

**Section 309 Assessment and Strategy for the American Samoa
Coastal Management Program**

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APPENDIX A: Meeting Notes

ACRONYMS

ADA	Americans with Disabilities Act
ASCC	American Samoa Community College
ASCMP	American Samoa Coastal Management Program
ASEPA	American Samoa Environmental Protection Agency
ASG	American Samoa Government
ASNP	American Samoa National Park
ASPA	American Samoa Power Authority
ASPR	American Samoa Department of Parks and Recreation
ASVB	American Samoa Visitor's Bureau
BMP	Best Management Practices
CAAP	Consolidated Application Administration Process ("One-Stop Shop")
CBWMP	Community-Based Wetlands Management Plan
CELCP	Coastal and Estuarine Land Conservation Program
CFMP	Community-based Fisheries Management Program
CHAMP	Coastal Hazard Assessment and Mitigation Project
CIP	Capital Improvement Program
CM	Contextual Measure
CMP	Coastal Management Program
CRAG	Coral Reef Advisory Group
CRCP	NOAA Coral Reef Conservation Program
CRI	NOAA Coral Reef Initiative
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
DDT	Dichlorodiphenyltrichloroethane
DHS	Department of Homeland Security
DOA	Department of Agriculture
DOC	Department of Commerce
DOH	Department of Health
DOI	United States Department of Interior
DMWR	Department of Marine and Wildlife Resources
DPA	Department of Port Administration
DPW	Department of Public Works
EQIP	NRCS Environmental Quality Incentives Program
FBNMS	Fagatele Bay National Marine Sanctuary
FEMA	Federal Emergency Management Agency
FIRM	FEMA Flood Insurance Rate Maps
GIS	Geographic Information Systems
HAG	Harbors Advisory Group
HPO	Historic Preservation Office

ACRONYMS
(continued)

LAS	Local Action Strategy
LBSP	Land Based Sources of Pollution
LIDAR	Light Detection and Ranging
MOU	Memorandum of Understanding
MPA	Marine Protected Area
NFIP	National Flood Insurance Program
NMFS	NOAA National Marine Fisheries Service
NMS	National Marine Sanctuary
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	United States Department of Agriculture, Natural Resources Conservation Service
NSAG	Near-Shore Advisory Group
OCRM	NOAA Office of Ocean and Coastal Resource Management
ORMP	Ocean Resources Management Plan
PCB	Polychlorinated biphenyl
PIFSC	NOAA NMFS Pacific Islands Fisheries Science Center
PIRO	NOAA Pacific Islands Regional Office
PLA	Participatory Learning Action
PNRS	Project Notification and Review System
SAMP	Special Area Management Plan
SMA	Special Management Area
SWCD	Soil and Water Conservation District
TEMCO	Territorial Emergency Management Coordination
T-HAT	Tutuila Hazard Assessment Tool
USGS	United States Geological Survey
VMPPA	Village Marine Protected Area

1.0 INTRODUCTION

Overview of Key Development Trends

American Samoa includes seven islands with a total land area of 76 square miles, spread over an ocean area of 150 miles. The islands are located at 14° South and 160-173° West, some 2,300 miles southwest of Honolulu, Hawaii. Population growth in American Samoa has occurred at a relatively high rate over the past two decades (2.25% annual growth rate between 1990 and 2000 and 2.38% annual average growth rate between 2000 and 2005) and is due to a combination of high fertility rates and immigration. Another issue associated with population growth is the higher rate of increase on Tutuila, where 90% of the population resides, primarily on the Tafuna Plain and around Pago Pago Harbor. High population densities in those areas have impacted many aspects of life, including significantly straining the existing infrastructure (roads, water supply, wastewater, etc.), causing increased waste streams, modifying village government structure, and increasing vulnerability to natural hazards. This last point was highlighted during the September 2009 tsunami, which caused 34 deaths and destroyed nearly 250 homes and another 2,750 dwellings.

The population projection from American Samoa Department of Commerce (DOC) for 2010 was 70,100; however, recent economic conditions in American Samoa are likely to have significantly decreased immigration into the territory and thus this population figure may be overestimated. The U.S. Census is currently being conducted and final numbers should be released in 2011; the July 2010 preliminary estimate was 65,628 (source: cia.gov).

Economic activity in American Samoa for the past two decades has been based primarily on two major components, U.S. federal government expenditures and the tuna canneries, and to a lesser extent, retail and commercial sectors. Total employment in American Samoa in 2008 was estimated at 16,990, with the government providing 6,035 jobs and the canneries providing 4,861. Two tuna canneries were previously operating in Pago Pago Harbor; however, due to changes in minimum wage laws requiring incremental annual wage increases to eventually meet U.S. wage levels, one of the two canneries closed its doors in September 2009 and the other is expected to reduce its operations by approximately two-thirds during the fall of 2010. Over 2,000 jobs were lost with the first cannery closure, and an additional 600 to 800 jobs may be cut in the downsizing of the second cannery.

The economic impacts of the decrease in cannery activities will be widespread throughout the territory, requiring short-term assistance to help support unemployed workers and vulnerable families, as well as a long-term action plan to help rebuild economic activity in the territory. In anticipation of the decline in cannery activities, the American Samoa Government (ASG) has begun considering possible alternative sources of economic activity including light manufacturing, internet-based businesses including information and communications, tourism, agriculture, and aquaculture. In early October 2010, Tri Marine announced that it was planning on reopening the Chicken of the Sea cannery under its own operations. While this is a positive step in maintaining economic opportunities in American Samoa, the time frame for such a reopening has not yet been disclosed.

It is within this context of development pressure issues and transitional economic conditions that the American Samoa Coastal Management Program (ASCMP) Section 309 activities assessment and strategy have been developed.

American Samoa Coastal Zone Management Program

ASCMP utilizes only federal funding for its operations. The table below shows CZM funding allocations and projects funded using the 309 grant program.

ASCMP Budgets in FY 2006-2010

Funding Source	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Section 306/306A	\$818,000	\$842,000	\$783,000	\$779,000	\$781,000
Section 309	\$76,000	\$76,000	\$76,000	\$76,000	\$76,000
Wetlands	\$20,231	\$19,712	\$52,984	\$34,594	\$69,484
ORMP	\$48,044	\$56,288	\$23,016	\$41,406	\$6,516
CSI	\$7,725	-	-	-	-
Section 308/310	\$92,000	\$82,000	-	\$68,000	\$107,200
TOTAL	\$986,000	\$1,000,000	\$859,000	\$923,000	\$964,200

Assessment and Strategy Process

A summary of activities completed under the 309 program in the last five years is provided in Section 2 of this report. The Office of Ocean and Coastal Resource Management (OCRM) provided an assessment questionnaire, which has been completed and is included in Section 3. The completed questionnaire is based on document review, interviews, and small-group meetings with ASG officials from a range of relevant agencies. A 309 Program Advisory Group was also organized for this assessment and was made up of officials from various agencies. Meetings with the Advisory Group were valuable to the assessment and helped begin the development of a strategy for enhancement of current ASCMP activities and needed new actions. This strategy is included in Section 4.

2.0 SUMMARY OF COMPLETED SECTION 309 EFFORTS

Over the past five years, the ASCMP has been impacted by high turnover of key personnel, including the Ocean Resources Management Plan (ORMP) coordinator, environmental planner, Geographic Information Systems (GIS) coordinator, Coastal Management Program (CMP) manager, and outreach coordinator, and by difficulties in finding qualified replacements for these positions. The high vacancy rate is caused in part by low compensation for key positions, which leads to high turnover and difficulty recruiting qualified personnel.

Additional challenges include a lack of on-island capacity for the positions needed. ASCMP has responded by working to develop educational programs for issues that fall under their jurisdiction. As an example, ASCMP has been working with the American Samoa Community College to develop a Marine Science Center. Through efforts such as these, ASCMP has recently filled all of its key positions and expects to have a full staff within the next few months after all of the necessary paperwork has been filed with the Department of Human Resources. This will allow ASCMP to continue to build on the following actions that have been completed under the 309 program within the past five years.

The following is a brief summary of the program changes completed since the last 309 Program Assessment and Strategy, as well as challenges that affected the implementation of certain program changes. The three priority areas identified in 2006 were Wetlands, Cumulative and Secondary Impacts, and Ocean Resources.

A. Wetlands Program

2006 Strategy	Status of Implementation	Challenges to Implementation
Continue development and expansion of village ordinances based on the delineation and mapping activities of the Community Based Wetlands Management Program (CBWMP).	<p>Completed a Draft Community-based Wetlands Management Plan (CWMP) for Tula Village in cooperation with the village and the National Oceanic and Atmospheric Administration (NOAA) Pacific Islands Regional Office (PIRO), using the Participatory Learning Action (PLA) tools and process.</p> <p>Initiated CBWMP for Vatia Village in collaboration with NOAA PIRO and Department of Marine and Wildlife Resources (DMWR) using the PLA process.</p>	<p>Lack of staff capacity at ASCMP due to various key positions, such as the public awareness coordinator, village conservation officer, and GIS specialist having been unfilled for significant portions of the last five years.</p> <p>Length of time and amount of effort required to work out agreements with villages.</p>
Improve education and outreach	<p>Collaborated with Le Tausagi, an environmental education group, to carry out environmental outreach focusing on wetlands importance and issues to various youth groups, communities, and schools. Outreach was conducted in the villages of Tafuna, Tula, and Malaeloa.</p> <p>Collaborated with the Nu'uuli Catholic Church to construct a viewing platform for wetlands education in the Nu'uuli mangrove.</p> <p>Collaborated with the Malaeloa Seventh Day Adventist youth to complete a walkway trail into the freshwater marsh area of Malaeloa Village. Collaborated with the Malaeloa Congressional Christian Church to conduct stream cleanups and to plant wetland vegetation.</p> <p>Coordinated the wetlands exchange experience project with Independent Samoa's Ministry of Natural Resources and Environment community-based programs (information and lessons-learned program between villages of Samoa and American Samoa).</p>	
Upgrade technical assistance for wetland protection: GIS, waste management for piggeries, improved aquaculture facilities, wetland research	<p>No changes completed under the 309 program since 2006.</p> <p><i>(Activities conducted under other programs/agencies: (1) ASCMP's GIS staff developed maps of wetlands on Tutuila, Aunu'u and the Manua islands, based on the Pedersen study (2000). Villages with agreed upon wetland delineations were also mapped. (2) ASEPA initiated a program in 2003 to bring piggeries into compliance with waste management regulations. ASEPA developed a Piggery and Waste Use/Disposal System Guidelines (2008) with three approved piggery designs and developed demonstration piggery designs with ASCC Land Grant. (3) ASCC continued to work with local farmers on land-based aquaculture and aquaponics technologies for both subsistence and economic investment.)</i></p>	<p>Lack of staff capacity at ASCMP due to various key positions, such as the public awareness coordinator, village conservation officer, and GIS specialist having been unfilled for significant portions of the last five years</p>
Additional Supporting Actions	<p>Provided continued permit review assistance to the Project Notification and Review System (PNRS) for wetland-related cases. As a result of this effort, wetland staff in collaboration with American Samoa Environmental Protection Agency (ASEPA) also conducted regular monitoring and assessments of the Nu'uuli wetlands to ensure no illegal activities were impacting the wetlands.</p>	

B. Cumulative and Secondary Impacts Project

2006 Strategy	Status of Implementation	Challenges to Implementation
SMA designation for sensitive areas and establishment of mitigation policies to minimize impermeable surfaces and restore watersheds and waterways for improved flood retention	<p>No changes completed under the 309 program since 2006.</p> <p>A Special Area Management Plan was drafted for Malaeimi Valley in 2004; however, due to lack of public support, the plan was never formally adopted by the Governor. The PNRS utilizes the plan as a guide when reviewing proposed projects located in Malaeimi Valley.</p>	Public opposition to land use regulations, which are viewed as an infringement on the villages' rights to manage their own resources, has been and continues to be a major challenge for the implementation of any cumulative and secondary impact mitigation policy.
Habitat conservation agreements with villages– to preserve habitat	<p>ASCMP has been working with Tula and Vatia villages on establishing wetlands delineation agreements and community-based management plans. Habitat conservation agreements have not been pursued for other habitats.</p> <p><i>(Activities conducted under other programs/agencies: (1) DMWR has established 11 Village-based Marine Protected Areas over the past several years.)</i></p>	<p>Lack of capacity within ASCMP to coordinate and develop agreements for conservation over the past five years due to several key staff positions being unfilled.</p> <p>Length of time and amount of effort required to work out agreements with villages.</p> <p>Lack of coordination with other agencies on habitat conservation efforts.</p>
Habitat management plan – identifies types and locations of habitat in need of conservation	<p>ASCMP has been working with Tula and Vatia villages on establishing wetlands delineation agreements and community-based wetlands management plans. No other habitat management plans have been developed.</p> <p><i>(Activities conducted under other programs/agencies: DMWR has established management plans for 11 Village-based Marine Protected Areas over the past several years.)</i></p>	<p>Lack of capacity within ASCMP to coordinate and develop agreements for conservation over the past five years due to several key staff positions being unfilled.</p> <p>Length of time and amount of effort required to work out agreements and plans with villages.</p> <p>Lack of coordination with other agencies on habitat conservation efforts.</p>
Additional Supporting Actions	<p>The GIS group provided support to the DOC Planning Division by completing Territorial Land Use maps for the Territorial General Plan.</p> <p>The GIS group completed a time series of land use change over the past 20 years in 5-year increments for two counties in Tutuila. These time series analyses support efforts of the DOC planning staff.</p>	

C. Ocean Resources Management Program

2006 Strategy	Status of Implementation	Challenges to Implementation
<p>Watershed Management Policies. Create specific ocean policy directives (Territorial Executive Order on Ocean Policy) that are written into the administrative code and implemented by the PNRS. Purpose: to direct the Watershed Advisory Group to focus on three main management efforts: village-based watershed management program, village-based stream waste management and control program, and implementation of the AS Watershed Protection Plan.</p>	<p><i>Watershed Advisory Group (2006 updated Action Plan):</i></p> <ol style="list-style-type: none"> 1) To increase inter-agency cooperation and coordination of watershed management projects 2) To improve enforcement of environmental regulations 3) To increase village-based management of watersheds <p>A Stream Catchment pilot project was conducted in cooperation with villages for two pilot areas in Faga’alu and Fagatogo in 2007.</p>	<p>Between 2007 and 2010, the ORMP coordinator position was vacant; consequently, without leadership, three of the ORMP advisory groups (Watersheds, Harbors, and Territorial High Seas) have not had any activity.</p>
<p>Harbor Management Policies. Create specific ocean policy directives (Territorial Executive Order on Ocean Policy) that are written into the administrative code and implemented by the PNRS. Purpose: to direct the Harbors Advisory Group to focus on reducing debris entering harbors, reducing existing debris within harbor areas, and improving water quality within harbor areas.</p>	<p><i>Harbors Advisory Group (2006 updated Action Plan):</i></p> <ol style="list-style-type: none"> 1) To improve the quality of water in Pago Pago Bay 2) To improve coordinated planning along the harbor waterfront 3) To reduce the amount of debris on the harbor surface and increase public awareness on the negative impacts of littering <p>Prior to 2006, the Harbors Advisory Group coordinated harbor water quality improvement actions, including increased enforcement of Clean Harbor Policies and regulations, “No Dumping” signage, and outreach and education activities with harbor users.</p>	<p>Between 2007 and 2010, the ORMP coordinator position was vacant; consequently, without leadership, three of the ORMP advisory groups (Watersheds, Harbors, and Territorial High Seas) have not had any activity.</p>
<p>Additional supporting Actions</p>	<p><i>Near-shore Waters Advisory Group (2004 Action Plan):</i></p> <ol style="list-style-type: none"> 1) To restore stocks of commercially and ecologically important fish and to prevent non-sustainable harvest of these resources 2) To protect coral reefs in American Samoa from land-based sources of pollution 3) To mitigate the negative effects of global climate change on coral reefs in American Samoa by supporting research and education initiatives 4) To assist the Population Implementation Committee to create policies, programs, and incentives that will stabilize the population to reduce the harmful environmental effects of overpopulation <p><i>Territorial High Seas Advisory Group (2004 Action Plan):</i></p> <ol style="list-style-type: none"> 1) To improve regional cooperation and research on marine issues 2) To reduce by-catch and waste of both commercially viable and threatened and endangered species 3) To improve understanding of fisheries, oceanography, and climatology 	<p>Between 2007 and 2010, the ORMP coordinator position was vacant; consequently, without leadership, three of the ORMP advisory groups (Watersheds, Harbors, and Territorial High Seas) have not had any activity.</p>

