Management of Access to Fisheries in American Samoa

An Initial Report to the Office of Marine Resources, Government of American Samoa

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I. Geographic Description

American Samoa is comprised of a series of islands. Principal among these are Tutuila, where the majority of the population resides, and the Manu'a Group, consisting of Ofu, Olosega and Ta'u. Rose Island, an uninhabited atoll administered as a wildlife sanctuary by the U.S. Fish and Wildlife Service, also exists some 90+ miles east of the Manu'a Islands, while Swians Island, a privately owned island with a Samoan population of less than 100 persons lies to the north of Tutuila.

II. Description of Fisheries

1. The Reef Fisheries

The most traditionally and intensively exploited fisheries of American Samoa are those of the reefs. Reefs surrounding Tutuila and the Man'ua Islands are relatively narrow, perhaps ranging from 50 to 200 meters from shore (Hill, 1979). In the reef area one finds a diversity of fishing technology including gleaning, diving, pole fishing, throw net, gillnetting, trap and paopao based activity. Parrot fishes, surgeon fishes, soldier and squirrel fishes, goat fishes, sea basses, snappers, mullet, mackerel, octopus, clams, snails, limpets, sea urchins, sea cucumbers, lobsters, shrimps and crabs are the primary targeted seafood products along Samoa's reefs. Take is primarily for subsistence, although some "excess" catch is occasionally channelled to local markets. In 1984, American Samoa estimated a total annual reef catch of 27,613 pounds, although this may be low (Office of Marine Resources, 1984). Hill (1977) reports catch per hour of 0.5 to 0.6 kg., save for throw netting, which yielded

2.5 kg/hr. Hill notes these results are lower than for Micronesian atolls and indicative, he believes, of significant overfishing of the reefs surrounding American Samoa. Discussion with local American Samoan officials suggest that such overfishing can be potentially attributed to very aggressive fishing techniques applied over the last several years by Tongans, and in part to gradual erosion of traditional authority under the matai system of fishery management (to be discussed following).

2. Known Fisheries Outside the Reefs

Outside the reefs, a commercial fishery primarily using 30' to 40' Alia multi-hulled boats has developed. It is estimated that approximately 50 vessels are presently available to the American Samoa fishery (Office of Marine Resources, 1985). Estimated catch for 1984, 1985 and 1986 are presented in Table I.

Table I

Estimated Samoan Commercial Catch
1984-1986

Gear/Species Complex	Year 1984	1985	1986
	'000 pounds		
Bottomfish	43.5	53.3	102.5
Trolling	142.9	67.5	143.2
Bottomfish/Trolling	42.3	24.6	56.4
Spear/Other Methods	42.6	42.4	51.8
All Fish	361.8	276.3	354.0

* The individual data presented do not add to the "all fish" totals, save for 1986, and are most useful in indicating the balance between catch by fishing mode.

** Source-Office of Marine and Wildlife Resources, American Samoan Government.

Troll gear targets pelagic, primarily tuna, with some marlin. With the present federal tuna exclusion, it follows that primary management responsibility "offshore" in American Samoa is focussed on bottomfish. Estimates of MSY for bottomfish in American Samoa have not yet been produced. This is primarily because not all grounds have been charted*. At present, and based on known bottomfishing areas, it is difficult to think in terms of more than 100,000 pounds of yield annually. Given the approximate fleet size of 50 alia**, and the capability to bring in 200 to 300 pounds per overnight trip, it is quite clear that

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* NMFS will be doing some of this work during 1987.

** 10 or 12 of these were lost in the hurricane that recently struck Man'ua, and may or may not be replaced.

American Samoa possesses a fleet catching capability more than sufficient to fully exploit present stocks, even allowing for substantial amounts of troll fishing.

At the present time, only a small portion of the fleet is fishing commercially, with several fishermen complaining of starkly declining catches from the usual bottomfish grounds. It may consequently be the case that American Samoa's customary bottomfish grounds are being fished out, to a point where they will no longer be economically viable. In addition, limited chartering (one or two boats) takes place periodically.

