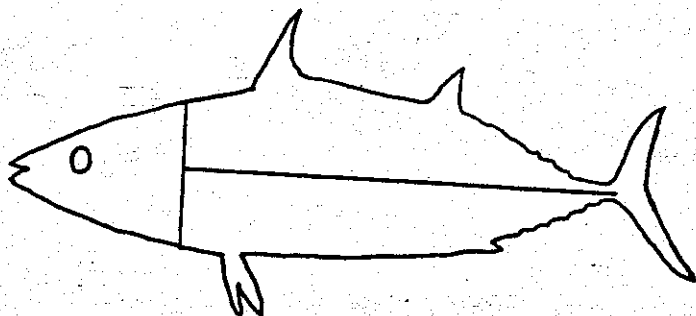
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Final Report

JUSTIFICATION AND DESIGN OF LIMITED ENTRY
ALTERNATIVES FOR THE OFFSHORE FISHERIES OF AMERICAN SAMOA,
AND AN EXAMINATION OF PREFERENTIAL FISHING RIGHTS FOR
NATIVE PEOPLE OF AMERICAN SAMOA WITHIN A LIMITED ENTRY CONTEXT

Submitted to

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Introduction

This report presents results of research for the project, "Justification and Design of Limited Entry Alternatives for the Offshore Fisheries of American Samoa," and an examination of preferential fishing rights for native people of American Samoa within a limited entry context. Documenting evidence was obtained through literature reviews, and expert testimony was obtained by detailed ethnographic interviews with village elders and titleholders, traditional and contemporary fishermen, retired and active subsistence, commercial, and recreational fishermen, boat builders and captains, entrepreneurs and educators.

Research was directed along two paths (ala). The first path was an investigation of the advantages and disadvantages of limited entry alternatives in relation to current management measures for the offshore fisheries. The second path was to analyze and summarize existing archaeological, anthropological, and historical evidence in an attempt to support a system of preferential access rights for native fishermen in the offshore fisheries. The second path of research focused on evidence to indicate that:

- 1) There was and is a set of historic fishing practices for the management species (see attachment 1).
- 2) There was and is a dependence by native fishermen on a significant, identifiable portion of the offshore fisheries.
- 3) There was and is a cultural and social framework relevant to the offshore fisheries that reflects cultural, social, and religious values, traditions, and practices of Samoans.
- 4) There is a present participation by Samoans in the fisheries (for details see Wespac contract 89-P-101).

This report presents the anthropological and historical documentation, and the interview data on traditional and contemporary fishing first because this evidence logically precedes any examination of limited entry alternatives. Culturally acceptable management measures for the offshore fisheries must take into account the social and economic context of traditional and contemporary fishing practices. The documentation of historic continuity is followed by the examination of limited entry alternatives for each of the fisheries, and then a conclusion, and appendices.

Both investigators have been involved in all phases of the research, and have shared equally in the writing. Franco summarized the anthropological and historic literature, and Severance directed the write-up, and summarized the archaeological and limited entry data.

Research Methodology: Field Phase

The field methodology was designed to result in the completion of interviews providing data on two paths of research, historical continuity in fishing practices, and limited entry alternatives. Open-ended, exploratory ethnographic interviews were conducted with traditional and contemporary fishermen, and village elders for the historical continuity research. Separate, open-ended, if/then interviews were conducted with active commercial and quasi-commercial fishermen for the limited entry alternatives. Thirty-two individuals were interviewed (see Appendix A). Two informants were re-interviewed and five were given a combined version of both interviews in order to cover both paths of research. In total 25 interviews were conducted on historical continuity, and 14 interviews were conducted on limited entry alternatives.

In determining who to interview we relied heavily on the expertise of the staff at the Department of Marine and Wildlife Resources. However, we were also concerned that the overall sample of informants be representative in terms of age and experience, and place of residence. Of our 32 informants, 11 (34 percent) were in the age group 30-44, 9 (28 percent) were in the age group 45-59, and 12 (38 percent) were in the age group 60-74. With respect to place of residence, 11 (34 percent) of our informants lived in Manu'a, or had done the bulk of their lifetime fishing in Manu'a. The remaining 20 (66 percent) of our informants lived on Tutuila, or had done the bulk of their lifetime fishing from Tutuila. With respect to the Manu'a informants, we interviewed individuals from Ofu, Olosega, and Ta'u. Tutuila based informants came from Poloa, Leone, and Vaitogi in the Western District, and from Utulei, Fagotogo, Pago Pago, Lauili'i, Faga'itua, and Aunu'u in the Eastern District.

A schedule of questions was developed, piloted and then used for the interviews dealing with past fishing practices, customary fish distributions and cultural significance of the management species. A separate set of questions was developed, piloted and then used for the interviews dealing with the cultural and political acceptability, and the enforceability of a standard set of limited entry alternatives.

For each informant a brief description of the project was given and their consent for the interview was obtained verbally. Whenever informants expressed willingness the interviews were taped. The majority of interviews were conducted in English although translation was required for four informants and was provided by the staff at DMWR.

A list of potential informants was provided by DMWR, and supplemented through contacts and networking by Franco and Severance. A number of interviews were conducted at the DMWR office, but others were conducted in informant's offices, homes and even by the roadside during a community work break. Attempts were made to make each informant feel as comfortable as possible by monitoring facial and body language and pacing the interview to the informant's needs. Interviews ranged in length from one half hour to over four and a half hours for a combined interview covering both research paths. The interviews average approximately one hour in length.

The interviews dealing with traditional catch and distribution strategies and historical continuity of fishing for the management species began with questions about the fisherman's age, place of residence, and participation in offshore and deep bottomfishing from the age when they began fishing to the present (Interview schedules can be found in Appendix B). Color photos of the pelagic species, labeled only with the scientific names, and sketches of billfish and sharks were used in a set order of presentation to elicit the informant's knowledge of the species, and of the vessels, gear, and location of fishing for that species. Color photos of ulua and the bottomfish management species were borrowed from the DMWR staff, and also used in a set order of presentation to elicit the informant's knowledge and experience with fishing for the species involved. With the bottomfish photos were included some photos of shallow water species not covered by the bottomfish FMP. Including these photos worked as an independent check on the informant's knowledge of the species normal depth and most probable catch strategy. Hence, if an informant stated that a deep water snapper such as *Etelis carbunculus* was caught by trolling, or a shallow water species such as *Mulloidichthys auriflamma* was caught at depths of over 100 fathoms, then their testimony regarding bottomfish was discounted. Only two informants exhibited any confusion over the bottomfish species groups and no informants exhibited confusion over the pelagic species.

For each species group, information was gathered about how, and how often it was caught using traditional gear, whether the informant had caught the species with traditional and/or contemporary gear, when the gear transition occurred, and when the species was last caught, or seen distributed by the informant. These questions allowed an additional check on informant reliability by comparing informant statements about the same communities, time periods, or fishing strategies.

For each species group known to be distributed by formal ceremonial cutting of either the raw or cooked fish, tracings of the photos of that species were presented to each informant and the informant was asked to sketch in and label the various parts of the fish and the normal sequence

of distribution. These independent sketches also provided an additional check on informant reliability as well as allowing for a measure of cultural and situational variation. It also limited the possibility that leading questions might simply reaffirm earlier informant's statements. For each species group the final questions dealt with the desirability and tastiness of the fish, and whether there were any legends, proverbs, or other culturally significant ideas, beliefs, and behaviors associated with that fish.

The interviews dealing with limited entry alternatives began with a clarification of the Council's and the American Samoan Government's respective roles and authority over the management species, and a brief explanation of effort controls, including "limited entry." Questions were then structured around an if/then scenario for each of the species groups in the four FMPs. For most of the informants the primary concerns were the issues of establishing native rights, and native preference. Before questions about limited entry could be asked, informants expressed considerable concern about the condition of the bottomfish and the pelagic stocks, and the perceived threat to the resource of larger boats coming with more efficient gear from Hawaii, the West Coast, and other foreign countries. The if/then scenarios were based on the assumption that clear scientific evidence of the need for management controls existed, and that an expansion of the local and export market had taken place. Limited entry permitting, and the other management alternatives were then presented as options in a very open-ended fashion to avoid suggestive questions. When a management alternative was not understood, it was explained in principle as simply as possible without suggesting known advantages and disadvantages, and the informants were asked to consider the cultural and political acceptability, and the enforceability of each management alternative. A small chart with the major known offshore banks, and the longline exclusion zone was used in some of the interviews to clarify management authority and alternatives.

The standard and proven ethnographic methodology of flexible, open-ended focused interviews, and photo elicitation techniques was chosen for this project because it provides in depth information on cultural knowledge and cultural significance over a range of informant backgrounds. It provides cross-checks on informant reliability. It provides a quick, preliminary, but quite broad perspective on the range of local attitudes towards management strategies and alternatives. Open-ended interviewing with a piloted set of questions is also less likely to bias informant responses than a more formal survey methodology, unless the questions undergo careful pretesting, with translation and back translation.

Continuities in Samoan Fishing: Anthropological and Historical Literature Review

In this report we will show the continuities in Samoan offshore fishing traditions and practices, and the significance of these in the social, economic, and ceremonial realms of the Samoan way of life (fa'a Samoa). We will begin with a detailed analysis of Samoan proverbial material, as compiled by Dr. Erich Schultz in 1953, in order to establish a deep historical and cultural context for Samoan offshore fishing practices. The 19th century ethnohistorical literature, primarily the writings of Christian missionaries and colonial administrators, was compiled by Dr. Augustin Kramer in 1902. Kramer's work documents the continuity in offshore fishing practices into the late 19th and early 20th century. The ethnographic literature, most significantly the thorough documentation provided by Te Rangi Hiroa (Peter Buck) in Samoan Material Culture, shows quite clearly that Samoans maintained a vibrant offshore fishing tradition into the 1930s. The extensive interview data collected by the investigators during their fieldwork on Tutuila, Ofu, Olosega, and Ta'u, indicate continued Samoan activity in the offshore fishery, and a desire by Samoans for greater participation in, and more effective exploitation of, their offshore fisheries.

After having documented that American Samoans have continued to exploit their offshore fisheries, we will discuss possible strategies for establishing limited entry systems that would encourage and facilitate the continuation of Samoan fishing traditions and practices into the 21st century.

Literature Review: Continuities In Fishing Practice

The Samoan archipelago was first settled by adventurous Polynesians nearly 3500 years ago. These initial colonizers brought with them their decorated Lapita pottery, the diagnostic feature of material culture that links them to early settlers in Fiji and Tonga (See Davidson 1979:92) (For a concise review of the early archeology of Samoan fishing see Appendix B.).

Although the archaeology provides a broad temporal framework for the evolution of Samoan culture previous to European contact, another data base, the oral historical materials, provide us with a unique glimpse into Samoan social relations, and the role of fishing and fish in those social relations during this period. I use the term "oral historical" to refer to the verbal proverbial and legendary materials that were recorded by Schultz (1953) Brother Herman (1976), Ma'ia'i (1960), and numerous others, in order to perpetuate this important oral and oratorical feature of Samoan culture.

In Schultz' Proverbial Expressions of Samoa, chapter one brings together all the proverbial expressions in which fish and fishing play a symbolic role. As the following analysis will demonstrate, these proverbs, used over and over again in appropriate contexts, and perhaps over many generations, give us a clear insight into Samoan social relations, and into Samoan thought processes. In Schultz' collection of proverbs he provides the necessary background for the proverb, the proverb itself, an interpretation of the proverb, and how it was used in particular social contexts. The proverbs below have different social uses:

Upu fa'aaloalo are expressions of respect.

Upu fa'amaulolo are expressions of respect and courtesy in the form of self-abasement.

Upu vivi'i are complimentary remarks.

Upu alofa are expressions of love, compassion, and sympathy.

Upu fa'anoanoa express repentance and remorse.

Upu fa'aulaula express ridicule.

Upu fa'alumaluma express ridicule and mockery.

Upu fa'aalualu encourage and persuade.

Upu fa'afiti express denial and refusal.

For example, the first proverb he presents (1980:9) involves the bonito fish-hook:

Proverb 1

The Samoan fish-hook consists of a longish shaft of pearl shell, pa, and a hook made of tortoise shell, maga. The hook is ingeniously fashioned to the pa with thin threads of coconut fibre. The whole contraption is known as matau, or more simply, pa. To polish the pa, pieces of coral are used: the rough kind called puga, as well as the softer 'ana.

Ia a le puga, a le 'ana, or Ia a le puga niisi, a le 'ana liisi. Some parts are polished with puga, others with 'ana.

An upu fa'aalualu: General invitation to assist in the reconciliation of quarreling parties.

In this proverb, the two parts of the bonito hook, the pa and the maga, symbolize two quarreling parties, that must be "ingeniously fastened" and carefully "polished," to be reconciled. Schultz then discusses eleven more proverbs where the bonito fish-hook plays a central symbolic role. (This hook is designed for use in pole and line fishing from

a specialized offshore canoe (va'aalo) for skipjack, yellowfin and bigeye tuna.) These proverbs specifically refer to appropriate social behaviors and statuses, and a few of them are analyzed below.

Proverb 2

Laua is the name of a bay in Falelima as well as the name of one of Falelima's five divisions. In the days of yore Tuiuea (the king of Uea or Wallis) came to this village. The king had a pa but he did not know how to tie it correctly into a fish-hook. He invited all the tautai (fishers and sailors) of Samoa to come to Laua and help him. They finally succeeded in tying the hook.

Ua 'atoa le faga i Laua. All have assembled in the Bay of Laua.

Upu fa'aloalo: Respectful term used to designate a full meeting.

In this proverb, the king invites all the specialist tautai to come together to solve the problem of tying the pa, just as all the chiefs must come together to resolve any important problem in Samoan social relations. Again, the intricacy of making the pa is likened to the complexity of maintaining harmonious social and political relations. In addition, the specialist of the sea, the tautai, takes on the problem-solving role of the specialist of the land, the matai (chiefs).

In Schultz' proverb number six, we see the parts of the bonito hook representing different statuses within Samoan culture:

Proverb 6

O le pa ua sala i le maga. The hook has been torn off at the shaft. It is more difficult to make the shaft, pa than the hook, maga; therefore, the pa is more valuable. If the maga breaks or is bitten off by a fish, the loss can easily be repaired.

Upu fa'aulaula: Playful words referring to losses easy to bear and easy to repair. In the estimation of the Samoans the death of the wife or a little child is to be counted among these. The death of the head of the family, on the other hand, is considered a great loss.

The pa is clearly the more valuable part of the bonito hook, and its loss is likened to the loss of a family head (matai), while the maga, is more easily replaced, and in Schultz' view, like a wife or little child. Still, both pa and maga, family head and family, must work together.