	<p>4) To improve enforcement efforts to safeguard our ocean resources</p> <p>The Near-shore Advisory Group was folded into the Coral Reef Advisory Group (CRAG), supported by the NOAA Coral Reef Initiative (CRI), and the goals of this advisory group became the base for the CRAG's four Local Action Strategies (LAS): Fisheries Management, Climate Change, Land-Based Sources of Pollution, and Population Pressure. Additionally, when the ORMP coordinator position became vacant in 2006, some of the actions of the Watershed Advisory Group, including village-based watershed management and improved agency coordination, were also folded into the CRAG's LAS.</p>	
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D. Public Access

2006 Strategies	Status of Implementation	Challenges to Implementation
<p>Develop a Public Access Guide. Purpose: identify trails, public parks, and other access points, which are currently only known through word-of-mouth.</p>	<p>A public access guide was not developed by ASCMP. ASCMP's GIS team developed several GIS resource maps, including a map of Tutuila hiking trails and their conditions, which are available on ASCMP's website.</p> <p><i>(Activities conducted under other programs/agencies: (1) The American Samoa Visitors' Bureau has applied for funding with the Department of Interior to develop an Adventure Guide that will include consolidated information on public access. ASVB is planning on putting this guide together in 2011. (2) Additional information on public access sites can be found on the website of the American Samoa National Park.)</i></p>	<p>ASCMP's GIS coordinator position was vacant from 2007 until the beginning of 2010. During that time, the GIS staff had to focus on core mapping support activities to the PNRS and DOC and thus was not able to implement other improvement projects.</p>
<p>Install signs showing boundaries and purpose of existing SMAs and wetland areas in villages with village-recognized delineations and agreements. Purpose: to clearly identify the areas that are protected under the SMA designations and village wetland agreements. Educate public on reasons for their protection.</p>	<p>Signs were installed at the Nu'uuli viewing platform (Lions Park) in 2008. The signs were vandalized and badly weathered and new signs were ordered but have not been installed yet. They will be placed on the viewing platform s near the mangrove area of the Nu'uuli pala. No other informational signage has been installed in any other areas.</p>	

E. Coastal Hazards

2006 Strategies	Status of Implementation	Challenges to Implementation
<p>Expand the Tutuila Hazard Assessment Tool (T-HAT) to include Aunu'u and the Manu'a group of islands and adding an automated report function, upgrading the interface using a new ArcIMS template, and installing flood information from the updated FIRM. Purpose: to provide more accurate and current reporting in a more user-friendly format.</p>	<p>A new geospatial modular web portal tool was developed and presented to the Governor's Office in December 2010. This new tool will replace T-HAT as the main hazard assessment tool to support the PNRS. While the current Manu'a data is outdated, the GIS staff will be traveling to Manu'a in January 2011 to update the existing layers.</p>	

3.0 ASSESSMENT QUESTIONS AND EVALUATION

3.1 Wetlands

Section 309 Enhancement Objective

Protection, restoration, or enhancement of the existing coastal wetlands base, or creation of new coastal wetlands.

Wetlands: Overview

Wetlands in American Samoa may occur in either fresh or salt water conditions and include marshes, swamps, cultivated, and ruderal (human-disturbed) areas. From 1900 to 1961, much of American Samoa's wetlands were converted by the government for public uses such as schools, hospitals, and other government facilities. Thirty percent of the remaining wetland areas was then lost to development for commercial, residential, and industrial use between 1961 and 1991. The most recent assessment of wetland acreages was in 1991 for the *Comprehensive Wetlands Management Plan for Tutuila and Anuu'u*.

The primary threat for wetlands continues to be development as a result of a growing population. Although a setback of 25 feet and 50 feet for new residential and commercial developments respectively is required, there are occasions where the proper permitting is not obtained or even if a permit is obtained, requirements are not followed. In addition to building within the setback, some wetlands are cleared and/or filled to accommodate development or agriculture. Other threats include dumping of trash and other debris, cutting mangrove for wood, waste discharge, and sedimentation from upstream land clearing. Discharge from piggeries was previously a considerable problem for wetlands, but an ongoing program through ASEPA to relocate and/or minimize and redirect waste has since reduced the impacts of piggeries.

Wetlands provide many ecological and economic services for villages. Many wetlands are used to produce food, such as fish, shellfish, and taro. Additionally, wetlands serve flood and erosion control functions and as storm surge protection. Other services provided by wetlands include sources of traditional dyes, medicines, fibers, aquifer recharge areas, recreation and education opportunities, and as a filter for organic pollutants.

To help preserve and manage wetlands, ASCMP participates in various outreach activities including Wetlands Month, Earth Day, Coastweek, youth Environmental Discovery Camps, and Le Tausagi, a group of environmental educators that collaborate on environmental outreach. Comprehensive Wetlands Management Plans were completed for Tutuila and Anuu'u in 1992 and for Manu'a in 1993, but the traditional land tenure system and associated land use practices require more focused community involvement in developing effective management actions for specific wetlands.

In response to this need, ASCMP established the Community-based Wetlands Management Program (CWMP) to empower villages to responsibly manage their own wetland resources. Through this program, the ASCMP Wetlands Coordinator, in collaboration with ASEPA and NOAA PIRO, works directly with individual villages to develop agreements acknowledging wetland delineations. These agreements establish a collaborative process between the village and the government to develop management plans and otherwise protect wetlands through compliance with Coastal Zone Management (CZM) policies supporting a “no net loss” of wetland area. To date, four villages have agreed upon wetland delineations: Leone, Tula, Nu‘uuli, and Aunu‘u.

Resource Characterization

1) Please indicate the extent, status, and trends of wetlands in the coastal zone using the following table:

Wetlands type	Current extent (acres)
Tidal	364.95
Non-Tidal/Freshwater	146.99
Restored Wetlands	~5.0
TOTAL	516.94

All data on the extent of wetland areas is derived from the Comprehensive Wetlands Management Plan for the Islands of Tutuila and Aunu‘u (1991).

2) If information is not available to fill in the above table, provide a qualitative description of information requested, including wetlands status and trends, based on the best available information.

There is currently no ongoing monitoring of wetland functions or areal extent. Based on discussions with various government agencies and the 309 Program Assessment Advisory Group, the wetland threats discussed in the Overview (above) still impact wetlands, although increased outreach activities and enforcement of land use permitting requirements have likely slowed the rate of wetlands loss since the last Assessment. Wetland quality varies among villages, but is still a concern.

3) Provide a brief explanation for trends.

Filling of wetlands for development still occurs, despite efforts by the PNRS to enforce land use permit conditions and to work with applicants to site their facilities outside of hazard and resource protection zones. Dumping of trash and other debris in wetlands also continues to be a concern.

The 2009 tsunami damaged several wetland areas, particularly in Leone and Masefau, but the villages have since removed debris and are allowing those wetlands to restore themselves naturally.

Actions have been focused on protection and restoration of existing wetlands, rather than expansion or creation of new wetlands. This is due in part to the traditional land tenure system that generally does not allow for land acquisition. Pressures on existing wetlands are also significant enough to warrant full attention of ASCMP staff before looking toward wetland expansion.

4) Identify ongoing or planned efforts to develop monitoring programs or quantitative measures for this enhancement area.

Wetlands were last delineated in 1991. Some of the wetlands have since been damaged by the September 29, 2009 tsunami, and a new survey of wetland areas would be helpful. ASCMP is currently coordinating with various entities to fund an aerial Light Detection and Ranging (LIDAR) survey that could be used to update the wetland delineations, as well as provide data for other ASCMP programs.

5) Use the following table to characterize direct and indirect threats to coastal wetlands, both natural and man-made. If necessary, additional narrative can be provided below to describe threats.

Type of Threat	Severity of Impacts (H, M, L)	Geographic scope of impacts (extensive or limited)	Irreversibility (H, M, L)
Development/Fill	H	Extensive	H
Alteration of hydrology	M	Extensive	M
Erosion	M	Extensive	H
Pollution	H	Extensive	L
Channelization	H	Limited	H
Nuisance/exotic species	L	Limited	M
Freshwater input	M	Extensive	M
Sea level rise	M	Extensive	H
Other	N/A	N/A	N/A

Erosion

Erosion from upstream areas creates sediments that are carried downstream into the wetlands.

Freshwater input

Interruption of freshwater inputs to the wetlands due to stream diversions or re-rerouting of surface runoff disrupts natural hydrologic cycles and wetland functions.

6) (CM) Indicate whether the Coastal Management Program (CMP) has a mapped inventory of the following habitat types in the coastal zone and the approximate time since it was developed or significantly updated.

Habitat type	CMP has mapped inventory (Y or N)	Data completed or substantially updated
Tidal wetlands	Y	1991
Beach and dune	N	N/A
Nearshore	Y	2010
Other (please specify)	N/A	N/A

Tidal wetlands: *Comprehensive Wetlands Management Plan for Tutuila and Aunu'u* (1991).

Nearshore: Nearshore habitat data was updated by DMWR in 2010.

- 7) (CM) Use the table below to report information related to coastal habitat restoration and protection. The purpose of this contextual measure is to describe trends in the restoration and protection of coastal habitat conducted by the State using non-CZM funds or non-Coastal and Estuarine Land Conservation Program (CELCP) funds. If data is not available to report for this contextual measure, please describe below actions the CMP is taking to develop a mechanism to collect the requested data.

Contextual Measure	Cumulative acres for 2004-2010
Number of acres of coastal habitat restored using non-CZM or non-CELCP funds	0
Number of acres of coastal habitat protected through acquisition or easement using non-CZM or non-CELCP funds.	N/A*

There is very little private property in the territory due to the communal land-tenure system. Each village, through the *'aiga* (bilateral kin groups) owns and is responsible for resources from the mountain to the ocean.

Management Characterization

- 1) For each of the wetland management categories below, indicate if the approach is employed by the territory and if significant changes have occurred since the last assessment.

Management categories	Employed by Territory (Y or N)	Significant changes since the last assessment (Y or N)
Wetland regulatory program implementation, policies, and standards	Y	N
Wetland protection policies and standards	Y	N
Wetland assessment methodologies (health, function, extent)	N	N
Wetland restoration or enhancement programs	Y	Y
Wetland policies related public infrastructure funding	Y	N
Wetland mitigation programs and policies	Y	N
Wetland creation programs and policies	N	N
Wetland acquisition programs	N	N
Wetland mapping, GIS, and tracking systems	Y	N
Special Area Management Plans	Y	N
Wetland research and monitoring	Y	N
Wetland education and outreach	Y	Y
Other	N/A	N/A

- 2) For management categories with significant changes since the last assessment, provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
- a. Characterize significant changes since the last assessment;
 - b. Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
 - c. Characterize the outcomes and effectiveness of the changes.

Since 2008, ASCMP’s wetlands coordinator (through the 309 program) has been working in partnership with NOAA PIRO to develop a Community-based Wetlands Management Plan (CWMP) for Tula and begin a similar process for Vatia. The PLA process was used to conduct outreach to the Tula community, to work with the community to identify issues, needs, ideas, and to develop the plan. Using the PLA, Government agencies assist the villages with this information sharing process and thereafter help each village to develop management strategies that are both effective and appropriate. DMWR also used the PLA to develop plans for their Marine Protected Areas.

The Tula plan is currently undergoing internal review. Through this review, it has been realized that the plan does not reflect the “village voice” and identify specific, sustainable implementation measures as much as was anticipated. Additionally, the CWMP planning process has not led to the attitude changes towards wetlands conservation that ASCMP was hoping for. ASCMP hopes to use the lessons learned thus far from the Tula process as a learning experience that will help produce a better community involvement process and plan for both Tula and Vatia.

306 Program funds are also being used to continue outreach and coordination efforts with villages on the importance of wetlands and the need to protect them. Additionally, students are taken on EnviroDiscoveries Camps to do hands-on restoration work. After the 2009 tsunami, ASCMP also coordinated debris removal within the wetlands of Leone and Masefau.

- 3) (CM) Indicate whether the CMP has a habitat restoration plan for the following coastal habitats and the approximate time since the plan was developed or significantly updated.

Habitat type	CMP has a restoration plan (Y or N)	Data completed or substantially updated
Tidal wetlands	Y	1991
Beach and dune	N	N/A
Nearshore	N	N/A
Other (please specify)	N/A	N/A

Tidal wetlands: *Comprehensive Wetlands Management Plan for Tutuila and Aunu‘u* (1991)

Nearshore

There are no written management plans for any of the Special Management Areas, which come under the jurisdiction of ASCMP. DMWR manages other Marine Protected Areas, including the Ofu Vaoto Marine Park and 11 Community-based Fisheries Management Program (CFMP) Reserves. The Territorial Marine Park and the CFMP reserves do not have management plans, but community agreements have been established for the CFMP reserves, which serve as management plans for those villages. Fagatele Bay National Marine Sanctuary is currently updating its management plan, which was written in 1986, when the sanctuary was created. The National Park of American Samoa has a resource management plan that was established in 1995.

Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the Coastal Management Program and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or need description	Select type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H, M, L)
Review of the CWMP for Tula and of the CWMP process in general.	Policy	H
Update of wetlands delineation to identify current status of wetlands and changes over time.	Data	H
Wetlands monitoring to track changes and trends in wetland quality, size, and function over time.	Data	H
Information sharing among villages to promote wetland management planning.	Capacity	H
Information sharing among agencies that work in and around wetlands.	Capacity	H
Evaluation of the effectiveness of methods used for outreach and information sharing on wetlands management	Data	H
Collaboration among agencies using the PLA or other community-based method for natural resource planning.	Policy	M
Education on the value of wetlands, impacts from practices such as filling and dumping of trash, and restoration actions.	Communication and outreach	M
Studies on sea level rise , potential effects on mangrove swamps, and mitigative actions.	Data	M
Training on mangrove restoration actions.	Training	L

Review of the CWMP

The draft Tula CWMP has been found to not reflect village issues; articulate sustainable, measurable wetlands management actions; or identify incentives for sustained plan implementation as much as was hoped. An evaluation of the process is needed to improve the Tula plan and better construct the Vatia plan, which is currently in process.

Information sharing

ASCMP would like to assist village leaders in sharing ideas and experiences with regard to wetland management. Village *matai* who have gone through the management planning and implementation process can inform other villages that have yet to sign on to the wetlands program on what to expect in terms of process and outcomes. Site visits to managed wetlands could provide concrete examples of the benefits of the program. Additionally, villages with management plans can share lessons learned and inform each other of funding sources for implementation.

Information sharing among agencies

There are several government agencies and groups, e.g., ASEPA, DMWR, DPW, that conduct work that impacts wetlands. As well, various ASCMP staff, in addition to the wetlands coordinator, may conduct work relating to wetlands. There is a need to have a unified understanding of the current state of wetland health, threats, and goals for restoration and protection. This will result in a consistent government message regarding the importance of wetlands and a reinforcement of protection goals. Additionally, an improved information base will allow for better management decisions in the future.

Evaluation

Outreach and information sharing on the importance of wetlands and on wetlands management has been ongoing for several years; however, there has been no evaluation of the effectiveness of various efforts in increasing awareness. Having on-going education and outreach program evaluation would help ensure that the methods used are effective in building community awareness and are resulting in behavioral changes that support the preservation of wetland habitats.

