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**SOUTH PACIFIC COMMISSION
TWENTY-THIRD REGIONAL TECHNICAL MEETING ON FISHERIES
(Noumea, New Caledonia, 5-9 August 1991)**

COUNTRY STATEMENT – AMERICAN SAMOA

This is a summary of current status of on-going Fisheries Projects conducted by the Department of Marine and Wildlife Resources.

American Samoa Fisheries Investigations

Coastal Resources Library Database Project Summary

The Department of Marine and Wildlife Resources (DMWR) has the charge to manage, protect, preserve, and perpetuate the marine and wildlife resources of the Territory of American Samoa. These resource management responsibilities require the development and maintenance of baseline inventories and standardised long-term monitoring of both the nearshore habitats and their associated fishery resources.

This project was designed to assemble all existing nearshore habitat and associated fishery resources information and develop a standardised methodology for cataloging and maintaining a centralised nearshore resource inventory for American Samoa. The last compilation of nearshore resources was done in 1980 (USACE, 1980). Since then, many of DMWR efforts have been directed toward collecting nearshore habitat and fishery resource data.

Likewise, during this past decade, other American Samoa Government Agencies including Coastal Zone Management (ASCZM), Environmental Protection Agency (ASEPA), and the Soil Conservation Service, and Federal Agencies such as National Marine Fisheries Service, U.S. Fish and Wildlife Service, National Marine Sanctuary Program, and the National Park Service have also collected information concerning nearshore areas.

Until this project began, no effort had been made to assemble this valuable information. Obviously, this deficiency reduced our collective efforts toward the effective management of American Samoa nearshore resources.

This computerised library database and 'GIS-style' system provides a framework for the cataloging and efficient retrieval of all known nearshore resource information. The 'GIS-style' geographic cross referencing is very helpful for assessing and synthesizing resource information on an area by area basis. More specifically, it allows for the rapid assemblage of all known information when assessing the impacts of proposed development a particular location.

Geographically relational information assembled in this format will be easily convertible to a GIS resource data management system which is presently in the early planning stages for American Samoa.

Pala Lagoon Project Summary

Pala Lagoon is distinguished as being both the largest estuarine lagoon in American Samoa and the one that supports the largest remaining mangrove stands in the Territory. Unfortunately, increasing human encroachment along its shorelines poses a serious threat to these wetlands with a possible permanent loss of important fisheries habitat.

Mangrove areas, like other coastal wetlands have been shown to be important for fishery production all over the world. Likewise, Pala Lagoon was reported to have supported a sizable subsistence and artisanal fishery during the 1960s and 70s, which in recent years has declined. Unfortunately, there is no documentation of the historical or present status of the Pala Lagoon fishery. Furthermore, basic information on the fishery resources of the lagoon is very limited.

The two major objectives of the study are:

1. Assess the human use and catch levels of fishery resources from Pala Lagoon.

Surveys to determine the level of public fishing in the lagoon and the composition of the catch will be conducted two times per week. Data are stratified by gear type, day/night, and weekday/weekend and then expanded proportionally to produce total catch estimates by strata information for selected species.

2. Determine the seasonal presence and relative abundance of fishery organisms in the Pala Lagoon.

A standardised sampling methodology for larval, juvenile, and adult fish and crustaceans was developed. Sampling is performed twice monthly, on the new and full moons. In addition, six 24-hour sampling days are planned. The 24-hour sampling consists of extending our regular sampling of one 6-hour soak to four, 6-hour consecutive soaks within a 24-hour period.

Seasonal presence, relative abundance, distribution, and life histories will be described for most abundant species. Analysis of variance (ANOVA) will be used to compare mean catch rates between habitats by sampling period. Lagoon use by migratory, non-resident species will be described and evaluated for their contribution to other fisheries.

Water temperature and salinity, are monitored at each site. Turbidity (NTU), dissolved oxygen, and total coliform are monitored at 21 sites in the lagoon. In addition, heavy metal contamination of three selected species will also be examined.

Data collection for this study began January 1991 and will continue through December.

1. American Samoa Offshore Survey

This is an on-going creel survey sampling program conducted by DMWR (since October, 1985) to determine public usage of the territory's marine resources and to describe the biological characteristics of important species harvested by local fishers. Sampling is done 3 times per week for two weekdays and one weekend/holiday at designated sampling areas on Tutuila, from 0500 to 2100 hours. Harvest by the Aunu'u domestic fleet are estimated through its inclusion in one of the two proportionality constants built into the system to expand sample data. A supplemental survey conducted in the Manu'a islands provides fisheries data for this project. The FY90 Annual Report on this project is available from this Division.

2. 'Pala Lagoon Study' Database

This section is setting-up databases to compile and analyse data collected by DMWR biologists in their study of the Nuuuli Pala Lagoon. Discussions and descriptions of the Pala Lagoon Study can be obtained from the Fisheries Division.

