American Samoa Coral Reef Initiative: 2000-2004

Introduction

The American Samoa Coral Reef Advisory Group comprises the American Samoa Environmental Protection Agency, the Department of Commerce (which includes the American Samoa Coastal Management Program and Fagatele Bay National Marine Sanctuary), the Department of Marine and Wildlife Resources, the National Park of American Samoa and the American Samoa Community College. The Group is charged with the policy, planning and implementation of coral resource protection programs for the Territory.

The Group has developed a plan of action for our Territory for the next five years (ASCRAG, 1999). Included in the plan are research and monitoring proposals, education projects, an enforcement program, and a plan for a legal review with the aim to modify or introduce legislation to assist in coral reef management. This project package would enable us to continue developing an understanding of the processes and impacts that affect our coral reef resources, and to tackle the human issues of public education and regulation.

The current 5-year management plan was developed through a three-day workshop held in May 1999. The workshop was a priority from our 1998 plan and was the first project completed with funding received in 1998. The workshop allowed us to develop a rigorous plan that begins in FY 2000 and extends through FY2004, with the full realization that priorities for the projects could change over the next five years, and new projects can (and probably will) be added. A complete report of the workshop is available for review (ASCRAG, 1999).

We have grouped the activities under several categories that highlight the major areas of concern that grew out of the workshop recommendations. These categories include Fisheries, Management, Reef Health, Water Quality, and Education. The workshop report summarizes the categories and the actions. It indicates which projects are currently funded and which are not. In the present report, only the currently unfunded projects are detailed below (Table 1), followed by project summaries; funding extensions in this document only show the first two years (Table 2).

Although it is a priority of the American Samoa Government to salvage the nine longliners sitting on Pago Pago Harbor reef, we do not include it here; preparation for that salvage has already begun and funds are being identified.
Update on Coral Reef Activities in American Samoa, 1997-1999

American Samoa has continued to make progress in developing and implementing programs to manage its coral reefs. The Governor’s Coral Reef Advisory Group meets regularly to plan and report on activities in which each agency is engaged. Governor Tauese Sunia has shown his support for coral reef issues through his active participation at all the US Coral Reef Task Force meetings. At the Task Force meetings, American Samoa has emphasized the urgency of the islands’ ongoing needs for resources to protect and manage their coral reefs.

One critical issue on the Governor’s agenda has been the continued presence of nine abandoned longliners on the reef in Pago Pago Harbor. He has brought this issue to the table at past meetings and finally has begun to interest leadership at NOAA and DOI, as well as the US Coast Guard, in dealing with this problem. NOAA recently spearheaded an assessment of the reefs impacted by the wrecks and USCG has deployed a contractor to remove the remaining oil and hazardous materials. NOAA is developing a restoration plan for this project. We hope that by the year 2000, American Samoa’s 100th anniversary of its treaty with the US, our prominent harbor’s reefs will be free of these unsightly and dangerous hulks.

In May of this year, the Advisory Group hosted a workshop to plan the next five years of coral reef management. With the help of experts from around the Pacific region, we targeted the most serious issues facing our reefs and developed management schemes to begin tackling these issues. The workshop participants unanimously agreed that the primary threat to American Samoa’s coral reefs was overfishing, that the reefs were currently overfished, and that unless steps were taken soon to begin reducing fishing pressures, particularly from the local commercial spearfishery, the fish populations would collapse. Projects were identified to address this issue. These included reinstating the subsistence fishery monitoring, monitoring the commercial fishery occurring on local reefs, a stock assessment of key species, and age validation studies. Fortunately, these projects will be funded through current grants to the Department of Marine and Wildlife Resources.

In addition to overfishing, water quality was identified as the second most serious issue facing our coral reefs, particularly in Pago Pago Harbor and some embayments with a high human population. The Environmental Protection Agency has several programs in progress, or planned, that are already funded, and we identified a few others that are not yet funded. Programs in progress address the fish toxicity issue in Pago Pago Harbor and other areas, and the continued monitoring of water quality in the islands. Since sedimentation was identified as a serious problem, projects addressing this have been proposed.

The National Park of American Samoa has begun monitoring of some of its coral reefs, and has temperature monitors on two islands. Fagatele Bay National Marine Sanctuary also deployed temperature monitors this year. In 1997, the Park funded a survey of corals and fish in the park on Tutuila Island. In 1996, The Department of Marine and
Wildlife Resources funded a survey of the coral and fish around Tutuila and Manu‘a and we are proposing a second iteration of that survey for FY2000. The Sanctuary funded another resource survey in 1998 headed by Dr. Charles Birkeland from the University of Guam, the fourth in a series of surveys that began in 1985. In addition, Dr. Birkeland and Dr. Alison Green resurveyed a (then) 78-year old transect on the Pago Pago Harbor reef that sits between several of the abandoned longliners.