Collaboration

ASCMP already collaborates with NOAA PIRO and ASEPA in its village outreach efforts; however, various agencies suggested that more coordination is needed among programs utilizing the PLA strategy to share processes, resources, and lessons learned to minimize duplication of efforts and burden on the community. The intent of this effort would be to reduce duplication of efforts for both agencies and villages and to share lessons learned in terms of process. The agencies currently using the PLA include DMWR for their fisheries management plans, the CRAG Land-Based Pollution LAS for their watershed management plans, and ASCMP for their wetlands management plans. NOAA PIRO is also planning on using the PLA process to develop village-level plans for climate resiliency.

Education

Education on wetland functions and management is already ongoing, but continued outreach is necessary to continue to reach more people and to renew those lessons with the youth. Documentation of natural resource “legends and stories” from elders would help identify traditional uses of and management

techniques for wetlands that are unique to each village. These stories would be helpful in developing management actions for each village.

Wetlands delineation

Wetlands were last delineated in 1991 and have not been monitored for changes since then. Filling, development, and the 2009 tsunami have likely changed the size and shape of many wetlands, but the extent of these changes is unknown. New delineations would allow staff to determine rate of change since the last delineation, assist in identifying the magnitude of various threats, and provide a baseline for assessing future management efforts.

Wetlands monitoring

These studies could be used to prioritize wetland protection and restoration efforts and to evaluate ongoing programs.

Sea level rise

The potential effects of climate change are of great concern to American Samoa. Studies to date have focused mainly on coral reef resilience to warmer temperatures, but impacts to coastlines and coastal wetlands, such as mangrove swamps, is also a priority. Mangrove provides habitat for a variety of organisms, a trap for sediments, and shoreline protection.

Enhancement Area Prioritization

1) What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High	<u> ✓ </u>
Medium	<u> </u>
Low	<u> </u>

Briefly explain the level of priority given for this enhancement area.

Protection of existing wetland areas is a high priority for American Samoa because the small size of the islands and the land tenure system make wetland creation and/or expansion difficult. Wetlands provide many environmental and economic benefits, although awareness of these benefits and the practices that threaten them do not seem to be appreciated as much as they could be. Policies are in place for wetlands protection, but continued outreach on the benefits of and threats to wetlands, the need for compliance with policies and regulations, and the actions that could be implemented to restore and protect wetlands is needed.

2) Will the CMP develop one or more strategies for this enhancement area?

Yes	<u> ✓ </u>
No	<u> </u>

Briefly explain why a strategy will or will not be developed for this enhancement area.

Wetlands delineations were last completed in 1991. Since then, wetland areas have been impacted over time by infilling and by the 2009 tsunami. Tracking wetland gains and losses is important for understanding the resource and determining the impact of management programs and actions.

Any resource management planning needs to start from the village level in order to be successful in long-term implementation. The initial attempt at a CWMP may not have been as successful as was hoped for, but can still provide valuable lessons on process and product. It would be helpful to do an evaluation of the draft plan for Tula sooner rather than later to take advantage of the recent process which is still fresh in people's minds and to be able to improve the CWMP for both Tula and Vatia. Evaluation of the Tula plan should include components on how to develop actions that will provide more tangible benefits for villages and on how to make the plans more sustainable.

3.2 Coastal Hazards

Section 309 Enhancement Objective

Prevent or significantly reduce threats to life and property by eliminating development and redevelopment in high-hazard areas, managing development in other hazard areas, and anticipating and managing the effects of potential sea level rise and Great Lakes level change.

Coastal Hazards: Overview

As a territory comprised of islands, coastal hazards have always been a concern for American Samoa. Growing population and associated development increase the risk of coastal hazards, particularly because most development is located in the narrow coastal plains, which are at the base of steep ridges. Thus, all types of coastal hazards have the potential to impact human safety and property, with potential risks increasing due to continued growth and development.

The 2008 *American Samoa Revision and Update to the Territory Hazard Mitigation Plan* identified tropical cyclones (hurricanes) and landslides as the hazards that occur with the greatest frequency, with tropical cyclones identified as the most potentially severe hazard due to the large geographic extent of impacts and range of hazards associated with them: high winds, storm surge, and flooding. The most recent tropical cyclones to make landfall in American Samoa were Olaf and Percy in February 2005.

Climate change is an emerging coastal hazard that was added to the 2008 Hazard Mitigation Plan update. This hazard was determined to be of considerable risk due to its potential for impacting coastline retreat and salt water intrusion into the groundwater aquifer, and increasing flooding or drought.

Coastal hazards are exacerbated by human activity. Of particular concern are dredging, sand mining, construction, development of filled land, development of upstream watershed areas, and filling of wetlands and mangrove swamps for housing.

ASCMP is mandated by Territorial Law to provide effective resource management through "development of strategies to cope with sea level rise and other coastal hazards..." (Chapter 5, Section 24.0504, signed 24 August 1990). Other ASG agencies with responsibilities for coastal hazards include the American Samoa Power Authority (ASPA), Department of Homeland Security (DHS), DMWR, Department of Public Works (DPW), Office of Communications, and the Territorial Emergency Management Coordinating Office (TEMCO). In addition, DOC, Department of Health (DOH), ASEPA, Department of Port Administration (DPA) and other participants in the PNRS and Zoning Board are involved with managing development in environmentally sensitive areas, floodplains, and high hazard areas.

Resource Characterization

1) Characterize the level of risk in the coastal zone from the following coastal hazards:

(Risk is defined as: “the estimated impact that a hazard would have on people, services, facilities and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage.” *Understanding Your Risks: Identifying Hazards and Estimating Losses. FEMA 386-2. August 2001*)

Type of hazard	General level of risk (H,M,L)	Geographic Scope of Risk (Coast-wide, Sub-region)
Flooding	H	Coast-wide
Coastal storms, including associated storm surge	H	Coast-wide
Geological hazards (e.g., tsunamis, earthquakes)	H	Coast-wide
Shoreline erosion (including bluff and dune erosion)	H	Coast-wide
Sea level rise and other climate change impacts	M	Coast-wide
Land subsidence	L	Coast-wide
Other: landslides	M	Steep-slopes areas of Tutuila, generally excluding the Tualauta plain

2) For hazards identified as a high level of risk, please explain why it is considered a high level risk. For example, has a risk assessment been conducted, either through the State or Territory Hazard Mitigation Plan or elsewhere?

Flooding

American Samoa experiences both flash floods (resulting from heavy, localized precipitation over a short period of time over a given location) and general flooding (caused by precipitation over a longer period of time). Flood risks are high because they are one of the most common environmental hazards and may occur over a wide geographical area, affecting many structures, population centers, and critical facilities. The threat of flooding is becoming more widespread due to increased population and development.

Coastal storms

Coastal storms continue to be a High risk for American Samoa. As mentioned previously, tropical cyclones are the most potentially severe hazard due to their large geographic extent of impacts and range of hazards associated with them, including high winds, storm surge, and flooding.

Geologic hazards

Geologic hazards also continue to be a High risk. Earthquake hazards for American Samoa come from either the Tonga Trench, part of the Pacific-Australian subduction zone over 100 miles to the southwest, or from volcanic activity from the submarine volcano Vailulu'u. While the potential for violent or damaging shaking from either of these sources is low, seismic risk is increased because most of the low-lying areas on Tutuila have soils that are prone to amplified ground motion during an earthquake. Additionally, soils in landfill areas, such as those in the northwestern portions of Pago Pago Harbor, may experience liquefaction. Several critical facilities are located in areas prone to amplified ground motion or liquefaction of soils.

Analysis from the 2008 Hazard Mitigation Plan update suggests that the probability for a destructive tsunami impacting American Samoa is two to three times every 50 years. Damages from a tsunami with a run-up of 2.6 feet (0.8 meters) or greater would likely be significant, given that the majority of commercial and residential buildings are located within the low-lying coastal plain. The entire coastline of Tutuila is susceptible to tsunami, although its bays and particularly Pago Pago Harbor are at higher risk due to amplification of wave energy as it nears shore.

On September 29, 2009, American Samoa experienced a magnitude 8.1 earthquake that triggered four tsunami waves that caused 34 deaths and destroyed many buildings throughout the Territory. Recovery from the tsunami is ongoing, with most efforts going toward hazardous materials clean ups, debris removal, and house reconstruction. This event has heightened the awareness and preparedness of the local population to tsunami hazards.

Shoreline erosion

Shoreline erosion is a High hazard, as much of the development is located in the relatively narrow coastal plain. The reef flat, which extends up to 200 feet on the south shore of Tutuila provides some shoreline protection, although the north shore coasts are generally characterized by steep volcanic cliffs. Shoreline inventory maps identify a significant number of critical facilities located within the velocity wave hazard area.

3) If the level of risk or state of knowledge of risk for any of these hazards has changed since the last assessment, please explain.

American Samoa's *Revision and Update of the Territory Hazard Mitigation Plan* (2008) assessed risk and vulnerability to eight environmental hazards (climate change, drought, earthquake, flood, landslides, tropical cyclones, tsunami, and wildfire), assessed current capabilities of the Territory to mitigate risks, and recommended a hazard mitigation strategy to reduce risks of all identified hazards to the Territory.

Flooding

The risk from flooding was increased from Medium in the previous Assessment to **High**, based on an assessment conducted during the process to update the Territorial Hazard Mitigation Plan (2008). Please see the Coastal Hazards Resource Characterization discussion for flooding under Question 2 for more discussion on why flooding was ranked as a high risk.

Landslides

The Hazard Mitigation Plan (2008) ranked the threat from landslides as **Medium**, a reduction in the threat level identified in the previous Assessment. Landslides were considered a medium threat because:

- “The slides are typically small (50 to 250 feet wide)
- They tend to affect the upslope edges of populated areas where the degree of slope begins to climb to a point of unsuitability for residential development
- The effects are not island-wide or particularly widespread at a single time
- Most critical facilities are not in high-risk landslide areas
- Deaths and property losses are still probable because slides usually occur without warning
- Slides that threaten or temporarily block main roads are probable.”

Additionally, landslide risk maps show that high risk areas generally include areas where structures are built immediately downslope of or on steep slopes (60% to 80+%) with high slide-prone soils. Forty-two percent of Tutuila is identified as high risk, but it is generally confined to the steep slopes toward the center of the island.

4) Identify any ongoing or planned efforts to develop quantitative measures of risk for these hazards.

The *American Samoa Revision and Update of the Territory Hazard Mitigation Plan* (2008) assessed the risk of eight environmental hazards (climate change, drought, earthquake, flood, landslides, tropical cyclones, tsunami, and wildfire) by evaluating the history, probability, and impact of each hazard. Impacts were assessed by evaluating the number of critical facilities and population size within zones susceptible to each hazard, the cost of replacing “at risk facilities,” and the geographic extent that each hazard might impact. This mitigation plan must be updated every three years to enable American Samoa to be eligible for non-emergency public assistance from Federal Emergency Management Agency (FEMA), Pre-Disaster Mitigation project grants, Hazard Mitigation Grant Program funding, and Flood Management Assistance Grants.

Geological hazards will be assessed by the United States Geological Survey (USGS), which has plans to do an in-depth **seismic hazard analysis** to determine the probability of ground shaking. Additionally, the USGS and Japan Government conducted tsunami inundation surveys following the September 2009 tsunami and released their reports in March; the tsunami inundation information was input into GIS. The International Tsunami Center is also currently conducting **tsunami modeling** to determine run-up under various tsunami scenarios.

The University of Hawaii School of Ocean and Earth Science is conducting studies on **sea level rise** in the Pacific and its effect on coastal communities. ASCMP is currently seeking funding to do LIDAR surveys in 2011 to provide accurate topographical data that will assist with various planning tasks, including determining inundation levels associated with sea level rise.

Additionally, NOAA Pacific Islands Fisheries Science Center (PIFSC) is conducting a case study of community resilience to inundation. In June 2010, the Climate Resilience Community project began detailed coastal mapping to model sea level rise in the village of Amouli.

A team from the University of Hawaii and NOAA is expected to present the coastal elevation information and inundation modeling results to the local community and to island coastal management agencies in April 2011. This information will then be used in the PLA process to develop a detailed village-level plan for climate resiliency. This project will expand to include the Coral Reef Conservation Program priority areas of Faga‘alu and Vatia.

5) (CM) Use the table below to identify the number of communities in the coastal zone that have a mapped inventory of areas affected by the following coastal hazards. If data is not available to report for this contextual measure, please describe below actions the CMP is taking to develop a mechanism to collect the requested data.

Type of hazard	Number of communities that have a mapped inventory	Date completed or substantially updated
Flooding	None	None
Storm surge	None	None
Geological hazards - earthquakes	Earthquakes – 63	Earthquakes – 2008
Geological hazards - tsunamis	Tsunami – None (0)	Tsunami – The International Tsunami Center is currently conducting tsunami modeling to map inundation run-up.
Shoreline erosion (including bluff and dune erosion)	64	2008
Sea level rise	1 (Amouli) only at a preliminary level	2010
Land subsidence	None (0)	N/A No known work on land subsidence is being done
Other: landslides	63 (Tutuila)	2008

Note: "Communities" are defined as villages in this context. There are 64 villages on Tutuila and Aunu'u.

ASCMP staff is currently involved in discussions with NOAA regarding the possibility of getting flood and storm surge inventory mapping conducted in American Samoa.

Management Characterization

1) For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management categories	Employed by state/territory (Y or N)	Significant changes since last assessment (Y or N)
Building setbacks/ restrictions	Y	Y
Methodologies for determining setbacks	Y	N
Repair/rebuilding restrictions	Y	N
Restriction of hard shoreline protection structures	Y	N
Promotion of alternative shoreline stabilization methodologies	N	N
Renovation of shoreline protection structures	N/A	N/A
Beach/dune protection (other than setbacks)	Y	N
Sediment management plans	N	N
Repetitive flood loss policies, (e.g., relocation, buyouts)	N	N
Permit compliance	Y	Y
Local hazards mitigation planning	Y	Y
Local post-disaster redevelopment plans	N	N
Real estate sales disclosure requirements	N/A American Samoa has a mostly communal land tenure system that results in few real estate transactions	N
Restrictions on publicly funded infrastructure	Y	N
Climate change planning and adaptation strategies	Y	Y
Special Area Management Plans	Y	N
Hazards research and monitoring	Y	N
Hazards education and outreach	Y	Y
Other (please specify)		

- 2) For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.**

Building setbacks/restrictions

ASCMP implemented its “One-Stop-Shop” in September 2010, which consolidates all land use permits overseen by the various environmental programs. To complement the One-Stop-Shop, ASCMP is currently in the design phase for creating an update to the existing Tutuila Hazard Assessment Tool (T-HAT) web-based portal that provides a standardized report of hazards, setbacks, and warnings for a particular location. Public launch of the new portal is expected in Summer 2011. 306 Program funds were used for both of these initiatives.

Permit compliance

Enforcement of regulations has improved, particularly for flood zones as a result of the 2009 tsunami. ASCMP has also hired a new enforcement officer through the 306 program who will assist the PNRS with permit compliance.

Local hazards mitigation planning

The American Samoa Territorial Hazard Mitigation Plan and the State Preparedness Report were updated in 2008 by TEMCO, American Samoa Disaster Recovery Office, and DHS.

Climate change planning and adaptation strategies

The CRAG’s Climate Change LAS Working Group, with CRI funding, has focused on improving the understanding of potential climate change impacts to coral reefs and increasing coral reef resilience to those impacts. The Working Group has coordinated research on coral reef biology that would assist natural resource managers, scientists, and marine science students at the American Samoa Community College (ASCC). A monitoring program on coral abundance and density and benthic communities at several sites around Tutuila was also conducted to assist in the understanding of coral reef resilience. The Working Group has updated its Climate Change LAS to reflect current priorities and to reference NOAA’s Action Plan for their Threat-based Working Group on Climate Change. NOAA and AS-DOC hosted a *Planning for Climate Change in the Coastal and Marine Environment* workshop in April 2010. The Climate Change LAS Working Group hosted a Climate Change Summit in February 2011 on *Making Climate Change Local: Building Resilient Communities in the Pacific*. There were four working groups during the summit, representing sectors that are vulnerable to the effects of climate change - Coral Reef and Mangrove Ecosystems, Human Settlements and Infrastructure, Human Health, and Agriculture, Forestry, and Water Resources. These groups produced 65 total recommendations, and then prioritized the most important recommendations which were sent to the Governor. One of the main outcomes which the Coastal Management Program hopes will come from the summit is the formation of a Climate Change Task Force via an Executive Order from the Governor.