3. Western Pacific Regional Fisheries Management Council's Plan Monitoring Team Annual Reports

We have just submitted the American Samoa modules and contributions to the Western Pacific Regional Fisheries Management Council's (WPRFMC) Plan Monitoring Team's Annual Report on the Bottomfish and Pelagic Fisheries. These are annual reviews of the status of American Samoa's offshore fisheries required by WPRFMC under the Magnuson Act. The draft report (available from this Division) will be submitted to WPRFMC for approval during its August 1991 meeting.

4. Requirements Under Local Fishing Laws

- A. American Samoa's newly adopted fishing laws require all fish dealers and commercial fishers to submit to DMWR, invoices of all their fish sales transactions. DMWR is continuously updating dBASE IV databases established to compile and analyse these data from this reporting requirement.
- B. Certain Permits and Licenses are required under the above-mentioned fishing laws. We have established databases to compile all the information pertaining to fishing permits and licenses, and are continuously updating the databases.

5. Fishing Tournament Database

American Samoa's Fishing Tournament data which dates back to 1974, are being entered into dBASE IV databases. Fishing Tournament data have been excluded from American Samoa's offshore fisheries reports, since the establishment of this office, because the data has never been properly compiled and analysed. With this new data set, DMWR could utilise this valuable information to properly describe and manage the territory's pelagic fishery.

Giant Clam Mariculture Nursery Projects

The Department of Marine and Wildlife Resources, Government of American Samoa, initiated, in 1986, a small-scale mariculture project, looking at the possibility of culturing giant clams, with the view of developing and enhancing local reef resources. The giant clam *Tridacna derasa* was chosen as the target species. This decision was probably based on the fact that seeds of this species were readily available from the Micronesian Mariculture Demonstration Centre (MMDC), Palau, in addition to the belief, at that time, that *T. derasa* was the superior species to other tridacnas in terms of growth rate and early resistance to predators (Itano, D., et al, 1988). When surveys of the native giant clam species stocks indicated over-exploitation and the unlikely capacity of existing populations to recover naturally, the government identified giant clam projects as priority. Accordingly, the project, Commercial Feasibility of giant Clam in American Samoa, was initiated in 1989 with funds from the Center for Tropical and Sub-tropical Aquaculture (CTSA). Continuation of this project for its second and third years (March 1990-February 1991-February 1992) was made possible with funds from CTSA.

Hatchery

Construction of the hatchery facility was started in March, 1990, after a lengthy process in getting the land use permit, building permit, etc. By October of the same year, the hatchery was operational. The facility includes a spawning tank, 2 larval rearing/setting tanks, 6 seed nursery raceways, and an office/laboratory, enclosed in a fenced 97 x 74 ft area.

Seawater is pumped up about 10 feet at a slope of approximately 45 degrees, via a 2" black PE pipe, for a distance of about 110 feet. The intake has check-valve anchored at about 1.5 feet from the bottom at water depth of about 4 feet at low tide. Both the main and backup pumps are Yanmar Diesel with inlet and outlet ports of 4" and 3" respectively. The intake and delivery piping system is 2".

Broodstock

Due to the lack of sexually mature stocks of the target species, when the hatchery became operational, brooders were imported from MMDC, Palau, in October, 1990 and in January 1991. The Department lagoon nursery harbours about 600 5-year old breeders.

Spawnings

A total of three successful spawnings had been achieved between October 1990 and June 1991. Only one of these batches were successfully raised to juvenile clams. This will be harvested in August 1991. Larval rearings have been greatly affected by the early and large blooms of algae. Larvae rearing method for the first eight days has been modified to combat this problem.

Privately Owned Lagoon Nurseries

Two private lagoon farms have been initiated by DMWR, one on Tutuila Island and one on Ofu in Manu'a, using juvenile clams imported from MMDC, Palau. An additional farm will be set up soon.

Other

American Samoa is participating in the PFDF/MMDC Giant Clam Project which involves the comparative growing of *T. derasa* and *T. gigas*. Two thousand juveniles of each species have been planted in the Department's nursery at the depth of 10 feet.

DMWR will also be conducting comparative studies on *T. derasa* and *Hippopus hippopus* cultured subtidally. In addition, growth and survival of *T. derasa* cultured 'on the bottom' and 'off the bottom' will be conducted.

Appendix 1

Hatchery Production Projections

When the present broodstock all reach full sexual maturity, it would be possible to use 25 'new' clams for spawning every week for 6 months. Assuming that every third lot of 25 new clam breeders would be successfully induced to spawn eggs, it would be a possibility to produce 17 difference batches of clam larvae per year. At about 13 million larvae per batch, it would be possible to produce 221 million larvae a year.

Since each of the Larval Rearing/Setting tank has a usable culture volume of 13,000 litres, both can accommodate up to 26 million eggs per 5-6 month period, thus a total of 52 million a year. At a survival rate of 0.1%, the two tanks would then have an annual output of about 52,000 juvenile clams. With improvement to the system, this projection can be higher.

Each land-based nursery raceway has a floor area of 240 sq. ft. Thus, one can accommodate about 15,000 juvenile clams for the land-based nursery period of 4-5 months, prior to the transfer to lagoon nurseries.