Le Tausagi, an organization made up of most of the environmental educators in government, made great strides over the past few years. They have a village outreach program that takes their talents and information to the villages, they continue with their school outreach programs, they have an irregular television program that airs in Samoan, and they have a yearly environmental summer camp for elementary school children. In addition they have many activities through the year and several focus events such as Earth Day, Coastweeks, and Arbor Day. They inform through skits, songs, video, and talks making an entertaining mix of media and presentations.

Last year the American Samoa Community College opened its Le Vai Moana Marine Laboratory. This facility is available primarily to students, but also other agencies and researchers, and it can provide temporary housing for working visitors.

The Department of Marine and Wildlife Resources is beginning a community-based management project in one pilot village this year. They hope to expand this project to other villages in an effort to allow the villagers to manage their own resources. To this end, they made presentations in selected villages to introduce the concept of community-based management in partnership with the resource agency.

Enforcement of existing regulations continues to be a difficult issue for American Samoa. Enforcement agencies are under-resourced and under-staffed. With the return of the NOAA Office of Law Enforcement Agent, who works cooperatively with the Department of Marine and Wildlife Resources and the Sanctuary, we hope to improve our enforcement capabilities.

Several offices supported the publication of an invertebrate field guide for American Samoa produced by the Department of Education’s Larry Madrigal. This is a needed resource for the schools and for technicians in the field. In addition, a more general book on the natural resources of American Samoa is in press by Meryl Goldin-Rose.

**Literature cited**
Table 1. Unfunded portion of 5-year plan for coral reef management in American Samoa

\[ u = \text{presently unfunded} \quad f = \text{funded} \]

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* US Coral Reef Task Force Working Groups:  
CU—Coral uses  
EC—Ecosystem Conservation  
E/L—Enforcement/Legislation  
E/O—Education/Outreach  
M—Mapping  
WAQ—Water and Air Quality
HIGH PRIORITY PROJECTS

A. Project: Summary of Sedimentation Water Quality Criteria and Control Methods

Lead Agency: American Samoa Environmental Protection Agency
Priority: High
USCRTF Reference: Water and Air Quality
Start Date: FY00
Duration: six months

Project Description

This project involves completion of a review of studies on the effects of sedimentation on coral reefs, including information on the amounts of parameters such as suspended solids and turbidity in the water column that impact coral reef health. Most development projects (seawalls, roads) in American Samoa impact the nearshore waters by erosion and contaminated storm water drainage. Contractors and regulators have experienced difficulty in effectively preventing these impacts through the use of silt curtains and other means. This project would include determining structural and nonstructural best management practices (BMPs) that have been utilized successfully in other coastal areas, and the installation and maintenance requirements of these BMPs.

Benefits

The project will provide regulators better information to establish standards for water quality for development projects and in general. We will be able to target improvements in water quality. Increased knowledge on the types of BMPs to protect coastal water quality during construction, and on their installation and maintenance requirements will decrease the impacts coastal construction has on water quality and the coral reef habitat.

Budget Estimate: $20,000
B. Project: Integrated Nearshore and Stream Ecosystem Study

Lead Agency: ASEPA and DMWR
Priority: High
USCRTF Ref.: Water and Air Quality
Start Date: FY00
Duration: Two Years

Project Description

Sediment plumes onto local coral reefs occur on a frequent basis, particularly following storm events. Two to three watersheds will be targeted where monitoring will be completed for one year on streams and nearshore reef habitat on a regular basis. The stream sampling will include typical water quality parameters and will be done at representative intervals along the stream to determine the major sources of sedimentation and other nonpoint source pollution impacts. This will be accomplished by targeting sampling locations to get representative data above all development, below plantations and below village development. In order to help determine the effects of the streams water quality on the reef ecosystem, the project will include nearshore monitoring for typical water quality parameters, coupled with stream and coral reef ecosystem surveys.

Benefits of Project

This project will provide an integrated look at the impacts of land-based pollution on streams and the nearshore ecosystem and will provide a baseline for determining actions by the American Samoa Government and the villages to decrease nonpoint source pollution.

Budget Estimate: $200,000 total
C. Project: **Revisions of Environmental Regulations and Laws**

**Lead Agency:** Department of Marine and Wildlife Resources (DMWR)

**Priority:** High

**USCRTF Ref.:** Enforcement and Legislation

**Start Date:** FY00

**Duration:** 2 years, repeated in 2004

**Description**

In American Samoa, enactment of current conservation laws and regulations suffer from outdated and inadequate laws/regulations. Currently DMWR funding is primarily under Dingel-Johnson Act revenue sharing, which does not allow for promulgation of regulations. Local funding for these activities is extremely limited, as the American Samoan government struggles with deficit problems.