Hazards education and outreach

ASCMP has used 306 Program funds to conduct training with village mayors to explain the PNRS program and the importance of participation in the permitting process and compliance with land use regulations. The PNRS has also assisted permit applicants with understanding environmental hazards and

worked with them on relocating or modifying their proposals to bring them in compliance with environmental regulations.

3) (CM) Use the appropriate table below to report the number of communities in the coastal zone that use setbacks, buffers, or land use policies to direct development away from areas vulnerable to coastal hazards. If data is not available to report for this contextual measure, please describe below actions the CMP is taking to develop a mechanism to collect the requested data.

For CMPs that use numerically based setback or buffers to direct development away from hazardous areas report the following:

Contextual measure	Number of communities
Number of communities in the coastal zone required by state law or policy to implement setbacks, buffers, or other land use policies to direct develop away from hazardous areas.	64
Number of communities in the coastal zone that have setback, buffer, or other land use policies to direct development away from hazardous areas that are more stringent than state mandated standards or that have policies where no state standards exist.	0

“Communities” are defined as villages in this context. There are 64 villages on Tutuila and Aunu‘u.

This contextual measure cannot be directly applied since land is communally owned. The PNRS system reviews each case individually and provides some level of oversight regarding setbacks and buffers from hazard areas.

The Pago Pago Shoreside Plan and Malaeimi Valley Special Management Area Plan have more stringent development standards, but they are tied more to protection of special resources than to hazardous areas. These plans have not been formally adopted by the governor, but the PNRS continues to use the Malaeimi Valley SAMP as guidance when evaluating land use permit applications.

Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or need description	Type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H, M, L)
Enforcement of land use regulations	Capacity	H
Continuous coastal monitoring to identify coastal vulnerability and hazards	Data	M
Coastal hazard modeling, including overwash and inundation from severe storms and tsunami	Data/Capacity	M
Awareness of land use permitting requirements	Communication and outreach	M
Assessment of coastal elevations after the September 2009 tsunami, and associated risks	Data	M
Better interface between ASCMP, TEMCO, and other agencies involved in coastal hazard planning, response, and mitigation. Review of related work is needed among all agencies involved.	Policy	M
Mapping of risk areas and critical facility locations on the Manu‘a Islands	Data	L

Enforcement of land use regulations

Enforcement of all types of regulations is consistently cited as a difficulty for resource management agencies. The village-based communal land tenure system makes it difficult to layer ASG-level regulations over the existing system of land use decision-making. Additionally, agencies that need to enforce land use controls are often overextended and do not have enough staff with the technical expertise to be able to evaluate whether or not projects are complying with permit conditions, if they have a permit at all. Additional trained staff dedicated to permitting, compliance, and enforcement is a high priority for several agencies.

Awareness of land use permitting requirements

The PNRS actively engages permit applicants when issues arise regarding siting and design of specific land use proposals. However, there are still development projects that do not apply for a permit, often because the proponent is unaware of the need for one. PNRS board members have discussed the need for awareness campaigns to inform the general public of the permitting requirements and the benefits of complying with the system. The intended outcome would be a reduction in the number of unpermitted projects and projects that do not comply with the conditions of the permits they receive.

Mapping of risk areas for the Manu‘a Islands

The 2008 *American Samoa Revision and Update of the Territory Hazard Mitigation Plan* did not include a comprehensive risk assessment and development of hazard mitigation strategies for the Manu‘a Islands.

These islands are separated from Tutuila and are limited in resources and access to assistance, highlighting the importance for mapping risk areas and critical facilities.

Enhancement Area Prioritization

1) What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High	_____
Medium	<u> ✓ </u>
Low	_____

Briefly explain the level of priority given for this enhancement area.

As a territory made up of islands, American Samoa is very concerned about most types of coastal hazards. The potential for widespread impacts is high, particularly due to the geography of the islands, which cause development to be concentrated on the narrow strip of flatlands on the coast.

While tropical cyclones have been a long-standing issue due to their frequency, the recent tsunami in September 2009 heightened awareness for coastal hazards and brought to light the vulnerability of American Samoa for these types of occurrences.

The Advisory Committee first identified Coastal Hazards as a “High” priority enhancement area (elevating it from “Medium” in the previous Assessment), but after some discussion, determined that most of the needed actions were either already being carried out by other agencies, or were not considered “program changes” under the Final CZMA Section 309 Program Guidance (2009). Therefore, the priority of Medium reflects both the high level of concern for coastal hazards and the recognition that the needed improvements would best be suited to funding streams other than the 309 Program.

2) Will the CMP develop one or more strategies for this enhancement area?

Yes	_____
No	<u> ✓ </u>

Briefly explain why a strategy will or will not be developed for this enhancement area.

A strategy will not be developed for this enhancement area because it was determined that the program needs that were of highest priority were either being carried out by other agencies (e.g., TEMCO) or should be completed under other funding programs (e.g., CZMA 306, FEMA, Department of the Interior, etc.). Assistance with enforcement of land use regulations and coastal monitoring did not qualify as a “program change” under the Section 309 Program Guidance (2009) and was instead determined to be better suited under 306 Program funding.

3.3 Public Access

Section 309 Enhancement Objective

Attain increased opportunities for public access, taking into account current and future public access needs, to coastal areas of recreational, historical, aesthetic, ecological, or cultural value.

Public Access: Overview

In American Samoa, coastal public access is not viewed the same way as in other parts of the U.S. The Samoan land tenure system dictates that each village, through the *'aiga* (bilateral kin groups) owns and is responsible for resources from the mountain to the ocean. Villagers tend to consider access to the coast by outsiders (those not from the village or those without familial ties to the village) as a privilege, rather than a right. ASCMP has stated that this perspective contradicts Federal and Territorial legal positions; however, it is one of the key elements of the traditional values of Samoan society, where the autonomy of village authority is very important. There have been no formal challenges to this general view to date.

Public access is also limited by environmental constraints such as the shallow reefs that are prevalent in sheltered bays, and steep cliffs in more exposed areas. The American Samoa Government has rights to the Pago Pago Harbor beaches, including all lands on the *sami* (ocean) side of Highway 001 between Blunt's Point and Breakers Point. Within this area, there are several public beaches and three public beach parks, including Pago Pago Park, Onesosopo Park, and Utulei Beach Park, where public access is generally good. The Department of Parks and Recreation (ASPR) is the lead agency for developing and maintaining recreation resources. As a member of the Capital Improvements Projects (CIP) Committee, DOC can ensure that funds for recreation and public access are included in capital improvement budgets.

Based on a questionnaire provided to ASG agencies included in the 309 advisory group, public access to coastal areas was identified as a low-priority issue. This may change in the future as Governor Togiola T.A. Tulafono identified tourism as an important focus area to diversify and broaden the base of the American Samoa economy. Lack of easy access to beaches and reefs and limited visitor services will likely become a more significant issue as tourism gets developed in the territory.

Resource Characterization

1) Characterize threats and conflicts to creating and maintaining public access in the coastal zone.

Type of threat or conflict causing loss of access	Degree of threat (H,M,L)	Describe trends or provide other statistics to characterize the threat and impact on access	Type(s) of access affected
Private residential development (incl. conversion of public facilities to private)	L	There is very little private property in the territory due to the communal land-tenure system. Villages manage the use and access to their resources, thus significantly limiting private use conflicts.	Shoreline access
Non-water dependent commercial/ industrial uses of the waterfront (existing or conversion)	L	The PNRS reviews land use permits and determines the compatibility of the proposed use with the shoreline area. Criteria include: potential impacts on wildlife, marine, and aesthetic resources, impacts on natural beach processes, whether the proposed project is water-dependent in nature, will enhance coastal recreational, subsistence, or cultural opportunities, and whether it will mitigate erosion.	Shoreline access
Erosion	H	Seawalls continue to be widespread on Tutuila to protect houses and the road running along the coast from erosion. There are very few large sandy beaches to protect the shoreline on Tutuila other than in the more sheltered Pago Pago Harbor.	Beaches, roadways
Sea level rise	M	Public access assets that are predicted to be highly vulnerable to sea level rise include the coastal road, which is the main access corridor for many villages. Impacts will include increased erosion and storm surges (Spring 2010 Climate Change workshop). Due to the topography of the island, alternatives to the coastal road are limited.	Beaches, roadways
Natural disasters	M	Natural disasters such as tsunami and storm surges have a high potential for impacting the coastal road that is the main access corridor for many villages.	Roadways
National security	L	There have been no increased impacts on public access to the coast from national security since the last assessment	Shoreline
Encroachment on public land	L	The PNRS reviews land use permits and determines compatibility of the proposed use with the shoreline area, including impacts on public land holdings along the shore. There has been no private development on public land since the last assessment.	Public parks
Other: Poor near-shore water quality (bacteria)	H	Based on ASEPA near-shore monitoring results, near-shore waters at most beaches around Tutuila are impacted by <i>e. coli</i> , particularly after rains. Although ASEPA generally does not close access to beaches, health concerns are an issue and beach advisories are issued weekly in the local newspaper.	Beaches

2) Are there new issues emerging in your state that are starting to affect public access or seem to have the potential to do so in the future?

Changing economic conditions in American Samoa with the decline of the tuna canneries, and ensuing increases in unemployment may lead to a resurgence in near-shore subsistence fishing activities on Tutuila. This may increase coastal access conflicts, particularly in the more populated villages; these conflicts would likely be managed at the village level.

Additionally, in an effort to broaden the economic base of the territory, Governor Togiola T.A. Tulafono identified tourism as an important focus area for diversification. In 2009, the *Fono* (Territorial Legislature) passed legislation to authorize the creation of the American Samoa Visitors Bureau (ASVB), governed by an independent public-private Board of Directors, to help build tourism opportunities in American Samoa. The *American Samoa Tourism Master Plan* was released in June 2010 and identified natural resources of American Samoa, including coastal and marine resources, mountains, and rainforest as being key attractions for the target eco-tourism market. Lack of easy access to beaches and reefs and limited visitor services will likely become a more significant issue in the future as tourism gets developed in the territory.

3) (CM) Use the table below to report the percent of the public that feels they have adequate access to the coast for recreation purposes, including the following. If data is not available to report for this contextual measure, please describe below actions the CMP is taking to develop a mechanism to collect the requested data.

Contextual measure	Survey data
Number of people that responded to a survey on recreational access	
Number of people surveyed that responded that public access to the coast for recreation is adequate or better.	
What type of survey was conducted (i.e. phone, mail, personal interview, etc.)?	
What was the geographic coverage of the survey?	
In what year was the survey conducted?	

No survey has been done to date to assess the public’s views on public access and no public access survey is planned in the near future.

4) Briefly characterize the demand for coastal public access within the coastal zone, and the process for periodically assessing public demand.

The demand for coastal public access by local communities for recreational purposes is relatively limited at this time other than for subsistence fishing. Traditionally, all village work, including fishing, was organized at the village and family level. The village fono (council) decided, according to season, what sort of community fishing should take place. Fishing and canoe building were important skills that could improve village status or prestige. While change in near-shore fishing for subsistence purposes has not been consistently measured, a significant downward trend is evident since the 1980s, particularly on Tutuila Island, where the availability of food imports has made American Samoans less inclined to engage in fishing.

People wanting to access coastal areas for picnics, snorkeling, fishing, or other water-related activities outside of their own village must generally respectfully ask for permission from a village member. Access to village beaches is generally granted except during village events and on Sundays. This permission is not needed if accessing any of the aforementioned public parks or beaches managed by the Department of Parks and Recreation. There is currently no process for consistently assessing public demand for coastal public access.

5) Please use the table below to provide data on public access availability. If information is not available, provide a qualitative description based on the best available information. If data is not available to report on the contextual measures, please also describe actions the CMP is taking to develop a mechanism to collect the requested data.

Types of public access	Current number(s)	Changes since last assessment (+/-)	Cite data source
(CM) Number of acres in the coastal zone that are available for public (report both the total number of acres in the coastal zone and acres available for public access)	The entire territory is within the coastal zone (approx. 49,000 ac.); public access areas: A.S. National Park: approx. 9,000 ac., Fagatele Bay National Marine Sanctuary (FBNMS) approx. 163 ac., territory parks approx. 71.6 ac. Additionally, FBNMS is currently in the process of updating their management plan and identified five potential areas for expansion of the sanctuary: Larson’s Cove (next to Fagatele Bay), Aunu’u Island, Ta’u, Swains Island, and Rose Atoll.	No change	NPS, FBNMS, ASPR
(CM) Miles of shoreline available for public access (report both the total miles of shoreline and miles available for public access)	Total miles of shoreline: 149 miles Miles in public beach parks: 1.31 Village beaches can also be available for public access with permission from a village member.	No change	ASPR

Types of public access	Current number(s)	Changes since last assessment (+/-)	Cite data source
Number of State/County/Local parks and number of acres	6 - Lion's Park, Faga'alu Park, Onesosopo Park, Pago Pago Park, and Utulei Beach Park. 9/29/09 Tsunami Park broke ground in October 2010, but is not yet open to the public.	No change	ASPR
Number of public beach/shoreline access sites	5 - Four territorial beach parks and FBNMS	No change	ASPR
Number of recreational boat (power or non-power) access sites	4 - Pago Pago, Fagatogo, Fagasa, Auasi	No change	
Number of State or locally designated perpendicular rights-of-way (i.e. street ends, easements)	N/A	No change	
Number of designated scenic vistas or overlook points	1 - National Park's Aoloao scenic vista	No change	NPS
Number of fishing access points (i.e. piers, jetties)	Fringing reefs around all islands. Rose Atoll and Fagamalo are designated "No Take" zones	No change	DMWR, FBNMS
Number and miles of coastal trails/boardwalks	National Park (10 miles developed and undeveloped trails), Fagatele Bay NMS scenic trails, ASCC Land Grant nature trail, Nu'uuli Pala trail, numerous unmarked trails (Massacre Bay trail, Blue Hole by airport, Tapu Tapu trail, Pala lake Road, etc.)	No change	ASCMP GIS
Number of dune walkovers	No dunes	No change	ASCMP
Percent of access sites that are ADA compliant access	Lion's Park mangrove viewing platform	No change	ASPR
Percent and total miles of public beaches with water quality monitoring and public closure notice programs	123.1 miles of shoreline monitored out of a total of 149.5 miles of shoreline in the territory. Beach health advisories are posted weekly in the local newspaper.	No change - EPA has been monitoring near-shore water quality since 2002	ASEPA, Integrated monitoring report, 2010
Average number of beach mile days closed due to water quality concerns	Beaches in American Samoa are only closed in events of imminent health threats (e.g.: sewage spills)	No change	ASEPA

Management Characterization

1) For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management categories	Employed by state/territory (Y or N)	Significant changes since last assessment (Y or N)
Statutory, regulatory, or legal system changes that affect public access	N	N
Acquisition programs or policies	N	N
Comprehensive access management planning (including GIS data or database)	Y	N
Operation and maintenance programs	N	N
Alternative funding sources or techniques	N	N
Beach water quality monitoring and pollution source identification and remediation	Y – ASEPA beach and stream water quality monitoring program; source assessment; and remediation	Y
Public access within waterfront redevelopment programs	Y – improvement of coastal public facilities is included as part of the proposed Pago Pago Shoreside Plan (not adopted yet)	N
Public access education and outreach	N	N
Other (please specify)		

2) For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.

- a. Characterize significant changes since the last assessment;
- b. Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
- c. Characterize the outcomes and effectiveness of the changes.

Comprehensive Access Management Planning

The DOC Planning Department updated the Pago Pago Bay Shore Side Management Plan in 2006. The scope of the plan includes the siting of infrastructure and facilities to support the social and economic development of the Territory of American Samoa, and improvements to facilities of the American Samoa Government within the Pago Pago Bay, including public beach parks. Pago Pago is the central business district of American Samoa, as well as the site of the only public beach parks on Tutuila. The Shore Side Plan has not been adopted by the Governor of American Samoa to date.