3. Unknown Fisheries Outside the Reefs

As noted, fishery resources adjacent to American Samoa have not been completely charted at this time. Undoubtedly, further fishery concentrations "near shore" will be discovered over time. Further, it is likely that fishery concentrations further from American Samoa, but within 200 miles of her shores, will also be discovered. Finally, fishing arrangements (eg. the tuna management exclusion) and fishing patterns may change over time. It is consequently important that any plan American Samoa develops to manage access to her fisheries retain flexibility, so it can respond to emergent fishery developments as they occur.

III. Management of Fisheries in American Samoa

1. Traditional Systems

The most viable system of fishery management in Samoa today is the Matai system of village government. This system is as old as Samoa itself, and is still a key aspect of fa'a Samoa today. The

Matai system weaves a rich tradition inherited by each family in the village into a means for ordering the process of village life. A full discussion of such village relationships is well beyond the context of this report. In brief, each head of family in a village is a chief. In addition (usually by heredity) a high chief represents the village as a whole. Finally, other titled chiefs (talking chiefs) are also selected. Together, these matai govern the affairs of the village. In American Samoa, village boundaries are adjacent to one another, so that even if structures are not evident, the land will belong to one village or another. Similarly, the reefs adjacent to village lands have traditionally belonged to each village--with the village matai responsible for wise management of their reef, and each village the recipients of resulting benefits. In this manner, traditional Samoan reef management is rich in measures to control who may fish on the reef (usually people from the home village), how much fishing may take place, when, what protective Kapu's are to be observed, and so on. The matai system is not as strong as it was some 40 years ago. But when this author asked the Director of Marine and Wildlife Resources how one would institute an access management system for reefs, the answer was: "Through the Matai system--it is the only functioning system for reef management and protection we have here in Samoa".

Finally, it should be recognized that the fishes on an near American Samoa's reefs are not simply food resources to the people. Rather, references to fish and fishing are embedded in Samoan culture and wisdom. These proverbs are just a few of more

than 80 listed in Schultz (1980), and serve to illustrate the central role that fish continue to play in Samoan thinking and living.

i) "Se'i muamua ona ala ta."

- Try the fish line first on land (Look before you leap).

ii) "Ua se afa e tasi."

- It looks like it were made with one and the same mesh stick (The opinion seems unanimous).

iii) "Va lelei."

- To keep up friendly relations (give a few fish to his neighbors).

iv) "O le i'a a tautai e alu i le fa'alolo."

- The fish seem to do the will of the tautai (stresses obedience).

v) "O le malie ma le tu'u malie."

- Every shark must be paid for (refers to retribution, both in a good and bad sense).

vi) "Ia o gatasi le futia ma le umele."

- The signet ring and the stand for the fishing rod must be equally strong. (When two men are in partnership they must be of one mind.)

vii) "Fetuia'i fa'a'aga a 'apoa."

- To prick one another like a school of 'apoa. (A rebuke for relatives, friends and neighbors who are quarrelsome and trying to harm one another.)

viii) "Ua se unavau."

- He is like an unavau (poisonous fish). (Refers to a slanderer or meddler who endangers the peace of a village.)

ix) "Ua penapena i tua o tai i'a."

- They where to late for the catch. (He who comes too late must content himself with what is left.)

2. Modern Fishery Management

Despite the traditional orientation of American Samoa to reef fisheries controlled at the village level, an expanded role has emerged for the Office of Marine and Wildlife Resources. First, as fishing has extended out farther and farther beyond the reefs, new fishing grounds, not traditionally managed by the Matai, and involving larger vessels from several villages must be managed and controlled. Further as impacts upon reef and offshore fisheries become more technically complex, modern fishery technology for protection and restoration is required--expertise beyond the bounds of traditional village knowledge. Finally, as fishing vessels become more mobile, they can potentially arrive to fish off American Samoa from many other parts of the world. These issues can only be addressed at a Territorial level. Thus, the Office of Marine and Wildlife Resources is filling an everexpanding niche--cooperating with and assisting village management of reef fisheries where possible, while moving to conserve and control the newly exploited fishery resources offshore.