In Schultz' proverb number seven, the incorrect binding of the bonito hook is likened to an unsuccessful endeavor.

O le pala ua sala le fausaga. The fish-hook is incorrectly bound.

When the hook is badly bound, the fish will not take it.

Upu fa'anoanoa. Expression of regret meaning: The undertaking failed because some error was committed in its execution.

Again, the complexity of bonito hook-making symbolizes those tasks that are difficult to achieve successfully. Bonito hook-making was a complex and valued task, and as the following proverbs indicate the hooks were to be shared in a culturally appropriate manner.

Proverb 8

Se'i motu le pa'a 'ua iloa. May the pearl shell fish-hook never be lost before it has been shown to others. He who has a fine fish-hook should not nervously hide it, but allow others to see it; else, he could not proclaim its eventual loss for people would say that since they have never seen the hook, his boastful words are meaningless.

Upu fa'alumaluma: Mocking words meaning: Don't speak boastfully about the loss of an object whose existence was unknown.

Upu fa'anoanoa: Words of regret used by the loser. The following applications are also customary: "It is mean to hide one's possessions." With the communalistically minded Samoans avarice is one of the worst vices.

If you have to form a resolution, do not revolve the matter in your own mind only, but discuss it with others. Should things take an unfavorable turn, they will then be willing to help you (just as he who is familiar with a fine fish-hook, is able to find a similar one).

Proverb 9

Ia uluulu matafolau. Go and look in the fishermen's houses.

According to the communalistic system of the Samoans,

a travelling party is allowed to beg fish-hooks at the houses where they call. A wider interpretation is often given to this custom, known as the malagafaga, and the begging may be extended to other objects. To get good hooks one has to ask in the houses of the tautai (afolau); elsewhere only inferior hooks will be offered.

Upu fa'aalualu. Words of encouragement: don't be negligent, but do things thoroughly.

Proverb 10

Sa'a fa'aoti le utu a le faimea. Let the fisherman's bamboo receptacle be completely emptied out.

Faimea are those tautai that are clever at making fish-hooks. Utua is the bamboo receptacle in which the hooks are kept. Fa'aoti (from oti, to die) is a figure of speech for fa'aumu (completely, so that nothing is left).

If a visitor comes to the faimea to get a fish-hook, the latter should empty the receptacle completely and not niggardly hide a hook.

Upu fa'aalualu. (1) In a discussion each one should tell his opinion unreservedly; only then can the right decision be reached. (2) At a reconciliation the opponents should openly confess the cause of their dissatisfaction, so that permanent peace may be concluded.

Proverb 12

Seu foga'afa. To steer a canoe in such a way that the fishing line of another canoe is turned in the wrong direction.

I was told that Seu foga'afa designates a usage customary at the alafaga and resembles the malagafaga (Proverb 9). A fisherman who has lost his hooks may approach another canoe, take hold of a fish line and remove the hook. (NOTE: These "sharing" customs may be why people were reluctant to show us their pa in A.S.)

All of the above proverbs use the bonito fish-hook as a central symbol conveying important social behaviors and statuses. The following proverbs allude to bonito fishing itself, and convey significant cultural values of

American Samoa
A view of Pago Pago bay area,
the Pacific's finest deep water harbor.



partnership, solidarity, strength, appropriate oratorical etiquette and courtesy, preparedness and perseverance.

Proverb 38

Ia o gatasi le futia ma le umele. The sinnet ring and the stand for the fishing rod must be equally strong. The bonito fishing rod is fastened to the thwart by means of a sinnet ring (futia). The lower end rests in a stand, to which it is tied by means of a rope (umele). Both ropes must be of equal strength, lest one of them tear when a bonito bites.

Upu fa'alualu. When two men are in partnership, they must be of one mind. Should one be weak and fainthearted, the undertaking will fail.

Proverb 40

Ua se le atu i ama. The bonito was mistakenly pulled up on the outrigger side.

When a bonito has taken the bait, the fisherman will swing in his rod with a forward motion on the starboard side, the canoe still moving on. This cannot be done on the left side because of the outrigger. Should the fish or the line strike the outrigger (this may happen to an inexperienced or hasty fisherman) the hook is likely to be torn out and the fish will be lost.

Upu fa'amaulalo. The saying is used by a speaker as an apology for having, in the heat of discussion, offended one of his listeners or for having unintentionally omitted one of the set forms of speech required by Samoan etiquette.

Proverb 41

Ua tuliloa le atu a le sa'u. The bonito is pursued by the swordfish (billfish).

The swordfish (sa'ula) likes to pursue bonito even when it seeks shelter near a boat.

Upu vivi'i to commend the energy and perseverance with which a person strives towards his goal. Upu alofa to express sympathy for one who is pursued like the bonito.

Proverb 42

Talanoa atu, 'ae le talanoa manu. The bonitos swim about, but the seagulls are on the alert.

An incautious person will be surprised by his enemy.

Proverb 43

Nafanua, the war goddess, dwelt in Falealupo, Savaii. The land where her house stood now belongs to Chief Auva'a. There were three entrances to her house. The front entrance was used by those who came with a request. Through the back entrance she received the food which had to be offered to her as tribute. The side entrance had a different purpose. It was called "the passage of the bonito" and through it the bonito fisher had to bring her a fish. Opposite this entrance was Nafanua's seat.

Tau ina uia o le ala o le atu. Let it go the way of the bonito.

This is said by a person when Samoan custom requires him to give away some valuable objects, such as a pig or a fine mat. Often a somewhat inferior object is chosen for such a presentation. The saying is then used by a member of the family to indicate that the quality of the gift does not correspond with the dignity of the receiver.

It is also used as an upu fa'amaulalo, an apology to the receiver whom courtesy then requires to praise the value of the gift.

Whereas bonito hooks, and bonito fishing are used in proverbs to refer to positive social behaviors and values, the shark often appears in Samoan proverbs to represent the negative side of Samoan social relations.

Proverb 33

A tulituliloa 'ua o le mago i Foa? Is he to be pursued like the shark of Foa?

Mago is a species of shark; pa'itele was a sea monster about which little is known. Once upon a time a mago and a pa'itele had a fight. On the coast near Asau the shark crept into a submarine cave. The pa'itele tried to follow but it was so big it got stuck. The mago escaped through a side opening. Later the shark went to Foa and proposed to Sinafalemoa, the daughter of the chief. As he was rejected, he died of grief. This is why he is called the Shark of Foa.

Upu fa'anoanoa or alofa used when a person is pursued by misfortune.

Proverb 34

O le malie ma le tu'u malie. Every shark must be paid for.

The first shark caught in a new boat must be presented to the village by the owner of the boat. In return the owner will receive a gift of food. This gift is known as tu'u malie or payment for the shark.

The saying refers to "retribution" in a good and bad sense.

Proverb 36

To 'ai fa'a ia a po. To come like a fish in the night. This pictures a fisher who sits in his boat on a dark night and is startled by the sudden appearance of a shark.

Upu fa'aulaula addressed to a person who appears unexpectedly. The visitor, too, may use the words but in a negative sense; Ou te le to'ai fa'a i'a a po, meaning, I do not come secretly like a fish in the night, but I am here to meet with you all, to converse with you, to tell you my wishes.

In one of the proverbs collected by Schultz, the behavior of a pregnant grouper (gatala) is likened to Samoan feelings of grief and mourning.

Proverb 55

When the gatala has been impregnated, it moves very slowly. The Samoans compare this state of repose to grief and mourning and maintain that the matulau is then often seen in company with the gatala. Both fish are frequently caught together.

Ua fa'anoa fua le matulau i le fa'anoa a gatala. The matalau shares the gatala's grief without reason.

Upu faifai referring to a person who meddles with other people's affairs without the slightest reason.

This analysis of Samoan proverbs has demonstrated that Samoans have developed clear and accurate impressions about the behavior of bonito, shark, billfish, and groupers. These impressions were shared by Samoans to the extent that they were worked into repeatedly used proverbs, where the shared symbolism is essential to the impact of the statement. Samoans have been going to offshore areas to catch these fish for centuries. For centuries these fish,

once brought to shore, not only provided food for nutritional purposes, they provided analogies for oratorical purposes.

The man who brought these fish to shore was the tautai, or fishing specialist. The proverbs also provide us with insights into Samoan perceptions of the tautai. The tautai, as represented in the proverbs below, is courageous, confident, and knowledgeable, yet potentially deceptive and prone to supernatural punishment.

Proverb 85

La'ulu is the name of the reef near Falealupo, very rich in fish. Ua tagi le tagata e ona le va'a i le tautai ia ave le va'a i La'ulu ia goto ona o le tele o i'a. The owner of a boat begged a tautai to take his boat to La'ulu even though it should sink with the weight of the catch.

Na tagisia La'ulu o se va'a ia goto.

Upu fa'aalualu. Meet the danger with courage and confidence and you will be assured of victory.

Proverb 30

A fisherman at his work or returning from the sea, being asked whether he has caught anything, will give a negative answer if he wants to keep all the fish for himself.

O le fa'afiti a tautai. The denial of the fisherman. A petitioner uses it to indicate he realizes the negative answer he gets is only an evasion.

Proverb 31

When a tauta (landman, opposite of tautai) advances an opinion regarding fishing or navigation, he receives the answer: O le va'a a le tauta. That is the opinion of a landlubber.

It means that his opinion is of no value.

Proverb 32

When a matai tauta (landlubber) who owns fishing tackle but understands nothing about fishing, wants some fish, he will give the tackle and a present to a tautai and ask him to go fishing for him. If the tautai has no luck, people will say it is the punishment for some sin he has committed and that he must try again until he makes a catch.

O le sala a tautai e totoqi. The tautai must pay for his sins.

Upu fa'amaulolo meaning: If I have caused some trouble, such as a quarrel, I must try my best to set things right.

These last two proverbs begin to make a dichotomy between the tautai, as specialist on the sea, and matai, as specialist on the land. As will be shown in later analyses, each specialist is deferred to in his specific domain, and as the product of the tautai's expertise, bonito, shark, billfish, and bottomfish, are brought to shore, and cross over into the domain of the matai, appropriate ritual distributions should be observed. This shoreline context provides the potential for significant disagreement. Put more simply, the tautai and the matai may not always agree on whose family should eat the fish.

The proverbs collected by Schultz in 1953 were compiled from the earlier works of Pratt (1861), von Bulow (1902), Sierich (1890), Stair (1897), Steubel (1896), and Turner (1861, 1884), as well as issues of the Journal of the Polynesian Society. Schultz also collected some of the proverbs from Samoans directly, so the proverbs were still in use into the early 1950s.

Without question, the most comprehensive early ethnohistorical description of Samoan culture is that provided by Augustin Kramer entitled Samoa Islands (1902). Kramer refers to many of the same early sources mentioned above, relying most heavily on the works of von Bulow, Pratt, and Turner, as well as Thilenius (1900), and his own careful observations. The most detailed and thorough ethnographic account of Samoan craftwork is Peter Buck's (Te Rangi Hiroa's) Samoa Material Culture (1930). This classic ethnography is based almost totally on Buck's own observations and passionate concern for perpetuating the material cultures of many traditional Polynesian societies. The following discussion integrates these two major works, and although some points are restated from the discussion of the Schultz collection of proverbs, this repetition serves to corroborate earlier points, and to indicate continuities in fishing practices into the 1930s.

As with the proverbial material presented above, Kramer and Buck also focused on Samoan bonito hooks. In Kramer's opinion (1902:347-8), the most ingenious of Samoa's fishhooks were those employed in bonito fishing. These hooks had a shank cut from the mother of pearl and ground into the form of a fish. The point was cut from turtle shell and lashed dexterously to the shank with strips of fausoga (*Pipturus* sp.) bark. Kramer (1902:354) recounts that for

Samoans the success of bonito fishing depended on this dexterous lashing:

The tying of the hook for bonito fishing is extremely difficult. For if the tying of the hook is done wrongly, then misfortune follows, and one obtains no bonito and no shark. But if the tying is done correctly it brings shark and bonito. And the catching is done.

Kramer (1902:761, 775, 809) presents three oral histories demonstrating the crucial importance of the hook lashing in the fortune and success of any bonito catch. Demandt (1914) provides photographs of different types of bonito hooks.

The primary tools used in this manufacturing process were the drill, rubbing stones, and cutting implements. There was apparently substantial variation in hook manufacture throughout the Samoan archipelago.

When a specialist fisherman (tautai) needed additional bonito hooks he could visit another tautai and request them. During this visit (malaga faga) the tautai in need of hooks announced his wish to see the host tautai's hooks. The host tautai took down his basket of spare hooks and emptied it in front of his visitor who examined them and expressed a desire for one or two of them. The visiting tautai could not express an interest in, or appropriate, hooks that were on a rod or line, but only those hooks not in use and stored in the host tautai's basket (Buck 1930).

Bonito fishing was the supreme Samoan sport and chiefly pastime, as well as a productive activity yielding marine protein resources (Kramer 1902:352; Buck 1930:506). In bonito fishing, the use of the long rod with many hooks was restricted to the chief, while untitled men used a shorter rod with only a single hook (Buck 1930:506). It was advantageous to use both rods simultaneously so that more than one hook would be in the water at different distances from the boat.

Bonito fishing was always conducted from a bonito canoe (va'a alo), with a crew of two or three fishermen. With three, the man sitting at the bow was the lookout, the man in the middle of the boat was the bailer, and the occupant of the stern seat controlled the canoe and the fishing rods. Buck (1930:507-8) describes the action and teamwork of bonito fishing:

...the steersman as he sits on the seat also rests against the lower end of the rod behind him. He does not hold the rod when endeavoring to keep pace with a school of bonito. Both hands are fully occupied in vigorously plying the paddle for he has to steer

the canoe as well as paddle. He, therefore, pays no attention to the rod while the hook is merely trailing in the water. When, however, a bonito takes the hook the backward pull comes on the rod. The rod post acts as a fulcrum and the lower end of the rod is levered forward. The forward thrust is conveyed to the part of the steersman resting against the rod. He immediately drops his paddle in the canoe, reaches around with his right hand, grasps the rod, pulls it toward him and lifts the self-hooked bonito out of the water...

The skilled fisherman always swings the fish in on the right side and lands it in the middle of the canoe where it either drops off the barbless hook or is removed by the middle man. It is said that some fishermen are skillful enough to flip the rod so that the hook jerks free in mid air while the fish lands in the canoe. Time spent in unhooking a fish is time lost. Where every second is of importance while on the school, a barbed hook would be a drawback and not an advantage. There was thus no incentive to invent barbs for bonito hooks.

Sometimes, however, through the angle of the canoe being wrong, the fish had to be landed on the outrigger side...The steersman drops the rod back on the rod post picks up his paddle and while keeping up the strenuous race with the school, he awaits the next forward impulse of the rod.