Beach Water Quality Monitoring and Remediation

ASEPA has been conducting stream and near-shore water quality monitoring since 2002. Improperly managed pig farms have been found to be a source of pollutants to streams and ear shore waters. ASEPA initiated a program in 2003 to bring piggeries into compliance with regulations. Additional discussion on ASEPA’s piggery compliance program may be found in Section 3.5 on Cumulative and Secondary Impacts under Resource Characterization.

3) Indicate if your state or territory has a printed public access guide or website. How current is the publication and/or how frequently is the website updated? Please list any regional or statewide public access guides or websites.

There is currently no territory-wide public access guide for American Samoa. ASVB developed a pamphlet-sized visitor’s map in 2010 with a list of things to do, including public beach areas. ASVB also has a new website (2010) that lists information about coastal access and local customs. Additional information on public access sites can be found on the website of the American Samoa National Park, including maps of several trails for people interested in hiking in and outside of the National Park, and on ASCMP’s GIS website, which lists various resource maps, including a map of Tutuila hiking trails and their conditions.

The American Samoa Visitors’ Bureau has applied for funding with the Department of Interior to develop an Adventure Guide that will include consolidated information on public access. ASVB is planning on putting this guide together in 2011.

Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or need description	Type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H, M, L)
No public access designation outside of public parks	Policy	L
No data on public access needs	Data	L
Limited public access planning and guidance	Policy	L

Limited developable land, communal land ownership, and natural barriers limit the number of public parks and beaches in the territory. Because of a lack of effective zoning and land use planning in the territory, there are no designated public access areas beyond the parks. While there have been some

efforts to conduct land use planning, particularly in the more populated areas of Tutuila, lack of public support for these ASG efforts has limited their effectiveness. While this has not been identified as a major issue for the territory at this time, more public access conflicts could occur in the future as tourism is developed in American Samoa.

Enhancement Area Prioritization

1) What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

- High** _____
- Medium** _____
- Low** ✓

Briefly explain the level of priority given for this enhancement area.

Public access has not been identified as being a significant issue in American Samoa at this time.

2) Will the CMP develop one or more strategies for this enhancement area?

- Yes** _____
- No** ✓

Briefly explain why a strategy will or will not be developed for this enhancement area.

Public access was identified as a low priority enhancement area for American Samoa.

3.4 Marine Debris

Section 309 Enhancement Objective

Reducing marine debris entering the Nation's coastal and ocean environment by managing uses and activities that contribute to the entry of such debris.

Resource Characterization

1) In the table below, characterize the significance of marine debris and its impact on the coastal zone.

Source of marine debris	Extent of source (H,M,L)	Type of impact (aesthetic, resource damage, user conflicts, other)	Significant changes since last assessment (Y or N)
Land Based – Beach/Shore Litter	H	Aesthetic, coral reef damage, wildlife health impacts	N
Land Based – Dumping	H	Aesthetic, coral reef damage, water quality impacts, health and safety, wildlife health impacts	N
Land Based – Storm Drains and Runoff	M	Water quality impacts, health and safety, coral reef impacts	N
Land Based – Fishing related (fishing line, gear, etc.)	L	Coral reef damage	N
Ocean Based – Fishing (derelict fishing gear)	L	Coral reef damage	N
Ocean Based – Derelict Vessels	M (Pago Pago Harbor)	Water quality impacts, potential coral reef damage (during storms)	N
Ocean Based – Vessel Based (cruise ship, cargo ship, general vessel)	M	Water quality impacts	N
Other: Tsunami (land-based household debris, vehicles and parts, sediments, and other pollutants)	H	Coral reef damage, water quality impacts, health and safety	Y

2) If information is not available to fill in the above table, provide a qualitative description of information requested, based on the best available information.

N/A

3) Provide a brief description of any significant changes in the above sources or emerging issues.

The September 2009 tsunami event caused a large amount of debris to be washed out onto the reef. In October through December 2009, a significant effort was conducted by NOAA and ASG agencies to survey the coral reef damage caused by the tsunami and to remove a large amount of tsunami-generated debris. The most severe coastal damage was reported at Poloa, Amanave, Leone, Pago Pago, Alao, and Tula; other areas with widespread impacts included Masefau, Vatia, Amaluia, and Asili. Approximately 30 % of Tutuila’s coastline was surveyed to determine the extent of coral reef damage. Areas with a combination of built environment on the shoreline, high inundation by the tsunami, and spur and groove benthic habitats were those with the greatest concentrations of marine debris. Over four tons of debris was removed in the months following the tsunami, however, more debris still remains that should be removed from the reefs. Remaining debris, especially large and heavy debris pieces such as auto parts and roofing materials is still a significant threat to American Samoa’s coral reefs, particularly as it can further damage the reef if it is remobilized in storm events.

4) Do you use beach clean-up data? If so, how do you use this information?

DMWR and ASCMP each conduct quarterly beach cleanups around Tutuila. ASCMP also takes part in the annual International Coastal Cleanup day and collects beach clean-up data during that event. The data is provided to the Ocean Conservancy, who compiles International Coastal Cleanup data from all participants around the world. The clean-up information is not used locally at this time.

Management Characterization

For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management categories	Employed by territory (Y or N)	Significant changes since last assessment (Y or N)
Recycling requirements	N	N
Littering reduction programs	Y	N
Wasteful packaging reduction programs	Y	Y
Fishing gear management programs	N	N
Marine debris concerns in harbor, port, marine, & waste management plans	Y	Y
Post-storm related debris programs or policies	Y	Y
Derelict vessel removal programs or policies	Y	Y
Research and monitoring	Y	Y
Marine debris education & outreach	Y	Y
Other (please specify)		

- 1) **For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.**
 - a. **Characterize significant changes since the last assessment;**
 - b. **Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and**
 - c. **Characterize the outcomes and effectiveness of the changes.**

Wasteful Packaging Reduction Regulation

In late August 2010, Governor Togiola Tulafono signed a ban on plastic bags into law. The law exempts shopping bags produced entirely from non-petroleum-based biodegradable plastic and compostable plastic. The ban will take effect February 23, 2011. ASEPA will be responsible for enforcing this law.

Marine Debris in Harbors

The Clean Harbor Policy was adopted in 2004 and established Best Management Practices (BMPs) for various activities conducted by users of the Pago Pago Harbor, including hazardous chemicals handling, spill prevention and response, and solid waste and sewage management. The Department of Port Administration and the U.S. Coast Guard enforce the use of these BMPs by harbor users. The ORMP Harbors Advisory Group (HAG), with funding support from the 309 Program, also introduced Title 20 to establish recommendations of the Clean Harbor Policy as legislation (those recommendations not already in the statutes), and to provide penalties for violations of those policies. This legislation has not been adopted yet.

Through the HAG, DPA also installed eight nets to catch land-based debris in streams prior to entry into the harbor; however, lack of regular maintenance caused the nets to fail. The HAG also put “no dumping” signage up in 2007 at the Au’asi and Pago Pago Harbors. Land-based debris and littering remain a significant issue in Pago Pago Harbor.

The Department of Port Administration also conducts outreach to boats and ships coming into the harbor regarding harbor policies and regulations. In 2006, DPA created a flyer explaining regulations that the harbor master distributed to boat captains. This program has since been discontinued.

Post-storm Debris Survey and Removal/Research and Monitoring

In the months following the September 2009 Tsunami, NOAA and local ASG agencies mobilized to assess impacts of tsunami-generated debris and to remove a large amount of debris in some of the hardest-hit areas. Approximately one third of the shoreline around Tutuila was surveyed. Approximately 8,850 pounds of debris were removed from the reef slope, including 4,350 pounds of tires, 2,000 pounds each of roofing materials and of household goods, and 350 pounds of fabric. The fabric collected was estimated to have the potential to cover as much as 4,200 square feet. More debris still remains to be removed from the reefs.

Derelict Vessel Programs

The U.S. Coast Guard has a policy of purging sunken vessels of hazardous materials. After the tsunami, the Coast Guard retrieved 15 cars from the harbor and removed batteries from several sunken vessels. In 2006, through efforts of the HAG, one sunken vessel was moved out of the harbor six miles out to sea. The removal required coordination between ASEPA, DMWR, DPA, and U.S. Coast Guard. There are at least one or two remaining sunken vessels inside the harbor that should be removed.

Marine Debris Education and Outreach

Land-based debris education activities are discussed in the Cumulative and Secondary Impacts Section of this assessment.

Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or need description	Type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H,M,L)
Land-based littering and dumping reduction	Communication and outreach	H
Frequent and reliable trash collection system	Capacity	H
Tsunami-generated debris removal and disposal	Capacity, training	H
Additional Survey data for tsunami-generated debris around Tutuila and Manu'a Islands	Data	M
Removal of remaining sunken vessels in Pago Pago Harbor	Capacity, coordination	L

Increasing the frequency and reliability of trash collection services has been identified as a key need to begin to improve the littering and dumping problem in American Samoa. Currently, ASPA is responsible for trash collection; however, that agency is also responsible for the management of drinking water supply, wastewater disposal, and electricity production. With one agency responsible for these key services, the burden on ASPA to manage all these tasks appears to be the main cause for the unreliable trash service.

Enhancement Area Prioritization

1) **What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?**

High _____
Medium ✓
Low _____

Briefly explain the level of priority given for this enhancement area.

A large amount of debris was washed out onto the reef during the September 2009 tsunami and significant efforts were conducted to remove much of this debris in hotspot areas. Significant efforts were also made to remove hazardous materials that could harm people or the environment. Consequently, the remaining debris is not considered an immediate threat to the near-shore environments; however, larger debris especially could cause further damage to coral reefs if it gets remobilized in future storm events.

Aside from the impacts of the 2009 tsunami, most of the debris in near-shore waters of American Samoa is from land-based littering and dumping. This issue is considered further in the section on Cumulative and Secondary Impacts of population growth and development in the territory.

2) **Will the CMP develop one or more strategies for this enhancement area?**

Yes _____
No ✓

Briefly explain why a strategy will or will not be developed for this enhancement area.

DMWR has been in charge of tsunami-related debris assessment and removal and has coordinated efforts with the federal government and with the CRAG.

Although a strategy will not be developed specifically for this enhancement area, the strategy that will be developed for the cumulative and secondary impacts enhancement area will address land-based debris, a concern for the near-shore coral reefs and wildlife of the territory.

3.5 Cumulative and Secondary Impacts

Section 309 Enhancement Objective

Development and adoption of procedures to assess, consider, and control cumulative and secondary impacts of coastal growth and development, including the collective effect on various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources.

Cumulative and Secondary Impacts: Overview

Cumulative and secondary impacts address the collective impacts exacerbated by population growth, overcrowding, and development near the coast, including solid waste volumes, non-point sources of pollution, groundwater contamination, erosion, loss of wetland habitats, overuse of natural resources, and erosion.

Land use management in American Samoa is very different from that in the continental United States. In American Samoa, most of the land is communally owned by individual village communities, each governed by a council of village chiefs or *matai*. Land use management decisions are generally made by individual *matai* or by the *matai* council. Land use management decision-making is viewed as a very important authority of the *matai*. To date, comprehensive planning efforts aimed at providing consistent land use planning regulations over the entire territory have not been successful because they are viewed as an infringement on the governance authority of villages. Thus, the *Tualauta County Plan*, which would have established land use policies and regulations in the most populated part of Tutuila, was developed in the early 2000's but was never adopted by the Governor's office because it did not have political support. ASG is still interested in gaining approval of the Tualauta County Plan, but needs to strategize the best way accomplish the intended goals of the plan in a way that is acceptable to the community.

Currently, the PNRS, through enforcement of land use regulations of various agencies, is the main enforcement body that helps mitigate environmental impacts; however, it is not a planning body, which limits its effectiveness for preventing long-term cumulative and secondary impacts of development. In order to build more awareness of cumulative and secondary impacts and ASG regulations, and to build support for improved land use management, several ASG agencies have been working cooperatively on building community involvement in resource management planning.

Resource Characterization

1) Identify areas in the coastal zone where rapid growth or changes in land use require improved management of cumulative and secondary impacts (CSI) since the last assessment. Provide the following information for each area:

Geographic area	Type of growth or change in land use	Rate of growth or change in land use (% change, average acres converted, H, M, L)	Types of CSI
Tualauta County	Residential and commercial development	H	Non-point source pollution of streams, groundwater, and near-shore; vulnerability to coastal hazards and floods; erosion; traffic congestion; encroachment on forest habitats and wetlands
Malaeimi Valley watershed	Residential development	H	Non-point source pollution of the groundwater (major groundwater aquifer recharge zone)
Leone Village area	Residential development	H	Encroachment on wetlands, non-point source pollution of streams, wetlands, and nearshore; erosion, vulnerability to coastal hazards.
Pago Pago Harbor area	Residential and commercial development	M	Non-point source pollution of the harbor, toxic releases, vulnerability to coastal hazards, traffic congestion
Nu'uuli Watershed	Residential and commercial development	M	Encroachment on wetlands, non-point source pollution of streams, wetlands, and near-shore; erosion; traffic congestion

- 2) Identify sensitive resources in the coastal zone (e.g., wetlands, waterbodies, fish and wildlife habitats, critical habitat for threatened and endangered species) that require a greater degree of protection from the cumulative or secondary impacts of growth and development. If necessary, additional narrative can be provided below to describe threats.

Sensitive resources	CSI threats description	Level of threat (H,M,L)
Mangroves of Leone and Nu'uuli	Deforestation and filling of wetlands for development, pollution and debris	H
Inland marsh wetlands in various villages	Pollution and debris, filling for development	H
Pago Pago Harbor	Petroleum and toxic releases, nutrients and bacteria from land-based sources and from small boat wastewater releases, debris from land-based sources, DDT from land-based sources	H
Malaeimi Valley / Groundwater sources	Bacteria from land-based pollution (piggeries, agriculture, cesspools and septic systems) leaching into the groundwater, lower recharge rates due to impervious pavement	H
Coral reef habitats around inhabited islands	Near-shore nutrient loads and sedimentation from land-based sources, debris from land-based sources	M
Mountain Rainforest on Tutuila	Deforestation for wood and to allow more development	L

Pago Pago Harbor

Pago Pago Harbor is affected by high nutrient loads, particularly in the inner harbor, marine debris, and oil and toxic releases. High nutrient loads are attributed to land-based non-point sources and wastewater releases from small boats in the harbor, and have been associated with algal blooms in the inner harbor. In 2007, a Pago Pago Harbor sediment toxicity study was conducted by ASEPA and indicated that sediment contamination is primarily confined to the inner Pago Pago Harbor, nearest to stream and industrial outfalls. Heavy metals in the harbor sediments are not at concentrations of concern for biological or human health and appear to be associated both with non-point sources and industrial outfalls in the harbor. Sediments with high PCB concentrations appeared to be associated with the Satala Power Plant and were very limited in area. DDT was also found in inner harbor sediments and was not associated with point sources. Data indicated that Vialoa and Fagotogo watersheds are actively contributing DDT-contaminated sediments to the harbor.

Groundwater sources

Groundwater was added to the list of important resources or uses because of human health concerns of poor water quality. New US EPA regulations require source water monitoring for drinking water, which has highlighted the impacts of the combination of highly permeable soils and poor land use practices on groundwater resources of Tutuila. Water supply wells in several major drinking water supply aquifers are impacted with high bacterial content and require proper chlorination prior to distribution. Currently, the

ASPA water sanitation system does not meet some of US EPA's requirements; additionally, several villages have their own water supply systems that do not meet EPA requirements.