Public input and legal assistance are needed to extensively revise the fisheries, coral reef, and endangered species portions of Territorial regulations. Current regulations inadequately address endangered species protection, threats from new fishing gear (e.g. scuba fishing), and changing management strategies (e.g. community-based reef resource management).

Public input on regulations and enforcement would be gathered through surveys and public hearings held at 6 sites in the territory. DMWR staff will revise current regulations following public hearings and prepare regulation and legislation changes. Legal advice would be obtained to ensure regulations and legislation will withstand court challenges.

**Benefits**

Public input and involvement in formulation of proposed laws and regulations. Many of the current regulations have been adopted on a piecemeal basis which limited input concerning legal and enforcement systems. New regulations and legislation will facilitate changing approaches to reef resource management.

**Budget Estimate:**

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<th>Year</th>
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### Project Description

Due to staff limitations, DMWR enforcement officers’ duties are primarily in customs inspections. Field enforcement would be enhanced through the hiring and training of two new conservation officers who would be dedicated to coral reef and fisheries enforcement in the territorial waters. Training and the purchase of needed equipment and supplies would enable the new officers to professionally perform their duties.

Currently, DMWR funding is primarily under Dingel-Johnson Act revenue sharing, which does not allow for enforcement of regulations. Local funding for these activities is extremely limited, as the American Samoan government struggles with deficit problems.

### Project Benefits

Benefits include increased monitoring of coral reef and fishing activities and training of new personnel in enforcement techniques.

### Budget Estimate:

- $60,000 first year (salaries, training, equipment)
- $40,000 for each of the next four years
E. Project: **American Samoa Marine Laboratory**

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<td>Duration:</td>
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**Project Description**

Over the past several years, the American Samoa Government has been planning the development of a marine laboratory that would provide facilities for all agencies that have interests in marine science. A proposal was developed and a site has been identified and preliminary discussions began between the lead agencies and the landowners, a local church. The American Samoa Community College has since struck out on their own and developed the Vai Moana Marine Laboratory (see related project in this package), but the facility is too small to serve the needs of more than the college.

The facility that we propose will house the laboratories for the Department of Marine and Wildlife Resources, American Samoa Environmental Protection Agency, and can be used by visiting scientists, students and other agencies as needed. The original plan also calls for offices and an outreach facility that would include an aquarium and other exhibits.

**Benefits**

Because of the distance that American Samoa is from the other Territories and Hawaii, it is difficult for us to participate in or benefit from their laboratories. By having a fully equipped and staffed laboratory in American Samoa, we would be able to conduct top quality research that we need for our coral reef conservation efforts.

**Budget Estimate:**

- $150,000 year one (planning to groundbreaking)
- $2,000,000 year two
F. Project: Coral Reef Program Coordinator
   Lead Agency: Governor’s Office/Coral Reef Advisory Group
   Priority: High
   USCRTF Ref.: Ecosystem Conservation
   Start Date: FY00
   Duration: Ongoing

Project Description
One scientist (PhD level) will be hired to facilitate and organize the various projects that relate to coral reef management. This person would have experience in both the scientific and administrative areas so that they can be tasked with one or more of the projects and can administer and/or facilitate the others.

Benefits
By selecting a lead person to coordinate all coral reef work, we will be able to have a clear lead who would be responsible for overseeing the results of all work, analyzing data and advising the Coral Reef Advisory Group so that together they can make decisions about future management directions and needs. Also, by having one person coordinating the projects through various agencies, there will be less possibility of duplication or friction. They would have priority for use of the various agencies’ equipment, and when necessary, personnel, for field work.

Budget Estimate: $75,000 year one ($60,000 per year for salary, benefits and travel, $15,000 first year for office setup) $60,000 subsequent years
G. Project: Establish the Governor’s Task Force on Population

Lead Agency: Department of Commerce
Priority: High
USCRTF Ref.: Education and Outreach
Start Date: ASAP
Duration: Ongoing

Description
The increasing human population on American Samoa (see figure below) has been identified as the primary causative agent for decline in the island’s natural resources. The Governor’s Task Force on Population will be tasked with determining ways to encourage a reduction in the island’s population growth rate (currently 3.7%). They will publish a public awareness book for the local population in 2000, and again in 2002 after the census data have been finalized. Funding will cover meeting costs, publications and promotional costs.

Benefits
Any decrease in the island’s population growth will decrease the demand on local natural resources, particularly land converted to plantation and homes. This will alleviate further pressure on coral reef resources for food, and from land use impacts.