The lookout watched the sea for ripples that might indicate the presence of a school of bonito. All the crew observed as flocks of birds swooped to catch smaller fish, and then the canoe raced to a position immediately over these small fish, and just ahead of the bonito pursuing them (See the Legend of the Fish Fighting the Birds, Ma'ia'i (1960)). It was in racing ahead of a school of bonito that the lightness and speed of the canoe was best demonstrated (Buck observed the construction of the va'a alo in 1928, and provides a detailed description of this process (1930:380-405)). This canoe position, in relation to the bonito school, yielded many fish, but it was difficult to attain and maintain. Once the bonito passed under the canoe, the hooks landed in "untenanted waters" (Buck, 1930:508). Kramer (1902:355) estimates that, "A few bonito canoes probably obtain a hundred bonito and it is difficult for them to eat up the whole shoal."

The role of the lookout was crucial to successful bonito fishing. In addition to spotting schools of fish from the canoe, and carefully following sea birds, he also had to be on the watch for fish that preyed upon bonito. The billfish (sa'ula) was known to charge if a bonito it was pursuing was

hooked and thrown into a canoe, so the lookout had to see not only the position of the bonito, but also the position of potentially dangerous fish. From this relationship between the bonito and the billfish (sa'ula), Buck notes that the Samoans have a saying about the relations between a man and a powerful chief: "The bonito is now carefully watching the sawfish," means "Its your move, what will you do?" (Buck, 1930:508). The relationship between bonito and billfish was thus analogous to the relations between a man and a powerful chief. Kramer presents a legend, "The Story of the Swordfish," in which a bonito boat is rammed and sunk by a sa'ula (1902:359-360). In addition, Kramer (1902:356) indicates that the crew also watched for shark approaching the bonito school, and that the crew would leave the bonito school to catch the shark in a noose.

Lookouts were also important in initial observations of bonito from land. When the bonito or sea birds were observed, the fishing crews rushed from their houses, hurriedly launched their bonito boats, and were off at full speed to position themselves in front of the bonito school.

There were three bonito seasons each of which corresponded to a breadfruit season (Buck 1930:509). The first season was in January and February, with the second season beginning in May and lasting through July. The final season was in the months of October, November, and December. During any month of the bonito season particular days were best for fishing, and the bonito caught on these days were named (Buck 1930:509):

- Bonito of the new moon
- Bonito of the seventh day
- Bonito of the full moon
- Bonito of the half moon waning

On any day of the bonito season, the crew set off after midnight to be beyond the reef, and in position to observe bonito by daybreak. During daylight hours however, the crews and their canoes were always ready on shore if bonito were spotted. These bonito fishermen apparently perceived that they would be successful if their hooks were of good fortune. If their hooks were of bad fortune they might be ineffective in catching bonito, or meet with disaster.

Manu'a claimed to have the fortunate fishermen capable of catching large quantities of fish (Buck, 1930:509):

It is said that on occasion the canoe (of the Manu'a fishermen) becomes so full that the crew get overboard to make room, and guide the canoe in through the reef by swimming. Such an event was considered a great honor to the crew of the loaded canoe.

Samoans believed that bonito was a fish of high status, a fish for chiefs, and a fish that the great god Tagaloa desired for himself (Kramer, 1902:356). Linguistic terms used in reference to bonito were also used to refer to chiefs and this also indicates bonito's special status (Kramer 1902:356; Pratt, 1960:280).

The importance of bonito fishing is also indicated by the status achieved by the specialist fishermen (tautai). All experienced fishermen were respected as tautai, but from this group one individual was selected as head tautai of the kin group and village. These tautai met in a guest house over a bowl of 'ava, and planned for the bonito, or other fishing expedition. The socioeconomic and political transactions of the tautai closely mirrored those of the matai system. Their expert relations were explicitly economic, and they paralleled and interfaced with the more explicitly economic and political relations of the matai.

The authority of the tautai could supersede the authority of matai in particular contexts. Samoans seem to have made a clear distinction between authority over the land, the realm of the matai, and authority over the sea, the realm of the tautai (Buck 1930:518):

The distinction was conveyed in a saying which amounted to a law. "The authority of the land does not apply to the sea," and "the authority of the sea does not apply to the land."

If a matai was participating in the bonito fishing, the tautai would see that the first fish caught on the first day was presented to him. After this presentation, the matai was considered just another fisherman.

The authority of the tautai is best seen in his direction of the bonito fleet, but as will be discussed later, his authority and expertise were also crucial in the much more perilous work of catching shark. The tautai took both a directive and active role in fishing. He selected the ocean grounds to be visited, often well out of sight of land, and directed the movements of the bonito fleet. In addition, he maneuvered his own canoe and skillfully hooked and landed the bonito. The tautai decided when the fleet would return to land and signalled his decision by raising his paddle. As the fleet neared the shore, the tautai made a levy on the successful canoes of one or more bonito, depending on the quantity of the catch. These fish were shared equally in a community feast for both the successful and unsuccessful fishermen. If a fisherman deceived the tautai, avoiding the levy, his bonito canoe could be destroyed and his fishing gear confiscated. There were thus in operation sanctions

enforcing the communal sharing of bonito, and the authority of the tautai.

Once back on land the tautai generally deferred to the authority of the matai, and the tulafale who would direct the distribution of the bonito catch. In some villages strict sanctions seem to have been in place requiring that large bonito be reserved for the highest ranking matai, the alii sili of the village. Gray (1980:132-134) in his history of the American Naval Administration, entitled Amerika Samoa, presents a case where this sanction associated with a large skipjack tuna was not observed:

Fagiema of Tualatai County, "either an untitled man or a matai of small consequence" went fishing and caught a skipjack (atu). There were a number of fish which were sa, that is forbidden to all except the high chief of the vicinity in which they were taken, and among them was the skipjack, a large member of the bonita family, usually weighing about 40 pounds. It was Fagiema's duty to take his catch to High Chief Letuli of his county and leave it to him to have what he wanted for himself and give the rest to his talking chiefs to distribute as they saw fit, including a portion for the fisherman. Fagiema, however, took his fish home, and his family was in the act of cooking it for dinner when the Letuli passed by. When he saw what was going on, the Letuli acted promptly and vigorously. He directed his young men to burn Fagiema's house to the ground, to uproot all of his taro and banana patches, to evict the culprit and his family from the community, and to see to it that they should not raise crops or fish there again at any future time. In short, he condemned Fagiema and his family to either exile or starvation.

This event which occurred in 1900, brought High Chief Letuli into direct confrontation with Naval Station Commander Benjamin Tilley who had Letuli confined to the Pago Pago Bay area for one year, where he was deprived of the exercise of his chiefly function. Letuli also had to make restitution to Fagiema. This case represented the first major conflict between the American and Samoan legal system.

The tautai's authority was only over the canoes of the fleet. If a lone fisherman observed sea birds in a different area, and went individually to fish there, the tautai could not make the levy on his bonito. The individual fisherman directed his catch to his family, or to the matai who sent him to fish.

Faafouina I. Pula's account (In Copp, 1950:73-4) presents an illuminating picture of the bonito distribution activities:

When we were back inside the reef, the other bonito boats were coming in too, so we all gathered in one place in the water, and the chief steersman stood up. He made a good speech about our fishing, and then told us to divide up all the bonito so every boat has almost the same. Then, when we are still in our canoes in the water, we had our food brought together. And the food was cooked taros, Samoan cabbage and bananas. And we also had some raw bonitos. And for drinking, we had some green coconut juice. When we finished all this, we paddled up to the beach. On the beach, some people were waiting to carry the bonito-boats up to under the breadfruit trees. And every person who helps, even by only his little finger touching a boat, gets a bonito fish. Or if the fishing is not so good, a piece of fish. Then the head of the family that owns the boat divides up the fishing in it.

The high status of the bonito fishing is also indicated by the numerous prohibitions associated with it. The fishermen wore only the leaf skirt, and the upper body had to be bare during bonito fishing. An eye shade could cover the eyes, but only lime could be worn on the head. While in the canoe a fisherman could not spin the paddle in the air or lean back and stretch his legs over the topsides. When bonito hooks were being made, the craftsman must always work while sitting on a pile of mats, and no noise should disturb his concentration. Not observing these latter prohibitions made the hook "unlucky" and thus potentially dangerous or ineffective (Buck, 1930:520).

Shark fishing was initiated by negotiations between tautai and chief. The talking chief (tulafale) called upon a tautai to lead an expedition (lepaga), and the tautai spelled out the conditions of the work to an assembly of chiefs. At the conclusion of these talks, the tautai usually requested, for himself and the young men who would fish with him, pigs, taros, and coconut.

The whole village worked in gathering the food and making the oven. When the food was prepared it was ceremonially taken to the "encouragement house" (tapuai) where the tautai and matai were meeting. This food presentation was made to assure the success of the shark expedition--- without the proper ceremony the expedition would meet with misfortune (Copp, 1950:99).

The tautai ordered the young men to prepare all the fishing instruments, and all the needs of the boat. The main instruments used in shark fishing were the noose, the rattle, the deep bait, the float bait, the near bait, a club and a spear.

The shark noose was made of coconut sennit and used to catch and strangle the shark. Shark rattles (pictured on p. 424 of Buck, 1930) were coconut halfshells which attracted sharks into near proximity of the canoe. Deep bait, consisting of an old chicken, or piece of pig, was attached to a sennit rope and thrown overboard about ten feet deep. A bait of pig, or the dried meat of a bonito head, was attached to a breadfruit wood float, and dragged a great distance--ten to twenty fathoms-- behind the boat. The near bait, again of pig, or the gills of a fish, was used in the final maneuvering of the shark into the noose. Once the shark was noosed, he was hit over the head with a club made of hard wood. Sharks that continued to fight were then gorged through the mouth and gills with a spear, also made of hard wood.

The tautai and his crew might venture out alone to catch shark, or lead a small fleet to the open sea. Shark fishing occurred any time of the year, though in the stormy months of January and February, Samoans were most reluctant to fish for shark. Some expeditions set off in the dark early morning hours and stayed out only one day, while others fished for shark for as many as seven days on the open sea.

As the expedition returned to land, a signal was sent to the people on shore only if sharks had been caught. According to Kramer (1902:358), when the expedition was successful, the tautai stands erect in the lead canoe and,

jiggles his oar, the only sign received by those on shore. No shout or no song resounds; any noise, loud speech and much else are forbidden as when bonito fishing. When the boats are beached the man who caught the shark is greeted by his wife, who hands him a fine mat (ie toga). The shark is laid in it, and since it is a fish forbidden to the people, it is brought to the chief, who takes the mat for himself and divides the flesh of the shark. The tautai, who caught it, must not receive any of it; he goes quietly into his house, which is closed, and assumes the appearance of a mourner. He does not leave the house until the chief sends for him, he is then led to the chief, who bestows on him as reward before the assembled people the dignity of tautai alii.

Pula (In Copp, 1950:109) describes the distribution activities when large numbers of shark were caught. Of forty sharks, ten, including a big one, were kept by the talking chiefs who presented them to a village where lived a desired bride. The tautai received fifteen of the shark, and he gave some of these to the crew, and to relatives. A travelling

party arriving in the village received three, and all the young men received two.

It appears from the accounts of Kramer and Pula, that when sharks were caught, the tautai received both enhanced status and food resources. Also, it appears that sharks and fine mats were linked. The fine mat, an important product of the work of women, figured prominently in Kramer's account of the reception of the shark on land, and, from Copp's account, when the talking chiefs presented shark to the prospective bride's village, her family likely reciprocated with a presentation of fine mats.

Kramer (1902: 584) also relates a legend about a particular kind of shark called naiufi, and the status accorded to a man who skillfully divided and distributed this shark. The legend is entitled, "The History of the Fish in Atua."

There came one day the chief, Tautaufau, who is also called Veleva'a in other histories. He came with his fish (the fish was naiufi, a large black shark with excellent meat; caught only about every ten years) to bring it to his father the Tufuga in Asau. But he was called by Tuiatua Polailevao of Ma'a. Then he went with his fish into the house where the young man Seleanamani was. Then the Tuiatua ordered the fish to be divided. Then the young man took hold of it and divided it with the back of the stalk of the coconut frond; then he divided the fish. The head went to Saleaamua, the middle part remained in Ma'a, whilst they gave the tail to Salefao and its side. Then the Tuiatua asked: Whose son is the youth here? Then one of the people of Lufilufi answered: My son! Then the Tuiatua said: What is the boy's name? Then another man said: Seleanamani! And the Tuiatua said again: Then give up Seleanamani, let his name be Selelimalelei (Sele, is cut in pieces; limalelei is a skilled hand). The name of Lufilufi was first obtained in this way. In this way, the capital of Atua received its name, "to cut up food."

This legend suggests that just as one could make a name for oneself, and one's village, through skillful bonito hook making, one could make a name for oneself and village by skillful dividing and distributing of shark.

Large "skipjack" (ulua, *caranx* sp.) were also caught in Samoan waters (according to Buck 1930:421, the Samoans called these skipjack, malauli). Heaps of branching coral were made to attract the penu penu fish and the malauli which preyed upon them. The fishermen floated in their canoes over the coral heaps and carefully watched as the

malauli came in search of penu penu. A loop of four-ply sennit braid (pictured on p.421 of Buck.1930) was held by a fisherman swimming in the water, and when the malauli entered the loop it was drawn taut around the fish. The fisherman then jumped back into the boat and played the fish. According to Buck (1930:422):

It was looked upon as great sport to let the fish tow the canoe. When tired the fish was hauled into the canoe. The snaring of malauli thus partook of the nature of a game as well as adding to the food supply.

Although most early observers focused on the ingenious lashing of the bonito hook, Buck (1930:490) comments that the skillful manufacturing of other fishhooks was closely identified with particular villages and families:

A hook for catching malauli is localized to the village of Satuputea... The manufacture was the sole right of one family of which Nu'u is the present matai or head. Anyone desiring to use such a hook had to give Nu'u a present and obtain his permission. (Nu'u is a Manu'a chief).

Kramer (1902:350-351) also details the catching of other pelagics and bottomfish: masimasi, gatala (yellow-spotted grouper), and mata'ele'ele (flagtail grouper):

Masimasi catching...The catching is carried on from a boat with with five outrigger bars. Much food is prepared and taken with at the catching, which is carried out with the hook. But the canoe is not rowed as at the bonito fishing, but is allowed to fly with sails and the hook is drawn after. Then the masimasi bites and the ta'uo. Many other fish are obtained in this manner.

Gatala and mata'ele'ele catching...One carries on the fishing with a black shank, which one wraps in a piece of black barkcloth. The line is thirty fathoms long; but one fishes also in the lagoon and at the sides of the entrance to the reef. And thus the fishing is carried on: One rows with the left hand, whilst one ties the fishing line to the right and jerks steadily with it. Then presently the fish bites and is the hauled in arm over arm into the canoe.