IV. Present Issues Respecting Management of Access to American Samoa's Fisheries

Essentially, there are four jurisdictions that need to be considered in a plan to manage access to American Samoa's fisheries:

- reef fisheries, including fish immediately adjacent to the reefs outer edge;
- known offshore fisheries out to 3 miles, under the jurisdiction of the Territory;
- known offshore fisheries outside 3 miles, and inside 200 miles, under federal jurisdiction;
- as yet undeveloped offshore fisheries that could occur either inside or outside of 3 miles, within the FCZ.

For each of these jurisdictions, we need to categorize what the general status of stocks are (if possible) relative to available catching power.

1. Reef Fisheries

Generally speaking, the reef fisheries have been fished down. More persons seem available to fish the reefs than the latter can support. This situation has been exacerbated in recent years by aggressive fishing behavior from persons who do not belong to the village(s) responsible for the reef(s).

2. Known Offshore Fisheries inside 3 Miles

This area has received the greater portion of bottomfish targeting, as well as some sport and charter fishing. It is clear that the alia fleet has sufficient capacity to fish this area out. In fact, catch per unit of effort has declined sharply in recent months. It is not yet clear whether this condition is temporary or will continue.

3. Known Offshore Fisheries in the FCZ

Known fishery grounds also exist outside 3 miles, and are targeted by the same fleet described in (2) above. Here also, fleet catching power exceeds capacity, and reports of declining CPUE have recently been received. As with known grounds inside 3 miles, it is not yet clear whether this is a temporary or permanent condition.

4. Unknown Offshore Fisheries

Exploratory work to identify new fishing grounds is currently ongoing in American Samoa. To the extent that such grounds are discovered adjacent to known fisheries, they can be successfully exploited by the existing alia fleet. Where new grounds are discovered outside the effective range of the present fleet, one or more larger vessels may be required. Other changes in fishing patterns, unanticipated at this time, will need to be dealt with by the plan as they develop.

The objective of the present access management options paper is to develop a consistent set of management principles that will enable management of access to presently existing fisheries on a consistent basis, while permitting integration of newly developed fisheries into the plan as they develop.

V. General Options for Fishery Management

1. Continue Present Access Conditions in Reef and Offshore Fisheries

This is essentially the no action alternative. If present conditions continue, it can be anticipated that reef production will continue at relatively low levels, with fishing incursions by non-villagers putting particular pressure on the reef.

Offshore, the lowered catch conditions now being encountered in bottomfish seem remarkably similar to those encountered three years ago in the Northwestern Hawaiian Islands. While it is early to speculate, a situation where present known stocks have been fished down to uneconomic levels, where new grounds are discovered and similarly fished down, and/or where larger non-

Samoan boats enter the fishery to really put pressure on stocks, would not be a surprising scenario. Under such conditions, American Samoa's reef and offshore fisheries would likely continue to underproduce, and remaining stocks would retain vulnerability to palagi fishing initiatives that owed allegiance to neither the village matai system nor the longer term sustained yield fishery objectives of the American Samoan government.

2. Establishment of Quotas

Total catch quotas are used in some fisheries to prevent biological overfishing, and may have application from time to time in American Samoa. However, they require a reasonably comprehensive and accurate data reporting scheme if they are to be workable, and do not address the issue of fleet catching power, or entry of new vessels, at all. Further, it is my feeling that in American Samoa, where MSY is not yet fully calculated, a quota system would be based on speculation at best--and if not carefully crafted, might disrupt fishing and marketing arrangements for no good purpose.

3. Total Catch Quota Per Reef Fishermen or Per Vessel

Again, this scheme requires detailed record keeping. Further, even if some MSY estimate could be established (reef and/or offshore), with catching capacity in excess of what is needed, an individual catch quota would simply ensure that no one made an effective living as a fisherman. For all these reasons, individual catch quotas are not recommended.