Budget Estimate: $5,000 FY00
$2,000 FY01
$10,000 FY02

Population Growth in Am. Samoa
H. Project: **Expert Fish/Coral Surveys**

**Lead Agency:** Department of Marine and Wildlife Resources (DMWR)

**Priority:** High

**USCRTF Ref.:** Ecosystem Conservation

**Start Date:** FY00

**Duration:** One year, repeated in 2003

**Project Description**

Quantitative surveys of the corals and reef fishes of American Samoa were conducted in 1995. While surveys with American Samoa-based personnel can help identify trends in coral reef and fish communities, it has been recommended that comprehensive assessments be performed at 3-5 year intervals.

One coral expert and one reef fish expert will repeat the surveys of 1995 over the period of one month, with the assistance of local agencies. Training for local personnel in survey techniques will be conducted. Data from the surveys will be analyzed and reports written documenting changes to the reefs and fishes revealed by the two survey sets.

**Benefits**

Statistically rigorous surveys of reef fish and corals are essential for the monitoring of the reef resources of American Samoa. The proposed surveys would enable direct comparison with surveys conducted five years ago. Training for personnel from local agencies would enable consistent monitoring, although on a less detailed basis.

**Budget Estimate:**

FY00 $10,000  ($39,000 total; $29,000 committed from 1999 coral reef funding)

FY03 40,000
I. Project: Meeting Participation for Island Members

Lead Agencies: American Samoa Coral Reef Advisory Group
Priority: High
USCRTF Ref.: Education and Outreach
Start Date: October 1999
Duration: Ongoing

Project Description
American Samoa is an isolated US Territory, the only one in the South Pacific. Travel to and from the Samoan islands is very expensive, and this limits the opportunities for agency members to travel to conferences, meetings, etc., that could provide important information and exposure for our Coral Reef Advisory Group programs.

Benefits
Providing an opportunity for people to attend professional meetings that they otherwise could not participate in.

Budget Estimate: $15,000 travel expense per year
J. Project: Island-Wide Ocean Monitoring

  Lead Agency: American Samoa Environmental Protection Agency

  Priority: High

  USCRTF Ref.: Water and Air Quality

  Start Date: FY00

  Duration: Two years

Project Description

Water quality is a major factor contributing to reef health and recovery. A database on trends in water quality for the Territory has not yet been established. ASEPA plans to complete quarterly monitoring for a two year period for standard water quality parameters in the major bays in American Samoa, and install continuous measurement recording devices to measure a variety of water quality parameters (temperature, salinity dissolved oxygen, turbidity, nutrients) at a regular frequency in four bays around Tutuila Island. After two years, the data will be reviewed to refine needs for continued monitoring.

Project Benefits

The project will provide a baseline for water quality in the nearshore waters, show the trends over time related to storm events and tides and assist in determining the needs for amending Water Quality Standards.

Budget Estimate:

$80,000 FY00 (40,000 quarterly monitoring and analysis; 40,000 to purchase continuous monitoring devices)

$40,000 FY01
K. Project: Local Survey of Fish and Coral Reef Habitat in American Samoa

Lead Agency: Department of Marine and Wildlife Resources
Priority: High
USCRTF Ref.: Ecosystem Conservation
Start Date: FY00
Duration: 4 weeks per year over 5 years

Description
Overfishing is a serious and urgent problem impacting coral reefs in American Samoa. Even though the coral habitats are finally growing back after severely damaged by two hurricanes, the fish stock have not recovered. Monitoring of habitat and fish is necessary to assess trends in fishery resources. DMWR staff (along with trained villagers when appropriate) will conduct fish surveys for selected species, belt habitat surveys and water quality measurements at sites previously surveyed in baseline studies.

Benefits
This project will provide periodic monitoring of reef and fish communities to aid in assessing changes occurring between expert surveys.

Budget Estimate: $15,000/ year for five years
L. Project: **Coral Identification Training**

Lead Agency: National Park of American Samoa

Priority: High

USCRTF Ref.: Education and Outreach

Start date: FY00

Duration: 7 days

**Project Description**

The value of coral reef surveys improves when field workers have appropriate skills in the identification of coral taxa and morphologies. Given that local agency personnel have varying degrees of coral experience, it is proposed that a coral reef expert provide a brief training course in Pago Pago. Dr. Jim Maragos (USFWS, Honolulu) has indicated an interest in providing this assistance. The course would focus on familiarization with local coral genera, as well as key species. Field trips to view live corals would be undertaken, and DMWR's collection of identified coral skeletons would be reviewed for accuracy.

**Benefits**

The usefulness of data collected during monitoring programs would be substantially improved if key coral species and groups were accurately identified in the field, and descriptions of basic coral forms were standardized among observers.