From the Kramer and Buck accounts it is apparent that Samoans were actively pursuing bonito, shark, masimasi, malauli, groupers, and "many other fish," using a wide range of fishing techniques and gear. The comprehensiveness of these two works, and in particular Buck's ethnography in 1930, as well as the disruptions caused by World War II,

resulted in little ethnographic research being conducted in Samoa until well into the 1950s.

Holmes, who conducted ethnographic fieldwork in Fitiuta, on Ta'u, in Manu'a, in 1954, and in 1962-1963, was very impressed with continuities in Samoan fishing practices:

Samoans have devised an impressive array of methods for exploiting sea resources...bamboo rods outfitted with metal hooks and lures of stone or shell or live bait (are used) for catching sea bass or red snapper... Three man crews in twenty-seven foot outrigger canoes fish for bonito often well out of sight of land, and danger-loving shark fishermen in rowing boats stalk their prey with heavy rope nooses which they slip over the heads of the sharks.

Holmes (1974:46-47) describes the role and status of the tautai, the action of bonito fishing in the va'a alo, the ceremonialism associated with bonito distribution (aleaga), and the Fitiutan belief that those left on the land should "pray for the fishing." This description is very similar to that provided by Kramer and Buck, and certainly corroborates the continuity of traditional Samoan fishing practices on Ta'u into the 1950s and 1960s.

In 1956, an article entitled "Fishing Methods Used by Samoans," was published by S. Auapa'au in the journal Laufisi Ola. Auapa'au describes a method called Alo Atu for catching bonito:

Two men went out in Bonito canoe called Alo Atu, and went out to a place where they saw the seabirds called "Gogo" gathering in a place in the ocean, that is the place they may be able to get the "Oceanic Bonito." The man who sits at the stern of the canoe used the rod with a line and a home made hook made with cow horns, pig horns etc, tied with a piece of coral which was made in smooth condition call Pa cast the line backwards to catch fish. Chase them until the fishes going down below. Method used by all Samoans.

This description of bonito fishing methods is similar to the earlier accounts from Schultz, Kramer, and Buck. It differs in one important way, however. Samoans, by 1956, were using new materials for the hook portion of the pa, and as will be discussed later, hook materials have continued to change to the present.

Auapa'au also describes the shark fishing method practiced by Samoans into the 1950s. This is called Tiu Malie:

A party of 6 to 12 or more men went out to the open ocean by rowing a boat used pigs, dogs as baits, with

the help of a bundle of coconut shaken down the water to attract the attention of sharks when coming tied them with ropes and kill them.

Another method for catching shark is called sasa:

Using the remains of a dead beast to attract the attention of sharks - when doing it, they come right near the man who does the method, he then puts a hard blow with a spear. Used by nearly every village of Samoa.

These descriptions are also very similar to those provided by Kramer and Buck, and, as will be shown later, to those descriptions provided by Samoan fishermen interviewed by the investigators.

Auapa'au describes three bottom-fishing techniques being practiced by Samoans in the 1950s:

Fulu mumu: A line of about 20 fathoms with a piece of wire one yard long and hook with red feather, paddle the canoe very slow and pull the line. All Samoan people use this method.

Fulu pa'epa'e: Same as fulu mumu, with exception of white feather decorated the hook. Used by all Samoans.

'Afa'afa - Loloa: A long line of about 100 fathoms or so, strong and good one, take some bait such as Atule fish, put down 40 or 50 fathoms outside the open ocean. Method used by nearly all the villages.

Finally, Auapa'au describes three methods for catching particular species of fish, malauli (ulua), mata'ele'ele (flagtail grouper), and gatala (yellowspotted grouper):

Seu Malauli: A long rod about 20 feet long with a line, a hook at the end of the line, tied together with a nicely made coral or shell called "Pa" decorated sideways while the canoe floating to where the current goes too, pull the line slow and watch the "Pa" to slide along the surface of the sea, when Crevally Fish Coranz Stellatus sees the floating "Pa" she attacks it. Used by nearly every part of Samoa.

Matau Mata'ele'ele: Straps about 20 or more, 70 feet long to the bottom of the sea, with line of one fathom and hook with bait when a fish caught by the hook you noticed a stick in shake condition. Used by nearly all the Samoans. (original text).

Seu gatala: Same rod with a thin line, a wire of one yard long, with a hook tied together with a nice made coral (tio) called pa, cast the rod sideways slowly

pull the rod back and forth, with the pa underneath the surface, the "Giant Grouper" or Epinephelus Truvin followed the pa and swallow it, some are goatfish and wrasse. Used by nearly all the Samoans.

Auapa'au's article provides useful evidence that Samoans were continuing to fish, using techniques very similar to those described by Schultz, Kramer, and Buck, for bonito, shark, malauli, mata'ele'ele, gatala, and other bottomfish. Clearly, the materials used were different, as hook materials were changing, and wire was being used, but the methods employed appear to be similar throughout the Samoan archipelago. Of greatest significance for this report is the fact that Samoans were continuing to catch these species into the late 1950s. They were discussing their methods, and these methods, and the fish themselves were still appearing in Samoan proverbs and oratory (See Schultz 1953).

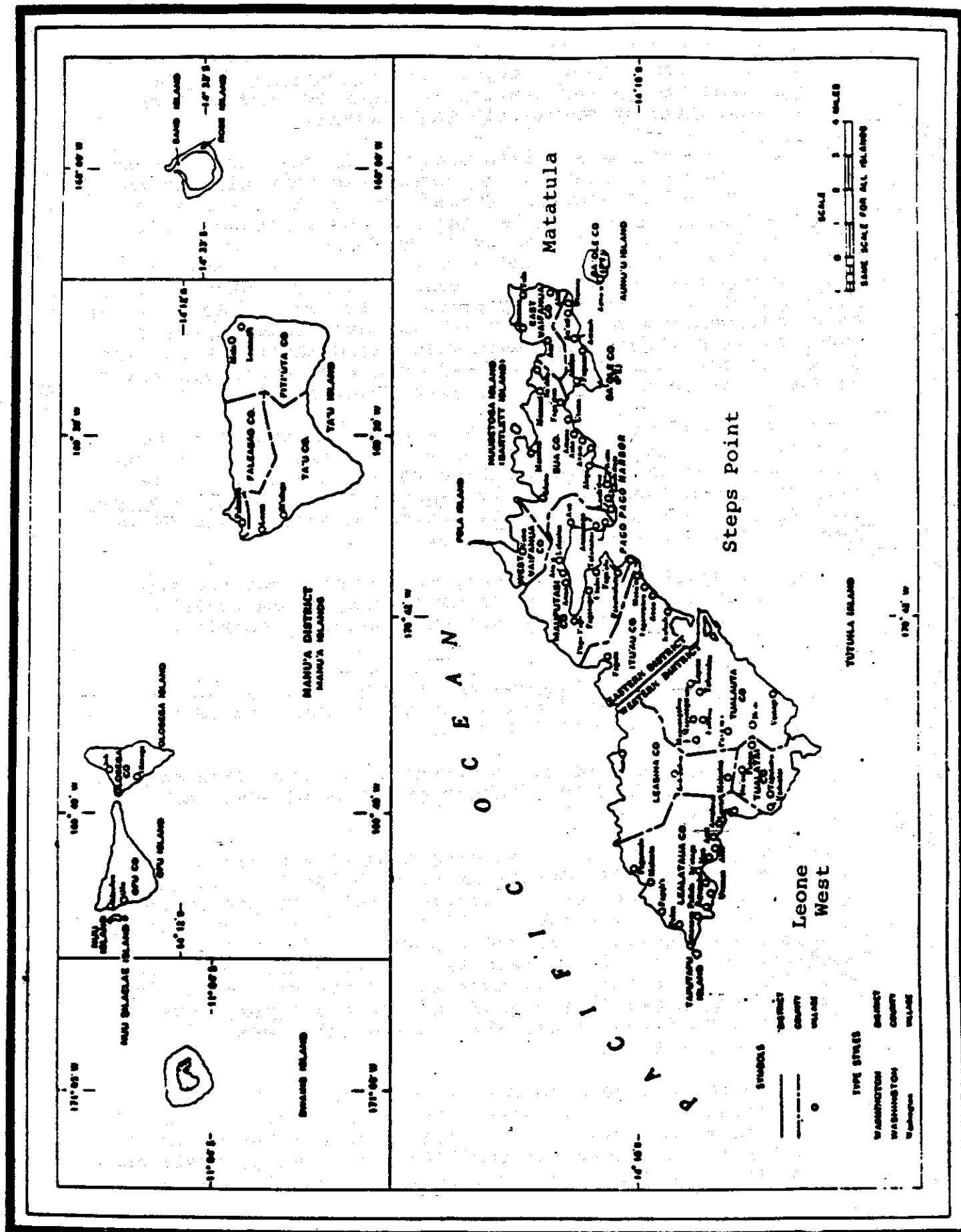
In 1966, the American Samoa Government investigated the feasibility of developing offshore commercial fishing, and the results of this investigation were summarized in the Wolf Management Report entitled Economic Development Program for American Samoa (1968). This research project had three specific component (Wolf, 1968:250):

- 1) To determine the techniques, vessels and fishing gear most suitable for developing a commercial fishing operation owned and manned by American Samoans.
- 2) To determine through exploratory fishing the availability and abundance of marine animals of potential commercial value.
- 3) To study the economic potential in the territory and elsewhere for the fishery products of American Samoa.

By 1968, a research vessel conducted 47 exploratory fishing trips, and 19,000 pounds of fish had been caught-- 15,000 pounds of reef and bottomfish and 4,000 pounds of offshore skipjack tuna (Wolf, 1968:250). Four major fishing grounds were identified around the island of Tutuila, Taputapu, Matatula, Leone West Banks, and Steps Point (See Map). Among the bottomfish, more than 3,000 pounds of fish from the Lutianidae family (red and green snapper) were caught. The Wolf report details how the catch was distributed (1968:253):

The catches were disposed of in various ways: by wholesale to various merchants and by retail sales on the Market Place; (thus stimulating interest in the potential industry and facilitating consumer preference studies); and by donations to the hospital. The average

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purchase at a store or the Market Place was six to seven pounds, with species seeming to play only a small part in customer preference (this amounted to avoidance of red fish because of past history of poisoning from the Lutjanus bohar or Mu). The size of fish was the main factor behind choice, with fish two and one-half pounds and under most preferred (footnote).

The footnote states:

The Matai system may be an important influence in this regard. Small fish are easier for proportioning. The matais and important adults of the village tend to receive the choicer parts so that the division of larger fish among the people can result in unequal portions.

Thus, by 1968, new techniques employed by the research vessel were yielding significant catches, and these species were being distributed through a non-traditional marketing system. Still, there remained an important element of non-market distribution, the donations to the hospital, and the matai continued to influence the size of fish that would enter the village, and its prestige-enhancing distribution system.

From this research, the Fishery Development Officer, concluded that, "the skipjack resource around American Samoa is sufficient to supply landings equal to those at Honolulu" (Wolf 1968:255). He noted that in addition to smaller tuna, large skipjack, 15 to 20 pounds in weight, could be caught in large numbers for home consumption, or for sale to the canneries. It was also noted in the Wolf Report (1968:255) that:

Evening fishermen often dash out in their high-powered outboard runabouts and return at dusk with 50 four to seven pound fish.

These fish too could be consumed in the village or sold to the cannery. Again, by 1968, methods and equipment for catching atu, and bottomfish, had changed in American Samoa, but still, there is clear evidence from the literature that these fish are being caught in quite large quantities. The Wolf Management Report (1968:256) concludes the sections on fishing with the statement, "a commercial skipjack fishery in American Samoa should receive priority attention."

The American Samoa Coral Reef Inventory (1980) also provides additional documentation demonstrating continuity in fishing for a significant portion of the bottomfish management species. This inventory proposes the establishment of critical use reef areas for many

communities in Manu'a and Tutuila because of continuing patterns of handline fishing from canoes by fishermen in these communities. Species mentioned as being commonly targeted include malauli (small ulua, carangidae), gatala (serranidae), filoa (lethrinidae), savane (lutjanidae), and both varieties of lobsters.

With this final literature source we have been able to document continuities in Samoan fishing practices into the 1980s. We now turn to the interview data to further substantiate these continuities.

INTERVIEW DATA

Pelagics

Many informants related their experiences catching atu, asiasi, and kavakava. As young men many of these informants had fished for atu from va'a alo with traditional pa, and three informants discussed the exhilaration and exhaustion of rapidly paddling the va'a alo in front of the bonito school, and the satisfaction they felt in catching a large number of bonito for the tautai. Two informant's mentioned that crewing the va'a alo was a prestigious activity for young Samoan men, and viewed by the village as "an expression of strength." In Manu'a, the tafa'aga was a slightly bigger bonito boat holding 4-5 crewmen. There were 2-3 tafa'aga being used in Fitiuta into the 1970s, and the last traditional Manuan va'a alo was destroyed in the 1987 typhoon. Swains Island was known to have a 6 person bonito canoe.

Many remembered catching atu with traditional pa, or with modern adaptations of this hook. Two informants indicated that they knew of atu being caught from va'a alo with Samoan pa into the late 1960s, and the early 1970s in Manu'a. One informant told of walking with friends in 1968, on a beach near Siufaga, on Ta'u, and upon seeing many manusina birds, "we ran to the boathouse, jumped into the va'a alo, the poles were ready with pa, and we went to catch the atu." Another informant recounted, from the 1940s, catching "30-40 atu in half an hour with the Samoan pa." He told of his tautai, "who had five different types of pa, and this tautai would determine from time of year, the day, and the type of fish which pa was best for catching. He just pulled them in one after the other." This same informant, fishing from a dory in 1975 caught "121 atu" using the modern Samoan pa. Others mentioned using the modern pa during the dory program in the 1970s.

Knowledge and lore about bonito fishing abounded in the interviews. One informant related the proverb, "When the futia and umele fit everything is ready." These two components of the va'a alo construction are essential to a successful catch, and are analogous to important social relations, and meetings. Bonito seasons were discussed by another informant, "100-150 pounders are usually caught between November and late April." Five different bird species were identified as signalling the presence of a bonito school. Five informants indicated that their families were tautai families, while two informants knew of pa makers who had conducted pa making workshops. All the informants

agreed that the atu was the most important fish because it was favored both raw (oka) and cooked, and generally more of them were caught than asiasi or kavakava. One informant related that atu fishing was sacred, "requiring special chants and prayers by the people waiting. The 'ava is prepared to drink with the atu. And the tautai is very important to the village." He went on to add that upon the return of the crew, "a prayer of thanks is said for the catch and that no one is hurt or killed." Va'a alo were reported to have gone 20-30 miles out in search of bonito schools.