Water Quality and Coral Reef Impacts

ASEPA has been conducting stream and near-shore water quality monitoring since 2002. Stream water quality monitoring from 2003 through 2009 indicated that all of the streams monitored had water quality that was "not supporting" for public health (swimming), and 15 of the 27 streams monitored were "not supporting" for aquatic life. Near-shore water quality monitoring indicated that 7 of the 15 watersheds sampled had water quality "not supporting" for aquatic life. Improperly managed pig farms (approximately 900 piggeries mapped on Tutuila in 2006) and leaking cesspools and septic systems were identified as potential major sources of pollutants to streams and near-shore waters, including nutrients and bacteria (*e. coli*, *leptospirosis*). ASEPA passed regulations in 1999 requiring piggeries to be sited at least 50 feet away from streams and wetlands, and 50 feet from dwellings. The regulations required piggeries to also meet higher waste management system requirements. Starting in 2003, with the support of NOAA's Coastal Non-Point Program, Natural Resources Conservation Service (NRCS), and ASCC Land Grant, ASEPA began a public education, compliance, and enforcement campaign for piggeries, including relocation, upgrades, and closures of piggeries, focusing particularly on Matu'u and Papa Streams. NRCS Environmental Quality Incentives Program (EQIP) provided match funding (90% match) for piggery upgrades meeting one of the four approved piggery designs. As a result of these efforts, a significant drop in *e. coli* was observed in Matu'u and Papa Streams. Based on these successes, EPA has been continuing outreach and enforcement activities in other watersheds.

A recent ASEPA coral reef monitoring program has been providing information on coral reef assemblages and non-point source pollution impacts around Tutuila. Results of monitoring at 17 sites indicated that proxies to human disturbance were consistently tied with reduced species richness and evenness for both coral and fish. Unfavorable, selective environments (i.e. watersheds with high human and pig populations) held fewer species than those with benign environments, which had the greatest species richness. Declines in table *Acropora* and encrusting *Montipora* corals were particularly noted at several sites in 2007.

Non-significant negative trends were found at Fagasa and Leone where coral abundance was becoming dominated by one or a few species, creating less stable and resilient coral assemblages. On the other hand, Masefau had an increase in species richness and assemblage evenness, attributed to lower human population density and higher herbivorous fish biomass. The ASEPA is continuing coral reef monitoring on a bi-annual basis to determine long-term trends in coral reef communities around Tutuila.

Management Characterization

1) For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management Categories	Employed by territory (Y or N)	Significant changes since last assessment (Y or N)
Regulations	Y	Y
Policies	Y	Y
Guidance	Y	N
Management Plans	Y	Y
Research, assessment, monitoring	Y	Y
Mapping	Y	Y
Education and Outreach	Y	Y
Other: Enforcement Efficiency	Y	Y

2) For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.

- a. Characterize significant changes since the last assessment;
- b. Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
- c. Characterize the outcomes and effectiveness of the changes.

Regulations

Plastic Bag Ban

In late August 2010, Governor Togiola Tulafono signed a ban on plastic bags into law. This regulation is further discussed above under the Marine Debris section. The ban will take effect February 23, 2011.

Policies

Development of Population Commission and Draft Territorial Population Policy

In 2008, the CRAG organized a two-day Population Summit; as a follow-up to this summit, Governor Togiola created American Samoa's Population Commission in May 2009. The Population Commission includes members of the Departments of Commerce, Health, Youth and Women's Affairs, Legal Affairs, and Education. Within the Commission, there are six working groups focusing on specific issues: (1) Environment, Planning and Policy, (2) Youth and Gender Issues, (3) Reproductive Health, (4) Education, (5) Immigration, and (6) Information Technology. The working groups have been tasked with "coordinating and completing the Territorial Population Policy with strategies for implementation on a three-year basis, with regular reviews and evaluation." The CRAG is currently looking to recruit a Population Program Specialist to lead the management of population pressure activities of the LAS, and to coordinate the development of the Population Policy for the Territory.

Clean Harbors Policy

The Clean Harbors Policy was adopted in 2004 by the Department of Port Administration and lists BMPs that should be implemented by Pago Pago Harbor users. Best management practices address issues such as bilge water management and used oil, boat fueling, hazardous chemicals, repair and maintenance, black water, solid waste, etc. The Harbors Advisory Group, established as part of the ORMP in 2003 (CZM 309 program), developed information pamphlets on Pago Pago Clean Harbor Policies for distribution to boats coming into the harbor.

In 2006, through the HAG, the DOC attorney drafted Title 20, incorporating Clean Harbor Policies not found in the statutes and introducing penalties for violations. With the departure of the ORMP coordinator, HAG activities were put on hold and this legislation has not been adopted to date.

Management Plans

Community-based Wetlands Management Program

ASCMP has used the PLA process to develop a draft Community-based Wetlands Management Plan for Tula and has begun a similar process for Vatia. Discussion of the plan and planning process may be found in Section 3.1 under Wetlands Management Characterization.

Pago Pago Shore Side Plan

The *Pago Pago Bay Shore Side Development Plan* was drafted in 2003 and revised in 2006 by the Department of Commerce Planning Division, with support from the ORMP's Harbors Advisory Group. The plan identifies development goals for Pago Pago Harbor, including integrated development, shore side revitalization and beautification, economic development, and community services; and it outlines development strategies for several key areas of the harbor, including the main sea port, the business district, public beach parks, and the small boat harbor. Due to the departure of the ORMP coordinator, which put on hold some of the activities of the ORMP's advisory groups, this plan has not been adopted to date.

Research, Assessment and Monitoring

ASEPA research activities

ASEPA has been conducting stream and near-shore water quality monitoring for the past eight years to meet the requirements of the Clean Water Act. In 2010, the ASEPA released the *American Samoa Integrated Water Quality Monitoring and Assessment Report* in support of the application of Water Quality Standards to surface and coastal waters of American Samoa, and of the establishment of a 303(d) list of impaired waters. Through the CRAG's Land-Based Sources of Pollution LAS (supported by Coral Reef Conservation Program [CRCP] funding), ASEPA also conducted coral-reef monitoring to identify and quantify patterns between watershed water quality and coral reef community characteristics. The program identified ecological measures that were sensitive to gradients of land-based pollution in various areas of Tutuila. Further EPA monitoring will be aimed at quantifying the extent and level of ecological damage of land-based pollution on Tutuila's near-shore resources. This information will help build the ASEPA's capacity to implement effective watershed-based mitigation efforts.

In 2007, ASEPA also conducted the Pago Pago Harbor sediment toxicity study that is mentioned above in the "sensitive resources" section with funding support from US EPA.

Mapping

ASCMP GIS database

ASCMP's GIS database was started in 2002 (CZM 306 program). New datasets added in the past five years include detailed roadways layer (2006), and composite aerial imagery to remove cloud cover (from USDA NRCS). No new layers were developed during the period between 2007 and early 2010, during which time the GIS program manager position was vacant. Recently, the USGS and Japan Government conducted tsunami inundation surveys (following the September 2009 tsunami) and released their reports in March 2010; the results of their studies have been input into GIS.

ASCMP T-HAT Update

ASCMP has been working on an update of the GIS-based Tutuila Hazard Assessment Tool that would incorporate updated hazards delineations (FEMA Flood Insurance Rate Map delineations, tsunami inundation zone, etc.) and other land use layers, including wetlands, utilities, roadways, building setbacks, special management areas, etc. The updated T-HAT tool is anticipated to become both a useful permit review tool for the PNRS, and an educational tool to help permit applicants and other community members better understand ASG regulations.

Education and Outreach

Population Summit

Population pressure has been recognized by the CRAG as the most significant threat to American Samoa's coastal resources. In 2008, the CRAG organized a two-day Population Summit that included several topics, including reproductive health, family planning, women's empowerment, immigration, and environmental impacts. The summit had over 130 participants.

Land-Based Sources of Pollution Education: Rare Pride Campaign

The Rare Pride Campaign was started in 2006 in American Samoa; the hawksbill and green sea turtles were chosen as the symbols of the outreach campaign. The campaign had three main goals: promoting awareness and conservation of sea turtles and marine protected areas, long-term trash reduction, and long-term reduction in sand mining. The campaign targeted various age groups and several of the projects that were developed for the campaign have continued to be used by the CRAG for outreach.

ASEPA Piggery Compliance Education and Guidance

ASEPA has full governmental authority to enforce existing regulations on piggeries. Enforcement activities were initiated in 2006 under the ASEPA Piggery Compliance Program. Phase 1 of that program was education and outreach and was completed in mid-2006. To assist with compliance and education activities, ASEPA put together the *Piggery and Waste Use/Disposal System Guidelines* (2008), with three approved piggery designs. ASEPA also collaborated with CRAG and ASCC Land Grant to develop demonstration piggery designs (portable pig pen, dry litter piggery, and wash-down piggery) at ASCC Land Grant.

Enforcement Efficiency

PNRS One Stop Shop

Currently, the Permitting Review and Notification System of American Samoa does not have mechanisms to specifically address cumulative and secondary impacts; however, it provides some degree of minimization of coastal impacts through regulations on development in or near wetlands and streams and through enforcement of FEMA regulations for construction in flood hazard zones. Currently, the PNRS board does weekly site visits as a group to review and accept or reject permit applications. The PNRS also provides education to village mayors on the purpose and need for project permitting regulations.

The Consolidated Application Administration Process (CAAP), also called the “One Stop Shop”, is an online tool of the PNRS that was released to the public in early September 2010. The tool will help streamline and clarify the land use permitting process by consolidating all permits under various environmental programs, including business licenses, into one. Since the “One Stop Shop” is an online tool, it will also allow various agencies to conduct consolidated review ahead of PNRS board meetings, thus improving the effectiveness of the PNRS. The “One Stop Shop” will also allow better long-term tracking of permitting trends.

Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or need description	Type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H, M, L)
Increased enforcement of existing regulations and permit requirements.	Capacity	H
Awareness and understanding of impacts of littering and dumping, and impacts of poor land use	Communication & Outreach	H
Village-level cooperation with ASG to develop or adopt policies to help minimize impacts of development on important resources	Policy	H
Updated GIS data layers for important land use data (utilities, buildings), particularly as a follow-up to the tsunami	Data, mapping	H
Adoption of Clean Harbors Policy into law to allow more effective enforcement and assignment of penalties for violations	Regulatory	H

Gap or need description	Type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H, M, L)
Adoption of the Shore Side Management Plan that would promote redevelopment and improvement of the Pago Pago Harbor area	Policy	M
DDT source assessment for Pago Pago Harbor	Data	L

Enhancement Area Prioritization

1) What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High ✓
 Medium
 Low

Briefly explain the level of priority given for this enhancement area.

Cumulative and secondary impacts of development and poor land use and resource management practices continue to be one of the most critical issues affecting American Samoa. Several actions conducted in the past 5 to 10 years have led to much improved conditions, but there is a lot still to be done to improve awareness and understanding of those impacts in the community, to work more closely with villages on conservation and impact mitigation, and to better enforce regulations enacted to protect American Samoa’s natural resources.

2) Will the CMP develop one or more strategies for this enhancement area?

Yes ✓
 No

Briefly explain why a strategy will or will not be developed for this enhancement area.

ASCMP can build on the momentum achieved with the Community-based Wetlands Management Program to work with villages to increase awareness of development pressure issues on a variety of natural resources and to develop community-based plans that will benefit the villages and reduce cumulative and secondary impacts.

3.6 Special Area Management Planning

Section 309 Enhancement Objective

Preparing and implementing special area management plans for important coastal areas.

The Coastal Zone Management Act (CZMA) defines a Special Area Management Plan (SAMP) as “a comprehensive plan providing for natural resource protection and reasonable coastal-dependent economic growth containing a detailed and comprehensive statement of policies; standards and criteria to guide public and private uses of lands and waters; and mechanisms for timely implementation in specific geographic areas within the coastal zone. In addition, SAMPs provide for increased specificity in protecting natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas, including those areas likely to be affected by land subsidence, sea level rise, or fluctuating water levels of the Great Lakes, and improved predictability in governmental decision making.”

Special Area Management Planning: Overview

Special Management Areas (SMAs) have been designated where:

- Significant coastal resources are being severely affected by cumulative or secondary impacts,
- A multiplicity of local, state, and federal authorities hinder effective coordination and cooperation in addressing coastal development on an ecosystem basis, or
- A history of long-standing disputes between various levels of government over coastal resources that has resulted in protracted negotiations over the acceptability of proposed uses, and
- There is a strong commitment at all levels of government to enter into a collaborative planning process to produce enforceable plans, and a strong state or regional entity exists which is willing and able to sponsor the planning program.

There are three areas with SMA designation: Page Pago Harbor, Nu‘uuli Pala, and Leone Pala. All of these SMAs were designated prior to the last Assessment. No management plans currently exist for any of the SMAs, but strict development regulations are enforced by the PNRS.

Resource Characterization

- 1) Identify geographic areas in the coastal zone subject to use conflicts that can be addressed through special area management plans (SAMP). Also include areas where SAMP have already been developed, but new issues or conflicts have developed that are not addressed through the current plan. If necessary, additional narrative can be provided below.

Geographic Area	Major conflicts	Is this an emerging or a long-standing conflict?
Malaeimi, Malaeloa, and Tafuna	These areas have the highest concentration of drinking water wells on Tutuila. USEPA rules now require source monitoring, and new filtration and sanitation requirements for wells with bacteria. It was estimated that 50% of wells contain bacteria. This area is the largest source of drinking water, but it is also relatively flat, making it open to development pressure.	Emerging and long-standing
Tafuna Ottoville Lowland Rainforest	As remaining patch of lowland rainforest that contains rare plant species and provides habitat for native wildlife. Development continues to encroach on this area.	Long-standing

Management Characterization

- 1) Identify below any special management areas in the coastal zone for which a SAMP is under development or a SAMP has been completed or revised since the last Assessment:

SAMP title	Status (new, revised, or in progress)	Date approved or revised
Malaeimi Valley	In progress	SAMP was completed in 2004 but was not approved.

Malaeimi

Malaeimi Valley was proposed for SMA designation, but was never formally approved. A draft SAMP developed for Malaeimi at the time it was recommended for designation is used by the PNRS Board to guide their evaluations of permit applications. Although the SAMP is six years old, the Watershed Advisory Group felt that the issues have not changed, and that an update is not necessary at this time.

- 2) For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.

Malaeimi

The SAMP for Malaeimi was never approved, but the new USEPA ground water rules for drinking water sources may renew efforts to get approval.

Ottoville

SMA designation for the Tafuna Ottoville Lowland Rainforest, discussed in the previous Assessment, was never obtained, but it was designated as a “Unique Area,” as defined under ASCMP’s Administrative Rules.

Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy).

Gap or need description	Type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H, M, L)
Approval of the Malaeimi Valley SAMP	Policy	H
Designation of Malaeloa, Tafuna, and Ottoville Lowland Rainforest as SMAs	Policy	M
SAMPs for the three existing SMAs: Pago Pago Harbor, Nu‘uuli Pala, and Leone Pala	Policy	M

SAMPs

Nu‘uuli Pala and Leone Pala are included in the *Comprehensive Wetlands Management Plan for Tutuila and Aunu‘u* (1992), but do not have SAMPs specific to those wetlands. It has been difficult to get SAMPs adopted due to lack of political support. Community-based resource management efforts may provide adequate and more acceptable alternatives SAMPs. The Pago Pago Shoreside Plan has not been formally adopted.

Enhancement Area Prioritization

1) What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High	_____
Medium	<u> ✓ </u>
Low	_____

Briefly explain the level of priority given for this enhancement area.

Development pressures continue to threaten wetlands (Pago Pago, Nu'uuli, and Leone), Lowland Wet Forests (Ottoville), and ground water recharge areas (Malaeimi, Malaeloa, and Tafuna) and the 309 Advisory Group agreed that SMAs are important tools in protecting these resources. However, other enhancement areas were deemed more important toward protecting and managing coastal resources. Management actions for these areas, such as the PNRS oversight of new construction and the wetlands outreach and coordination already provide some protections for the SMAs.

2) Will the CMP develop one or more strategies for this enhancement area?

Yes	_____
No	<u> ✓ </u>

Briefly explain why a strategy will or will not be developed for this enhancement area.

No strategy will be developed for the SMA enhancement area because ASEPA has already indicated that they will likely renew their efforts to get the Malaeimi Valley SAMP approved in response to the USEPA ground water rules for drinking water.