**Budget Estimate:** $3,400
M. Project:  

**Inventory of Harvested Invertebrates**

**Lead Agency:** Department of Marine and Wildlife Resources  
**Priority:** High  
**USCRTF Ref.:** Coastal Uses  
**Start Date:** FY00  
**Duration:** Two years

**Project Description**

In 1991, octopus accounted for 51% of the invertebrate catch of the island while spiny and slipper lobster species were 5%. Anecdotal information indicates that these popular food items are becoming increasingly scarce on the reefs. The current major funding source at DMWR (Sportsfish Restoration Funds) does not allow DMWR to conduct studies for the fisheries management of invertebrate species. Consequently, there have been no studies to date concerning the octopus and lobster fisheries in the Territory. As American Samoa’s population and tourism industry expand, there will be increased need for management of these species.

An invertebrate fisheries biologist would be recruited to conduct resource and habitat surveys, and gather biological information for octopus and lobster at various sites on three islands in American Samoa. At the end of the project, a report would be produced which includes population estimates and resource management recommendations for the octopus and lobster species present.

**Project Benefits**

The project report and recommendations will be the basis of enhanced management for these invertebrate species.

**Budget Estimate:**  
FY01 $50,000  
FY02 $50,000
Community Conservation and Management Workshops

Lead Agency: Department of Marine and Wildlife Resources (DMWR)

Priority: High

USCRTF Ref.: Education and Outreach

Start Date: FY00

Duration: Three years

Project Description

Continuing education of the local population is an effective management tool. Three seminars a year will be conducted for traditional leaders to address resource education and management of our marine resources. An analysis of coral reef issues will be integrated into DMWR's existing Marine Conservation Plan. Here, scientists, resource managers, and education and enforcement officers meet on a regular basis with village mayors to review and discuss traditional and non-traditional issues affecting American Samoa's fisheries and coral reef resources.

One education workshop a year will be conducted for teachers to enhance their understanding regarding coral reef ecology and management. This coral reef component will be integrated into DMWR's existing environmental education workshop for educators held annually. Workshop agenda will be divided into two parts: (a) classroom session--theoretical aspects of resource conservation; (b) field work - practical, hands-on experience.

Participate in local, national and regional conferences aimed to protect coral reefs through the support of research, management, enforcement and education initiatives.

Benefits

Formalized outreach with community leaders and educators concerning coral reef issues, and increased regional cooperation for development of public education.

Budget Estimate:

FY00: $9,000
FY01 $5,700
FY02 $9,000
**O. Project Name:** Marine Resource Education Center

**Lead Agency:** Fagatele Bay National Marine Sanctuary

**Priority:** High

**USCRTF Ref.:** Education and Outreach

**Start Date:** FY00

**Duration:** Ongoing

**Project Description**

There are limited reference resources in American Samoa, and there are few books of any type available to the public that address marine issues. The Feleti Barstow Public Library construction was completed in 1998, but funding for stocking the library has been limited; currently the library is virtually empty. One priority for the library would be a marine science learning center that provides a variety of resources to the public. This would include a computer station with Internet hookup, books, videos, films, journals, and teacher materials.

**Benefits**

The new public library would provide a central location that housed a superior marine science learning center that would be useful to the public, students, teachers, and technical people.

**Budget Estimate:**

$30,000 first year

$10,000 subsequent years
<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Envirobus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Agency:</td>
<td>Le Tausagi, Department of Commerce</td>
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<tr>
<td>Priority:</td>
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<tr>
<td>USCRTF Ref.:</td>
<td>Education and Outreach</td>
</tr>
<tr>
<td>Start Date:</td>
<td>January 2000</td>
</tr>
<tr>
<td>Duration:</td>
<td>3 Years</td>
</tr>
</tbody>
</table>

**Project Description**

Marine education and outreach to date has been largely focused on schools. There is a real need for a broader village outreach program that will embrace people of all ages. Because it is difficult to get many people to come to central locations for programs, it would be more effective to take the programs to the villages. We propose acquiring a used school bus, which will sport a colorful reef/rainforest motif. The inside of the bus carries staff and equipment. The bus would make appointed visits to villages and schools. Staff would act as educators and entertainers. Displays would include informational kiosks, touch and look-only tanks, continuous videos, and other hands-on items. Staff would perform skits with costuming, puppetry, faleaitu (Samoan play), etc., to engage the audience. There would be opportunities for the villagers to participate in activities, too (reef/forest walks, guided snorkel tours, artwork, etc.) The EnviroBus would plan one full circuit of Tutuila in three years. It may even be possible to take the bus to the outer islands of Manu`a for several weeks. The EnviroBus would be available for Coastweeks, ReefWeeks, Earth Day and other coordinated environmental theme programs.