Many informants discussed the crew's return to the shore, and the distribution of the catch. Two Manuan informants told how the tautai, before returning to shore, redistributed the fish between each of the canoes, and would never tell which crew had caught the most atu. Offshore the crew would eat raw atu, and other food prepared for them by the villagers, before bringing the catch to shore. Once on shore, the distribution was influenced by the quantity and size of certain specimens of the catch. One informant stated simply, "if we catch more than 50, we give it to the village council." Others broke the distribution down into more detail. One informant stated that, "today when 30-40 fish are caught, the first 2-3 go the faifeau (minister); so many to the crew, to boatowners, and to the village council." One Ofu informant indicated that "the faifeau, the chiefs, and the teachers" are given the fish. Another informant stated, "the biggest one always goes to the highest chief (alii sili)." Yey another informant stated, "when we catch plenty, we give to the matai and the faifeau, and there is the 'ava ceremony." Following up on this, it was suggested that the distribution of the 'ava, and the distribution of the atu, signalled the relative status of chiefs.

At this point, the informants were asked if there were special divisions and distributions of preferred portions of the atu, and the informants sketched these on the drawing provided them (See Figure 1). Most informants agreed that the io tua portion went to the highest ranking chief present, or a prominent minister. The io alo went to other ranking chiefs, and the ulu went to untitled men who had helped with the 'ava ceremony and the cooking for the feast.

Two informants indicated that atu is still distributed this way today at to'onai, the Sunday luncheon held after morning church services and at weddings and chiefly installations. Another informant indicated that when visiting groups (malaga) are anticipated in the village, the chiefs will send the tautai out to catch atu and that the welcoming feast should include atu appropriately distributed to chiefs of status.

Most informants indicated that asiasi, kavakava, and atu

were caught together from va'a alo. Any large specimen of these fish was given to the highest ranking chief, or the village minister, and divided as discussed above. One informant told of going from Ofu toward Rose Island (Nu'uamanu) with Chief Tau'ao'ao in the 1970s. On their way, "when we could just see the top of Ta'u, the chief told me to stop here 'the home of the asiasi'. We caught too many asiasi, filled the boat." This informant also related Manuan voyages to Rose Island on week-long fishing expeditions. An Ofu fisherman stated that a large asiasi was called ko'u, and that he caught these using atule for bait. Many informants concurred on this latter point. Today, many fishermen are trolling for asiasi and kavakava in alia, and one fisherman reported recently catching a "100 pounder" in schools further offshore.

The major transitions in bonito fishing seem to have occurred during World War II, when all offshore fishing was prohibited for security reasons, and with the coming of the outboard motor in the late 1950s and early 1960s. In the latter case, motor power replaced fast rowing bonito crews in those villages that could afford motors and fuel. In these villages, distribution patterns changed as fishermen had to sell surplus fish to pay for fuel, and engine repairs. In these villages, informants report, "some chiefs understood the change, while others said 'you catch fish for me or leave the village.'" Many informants felt that motorboat engines, and purseiner catch strategies, had changed fish behavior, the fish now run faster, and are more easily scattered by noise. Most informants felt that the purseiners were making it extremely difficult to catch bonito without going great distances offshore. This drives up the cost of catching bonito, and thus more fish go to market to cover costs than into village ceremonial distributions. One informant stated however that "I always give fish to people who need them for a fa'alavelave (an important life-cycle feast)."

From the informants a great deal of data concerning continuities in shark fishing was also collected. Just as many of these informants had gone out on va'a alo to catch bonito, so too they had gone out on tulula to catch shark. Many discussed their personal experiences on shark expeditions (lepaga), while others discussed lepaga they had observed returning to their villages. One informant recounted his catching shark in 1938-1939. Another was a lepaga captain and he stated "the loop must bind in front of the dorsal. In 1955, we caught a shark with ten men. We noosed it around the dorsal fin, stuck an oar down his throat to stop it from moving around, and pounded it plenty."

One informant related a story of how he had gone out on a tulula, in the early 1940s, as a 15 year old boy, and was

the oldest member of the crew. The boat towed a dead horse out from shore, and as the boat left the reef the horse was attacked by numerous sharks. The horse, which had been dead for days, had a bloated stomach that exploded when bitten by the sharks. Eventually, the horse was pulled up alongside the boat while the shark voraciously feasted on its carcass. The boys in the boat were excited and afraid as one large shark was noosed, gaffed, and gouged with canoe oars. The shark succumbed and was so large it filled the boat. The informant danced and twirled a remaining oar as the huge shark was brought to shore. Two informants indicated that they had gone on lepaga and returned with more than 40 sharks, while a typical catch was 10-20 sharks.

Many informants had gone out on shark expeditions, and seen the return of successful lepaga to the village. There was variation in informant descriptions of the signalling that occurred when a loaded tulula returned. Generally, one person would stand in the front of the boat and raise an oar if shark had been caught. Some informants related that this person twirled the oar, or did a "paddle dance." The oar might also be raised up and down a number of times to signal the number of shark caught. The "paddle dance" might also be accompanied by energetic singing and shouting. Only one informant related that the signal given to shore should be quiet and respectful.

Most informants related similar accounts of what happened when the canoes arrived at the beach. The sharks were presented by the tautai to the village, and laid on green coconut fronds. A talking chief would express his gratitude to the tautai and his crew, and say a prayer of thanks for the "catching of the shark and the safe return of the crew." The tautai, particularly if he was a chief, might also present a speech to the village chiefs and minister.

After these reciprocal speeches, the sharks would be distributed, again depending on the quantity and size of the largest specimen. The largest shark would go to the village council where it would be cut up and ceremonially distributed (See Figure 1). The gogo and io tua portions always went to the ali'i sili, or the minister. The tafa alo and tala oge were distributed to other ranking chiefs, and the siusiu would go to the talking chief presiding over the ceremonies. The ulu would often go to a young untitled man who had distinguished himself on the lepaga, or in the preparation of the feast, and the 'ava ceremony. One Manu'an informant stated that the au portion of the shark was given to the daughter of the ali'i sili, the taupou who mixed the 'ava.

If a large number of sharks were caught, 2-3 would go to the minister, 2-3 would go the wives of the chiefs (faletua), and the remainder would go the chiefs for

distribution to their families. If there was a visiting group (malaga) in the village, they too would receive shark. In this case the talking chief representing the malaga would present a fine mat, or a 'ava root (tugase) to the tautai as an expression of gratitude and respect.

The degree of informant consensus on the presentation and distribution of shark is related to the fact that many informants had observed shark distributions in the last few years in American Samoa. In December, 1988, a shark was caught with atu bait in Manu'a and presented and distributed along customary lines. Early in 1989, one shark was noosed from a motorboat in Manu'a, and another was caught with a baited hook off Tutuila, and both these sharks were presented and distributed according to Samoan custom.

According one informant, "Ta'u people love to eat shark," while three informants indicated that shark is a food preferred by older people. Shark is now more frequently caught from motor boats, with baited hooks using atu for bait, than by noosing and gouging, but the continuities in shark catching and distribution are clearly evident in the interview data.

A great deal of evidence supporting continuities in fishing for saula was also derived from the interview data. One informant discussed how the saula could pull the va'a alo by its 'iato, and related this occurrence to the famous legend, "How Tattooing Came to Samoa," and to the origin of the powerful Leiato title in Faga'itua. A Manu'an informant stated that special prayers and chants accompanied fishing for saula. Two informants indicated that saula are strong fish, requiring skill and perseverance in the catch, and a "prized fish in Ofu."

Many informants could recall catching saula in the recent past. Some caught saula from va'a alo and paopao using sennit longlines (afaloloa), while others had caught saula more recently from modern boats off of Tutuila, Ta'u, and Ofu. One informant had even caught saula using the noosing method. One informant stated that he had caught more than ten saula in the last five years, while another stated that he recently "caught 14 saula, and nearly one hundred atu." In December, 1988, one informant caught a 60-80 pound saula from his paopao and presented it to the chiefs of his village. Two other informants reported having caught saula in the recent past.

One informant indicated that the successful catch of saula was also signalled to shore with the twirling of an oar. With respect to the distribution of saula, most informants indicated that when plenty were caught, most were presented to the village chiefs for distribution to their families. One informant stated that the 'aumaga (the village men's

work group) always presented saula to the chiefly council. An informant from Ta'u indicated that the distribution of saula was very similar to the distribution of shark, and another informant stated flatly, "saula always goes to the village." Large saula were cut up as depicted in Figure 3, and the portions distributed to ranking chiefs and village ministers.

Masimasi is viewed as a very strong fish that is difficult to catch, in part because of the distance one must go from shore to find it. Some informants had caught masimasi using traditional bonito pa made of pig's teeth, or from the wood of the 'olioli tree. Others had caught it more recently from dories and alias using ~~strong~~ steel hooks. One informant related that in 1988 he went more than five miles out, caught a large masimasi, brought it ashore and presented it to the village chiefs.

The masimasi was usually presented to the village chiefs and the minister, and one informant stated the belief that "if you eat it yourself, you'll get sick." The fish was cut up as shown in Figure 3, and the head was always reserved for the highest ranking chief. The other portions were served to the ministers and the ranking chiefs present.

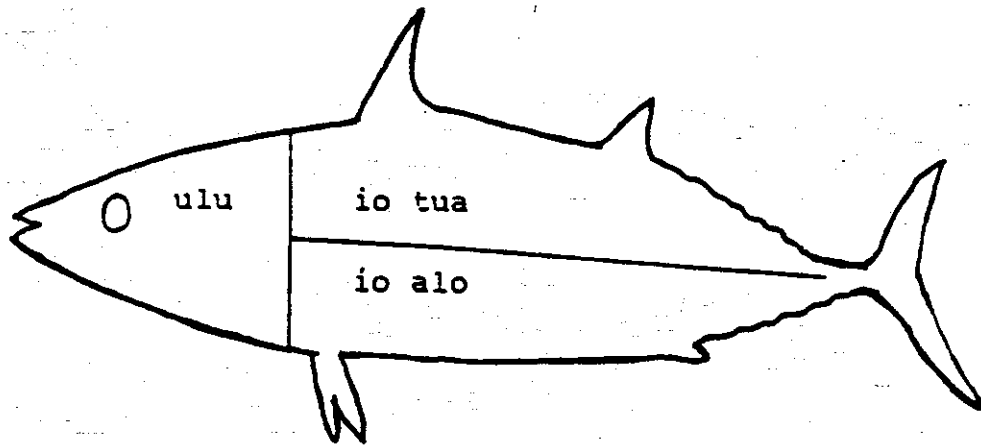
The catching of wahoo (paala tagi) required special skills, and brought special status to the Samoan fisherman. One informant had caught wahoo by chewing coconut meat and spitting the oil onto the sea facilitating the viewing and noosing of the fish. Informants had seen wahoo caught from va'a alo and paopao with pa, and with steel hooks, wire leader, and bait such as atule, pelupelu, octopus, and malolo. Frequently wahoo is caught near buoys and logs.

One informant stated, "if I catch one wahoo, that's for me, if I catch two, I give one to the minister." When large wahoo were caught, they were presented to the village chiefs, and cut up as depicted in figure 3. The head was always reserved for the highest ranking chief, and the remaining portions were distributed to the ministers and other ranking chiefs.

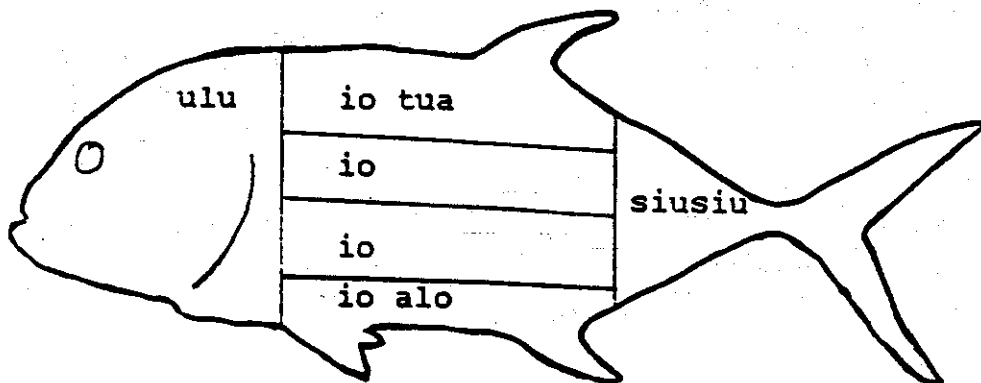
The interview data on the pelagic species show quite clearly that Samoans have continued to catch these fish and that they remain important in Samoan ceremonial contexts. All these fish when brought to shore, and distributed according to Samoan custom, continue to play a major role in identifying and enhancing the status of Samoan chiefs, families, ministers, fishermen and crew.