4. Catch Limit Per Fishing Trip

This type of initiative could also reduce each fisherman's catch to a second best level. Further, it controls neither number of trips taken (which would increase), nor number of fishermen/vessels, a central concern of this document. Catch limits are consequently not recommended to address control of access to American Samoa fisheries.

5. Size Limits

Size limits can play a legitimate role in protecting younger age classes in fisheries. This may be particularly true with respect to reef fisheries. Size limits address biological issues directly, and economic issues through rehabilitation of stocks. They do not address the issue of fleet/fishing group catching capacity, however. Our consequent conclusion is that size limits may be a valuable tool in the fishery managers kit, but that it is not one that addresses the issue of balance between catching capacity and fishery productivity.

6. Seasonal Closures

Like size limits, seasonal closures can be useful in protecting spawners, regenerating depleted stocks, etc. However, such closures also do not address catching power in a fishery--so that if fishing pressure, either existing or potential is an important issue, seasonal closures address it only obliquely. As fishing pressure is a central issue for this document, our

conclusion is that seasonal closures can be useful management tools, but that they are not particularly appropriate to the present task.

7. Establish a Moratoria

Under a moratoria, fishermen/vessels presently in a fishery are allowed to continue, but new entrants to the fishery are not permitted. Moratoria are often an essential component of access management plans. However, they address neither the issue of intensity of fishing nor technical scale-up. By technical scale-up, we mean purchase of better gear, bigger boats, etc. that will increase the fishing power of individuals in the fishery. In this manner, fishermen are free to expand their catching capability in open ended fashion, and the sought after balance between stocks and catching capacity may never be attained. It is our consequently conclusion that moratoria may be a useful component of an access management plan, but that it cannot address the full issue effectively by itself.

8. Individual Fishermen's Quotas (IFQ)

Individual fishermen quotas as identified by Stokes (1983), Huppert, et. al. (1985) and others envision an initial distribution of individual quotas to fishermen, perhaps free and based on past catching records, and then establishment of a "market" in these quotas, so that fishermen could buy and sell them between each other and/or other potential entrants to a fishery. If total quotas were limited to MSY/OY, it is argued

that each fisherman could then purchase the quotas needed for his/her optimal level of fishing, thereby reducing costs and improving profits from the fishery.

In American Samoa, where fa'a Samoa is prevalent, a system that monetises all fishing rights and makes them available to the highest bidder, Samoan or Palagi, is clearly inappropriate. Over time, an IFQ system would give advantage to profiteers and those with cash, and take advantage from those persons emphasizing the cultural and subsistence importance of fisheries, and who did not have large amounts of cash to "bid" for fishing rights. In short, an IFQ system would be totally disruptive to fa'a Samoa, and is not recommended*.

9. An Access Management Plan

A final option for the fisheries of American Samoa is to pragmatically select management tools from the array of possibilities available, and specifically adapt them to American Samoa needs and circumstances. Such a plan can combine elements of moratoria with appropriate biological management, limitation of escalating technical overcapacity and provision for future entry to a rationalized fishery. Based on previous discussion, and the inapplicability of a quota based IFQ scheme in American Samoa, a license based access management plan appears preferred. The draft access control plan presented here will not result in an immediate reduction in number of American Samoan

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* There are other problems with IFQ systems, but they seem superfluous to the central issue discussed here.

fishermen/vessels. In fact, forced expulsion of a large number of fishermen/vessels from American Samoa fisheries would cause economic hardship for fishermen and is not an objective of our plan. Rather, the essential ingredients of the draft access management plan proposed here are as follows:

i) Develop a mapping of known fisheries, and establish 3 fishing zones;

a) the reef zone, including some spread of water immediately adjacent to the outside reef;

b) the near shore zone, from the reef zone out to the 3 mile Territorial limit;

c) the offshore zone, from the 3 mile limit out to the 200 mile limit. (In the case of Western Samoa, 1/2 way to Upolu.)