**Benefits**

EnviroBus program would provide a comprehensive island ecology program with focus on the coral reef.

**Budget Estimate:**

- $90,000 FY00
- $46,500 FY01
Q. Project: Coral Reef Information Materials

Lead Agency: Department of Marine and Wildlife Resources (DMWR)

Priority: High

USCRTF Ref.: Education and Outreach

Start Date: January 2000

Duration: One year

Project Description

Education coordinators need to have materials to help in their programs of marine outreach. The following printed materials will be developed and disseminated to the public:

Bumperstickers (5,000): A slogan contest will be held and the winning slogan placed on bumperstickers.

Fact-Sheet (10,000): The developed fact sheet will briefly touch on pertinent information about American Samoa's coral reef ecosystem: coral reef species, ecology and biology, regulations, conservation and management, cultural significance, education initiatives, land-based or human-induced activities affecting habitat, and the recent research developments in the Territory.

Regulations Brochure (5,000): will redesign and expand existing DMWR fishing regulations brochure to include changes to local laws and existing federal laws governing coral reefs and protected reef species. Brochure will be distributed to fishermen, schools, community groups and government agencies and be available to the public at the airport and other public places.

Costume Trunk: Costumes will be developed depicting the various species found on our reefs, and will be used to support environmental awareness skits performances during school and community outreach.

Benefits

Increased public awareness of the importance of the reef community will help promote reef and fish community health.

Budget Estimate: $13,500
R. Project: Coral Reef Education Video

Lead Agency: Department of Marine and Wildlife Resources (DMWR)

Priority: High

USCRTF Ref.: Education and Outreach

Start Date: January 2000

Duration: Two years

Project Description

Videos have been found to be an effective means of taking public service messages to the public. Four videos would be produced which would be specifically aimed at the American Samoan public:

**Sing-Along Video for Kids:** A five-minute animated video targeting children up to 10 years old. The video would be part of a teachers’ education package and would supplement DMWR’s existing coral reef coloring book for this age group. A meeting with experts in child development and playwriting will be held to put together an innovative format and script for the children’s sing-along video.

**Reef Skits and Music Video:** A 10-minute video for the general public, featuring skits and songs scripted and produced by local individuals and youth groups. Video will be used as an awareness tool to assist youth groups and others in their own efforts to promote the sustainable use and management of coral reefs in their own communities. An island-wide, youth talent competition will be conducted to provide video content. Contest categories will be broken down by age-group and talent, with overall theme evolving around the significance of the coral reef ecosystem in our natural and cultural heritage.

**Biology and Conservation:** A 20-30 minute educational video about coral reef ecology, fish and resource biology, habitat, land-based activities and impact, regulations, education initiatives and management. The 'biology and conservation' video will be based on the guidelines, terms and references provided by the DMWR and will contain materials and information regarding the following: coral reef ecology, fish and resource biology, traditional uses and cultural significance, conservation measures, regulations, education initiatives, management issues, and research development.

**Coral Reefs: Samoa’s Livelihood:** A 20-30 minute video on the cultural significance of the coral reef ecosystem in and for the people of American Samoa. Video will include interviews with village leaders and elders about the history and traditional value of coral reefs and associated resources in the 'old' Samoan way of life, relevance to legends and myths, and the impact of current conservation and management efforts to our livelihood. A meeting with traditional leaders will be held to develop an appropriate script and format for this cultural component of the video project. Part of this effort will include research and personal interviews with village elders and traditional leaders. Research and management concerns will be incorporated into the overall picture to illustrate the need of old and new ways to help preserve this important part of our natural and cultural heritage.
Benefits
Availability of these videos will enable the message of reef resources conservation to be spread to a larger portion of the community and reflect a local perspective to these issues.

Budget Estimate:  
FY 00: $16,000  
FY 01: $42,000
S. Project: Coral Reef Mapping

Lead Agency: American Samoa Coral Reef Advisory Group
Priority: High
USCRTF Ref: Mapping and Information Synthesis
Start Date: FY01
Duration: One year

Project Description
Extensive mapping of the coral reefs in American Samoa has never been accomplished. Maps are necessary for accurate and effective management and for decision making. Mapping is a priority of the US Coral Reef Task Force and is represented by one of the working groups.

Project Benefits
Maps will be utilized in all of our research and monitoring programs, with GIS, and with education and enforcement programs.

Budget Estimate: ??
MEDIUM PRIORITY PROJECTS

T. Project: Indicator Organisms of Pollution in American Samoa

Lead Agency: Department of Marine and Wildlife Resources

Priority: Medium

USCRTF Ref.: Water and Air Quality

Start Date: FY00

Duration: Two years

Project Description

Department of Marine and Wildlife Resources (DMWR) staff conduct surveys for land use permits, monitoring reef health and documenting current reef conditions. Knowledge of pollution indicator organisms would enhance the quality of these surveys. This information would also be a valuable teaching tool to educate high school students of pollution in the coastal waters of American Samoa.