Figure 1

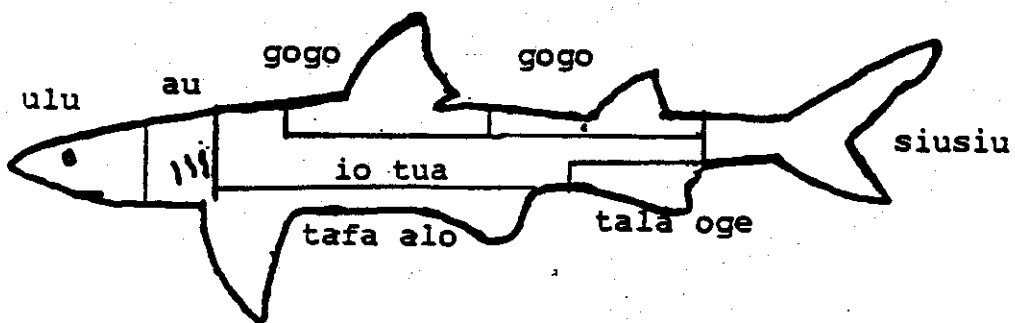
Ceremonial Distribution: Culturally Most Significant Species



ATU



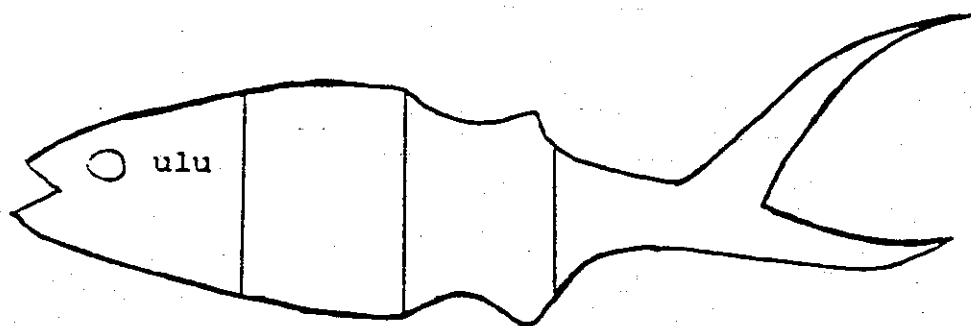
ULUA



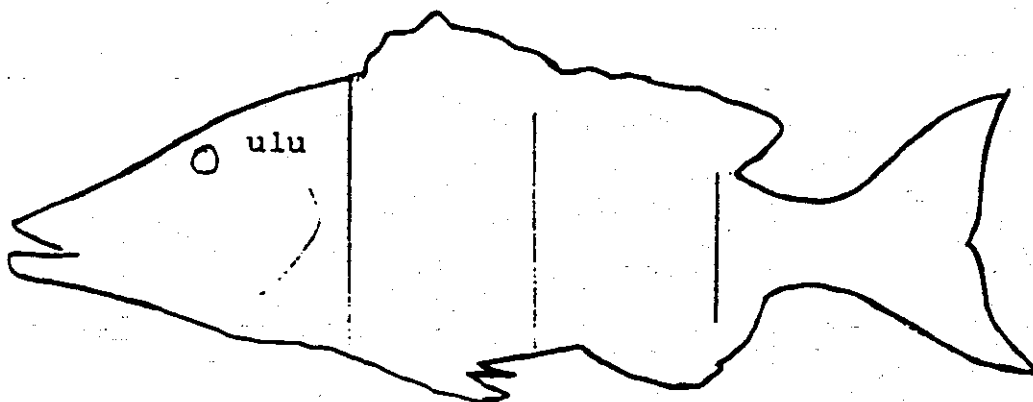
MALIE

Figure 2

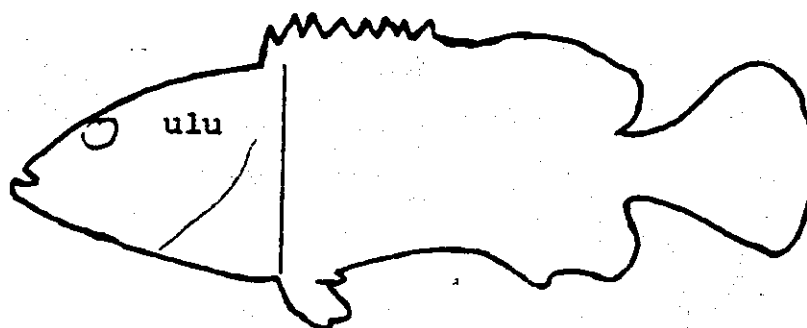
Ceremonial Distribution: Bottomfish



PALU LOA



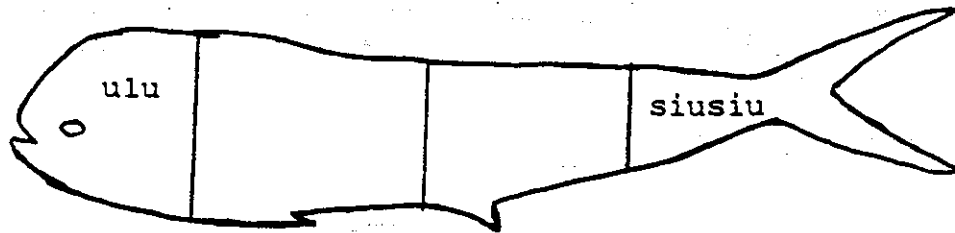
FILOA



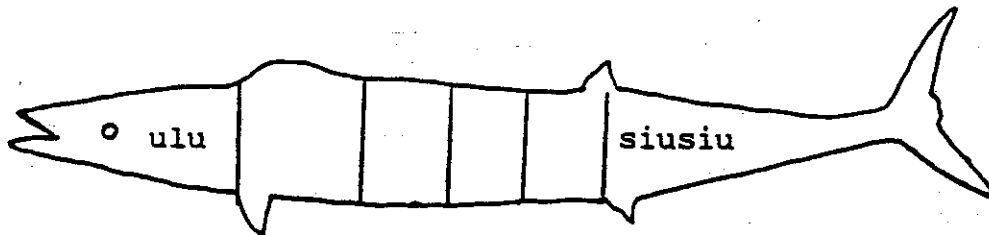
FAUSI

Figure 3

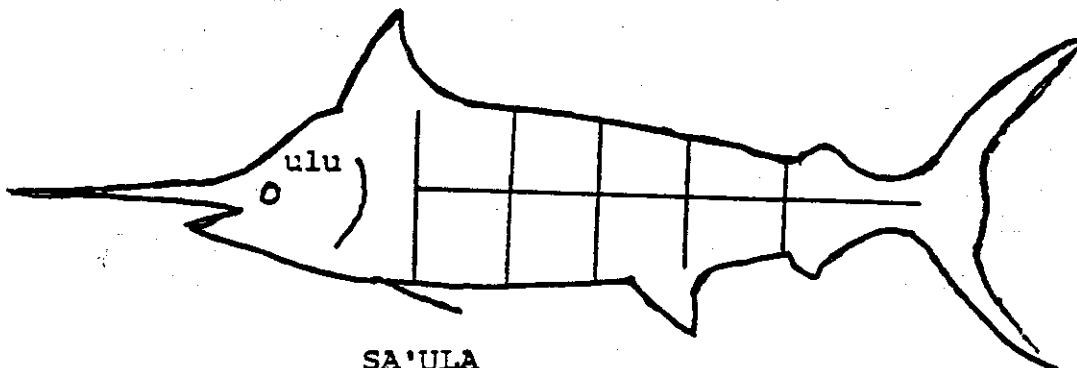
Ceremonial Distribution: Other Pelagics



MASI MASI



PAALA TAGI



SA'ULA

Bottomfish

Preliminary analysis indicates substantial continuity in fishing for deep bottomfish, and in culturally significant distributions of larger specimens to chiefs, village pastors, chief's wives, and young untitled men. A number of informants interviewed had begun catching management species in smaller canoes and skiffs in their youth. A couple of the informants had used hand woven sennit lines with steel hooks and stone sinkers before shifting to linen and monofilament lines and a number were still catching a variety of bottomfish management species. Some commercial fishermen stated that they still occasionally gave a portion of their catch to their pastor, chief or village council. With these interviews we tried to get some sense of the transition to commercialization, and the general impact of the dory project, the alias and the exporting of some species to the Honolulu Market.

Fishermen queried about ulua (ulua malauli) noted that the fish could be caught by nighttime and daytime deepwater handlining with single hooks or multiple hook rigs, and most informants noted that it was an important fish that was reserved for chiefly and council consumption. When queried more deeply, three informants independently noted cases where individual fisherman had been fined in pigs or fine mats, or had their property destroyed, for eating ulua instead of presenting it ceremonially. One case is said to have occurred in the 1950s. There was unanimous agreement that the head of this fish was the special part reserved for the highest chief (alii sili) present.

Most of the informants independently drew in the special horizontal cuttings of this fish on the sketch, and a number noted that there could be up to eight divisions if the fish was large enough (See Figure 1). Generally speaking the head and shoulder (ulu) goes to the high chief, and this section may sometimes include the top section (Io Tua). The tail (si'u si'u) may be given to the talking chief and the belly portion (Io alo) may be given to the pastor's wife or a chief's wife. One informant used the proverbial expression "Tulafale matapoto" to describe the talking chief's role in the distribution, since the tail is the meaty part, and the talking chiefs negotiate the "meaty" issues of the council.

Some informants suggested that ulua was a very strong and aggressive fish and one noted that there were very sacred stories associated with it. One informant noted that he now kept larger specimens for his family (to be eaten privately), but many informants said they still gave this fish to their matai, or their pastor on occasion. Two titled men described receiving presentations of ulua within

the last six months, and a number of informants asserted that ceremonial presentation and distribution of ulua continues in the present.

Amberjack (Tafala) was less well known and two informants did not recognize the fish. Most noted that it was a relatively uncommon deepwater species related to ulua, but only one suggested that it should be distributed like ulua. The other informants generally agreed that it should be treated like any large bottomfish, with either the whole fish given to the council for their consumption, or a division in which the head (ulu) will be given to the chief or council. The rest of the fish may be vertically sectioned depending on the size of the fish and the number of titled people present. One informant noted that it was a very powerful fish that was most easily caught on whole atule or alule a'a as bait, but that it could be ciguateric.

The groupers were known to all informants and all but one informant clearly recognized fausi from the color photograph. Fausi was a common and desirable fish, but most informants suggested that it was generally too small to be ceremonially divided, and only larger specimens (3/4 arm length) would be presented. Papa was clearly recognized by almost all informants who generally agreed that only larger specimens were likely to be cut up and distributed ceremonially. Many informants also commented that the larger deepwater black groupers (ataata) were a preferred species, and larger specimens were still commonly seen sectioned and ceremonially distributed.

The deepwater snappers (palu) were recognized by all informants, and considered together as a general category of deeper water fish, with smaller specimens sometimes being caught in 40-60 fathoms, and larger ones being caught in 80-130 fathoms. A few older informants described catching some of the palu with sennit long lines (afaloloa), and steel hooks, and one sketched a terminal rig with two hooks on a spreader used in very deep water.

Any large specimens of the palu species were and are appropriate for ceremonial distribution although smaller specimens are more likely to be consumed, shared with relatives or sold. Many informants recognized the special value of Palu loa (*Etelis corascans*), palu malau (*Etelis carbunculus*) and palu sina, palu 'ena 'ena (*pristipomoides* spp) on the commercial market and a few informants suggested that palu loa and palu sina, were somewhat more desirable for presentation purposes. There was agreement that the culturally proper form of presentation and distribution was for the head section (ulu) to be distributed to the chief or pastor, and for the rest of the fish to be sectioned depending on fish size and number of titled people present (See figure 2).

Two Pago Pago informants suggested that the deep water palu were probably not caught very often prior to the Dory Project and one cited consumer unfamiliarity with the species in the Pago Pago Fresh Fish Market in the early seventies. However, older informants from Leone, Faga'itua and Manu'a all described regularly catching the deep water snappers from canoes that ranged the outer edges of the nearshore reefs and banks. It appears that these differences in perception may be the result of differential rates of cultural change and cultural loss of fishing knowledge.

The deep water snappers (palu) continue to be deliberately targetted by traditional fishermen and continue to be valued in ceremonial distributions by many fishermen. One informant described observing a formal Sunday distribution of a very large Palu loa in March 1989 in which the head (ulu) had been presented to the highest chief and the tail (siu siu) had been given to a lesser chief. A commercial alia fisherman had gone out on request to catch large palu for the To'onai (Sunday luncheon). Another titled informant described a catch of a substantial number of large and small palu in April 1989 and a distribution of whole fish by rank of the titled men present.

Grey snapper, asoama (*aprion virescens*) was also recognized from the photograph by the majority of the informants. It is a fish that is considered relatively common and easy to catch in shallower and deeper waters, and like all bottomfish it is likely to be presented whole or in sections whenever culturally important ceremonial distributions occur.

Emperor snappers, Filoa (*Lethrinus* spp.) were also easily recognized by the majority of informants and are considered to be a desirable food fish that has been and will be

ceremonially distributed by subsistence and commercial fishermen. The varieties of the filoa covered by the FMP are known from shallower as well as deeper water, and those that are shorter than 3/4 of an arm length are likely to be distributed whole if they are ceremonially presented rather than consumed by the fisherman. Informants agreed that larger filoa are sectioned with the head presented to the highest chief or pastor, and the other sections distributed according to number and rank of possible recipients. (See Figure 2). One informant described a Sunday council luncheon in May 1989 in which the head was presented to the pastor, and the tail to the highest chief present. He noted that another high chief who was present did not receive a portion of this larger fish, but instead received a portion of a smaller grouper.

The last bottomfish discussed in the interviews was easily recognized by all informants. Blue line snapper, savane (*Lutjanus kasmira*) is a common fish that is regularly caught and quite popular as a food fish. It is caught in large numbers over a range of depths and is often quite small (fingertips to wrist or forearm length). Informants were in unanimous agreement that this fish is too small to be formally distributed by ceremonially cutting, although a portion of the subsistence catch may still be given to the pastor or chief.

We queried many of the informants about whether the offshore banks were known to traditional canoe fishermen. Most informants were uncertain with two expressing doubt, at least for South bank, and others referring to stories of fishermen from Faga'itua and Aunu'u fishing out toward Manu'a, and nearly out of sight of land. Others mentioned stories of Manua'ans traveling to Rose to fish. One Manu'a informant described a relatively shallow bank east of Ta'u that appeared just as the peak of Ta'u drops out of sight of land, a bank which is thus well offshore from the territorial sea.

This discussion of informants knowledge of and experience with a major portion of the management species clearly shows continuity in fishing practices and in the social and cultural framework related to the fishery.

Lobsters

All the informants queried about lobsters commented on the current overfishing of the nearshore reefs, and many informants described catching lobsters with nets, spears, and by hand collecting with torches. One informant described catching lobsters by walking on the reef and feeling for them with his feet. Three of the informants knew of recent attempts to trap lobsters, and two described unsuccessful trapping attempts on the offshore banks. It became apparent during piloting of the interview that lobsters were regularly caught on nearshore reefs, but that they were not known to have been fished in the offshore waters.

Questions about lobsters were shortened for some of the interviews because of the length of the interviews. Informants were in agreement that lobsters were a preferred food that was prepared for Sunday to'onai, and other important feasts, but not necessarily presented ceremonially. A few informants described being asked to catch lobsters for Sunday to'onai by their matai, and noted that very large lobsters, or a catch of a large number of lobsters would usually be shared with the pastor or chief.

All informants were in agreement that there had been recent significant decline in the nearshore resources, and they expressed concern about the future of the resource. (See Limited Entry Alternatives below). Some of these informants were queried about concepts of community reef and reef resource ownership, and they usually responded by mentioning the need to ask permission to fish on a village's reef. Examples of fishermen and divers, including scuba divers operating from boats, being chased away by village members were described by a number of informants.

Questions about deepwater shrimp were limited to a few informants, and they were generally unfamiliar with the nature and depth of the resource and possible trapping strategies. One informant who had been on the Cromwell Survey suggested that the deep water shrimp resources were probably not known traditionally. The interview evidence suggesting historical importance of deepwater shrimp is thus relatively weak.

Precious Corals

Photographs and samples of the deepwater precious corals were not available for this portion of the interview. A limited number of informants were asked about their knowledge of, and experience with precious corals, and most of them admitted an unfamiliarity with the resource, although some were quite familiar with black coral. One informant described a pinkish branchlike coral entangled in a bottomfishing handline, but the coral was not retained so

it was unclear whether this specimen may have been a management species or not. The limited interview data obtained on precious corals does not provide evidence of any significant traditional fishing for this resource.