Additionally, the intent of designating Malaeimi, Malaeloa, and Tafuna as SMAs is to protect an important drinking water resource from development and potential contamination. A strategy to prepare a Village-Based Resources Management Plan is proposed for this critical area under the Cumulative and Secondary Impacts enhancement area. This Village-Based Resources Management Plan is meant to understand the natural resource issues for the given village and focus in on management strategies for those natural resources that are identified as critical. This planning process would utilize the PLA, or other community-based strategy, to work with the villages to identify needs, data, and management actions, thereby maximizing the potential for community support of the plan and eventual approval by government and adoption by the village. The ground water issues in Malaeimi, Malaeloa, and Tafuna should be prominent components of a Resources Management Plan.

3.7 Ocean Resources

Section 309 Enhancement Objective

Planning for the use of ocean resources.

Resource Characterization

1) In the table below characterize ocean and/or Great Lakes resources and uses of state concern, and specify existing and future threats or use conflicts.

Resource or use	Threat or use conflict	Degree of threat (H,M,L)	Anticipated threat or use conflict
Fishing and gathering	Overfishing	M	Diminished near-shore fish stocks and subsistence fisheries
	Land-based pollution and sedimentation	H	Degradation of marine habitat, diminished near-shore fisheries
Coral Reefs	Climate change	H	High potential for increased prevalence of coral diseases and coral bleaching, ocean acidification
	Non-point source pollution: bacteria and nutrients (phosphates) in near-shore waters, sedimentation	H	Degradation of marine habitats, decreased biodiversity, decreased resilience to impacts of natural disasters and climate change
	Overfishing	M	Degradation of marine habitat, increased algae cover
	Debris: Illegal dumping and littering	M	Degradation of marine habitats, entanglement damage, coral breakage
	Natural disasters: tsunami, cyclones	M	Strong disturbance of coral reef communities, coral breakage,
Near-shore water quality (human health)	Non-point source pollution: bacteria and nutrients (septic and piggeries runoff)	H	Human health impacts due to poor water quality; habitat degradation
	Debris: litter and illegal dumping	M	Habitat degradation, aesthetic impacts of debris in water
Beaches and shoreline lands	Erosion and shoreline hardening	H	Loss of beach sand and shoreline access
	Sand Mining	H	Loss of beach sand
	Debris	H	Aesthetic impacts of debris on shoreline, pollution
	Sea level rise	H	Loss of shoreline access, infrastructure impacts (coastal road, houses)
	Tsunami, cyclones	M	Loss of shoreline access, coastal infrastructure impacts

Resource or use	Threat or use conflict	Degree of threat (H,M,L)	Anticipated threat or use conflict
Groundwater	Non-point source pollution : nutrients and bacteria leaching into groundwater	H	Human health impacts of poor quality drinking water; drinking water shortage as water supply wells do not meet regulatory standards
	Climate change and sea level rise	M	Potential for diminished fresh water aquifers
Pago Pago Harbor Water Quality	Debris/trash	M	Aesthetic impacts, habitat degradation in the harbor, potential toxic releases, impacts to navigation
	Non-point source pollution: nutrients, bacteria, DDT, Heavy Metals	H	Habitat degradation, algal blooms in the inner harbor, human health impacts
	Pollution from boats in the harbors: sewage releases, oil spills	M	Habitat degradation, algal blooms in the inner harbor, human health impacts
	Point-source pollution: PCBs	M	Human health impacts
Coastal wetlands (mangroves)	Encroachment and filling for development	H	Habitat degradation and destruction; decreased storm resilience
	Non-point source pollution: debris, nutrients, bacteria, heavy metals	M	Habitat degradation
	Harvesting for firewood	L	Habitat destruction

2) Describe any changes in the resources or relative threat to the resources since the last assessment.

Decreasing annual catches in American Samoa have led to differing assessments of the state of near-shore coral-reef-associated fisheries. Several publications, including NOAA's 2005 *State of Coral Reef Ecosystem* report, state that American Samoa's coral reefs are overfished based on data indicating decreasing fish catches, lower fish biomass than in uninhabited islands, and the lack of certain large fish species. Other studies (Sabater, 2007) argue that this may not be the case for the past few decades. Sabater (2007) found that fishing effort in American Samoa has decreased steadily over the past 20 to 30 years, with reef fish populations remaining stable or increasing over that time period, and that larger fish species were found off-shore. The recent *Coral Reef Ecosystem Monitoring Report for American Samoa* (PIFSC-CRED, 2008) indicates that total reef fish and large fish biomass are lowest around the most populated islands in American Samoa (Tutuila, Ofu, Olosega, and Ta'u) and highest around the least populated (Swains and Rose). The report suggests that a combination of anthropogenic stressors, including but not limited to fishing, coastal development, sedimentation, and pollution, are impacting reef fish populations. With the decreased cannery activities and rising unemployment in American Samoa, it is possible that subsistence fishing will become more prevalent again, which would increase stress on near-shore fisheries around Tutuila.

Near-shore water quality and groundwater resources were added to the list of important resources or uses because of human health concerns of poor water quality. New US EPA groundwater regulations are

intended to protect the public health from land-based sources of pollution and are described in Section 3.5 under Cumulative and Secondary Impacts. Similarly, near-shore water quality of most beaches around Tutuila is impacted by high nutrient and bacterial content from land-based sources of pollution, particularly after heavy rains.

Beaches and shoreline lands have also been added to the list of important resources, with a high degree of threat from shoreline hardening and erosion, sand mining, and sea level rise. There are few sandy beaches on Tutuila, which limits shoreline access for subsistence fishing and recreation. With climate-change-induced sea level rise, the impacts of erosion and sand mining will become even more prevalent for shoreline lands.

Management Characterization

1) For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management categories	Employed by territory (Y or N)	Significant changes since last assessment (Y or N)
Comprehensive ocean management plan or system of Marine Protected Areas	Y	Y
Regional comprehensive ocean management plan	N	N
Regional sediment or dredge material management plan	N	N
Intra-governmental coordination mechanisms for Ocean management	Y	Y
Single-purpose statutes related to ocean resources	Y	Y
Comprehensive ocean management statute	Y	N
Ocean resource mapping or information system	Y	N
Ocean habitat research, assessment, or monitoring programs	Y	Y
Public education and outreach efforts	Y	N
Other: Village-based MPAs and Resources Management Efforts	Y	Y

- 2) **For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.**
 - a. **Characterize significant changes since the last assessment;**
 - b. **Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and**
 - c. **Characterize the outcomes and effectiveness of the changes.**

Comprehensive Ocean Management Plan, Intra-Governmental Coordination, and MPA Network

In August 2003, Governor Togiola Tulafono signed Executive Order 004-2003, establishing the Ocean Resources Management Process and Plan, which provided the framework for the Ocean Resources Management Program in American Samoa. The Executive Order established an Ocean Resource Management Council and four advisory groups for each of the following resource areas: Watersheds, Near-shore Waters, Harbors, and Territorial High Seas (CZM 309-driven change). Each of the advisory groups and the Ocean Resource Management Council were made up of representatives from several American Samoa Government Agencies, including but not limited to ASPA, ASEPA, DOC, Department of Agriculture (DOA), DOH, DMWR, ASCC, American Samoa National Park (ASNP), Fagatele Bay National Marine Sanctuary, Pago Pago Port Administration, as well as several federal agencies. The Ocean Council was chaired by the Lieutenant Governor and reported to the Governor.

The four ORMP advisory groups put together action plans and began implementing management improvements. Activities of the Harbors Advisory Group are discussed above under the Cumulative and Secondary Impacts Section (CZM 309-driven change). During the past four years, the Ocean Resources Management Program has not had a coordinator and thus three of the advisory groups (Watersheds, Harbors, and Territorial High Seas) have not had any activity. The Near-shore Advisory Group (as well as some actions of the Watersheds Advisory Group) folded into the Coral Reef Advisory Group (CRAG) under the U.S. Coral Reef Initiative.

The CRAG has its own coordinator and has been very active in providing guidance and project management on coral reef, near-shore, and land-based pollution issues. The three priority goals of the Coral Reef Initiative in American Samoa (2010) are (1) to maintain and, where necessary, to improve the status of fish stocks, (2) to reduce land-based sources of pollution, and (3) to plan for and mitigate the effects of global climate change. The CRAG has identified and coordinates four local action strategies (LAS) for coral reef management: Fisheries Management, Climate Change, Land-Based Sources of Pollution, and Population Pressure. Each LAS is managed by a working group made up of various government agencies and non-governmental organizations.

The territory of American Samoa also has several MPAs, from federally administered to community-based. DMWR administers 11 Community-based Fisheries Management Programs (CFMPs) in cooperation with local villages. DMWR's CFMPs have been helping villages in managing and conserving their inshore fishery resources through a voluntary scheme of co-management with the government. Villages generally manage their marine areas through the establishment of Village Marine Protected Areas (VMPAs) that close all or a portion of the reef area near the village. To complement this program, DMWR also recently established the first territorial No-Take MPA in cooperation with Fagamalo Village.

Existing federally administered MPAs in American Samoa include Fagatele Bay National Marine Sanctuary and the National Park of American Samoa. In addition, former President George W. Bush designated 13,451 square miles of emergent and submerged lands and surrounding Rose Atoll as the Rose Atoll Marine National Monument in January 2009. The proclamation assigns management authority for the new monument to the Secretary of the Interior, with the Secretary of Commerce (through NOAA) responsible for the marine areas of the monument; the American Samoa Government is also a cooperating agency in management of the area. The marine portions of the monument will be incorporated in the Fagatele Bay National Marine Sanctuary as part of its expansion plan. The Executive Order establishing the monument prohibits commercial fishing within its boundaries.

In 2007, the CRAG's Fisheries LAS drafted a MPA Network Strategy to help link federal and territorial MPA programs and agencies so as to provide more efficient management. The purpose of the Strategy is to ensure the long-term health and sustainable use of the Territory's coral reef resources. The emphasis of the strategy is on collaboration and integration among the agencies and within existing programs, through enhanced coordination and integration of education, research and monitoring, enforcement, and program administration. The strategy does not establish new authorities but instead provides guidance on the establishment of a collaborative MPA Network in the territory. The strategy also includes performance measures to monitor the success of the network. A MPA network coordinator was hired through the CRAG to help administer the strategy.

Village-based Resources Management and Single-purpose Statutes

In 2008, ASCMP, in cooperation with NOAA PIRO, began working with Tula Village on a Community-based Wetlands Management Plan (CZM 309-funded effort). The planning process employed the PLA tools that had previously been used by DMWR to establish CFMPs. The Community-based Wetlands Management Plan is further discussed above in the Wetlands section.

As mentioned above, 11 CFMPs have been established by DMWR in cooperation with local villages. Because CFMPs are managed by local communities that have a direct interest in their success, compliance with bans on fishing is high within the villages; however, prior to 2008, local communities had little authority to enforce local rules if broken by outsiders. To address this issue, DMWR worked with a legal advisor to develop legislation in 2008 that incorporates village rules and regulations under the department's statute. In 2008, a law was passed that allows DMWR's director to deputize the village mayor and one village policeman to issue citations under the CFMP program. This legal change as well as more education and outreach are expected to enhance the CFMP's effectiveness.

Research and Monitoring

A lot of efforts have been made in the past few years to characterize the health of American Samoa's near-shore coral reef resources and to identify sources of impacts to these resources. ASEPA has been conducting near-shore water quality monitoring since 2002; in 2008, ASEPA also conducted a study of coral reef assemblages around Tutuila Island to begin identifying potential impacts of land-based sources of pollution on those ecosystems. These studies are further detailed above under the Cumulative and Secondary Impacts section.

The NOAA Pacific Island Fisheries Science Center (PIFSC) also conducted an integrated baseline assessment of American Samoa's Coral Reef Ecosystems, including three extensive surveys in 2002, 2004, and 2006 around each of the seven islands of the archipelago. Data conducted as part of these

monitoring and assessment efforts will help provide valuable information for evaluating the effectiveness of current and proposed management measures. These efforts will also be critical in identifying trends in ecosystem health and will help better understand impacts of human development and climate change.

In 2009, NOAA’s National Marine Fisheries Service (NMFS) PIFSC, in partnership with CRAG and DMWR, completed a socio-economic study on the impact of subsistence fisheries for the people of American Samoa. The purpose of the report was to help support local agencies dealing with fisheries by assessment the needs and characteristics of the fishing community.

DMWR has also been conducting shoreline fishery documentation on species composition, size, catch landing, and fishing effort since 1990. Catch per unit is derived from collected data. Underwater fish counts have also been done in 1980, 1996, 2002, and 2005 through present. These fish census surveys include data on species composition, size, and abundance, from which biomass are derived.

Villages also provide some fisheries data. During special events like village harvests for weddings or funerals or the traditional l’asina and atule runs, some villages participate in data collection. Additionally, some village staff under the CFMP have been trained to conduct underwater census surveys along with DMWR staff.

Following the September 2009 tsunami, several studies were conducted to assess the impact of the tsunami on near-shore resources and coral reefs. In October 2009, the CRAG put together a *Coastal Impact and Damage Assessment* report that provided an overview of the areas around Tutuila most impacted by the tsunami. In June 2010, NOAA released a report on the coral reef damage response conducted in the fall of 2009, including an assessment of remaining issues and remedial activities needed.

Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or need Description	Type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H, M, L)
Revise ORMP to meet current needs and to coordinate with national goals and current actions in the territory	Policy	H
Better ocean resources data management and coordination across agencies	Data	M
Additional data on fisheries to better understand trends in fish populations and factors affecting them	Data	M

Enhancement Area Prioritization

1) What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High ✓
Medium
Low

Briefly explain the level of priority given for this enhancement area.

With the potentially critical impacts of climate change on the resources and way of life in American Samoa, better ocean resources management will remain a key concern for the next few decades in the territory. While some important actions have already taken place to help characterize and protect coral reefs, arguably the most important ocean resource for the territory, more remains to be done to better coordinate efforts and to provide more efficient management both for coral reefs and other important ocean resources.

2) Will the CMP develop one or more strategies for this enhancement area?

Yes ✓
No

Briefly explain why a strategy will or will not be developed for this enhancement area.

The ORMP was developed to help better coordinate the efforts of agencies and other entities whose actions had an impact on ocean resources management in American Samoa. Several of the advisory groups under the ORMP conducted some valuable management improvements in 2004 through 2006; however, with the lack of a coordinator in the past few years, the management actions of the ORMP have lost momentum. With a new coordinator starting soon, the ORMP now needs to be reassessed so that it more closely addresses current management issues, and so that it coordinates with national guidelines and other efforts currently taking place in American Samoa.

3.8 Energy and Government Facility Siting

Section 309 Enhancement Objectives

Adoption of procedures and enforceable policies to help facilitate the siting of energy facilities and Government facilities and energy-related activities and Government activities which may be of greater than local significance.

Resource Characterization

- 1) In the table below, characterize the types of energy facilities in your coastal zone (e.g., oil and gas, Liquefied Natural Gas (LNG), wind, wave, Ocean Thermal Energy Conversion (OTEC), etc.) based on best available data. If available, identify the approximate number of facilities by type.

Type of Energy Facility	Exists in Coastal Zone (# or Y/N)	Proposed in Coastal Zone (# or Y/N)	Interest in Coastal Zone (# or Y/N)	Significant changes since last assessment (Y or N)
Oil and gas facilities	Y (1)	N	N	N
Pipelines	Y	N	N	N
Electric transmission cables	Y	N	N	N
LNG	N	N	N	N
Wind	N	N	Y	N
Wave	N	N	Y	N
Tidal	N	N	Y	N
OTEC	N	N	Y	N
Current (ocean, lake, river)	N	N	N	N
Solar	Y	Y	Y	N
Other: Waste to energy	N	N	Y	N

Solar

ASEPA is beginning construction of a new “green” building that will include solar panels. Additionally, an independent contractor received stimulus funds to purchase and install photovoltaic panels and has begun to do so for various businesses and residences.

- 2) Please describe any significant changes in the types or number of energy facilities sited, or proposed to be sited, in the coastal zone since the previous assessment.