A marine biologist would be hired on a two-year contract. A literature search would be conducted on macroscopic tropical marine indicator organisms. Benthic and intertidal surveys would be conducted to relate organisms present in American Samoa to know pollution/water quality. A technical report detailing findings of the study would be issued as a part of DMWR's Biological Report Series. In conjunction with American Samoa Department of Education, a field study guide for high school biology classes would be developed and tested with one high school class. Five hundred field guides would be published for distribution to high schools and libraries.

Project Benefits

Information from this study will be very useful to American Samoa EPA and DMWR when conducting rapid assessments of biota before and after projects affecting the fringing reef. High school students and teachers will benefit from a different viewpoint of the marine life of the Territory.

Budget Estimate:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY01</td>
<td>$44,000</td>
</tr>
<tr>
<td>FY02</td>
<td>$44,000</td>
</tr>
</tbody>
</table>
U. Project: Re-establish giant clams on reefs in American Samoa

Lead Agency: DMWR and NPS
Priority: Medium
USCRTF Ref.: Coastal Uses
Start date: FY00
Duration: 4 years

Project Description

Tridacnid giant clams are a prized food item that is seriously overfished in American Samoa. Densities are so low that their reproductive success may be jeopardized in the territory (Green and Craig 1999). Attempts to augment the harvest by farming hatchery-reared clams has not been overly successful after 10 years of effort in American Samoa.

To rebuild natural stocks, we propose to implant hatchery-reared native giant clams (probably *Tridacna maxima*) on two local reefs. Trials would be conducted to determine the most successful means of field implantation, using as variables: clam size, method of attachment to the reef, season, habitat (2 depths, 2 bays), and protection (with and without protection from natural and human predators). Clams would be individually numbered and monitored at daily, weekly or monthly intervals, as appropriate. Success would be determined as the percent survival of implanted specimens over time. This project would be conducted by a new biologist. DMWR would provide in-kind support (boats, diving). Prior to initiating field efforts, a thorough review of the literature would be conducted to build upon efforts elsewhere in the Pacific.

Benefits

Giant clams are an important food item in American Samoa, but local reefs have been overharvested. This program would attempt to rebuild native stocks on local reefs.

Budget Estimate: $160,000 ($40,000 per year)

Literature cited:
V. Project: Facilitate research of coral reefs in the outer islands of American Samoa

Lead Agency: NPS
Priority: Medium
USCRTF Ref.: Ecosystem Conservation
Start date: FY00
Duration: Long-term

Project Description
At present, it is logistically difficult to monitor coral reefs in the outer islands of American Samoa, where there are no research vessels, field laboratories, compressed air for scuba divers, or secure storage space for scientific equipment. All logistics must be organized and deployed from the main island of Tutuila. Several agencies (NPS, DMWR, EPA) have a need for small field offices in these islands. We propose beginning with a multi-agency field station on Ofu Island. This proposal would establish a modest field station, complete with a small boat, vehicle for ground transport, and basic scientific equipment for field operations.

Benefits
This proposal would facilitate research and monitoring of coral reefs in the outer islands of American Samoa, which currently receive little study due to the logistical difficulties of conducting fieldwork there.

Budget Estimate: $46,000 (Year 1= $34,000 Year 2= $12,000)
W. Project Name: College Marine Program Enhancement
   Lead Agency: American Samoa Community College
   Priority: Medium
   USCRTF Ref.: Education and Outreach
   Start Date: October 1999
   Duration: Six months

Project Description
Le Vai Moana Marine Laboratory opened in 1999 to provide marine science facilities to the college community, government agencies and visiting scientists. The Laboratory is located near the sea, but does not have running seawater to the facility, an important commodity for research and education programs. We propose a seawater pump facility to the laboratory.

Benefits
Having a running seawater capability will allow the facility to conduct experiments, hold marine life, and would be an attraction to scientists who would need this in their work. It will also be available to government agencies for monitoring/research projects.

Budget Estimate: $8,000
X. Project: **Coral Reef Information Boards**

**Lead Agency:** Department of Marine and Wildlife Resources (DMWR)

**Priority:** Medium

**USCRTF Ref.:** Education and Outreach

**Start Date:** January 2000

**Duration:** One year

**Project Description**

Ten information boards or signs would be designed, constructed and installed at selected sites in American Samoa. Signs would be bi-lingual and summarize local and federal regulations about corals and reef species conservation, with a coral reef campaign slogan and illustrations of examples of protected species. Local village officials would be consulted concerning local coral reef issues, which would be reflected in sign design for each location.