Examination of Limited Entry Alternatives

This discussion of limited entry alternatives is based on a general review of selected fisheries management literature (annotated in Appendix D). Nine knowledgeable fishermen were interviewed regarding their attitudes about the cultural and political feasibility of limited entry management strategies, and an additional five fishermen discussed management controls in combined interviews. The if/then scenario questions were necessary because all of the fishermen interviewed asserted that management controls were probably not needed at this time, but might be needed in the near future if effort levels increased and the local and/or export markets expanded. Some informants suggested that management controls should be considered only if good scientific evidence existed to demonstrate severe decline in stocks or CPUE.

All informants expressed real concern that conditions in the fishery might change very rapidly if larger, more efficient vessels entered the fishery from "outside." Their concerns focused on both the bottomfish and pelagic fisheries and were often supported by the strongly held sentiment that Samoan waters should be reserved for Samoans and possibly for longterm residents of American Samoa. Most of the those interviewed noted that the nearshore fisheries were currently heavily exploited for subsistence and ceremonial purposes, and that the developing local commercial fishery was potentially quite vulnerable to outside competition. Some also noted that the recreational sportfishery was growing in importance and would continue to do so in beneficial ways if the resource was protected, and if the government would provide effective support for tourism development.

The perceived threat of outside competition appears to be based on a recognition that the bottomfish fishery did decline significantly at the height of the dory project, and appears also to have declined to some extent in the mid-1980s. Informants noted that four known offshore banks are small, and while they could support a gradually expanding local bottomfish fishery, two informants suggested that a single, large, bottomfish vessel with good navigational and depth finding equipment could clean the offshore banks of valuable export species in a very short period of time.

Concern was also expressed about the condition of the pelagic fishery since billfish and the related species seem to be harder to find, and since the tuna schools often appear to be located further offshore and to be moving faster. Some informants asserted that they could recognize the difference between schools that had been purse seined, and those that had not. In general, purse seiners were not perceived to be as much of a potential threat as foreign

longliners, and the albacore trollers who have been seen trolling near Manu'a, and who have queried DMWR about staying over and fishing locally between seasons.

Somewhat less concern was exhibited about the potential lobster fishery since there has been no successful trapping effort outside the territorial limit, although inshore stocks appear to be seriously overexploited, and American Samoan Government regulations are going into effect. Somewhat less concern was also expressed over the potential precious corals fisheries since there has been no known exploration for, or exploitation of, the deep water precious corals. Some black coral beds are known in the nearshore waters, and their exploitation is controlled by Samoan concepts of community resource ownership. Precious corals and lobster in the EEZ are perceived to be a potentially significant resource that should be reserved for Samoans, and outside vessels are likely to be deeply resented by at least some Samoans.

All of these concerns are based on the general perception that the benefits of an expanding offshore fishery should be shared as widely as possible among Samoans and longer term residents, and that these benefits should be preserved for them by preferential access in any limited entry scheme. Any discussion of limited entry alternatives was seen to be necessarily based on preferential access that would control the perceived threat from larger, multipurpose U.S. flag vessels that might relocate from Hawaii or the West Coast, and from foreign fishermen. There was very strong sentiment that all marine resources should be reserved and protected for American Samoan fishermen, and one informant quoted Governor Coleman's statement that the EEZ should be seen as the aquatic country, with the resources reserved for residents.

Thus, the if/then scenarios in the majority of the interviews were based on a perceived future in which native fishermen had preference, and management controls were necessary because of clear evidence of over fishing. For the pelagics and the bottomfish, the full range of management measures were considered and will be discussed separately for each of the FMP species groups.

Pelagics: Management Alternatives

The species groups covered under the billfish and related species FMP, and the tunas are currently caught by trolling with handline reels from alias and manta cats, although some fishermen use heavy rod and reel sportfishing gear. There is also daytime handlining, and some small scale vertical longlining near the fads, but only a few vessels are large enough for regular long-lining on even a small scale.

Three trollers interviewed expressed the view that trolling was pleasurable and relaxing, and they felt that relatively free access in terms of scheduling trips and areas fished should be retained. There was general resistance to the idea that standard limited entry such as permits for vessels, or vessel owners/captains, would be an effective measure in the pelagic fisheries. Most informants argued that all Samoans should have the right to fish Samoan offshore waters and to sell their catch if they so desired. As one informant asked: "You're going to tell a Samoan he can't fish?!" The general feeling was that trollers and handliners caught only a small proportion compared to the foreign longline catch.

Responses were also generally negative to the idea of overall catch quotas (TAC) as an alternative management measure, although two informants stated that catch quotas would be acceptable if the fishery exhibited very serious decline. Many felt this could only be done on a species by species basis. There was general apprehension that the quota might be reached, thus cutting off individual fishermen who should have the right to fish, and who might have impending cultural and ceremonial obligations to village chiefs, relatives or friends.

Equity concerns were also raised about the acceptability of individual fishermen's quotas (IFQ), whether these were defined as being transferable or not. Again the general feeling was that it should be an open access fishery for Samoans. Data gathering and enforcement were also seen to be a problem with the expansion of local fresh fish marketing, and the landing of fish at a number of locations for these markets.

Seasonal closures were viewed quite negatively by all but two informants on the grounds that the cultural and ceremonial obligations for fish presentation and distribution that influence the timing and level of effort for many fishermen are year-round, and only partially predictable in advance. Area closures were also viewed negatively by the majority of informants on the grounds that schools were often quite fast moving and unpredictable, and the fishermen needed the freedom to find the fish whenever they were in vessel range. Area closures for foreign fishermen were, of course, viewed quite differently, and three informants suggested that the researchers urge the Council to expand the foreign longlining exclusion zone. Two felt that the existing exclusion zone should be extended to a 100 mile limit beyond the territorial sea, and one urged a full closure of the EEZ. Enforcement was seen as a major problem for any closure regulation.

Gear restrictions were also generally viewed negatively because of the feeling that the handline gear currently in use was a natural enough restriction, and that three to four

lines were the maximum practical number. Four of the informants felt there should be room for a small number of larger Samoan-owned and operated vessels that could do shorter trip longlining, or vertical longlining within the EEZ. Such vessels might be profitable if they could target the cannery, the local and export fresh fish market, and if they could shift to bottomfishing for part of the year. The general feeling was that new technology and gear is badly needed, and that restrictions on hydraulics and/or depth sounding equipment would prevent improved exploitation of the fishery. Two informants expressed safety concerns about the current "free wheeling" hand gear, since there have been some injuries caused by larger troll fish. Hook size, number of hooks per line, and number of lines per vessel restrictions were seen to be impractical, difficult to enforce, and unnecessarily restrictive.

Four informants were willing to comment on restrictions on vessel size and these comments focused on the question of vessel ownership. The aluminum alias are seen as only a minor improvement on the dories, and even the manta cats are generally restricted to two or three day trips. Larger vessels in the 30 to 50 foot range would be acceptable to these informants if they were Samoan-owned and operated. However, Manu'an fishermen would probably actively resent larger vessels from Tutuila fishing near or within their territorial limit. One informant suggested that a smaller scale joint venture operation with an American flag vessel owner might be more acceptable if conducted by an active fisherman rather than by a government bureaucrat who lacked experience and knowledge in the fishery. However, it was generally felt that larger boats would be a serious threat to the local offshore fishery.

Size limits for pelagic fish were seen by most informants as impractical and hard to enforce. All pelagic fish were desirable with larger specimens often being distributed ceremonially, and smaller ones being somewhat easier to market for local retailers. Release of troll and handline fish was generally viewed as a waste of a resource. Trip limits were also viewed rather negatively by all but one informant on the grounds that everyone should have the right to fish, and that trip limits were inherently inequitable to fishermen.

License fees were discussed and seven fishermen expressed a willingness to pay a small license fee if the fees would directly benefit the fishery through data collection and development. License fees that would be large enough to limit entry and effort were perceived to be beyond the means of most fishermen and also inherently inequitable.

The final management alternative considered was the laissez faire approach of simply allowing natural regulation

of the fishery. This was the preferred alternative for a number of informants, and two informants suggested that natural regulation was already de facto in effect since a number of vessels were currently inactive. Natural regulation was seen as an appropriate strategy for now, as long as there is little outside competition. If outsiders enter the fishery with more efficient vessels and gear, and thus are able to maintain a profit, then natural economic regulation was viewed as inappropriate and ineffective, especially if the resource was damaged before effort was reduced.

Crustacean Management Alternatives

Slipper and spiny lobsters are preferred food resources that enter both the subsistence and the ceremonial economy. These species were and are trapped, hand caught, and speared in shallower nearshore waters and have recently begun to enter local retail markets. Deep water shrimp are known to exist at the edges of the offshore banks (Cromwell Surveys) but were apparently not exploited by traditional techniques, and are not generally known to nearshore fishermen.

Virtually all informants interviewed about lobster mentioned the heavy subsistence and ceremonial exploitation of lobsters by spearing in the nearshore waters. Tongans were often blamed for a decline in the nearshore lobster fishery, and a number of communities have closed their reefs to exploitation by Tongan and other outsider fishermen. New regulations are going into effect for the nearshore lobster fishery, and educational programs about the regulations are being designed by DMWR. The informants all stated that trapping for lobsters in offshore waters had been limited to unsuccessful experiments with wire and plastic traps. The reasons for such failure were not well understood, but may relate to species behavior, eel interference, and the locations chosen for experimental trapping.

Informants placed a high value on the lobster resource and expressed concern that any attempt at commercial exploitation of lobster stocks should be small scale and limited to Samoan residents. The general feeling of these informants was that if lobster trapping was successful in offshore waters, then a single vessel (whether Samoan or outsider) could severely deplete the resource. Many informants felt that sharks, eels, and currents might well be effective natural regulators of a lobster fishery, and it was difficult for them to envision a commercial scale operation targeting the export market.

The if/then scenario was explained as being a relatively small scale operation for local markets. Under those conditions, the informants felt that vessel or owner/captain permit systems limiting the number of entrants would give

unfair advantage to a small number of fishermen. Total catch quotas and individual fishermen's quotas were also viewed somewhat negatively because of data recording and enforcement difficulties, although two informants considered quotas to be a reasonable strategy. One informant mentioned that demand can be quite variable, depending on ceremonial obligations. For example, one High Chief recently directed the women from his side of the family to provide 10 lobsters each for a large community celebration.

These kinds of ceremonial obligations are spread throughout the year, and are important enough so that some Samoans would pay high prices on the local retail market if they could not obtain enough lobster through their own inshore fishermen. Ceremonial obligations were cited as an objection to seasonal closures in a projected offshore fishery, although two informants felt such closures would be acceptable measures, if the nearshore stocks were in reasonable condition.

Area closures were felt to be a more reasonable management measure as long as some areas were open to exploitation and the idea of alternating closures was viewed positively by some informants. Two informants suggested that more biological data on recruitment of larval and immature lobsters was needed in case the nearer offshore banks served as nurseries for the nearshore stocks.

Gear restrictions were generally viewed negatively because of the attitude that technological improvements in vessels and gear were important in developing the offshore fishery. Again viewpoints shared by the fishermen focused on the question of vessel size and vessel ownership. Larger more efficient vessels appeared more likely to be viewed as a threat, and as unfair competition, as did venture operations with outsiders.

Lobster size limits were generally viewed positively, and the new American Samoa Government regulations for the nearshore waters were cited by two informants as an appropriate management measure that might be similarly applied to any developing offshore fishery. One informant considered trip limits to be relatively ineffective, unless there was some control on the gear used, and one informant felt that trip limits might be a useful measure to protect offshore stocks.

License fees were acceptable to some informants, if they were relatively small, but rejected by other informants as an unnecessary interference with Samoan rights. One informant suggested that sizeable license fees should be applied to any outsider who sought to enter the fishery with the intention of export marketing. The natural economic regulation alternative for lobsters was acceptable to two

informants as a temporary strategy, but other informants felt that the offshore stocks were probably vulnerable to even medium-scale commercial exploitation and could be damaged before natural regulation occurred.

The deep water shrimp resource was simply not known to many informants, and they appeared to have difficulty considering the relative value of alternative management strategies for shrimp. The general view appears to be that shrimp and the other crustaceans are potentially a valuable resource that should be reserved for eventual Samoan exploitation. One informant suggested that trapping activities might do some environmental damage to the offshore banks, and that species interactions would need to be monitored, especially if there is biological data to indicate that shrimp and/or lobster are prey items for valuable bottomfish. The general pattern that emerges from these interviews is that a lobster and/or shrimp fishery could be developed in offshore waters, but only on a small scale. Some were skeptical that such a fishery could be viable given the small size of the offshore banks and experience with eels and sharks. It is clear, however, that the resource is seen as one that should be reserved for Samoans.

Precious Corals: Management Alternatives

Precious Corals were the most difficult resource to discuss during the interviews on alternative management strategies. This appears to result primarily from the fact that with the exception of DMWR staff and fishermen who have had involvement with the Council, informants lacked knowledge of the nature, value, and location of the resource. The discussion of precious corals at the end of lengthy interviews may also have been a factor. The investigator did not feel that a lengthy verbal description of the precious coral fishery could adequately set the stage for informed discussion of management alternatives without potentially structuring, or even prejudicing such discussion.

Those informants who were willing to talk about corals spoke of their experience with black corals in nearshore waters by describing known beds and the scuba divers who were likely to be familiar with them. One informant displayed a very large black coral obtained in Tonga. They felt that precious corals should be treated like any other potentially valuable resource in Samoan waters: Preferential access should be granted to Samoans, and the resource should be protected as much as possible. One informant suggested that poaching might have already occurred at South Bank or near Rose Island. This informant also expressed concern that coral harvesting might do environmental damage that would have a negative impact on other fisheries. Other informants

expressed skepticism that commercially viable quantities of precious corals for a sustained fishery existed in Samoan waters. One suggested that more resource survey work needed to be done. Again, the general pattern that emerges from such limited discussion of precious corals is that it is a resource to be protected for future use by Samoan fishermen.

Conclusion

The anthropological and historical documentation, and interview data summarized above clearly demonstrate that there was and is a set of native fishing practices targeted on a significant portion of the offshore management species, and that there was and is a continuing dependence on these species. There clearly was and is a social and cultural framework reflecting cultural, social, and religious values and traditions based on fishing efforts, tautai status, and the ceremonial presentation of certain species to chiefs, pastors, and village councils. There is also significant present participation by native fishermen in the fishery for the pelagics, bottomfish and lobster.