ii) Establish a control date for purposes of grandfathering qualified fishermen into the 3 zones. I suggest an early date once the Governor is satisfied that the plan is heading in the right direction. It may also be necessary to establish the same date with WESTPAC for the offshore zone.

iii) Consult with the matai, and reaffirm the matai village system as the basis for grandfathered rights to fish in the reef zone. In the event that it was felt some Samoans

were sufficiently dislocated from their village that they would be denied reef access, use of "public parks" could be considered to meet this particular need. Develop a list, working with the matai, of those persons eligible to fish, by village.

iv) Using catch records, provide grandfather rights to the nearshore and offshore fishing zones for those fishermen who have landed catch of any species for these zones in one or more years over some selected period of time (ie. 1984, 1985 and 1986). Be sure to include the Man'ua fishermen whose boats were sunk in the recent hurricane. Treat the nearshore and offshore zones as a single zone--differing only for administrative purposes.

v) Establish a moratoria on entry of new (not grandfathered) fishermen targeting any species in the nearshore and offshore zones, effective on the control date. Fishermen could continue to enter the reef fishery through their village affiliation. Development fisheries (offshore) could be allowed on a permit basis.

vi) Prohibit significant increases in fishing power by grandfathered fishermen or vessels, unless such increase can be identified as necessary to a newly developed fishery.

vii) Attempt to develop initial estimates of actual and potential yield for reef, nearshore and offshore fisheries (all species), and relate that to present catching capability. It is recognized that fishermen fish on the reef, nearshore and offshore for a variety of purposes; subsistence, cultural, commercial and recreational. It follows that fishermen and vessels may not choose to obtain maximum harvest. In fact, "leaving some for the neighbor" is part of fa'a Samoa. It will therefore be important, in balancing fishery yield with catching power, to understand how these various concerns are likely to convert potential catching power into actual catching power.

viii) With respect to (7), it is suggested that an advisory group be formed to consider balances between yield and catching power, and other issues that may arise in the plan. The advisory group should represent the matai, commercial fishermen and charter boat/recreators. It should be chaired by the Office of Marine and Wildlife Resources.

ix) Programs to conserve and restore American Samoa's reef fisheries should be pursued jointly by the Office of Marine and Wildlife Resources and the village matai. Enforcement should be similarly pursued. Programs to

conserve and restore near-shore and off-shore resources should be pursued by the Office of Marine and Wildlife Resources in cooperation with federal agencies.

x) Further access to American Samoa's fisheries by new entrants should be triggered by the results of Steps (7) and (9). It is there that the relationships between fishermen and fish that is appropriate for Samoa will be defined. Presumably, new access to reef fishing will be governed by the traditional management controls of the Matai, and by any further programs for conservation and restoration jointly developed by the Office of Marine and Wildlife Resources and the matai. Additional access to near-shore and off-shore fisheries would occur when the Office of Marine and Wildlife Resources, their Advisory Committee, and NMFS, felt the fishery could support more vessels, given the fishing power actually delivered by vessels presently in the system. Entry to "new" fishing could be considered on their separate merits.

xi) Eligibility to be a new entrant to the reef fishery would be governed by a person's village affiliation, and the particular requirements of the matai system of his village. Eligibility to enter the nearshore and offshore fisheries requires further discussion with Samoan officials and fishermen. Among potential entry criteria are:

- number of years experience fishing in the reef zone;
- number of years experience fishing in the near-shore or off-shore zones;
- number of years experience as a crew in the near-shore or off-shore zones;
- recognition of status as a tautai;
- citizen of American Samoa (near-shore zone only?)

Ideally, eligibility criteria for the near-shore and off-shore zones would be consistent.

xii) Further discussion is also required with the Office of Marine and Wildlife Resources to determine whether permits should be vested in boat owners, skippers or fishermen in each zone.

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