**Benefits**

Signs would have high visibility and address local coral reef conservation issues.

**Budget Estimate:** $20,000
Y. Project: Vaoto Marine Park Monitoring

Lead Agency: Department of Marine and Wildlife Resources
Priority: Medium
USCRTF Ref.: Ecosystem Conservation
Start Date: January 1, 2000
Duration: 5 years

Project Description
Vaoto Marine Park, on the island of Ofu in eastern American Samoa, was established in the early 1990’s for mitigation of reef damage from a harbor project. Current management of this area is non-existent. This project would establish baselines for fish and habitat using belt transect techniques. Artisanal fishing (allowed in the park agreement) would be monitored during 6-one week intervals to provide estimates of fishing within the area.

An interpretive sign would be erected adjacent to the airport to inform visitors about the park and non-destructive methods of enjoying the park resources. The sign would be updated every two years.

Project Benefits
Important baseline information about the park would be obtained to aid in park management. Public awareness of the park and appropriate utilization would be enhanced.

Budget Estimate:
FY00: $17,000
FY01: $15,000
FY02: $17,000
FY03: $15,000
FY04: $17,000
Z. Project: **Produce and Publish Invertebrate Handbook**

**Lead Agency:** Department of Commerce/Department of Education

**Priority:** Medium

**USCRTF Ref.:** Education and Outreach

**Start Date:** FY2000

**Duration:** 5 years

**Project Description**

The “Field Guide of Shallow Water Marine Invertebrates of American Samoa,” published in 1999 by Larry Madrigal, provided a vital reference for local coral reef invertebrates. However, this publication focused on the intertidal and shallow regions of the reefs.

The purpose of this project is to carry out an exhaustive survey of invertebrates. It is proposed to examine a range of localities, range of depths, habitats and substrates (e.g. soft sediment, rubble, stony coral, soft coral, calcareous algae). Then organisms will be photographed and information on coloration, habitat, size, distribution, biological associations among species, and other pertinent observations on behavior and ecology would be recorded and provided with each color photograph in a published book.

Completed sections of the book would be provided on an annual basis.

**Benefits**

The value of the book would not only provide a resource management database, it would provide pertinent ecological information about local marine invertebrates that is presently lacking in the territory.

**Budget Estimate:**

FY00-03: $25,000 ; FY 04: $50,000 Book publication costs

This would include:

- Supplies (film, developing, batteries, computer software)
- Postage for specimens to be sent to institutions for identification
- Camera equipment
- Travel and accommodations for primary investigator and visiting scientist to the territory
- Dive tank fills and boat rentals
- Salary for the primary investigator and secondary investigators
Table 2. Summary of unfunded projects proposed for American Samoa from FY2000-2001. The order of projects does not denote priority ranking. Final decisions will be made based on funding availability.

<table>
<thead>
<tr>
<th>Project Description</th>
<th>FY2000</th>
<th>FY2001</th>
</tr>
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<tbody>
<tr>
<td><strong>High Priority (not ranked)</strong></td>
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<tr>
<td>Sedimentation Criteria and Controls</td>
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<td>Integrated Nearshore and Stream Ecosystem Study</td>
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<td>Revisions of Environmental Regulations and Laws</td>
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<td>Enforcement Enhancement</td>
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<td>American Samoa Marine Laboratory</td>
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<td>Coral Reef Program Coordinator</td>
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<td>Expert Fish/Coral Surveys</td>
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<td>Establish Governor’s Task Force on Population</td>
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<td>Meeting Participation for Island Members</td>
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<td>Island-Wide Ocean Monitoring</td>
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<td>Local Survey on Fish and Coral Reef Habitat</td>
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<td>Coral Identification Training</td>
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<td>Inventory of Harvested Invertebrates</td>
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<td>Community Conservation &amp; Management Workshops</td>
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<td>Marine Resource Education Center</td>
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<tr>
<td><strong>Medium Priority (not ranked)</strong></td>
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<tr>
<td>Indicator Organisms of Pollution in American Samoa</td>
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<tr>
<td>Facilitate research of coral reefs in the Manu’a Islands</td>
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<td>Re-establish giant clams on reefs in American Samoa</td>
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<td>40,000</td>
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<tr>
<td>College Marine Program Enhancement</td>
<td>8,000</td>
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</tr>
<tr>
<td>Coral Reef Information Boards</td>
<td>20,000</td>
<td></td>
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<tr>
<td>Vaoto Marine Park Monitoring</td>
<td>17,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Produce and publish invertebrate handbook</td>
<td>25,000</td>
<td>25,000</td>
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<tr>
<td><strong>Total Medium Priority Projects</strong></td>
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