It is highly significant that two of the three most culturally and ceremonially important fish (shark and ulua) are covered by the FMPs and that the third, and most important species in Samoan culture, skipjack tuna, is a related species covered under this research project. Further, other culturally important fish such as billfish, wahoo and larger mahimahi, as well as all of the major species groups covered by the bottomfish plan, and lobsters, are valued in ceremonial distribution, and in the perpetuation of Samoan custom and culture.

For a long time before Western contact, and up until the 1950s in Tutuila, and even into the 1960s and 1970s in Manu'a, American Samoan fishermen pursued atu in offshore waters using specialized canoes and gear as an expression of the strength and skill of the crew and tautai. Other tunas, billfish, wahoo, and mahi mahi were occasionally caught with baited lines and trolling gear. Villagers prepared for the return of the canoes and participated in culturally important ceremonial exchanges involving fish, kava, other foods, and fine mats. Sharks were noosed as recently as 1968 in some villages, and sharks continue to be caught with contemporary gear, and are presented to elders, ministers, and chiefs.

Handlining for deep water bottomfish outside the reef and on the banks extending east and west of Tutuila, and between Ta'u and Olosega was and is important for Samoan fishermen, and larger individuals of all the bottomfish species groups continue to be targeted, caught and presented at culturally important events by a large number of Samoan fishermen. Lobsters, while apparently caught almost entirely in nearshore waters, also continue to have important cultural and historic value both for consumption and presentation at events ranging from Sunday (to'onai) to marriages and title feasts.

With the transition to commercialization that developed with the introduction of motorboats, the cannery boats with

accommodations too small and uncomfortable for Samoans, the dory project and limited export marketing, there developed a stereotypic popular perception that only a few Samoans were interested in offshore fishing. The evidence, however, clearly refutes this stereotype, and shows important historical and cultural continuity in offshore fishing for management species by American Samoans, and a continuing social, cultural and religious framework based on the capture and distribution of numerous management species.

Fulltime commercial fishermen are often asked to target their efforts and to provide a certain number of pounds of fish for upcoming feasts and ceremonies. They continue to distribute fish to relatives and other villagers when the fish are needed (fa'alavelave). Larger fish are presented to the village, or to the pastor by commercial, quasi-commercial and recreational fishermen. Samoan cultural values related to the competitive expression of strength, bravery, and service continue to be displayed in the efforts and catch distribution by all categories of fishermen. Chiefs of various rank continue to receive formal presentations of management species in a number of villages. Management species continue to be targetted and purchased in local markets for culturally and religiously important events.

The great majority of active commercial, quasi-commercial and even recreational fishermen are native Samoans. They feel very strongly that the offshore fish in their waters are their fish. They would like to see this fishery carefully developed, with somewhat larger and safer vessels so that the potential resource benefits will be widely available to American Samoans. They also feel strongly that their fishery should be protected from potential outside competition aimed at profit-taking rather than wise management of the resources. They see the continuing cultural importance of fishing for future generations of Samoans.

The most appropriate form of protection for the offshore fishery resources of American Samoa is a system of preferential access for native fishermen in the EEZ. This protection would become critically important if the bottomfish fishery declines or if there is solid evidence of a decline in the availability or catchability of pelagics, including tuna. Such protection might range from preferential access to native fishermen who are grandfathered into a system of limited entry, to a system of relatively exclusive access for native Samoans. Longer term residents might also be given access depending on the condition of the fishery, and the level of present participation in the fishery by native Samoans.

The majority of informants interviewed about limited entry alternatives stated clearly that any effort controls should follow, not precede a system of preferential access for native fishermen. Should effort controls become necessary at some future date, it was generally felt that Samoan fishermen would be willing to accept certain limited access or alternative measures for certain fisheries, as long as the benefits were to be shared primarily by Samoans, and as long as some access to offshore fisheries resources was maintained.

Completion of Research Objectives

This project has been focused on two research objectives:

- 1) Documenting the existence of anthropological, archaeological, and historic evidence that would support the basis for a system of preferential access rights for native fishermen of American Samoa who fish for the management species.
- 2) An examination of limited entry alternatives for the offshore fishery.

The first objective has been largely met for three of the four species groups-- the pelagics, bottomfish, and lobsters.

I. The analysis of historical materials, including proverbs, shows clearly that there was a set of historical fishing practices for these three species groups. Archaeological evidence, while limited to date, does provide evidence of bottomfish fishing, and can be expected to eventually provide direct evidence of fishing for pelagics, and possibly lobsters, as work continues. The interview data clearly indicate historical continuity in these fisheries, so there not only was, but is, a set of historical fishing practices for a significant portion of all the species groups except precious corals.

II. The historical documentation and interview data also indicate a past and present dependence on a significant portion of the pelagic, bottomfish, and lobster management species in American Samoa. The species discussed in detail are preferred fish not only for subsistence, but for ceremonial distribution and exchange. There is no evidence indicating a dependence on precious corals however.

III. The historical documentation and the interview data clearly show that there was and is an important cultural and social framework relevant to the fisheries for the management species. The data summarized above show continuity in fishing and in cultural and religious values based on such fisheries for the pelagics, bottomfish, and lobsters. Shark fishing, bonito fishing, billfishing, and bottomfishing all require the specialized skill of a tautai and contribute to the status enhancement of the group or village of the participants. The continued practice of ceremonial cutting and distribution of a significant portion of the management species to chiefs, councils, and pastors at various ceremonies and Sunday luncheons is a direct reflection of social, cultural, and religious values, traditions and practices related to the continuity of Samoan custom. Fishing effort and the species targetted are often directed by the familial and village obligations of the

fisherman. The prestige of certain species: ulua, shark, billfish, tuna, and larger bottomfish, and lobster enhances the status of those who capture, distribute and exchange them. Their distribution and exchange continues to be very important in social relations and community and religious practices.

IV. The historic documentation and interview data also clearly demonstrate that there is present participation by native fishermen of American Samoa (together with non-native fishermen) for all the management species groups, except precious corals. Active native fishermen were interviewed regarding contemporary practices, and the vast majority of active fishermen on the DMWR fishermen and vessel list are native fishermen of American Samoa. Thus a substantial data base exists to provide important evidence of historical continuity and cultural significance of native Samoan participation in the offshore fisheries of American Samoa.

The second objective of the project, an examination of limited entry alternatives was only partially achieved by this project. Limited entry alternatives were examined and discussed with a range of informants, but the interview data were much harder to obtain and summarize. The investigators concentrated their effort on developing evidence to support a system of native preference since the justification and design of a limited entry management system depends on its feasibility and acceptability in American Samoa.

The difficulties in discussing limited entry alternatives derive in part from the general complexity of the alternatives, the lack of familiarity with the terms and concepts by all but a few informants, and the necessity for using if-then scenarios in social and regulatory impact analysis.

Difficulties also derive from the complex and ultimately political question of who is "in" and who is "out" (as noted by one reviewer of the draft report). A close approximation of the general American Samoan position on this question could be summarized in the following way: "American Samoans should be in, and non-American Samoans should be out." From an anthropological point of view this is a natural and appropriate position to take. Additionally, it is a position supported by anthropological literature documenting the effectiveness of informal systems of customary property rights, and comanagement strategies with local users (McKay and Acheson 1987; Pinkerton, 1987).

The question of whether non-Samoan residents of American Samoa could or should be included in the fishery, if limited entry management become necessary, was discussed with some informants. It was definitely a sensitive issue, and responses were probably influenced by the interview setting,

and the unclear perception of the role of the interviewers. The additional question of the degree of participation by the subsistence, quasi-commercial, and fully commercial native fishermen of American Samoa also needs some attention. Given the complexity, fluidity, indeed the vitality, of Samoan politics, providing the answers to these question is best left up to the Samoans. We only hope that this report has helped to advance the dialog on limited entry alternatives.

APPENDIX A LIST OF INFORMANTS

Interviews on Continuities in Fishing Practices

<u>Name</u>	<u>Personal Description</u>
1. Fia Tiapula	Educational specialist, Ecologist, DMWR, Tutuila
2. Sagale Taligalu	Recreational and Commercial Fisherman, Aunu'u
3. Paul Pedro	Master Fisherman, DMWR, Tutuila
4. Moega Tuitele	Traditional fisherman Titleholder, Tutuila
5. Sala Pa'au	Traditional Fisherman, originally from Manu'a, now on Tutuila
6. Uele Fa'asavaliga	Traditional Fisherman, Tutuila
7. Lilo Pagaua	Traditional and Active Fisherman, Tutuila
8. La'apui Faleali'i	Culture Curriculum Specialist, DOE, Titleholder, Tutuila, but some fishing experience in Manu'a
9. Tavesi Paleafea	Culture Curriculum Specialist, DOE, Titleholder, Tutuila
10. Tuualu Taleni	Younger Fisherman, some traditional fishing in Manu'a
11. Frank Pritchard	Former Dory Fisherman, some traditional fishing, Tutuila
12. Taimua Fanuaga	Traditional Fisherman, Tutuila
13. Sam Puleyasi	Traditional and Active Recreational/Commercial Fisherman, Tutuila
14. Matutia Fa'ailli	Traditional Fisherman, Ofu
15. Vaeao Solipo	Traditional and Active Commercial Fisherman, Ofu
16. Niumata	Traditional Fisherman, Titleholder, Ta'u

- | | |
|-----------------------|---|
| 17. Lea'ai Filoai'i | Traditional Fisherman, Ta'u |
| 18. Saena Molia | Traditional Fisherman, Ta'u |
| 19. Tafilele Malietoa | Subsistence/Recreational Fisherman, Tutuila |
| 20. Aisake Puleasi | Active Fisherman, Olosega |

Interviews on Limited Entry Alternatives

- | | |
|-------------------------------------|---|
| 21. Fia Tiapula
(reinterview) | Educational specialist,
ecologist, DMWR, Tutuila |
| 22. Tony Langkilde
(reinterview) | Active Fisherman and
Marketer, Tutuila |
| 23. Bill Legali | Director, Samoan Studies Program,
American Samoa Community College
Former Dory Fisherman, Tutuila |
| 24. Fini Aitaoto | DMWR Statistician, Tutuila |
| 25. Henry Sesepeasara | DMWR Director, Tutuila |
| 26. Maselino Ioane | Fisherman and Boatbuilder, Tutuila |
| 27. Lauolo Taumua | Fisherman and Boatbuilder, Tutuila |
| 28. Leulumoega Lutu | Fisherman and Boat Owner, Legal
Council to Legislature, Tutuila |
| 29. Iotamu Salepaga | Recreational Fisherman, Medical
Doctor |

Combined Interviews

Fishing Continuities and Limited Entry Alternatives

- | | |
|--------------------|--|
| 30. Pao Pao | Traditional Fisherman,
Titleholder, Ta'u |
| 31. Manu Malae | Traditional and Contemporary
Subsistence Fisherman, Ofu |
| 32. Mel Makaiwi | Fisherman and Marketer, Tutuila |
| 33. Tony Langkilde | Fisherman and Marketer, Tutuila |
| 34. Tauala | Fisherman, Deputy Director,
Office of Samoan Affairs,
Titleholder, Tutuila |

APPENDIX B

Interview Schedule: Traditional Fishing and Historic Continuity

Informant name?
Place of residence?
Year of birth?
Informant fishing experience?
 Place and age when started fishing?
 Fishing experience?
 Currently fishing?
 Type of fishing preferred?
 Subsistence?
 Commercial?
 Recreational?

Species groups were covered in the following sequence:

Tunas (atu, asiasi, kavakava)
Shark (malie)
Mahimahi (masimasi)
Wahoo (paala tagi)
Billfish (saula, saula lele)
Ulua (malauli, ulua)
Amberjack (tafala)
Grouper (fausi, gatala, ataata, papa)
Deepwater snapper (palu)
Grey snappers (asoama)
Emperors (filoa)
Snapper (Blue-lined) (Savane)

Questions asked about each species with photo presentation:

How was and is it caught?

--- vessel, gear, location, time last caught or seen caught
with traditional gear, modern gear?

How was and is it distributed?

--- crew signals to land, how presented, how divided (sketch
parts and indicate sequence of distribution), reserved
for chiefs/ ministers? others? when last seen formally
distributed?

Does this fish have any additional cultural significance?

Interview Schedule: Limited Entry Alternatives

Informant Name
Place of residence
Year of birth
Fishing and Management Experience
Statement of Conditions and If/Then Scenario
Species Groups Covered in the Following Sequence:
 Pelagics, including tunas
 Bottomfish
 Crustaceans
 Deepwater precious corals

For each species group please comment on the cultural and political acceptability of each of the following measures.

How would Samoans feel if the Council imposed these measures?

- Limited Entry- vessel permits, owner/captain permits
- Catch Quota TAC
- Individual Fisherman Quota IFQ
 - transferable, based on previous participation
- Seasonal closures
- Area closures- alternating, non-alternating
- Gear restrictions- hand vs. hydraulic, hooks, line, vessel size
- Size limits
- Trip limits
- License fees
- Natural economic regulation

Appendix C

Archaeological Reports Reviewed and Summary of Current Archaeological Evidence of Offshore Fishing

Contacts with archaeologists known to have worked in American Samoa were initiated at the beginning of the project, and available reports were reviewed in libraries and at the Office of Historic Preservation in American Samoa. The reports reviewed are cited below.

Subsurface archaeological work has been very limited to date, although ongoing work by Hunt and Kirch is beginning to yield significant evidence on fishing practices for a portion of the management species. The work done previously has been primarily mapping and surface survey, although limited testing and excavations have been carried out by Frost, Ayres, and Eisler, Clark, Bryson and Leach. While this previous work did not yield portable artifacts or midden remains (fishbone) that provides evidence for the management species, this lack of evidence should not be taken as an indication that such evidence does not exist. Generally speaking, a substantial amount of archaeological work with focused excavation based on an understanding of tectonic and erosional geology of an island must be carried before deep cultural deposits and substantial evidence of fishing strategies emerge.

Hunt and Kirch's ongoing work on Ta'u and Ofu (Hunt and Kirch 1987, 1988) provide radiocarbon evidence of coastal occupation dating 2330 +/- 50 years, and 2350 +/- 50 before the present. This work also provides evidence of some fishing for shark and for Lutjanidae which may include management species from deeper water.

Unpublished results from continuing excavations provide further significant evidence, including smaller shell and bone hooks and faunal evidence of shark catching (teeth and vertebrae) and for the capture of a variety of bottomfish identified to the genus level. These include a significant number of serranidae, lutjanidae, lethrinidae, and carangidae that are almost certain to include management species. In July, 1989 excavations on Ofu by Hunt yielded one whole jabbing hook of medium size that Severance has examined. It is a generalized bottomfishing hook that would have been effective for a variety of lutjanidae or lethrinidae. Hunt and Kirch are continuing their work and are committed to sharing additional results with the contractors and the council.

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