In compliance with FEMA requirements, ASPA is coordinating the relocation of the Satala power plant from the Flood VE zone. The StarKist freezer area across the street is a potential new location, as it is located outside of the flood zone. The Tafuna plant is not being relocated, but hardening of the facility is planned.

3) Does the territory have estimates of existing local capacity and demand for natural gas and electric generation? Does the territory have projections of future capacity? Please discuss.

ASPA only uses diesel generators. The Satala power plant on Tutuila has not been operational since the 2009 tsunami and will be reconstructed to modern standards. Peak power demand on Tutuila typically occurs between 7:00 pm and 9:00 pm.

Island	Capacity	Peak Demand
Tutuila	31 MW	23 MW
Tafuna Power Plant (ASPA)	10 MW	---
Satala Power Plant (ASPA)	0	---
Aggreko Rental Generators	21 MW	---
Ta'ū (ASPA)	600 kW	170 kW
Ofu (ASPA)	600 kW	110 kW
Aunu'u (ASPA)	170 kW	80 kW

4) Does the territory have any specific programs for alternative energy development? If yes, please describe including any numerical objectives for the development of alternative energy sources. Please also specify any offshore or coastal components of these programs.

ASPA is currently investigating the feasibility of a 1 MW photovoltaic solar panel farm, wind anemometers to collect wind data, and waste heat recovery from the diesel generators at Tafuna. No offshore or coastal projects are being considered at this time.

5) If there have been any significant changes in the types or number of government facilities sited in the coastal zone since the previous assessment, please describe.

No new government facilities have been built in the coastal zone since the last Assessment; however, two new facilities are being planned. ASG broke ground in October 2010 on a new ASEPA building in Utulei. This facility will be a 9,000 square-foot, Leadership in Energy and Environmental Design certified building. The second facility is the reconstruction of the Satala power plant, which was destroyed by the tsunami in 2009. The power plant will be relocated near its previous site, but outside of the VE flood zone.

Management Characterization

1) Does the territory have enforceable policies specifically related to energy facilities? If yes, please provide a brief summary, including a summary of any energy policies that are applicable to only a certain type of energy facility.

The Committee and the PNRS are responsible for overseeing the development of major facilities, including the addition of development conditions, which mitigate potential negative impacts. Major facilities include: water and electric service production and reticulation systems, streets and roads, sewage collection and treatment system, solid waste collection and disposal sites, ports and airports, recreational

facilities, schools, hospitals, government offices, and police stations and firehouses. The Major Facility Siting policy states:

“Major facilities shall be sited and designed to minimize adverse environmental and social impacts and promote orderly and efficient economic development. Major facilities not dependent on a waterfront location shall be located elsewhere unless no feasible alternative sites exist; water-dependent major facilities will be accommodated through planning. Conservation of resources shall be the primary goal of the Territory.

The Territory shall recognize identified regional benefits and national interests in the siting of major facilities and shall consider them in major facility siting decisions”

2) Please indicate if the following management categories are employed by the State or Territory and if there have been significant changes since the last assessment:

Management categories	Employed by territory (Y or N)	Significant changes since last assessment (Y or N)
Statutes or regulations	Y	N
Policies	Y	N
Program guidance	N	N
Comprehensive siting plan (including SAMPs)	Y	N
Mapping or GIS	Y	N
Research, assessment or monitoring	N	N
Education and outreach	N	N
Other (please specify)		

3) For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.

- a. **Characterize significant changes since the last assessment;**
- b. **Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and**
- c. **Characterize the outcomes and effectiveness of the changes.**

Pago Pago Shore Side Plan

The Pago Pago Shore Side Plan was developed in 2003 and updated in 2006. The Shore Side Plan identifies major uses and activity centers around Pago Pago Harbor and proposes improvements in various areas, including modifications to the harbor areas to improve efficiency, redevelopment of business districts, upgrades to beach parks, etc. Due to a lack of political support, the plan has not been adopted by the Governor to date, but ASG is still hopeful that it will be adopted. Changing economic conditions and the decline of the tuna canneries (located in Pago Pago) may require the plan to be updated prior to final approval. The update and adoption of the Shore Side Plan would be a major step towards more efficient coordination of water-related economic and government activities in the harbor area.

Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or need description	Type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H, M, L)
Update and adopt the Pago Pago Shore Side Plan; and begin implementation of plan recommendations	Policy	M

Enhancement Area Prioritization

1) What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

- High
- Medium
- Low

Briefly explain the level of priority given for this enhancement area.

PNRS review and oversight of new land use development permits has been very beneficial for improved planning and siting of environmentally sensitive projects. Increased efforts for coordinated planning particularly in the Pago Pago Harbor area are still needed and will be continued by the DOC.

2) Will the CMP develop one or more strategies for this enhancement area?

- Yes
- No

Briefly explain why a strategy will or will not be developed for this enhancement area.

This enhancement area was identified as low priority for the Coastal Management Program at this time.

3.9 Aquaculture

Section 309 Enhancement Objective

Adoption of procedures and policies to evaluate and facilitate the siting of public and private aquaculture facilities in the coastal zone, which will enable States to formulate, administer, and implement strategic plans for marine aquaculture.

Resource Characterization

- 1) **Generally characterize the private and public aquaculture facilities currently operating in your state or territory.**

Type of existing aquaculture facility	Describe recent trends	Describe associated impacts or use conflicts
Pilot facilities at ASCC (through UH Sea Grant Program): land-based integrated aquaculture (piggery + tilapia); aquaponics (tilapia + plants)	ASCC is working with local farmers to develop interest in land-based aquaculture for subsistence and economic purposes	Early stage of development of the program; no conflicts at this time
Other small aquaculture ventures being supported by ASCC: coral farming, Samoan mangrove “mud” crab in near-shore pens, giant clam hatchery (commercial and wild stock replenishment)	Few small aquaculture ventures around Tutuila	No conflicts at this time

DMWR had a giant clam hatchery and production farm in the 1990s. The purpose of the giant clam program was to stimulate the economy and help replenish wild stocks. The program was discontinued because the land lease for the farm facilities was not renewed, and because of theft of the clams.

Management Characterization

- 1) **For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:**

Management categories	Employed by state/territory (Y or N)	Significant changes since last assessment (Y or N)
Aquaculture regulations	Y (PNRS review)	N
Aquaculture policies	N	N
Aquaculture program guidance	N	N
Research, assessment, monitoring	Y	Y
Mapping	N	N
Aquaculture education & outreach	Y	Y
Other (please specify)		

- 2) For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
- a. Characterize significant changes since the last assessment;
 - b. Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
 - c. Characterize the outcomes and effectiveness of the changes.

ASCC and UH Sea Grant have been conducting research and outreach to promote the establishment of land-based aquaponics (tilapia + plants) and integrated aquaculture (piggeries + tilapia) farms on island, which would help build economic resilience and would provide water quality benefits. Some farmers have established small land-based aquaculture farms, which are currently mainly used for subsistence purposes. One limiting factor to further development of these aquaculture farms is that tilapia feed is not currently available on-island; however, agricultural products and fish meal from the canneries could be used to create fish feed supply. Small scale production of fish meal is currently done by ASCC.

ASCC is also supporting the efforts of small farmers interested in developing other aquaculture ventures for economic benefit, including mangrove “mud” crab, giant clam, and coral. These efforts would also help increase wild stocks of these high-value species. These efforts are still very limited in American Samoa.

Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or need description	Type of gap or need (regulatory, policy, data, training, capacity, communication & outreach)	Level of priority (H, M, L)
Funding and capacity building for viable aquaculture development in American Samoa	Capacity	M
Regulations to ensure minimal impacts of aquaculture on near-shore environments	Regulatory	L

Enhancement Area Prioritization

1) What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High _____
Medium _____
Low ✓

Briefly explain the level of priority given for this enhancement area.

Aquaculture could be a viable economic endeavor for American Samoa that may help replenish wild stocks of high value species; however, development of aquaculture activities has remained limited in the past few years to a few small land-based aquaculture farms. Consequently, there are very few conflicts associated with aquaculture development in the coastal zone.

Interest in aquaculture development may increase now that the territory must look at economic alternatives to the declining tuna canneries. ASCC and UH Sea Grant have been actively promoting sustainable land-based aquaculture practices such as integrated aquaculture and aquaponics.

2) Will the CMP develop one or more strategies for this enhancement area?

Yes _____
No ✓

Briefly explain why a strategy will or will not be developed for this enhancement area.

This enhancement area was identified as low priority for the Coastal Management Program at this time.

4.0 STRATEGY

Wetlands Delineations Update

I. Issue Area(s)

The proposed strategy or implementation activities will support the following priority (high or medium) enhancement area(s):

- | | |
|--|---|
| <input type="checkbox"/> Aquaculture | <input type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy & Government Facility Siting | <input checked="" type="checkbox"/> Wetlands |
| <input type="checkbox"/> Coastal Hazards | <input type="checkbox"/> Marine Debris |
| <input type="checkbox"/> Ocean Resources | <input type="checkbox"/> Public Access |
| <input type="checkbox"/> Special Area Management Planning | |

II. Program Change Description

The proposed strategy will result in, or implement the following type(s) of program changes:

- A change to coastal zone boundaries;
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised local coastal programs and implementing ordinances;
- New or revised coastal land acquisition, management, and restoration programs;
- New or revised Special Area Management Plans (SAMP) or plans for Areas of Particular Concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- New or revised guidelines, procedures and policy documents which are formally adopted by a territory and provide specific interpretations of enforceable CZM program policies to applicants, local government and other agencies that will result in meaningful improvements in coastal resource management.

Describe the proposed program change(s) or activities to implement a previously achieved program change. If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years)

The purpose of this strategy is to update wetlands delineations for three to four priority wetland areas and to develop enforceable wetlands delineation agreements with those priority villages. To support this program change, wetland delineations need to be updated using either aerial or LiDAR imagery, and outreach on the value and importance of wetlands needs to be continued.

Prior to 2006, four villages agreed upon wetlands boundaries with ASG: Leone, Nu'uuli, Aunu'u and Tula. These agreements were negotiated between ASG and village councils and were adopted

by the villages in their ordinances. These agreements have been important for providing greater protection for the wetlands because villages generally have authority on land use decisions and can provide more effective monitoring and management of wetlands.

- *The first proposed activity is to update ASG's wetlands delineations using new LiDAR imagery or the results of the U.S. Forest Service Forestry Classification conducted in American Samoa in 2010.* Updated wetlands delineations will be important for three reasons: (1) the current delineations were done in 1991 and are now outdated, (2) the new delineations will help determine the impacts of development and natural hazards (especially the 2009 tsunami) on the wetlands, and (3) the new delineations will help focus ASCMP's outreach and planning efforts in areas of greater wetlands loss.

ASG is currently seeking funding to have a LiDAR overflight conducted in the summer of 2011. If this funding is not obtained in 2011, ASCMP will use the results of the U.S. Forest Service Forestry Classification Study conducted in 2010 to update wetlands delineations. The Forestry Classification Report is due to be released in March 2011. ASCMP would then conduct field checks for three to four priority wetland areas (Vatia, Masefau, Leone and Nu'uuli Pala) to ensure that the delineations based on aerial imagery are accurate.

- *The second proposed activity is to work with the Office of Samoan Affairs to outreach to and negotiate wetlands delineation agreements with three to four priority villages.* ASCMP will work with the Office of Samoan Affairs to conduct outreach with *matai* in three to four priority villages to stress the importance of wetlands conservation and the need for delineations. ASCMP has identified the following villages as priority areas for wetlands delineations: Vatia, Masefau, Nu'uuli Pala, and Leone. ASCMP has already initiated outreach for wetlands management in Vatia. Masefau is also included as a priority village, as residents already have an understanding of the importance of wetlands. Additionally, over the last five years, ASEPA's piggery compliance program has been effective in introducing waste management technologies to village piggeries, and could be helpful in developing a unified piggery facility located outside of the Masefau wetland.

After the wetland delineations have been updated, ASCMP will also work on revision of existing wetlands delineation agreements with two villages: Leone and Nu'uuli. Leone and Nu'uuli Pala wetlands are located in densely populated villages and are threatened by illegal filling and housing development encroachment. Updating the wetlands delineations in those areas will allow ASCMP to characterize the rate of wetlands loss and to reinforce its conservation message to villages by demonstrating how, even with efforts in place to protect wetlands, small activities over time can have significant impacts on a sensitive resource.

Through negotiations with village councils, ASCMP will then secure wetlands delineation agreements with these priority villages. These agreed-upon delineations will then be enforceable both by the villages and through the PNRS' land use permit process.

- *The third proposed activity is to increase education and awareness on the need for wetlands conservation and wetlands delineations, particularly in the three to four priority villages targeted for new wetlands delineation agreements.* The wetlands program already

collaborates with Le Tausagi, ASEPA and NOAA PIRO to conduct territory-wide wetlands outreach in a variety of ways, including Wetlands Month, Coastweeks, school presentations, Enviro-Discoveries Camps, and wetlands signage. ASCMP will continue its efforts to develop collaboration with other ASG agencies on community outreach efforts to improve natural resources management. In the priority villages, these efforts will need to be supplemented with more substantial school and community outreach. The Wetlands Specialist will develop presentations and curricula focusing on benefits of wetlands to villages, the importance of their conservation, and the purpose of wetlands delineations. These presentations should include visual aids, field activities, and/or student-parent interaction tasks to help develop awareness and understanding of the importance of wetlands. These presentations should also incorporate an evaluation component so as to enable ASCMP to gauge whether its outreach is effective in increasing awareness of the importance of wetlands and in achieving behavioral changes.

III. Need(s) and Gap(s) Addressed

Priority Need or Information Gap: Update of wetlands delineation to identify current status of wetlands and changes over time (Wetlands)

Wetlands delineations were last conducted in American Samoa in 1991 and need to be updated to reflect current conditions and to identify changes in wetland areas as a result of development pressures and as a result of tsunami inundation and damages in 2009. This strategy addresses this data need using high-quality aerial LIDAR data or the results of the 2010 U.S. Forest Service Forestry Classification and on-the-ground surveys for three to four priority villages. These new wetlands delineations would not only provide updated data, it would also help quantify trends in wetlands acreage during the last 20 years and would help identify critical areas of wetlands loss where ASCMP needs to focus village outreach.

Priority Need or Information Gap: Education on the value of wetlands, impacts from practices such as filling and dumping of trash, and restoration actions.

There are currently four villages that have wetlands delineation agreements with ASG. These agreements have been important to help minimize illegal filling and development activities in wetlands because village *matai* generally have land use decision authority. These agreements have also been important in helping to reduce misuse of wetland areas because the villages are better able to monitor their wetland areas than ASG can with limited enforcement capacity. Additionally, it is also important to expand outreach efforts in those villages so as to increase awareness of the importance of wetlands and build support for wetlands delineation agreements, which should increase compliance with those regulations.

IV. Benefit(s) to Coastal Management

Discuss the anticipated effect of the program change or implementation activities including a clear articulation of the scope and value in improved coastal management and resources protection.

Wetlands degradation and loss due to misuse and development pressures is a serious concern in American Samoa. Wetlands are important for several reasons, including absorbing flood pulses, groundwater recharge, sediment filtration, habitat, and food source. The new delineations will

help identify the degree of wetlands loss during the past 20 years and hotspots of loss where ASCMP should prioritize outreach and enforcement efforts. The updated delineations will also provide more accurate information for PNRS permit review.

ASG does not have the enforcement capacity to protect all wetlands from illegal activities. Securing wetlands delineation agreements with more villages will ensure that villages are more aware of the importance of their wetlands and can enforce their protection at the local level. Villages generally have land use management authority and thus, can direct new development away from wetlands. Additionally, villages can also better monitor and reduce activities that can cause wetlands degradation (littering, foraging pigs, etc.).

V. Likelihood of Success

Discuss the likelihood of attaining the proposed program change and implementation activities. The state or territory should address: 1) the nature and degree of support for pursuing the strategy and the proposed change; and, 2) the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.

The update of the wetlands delineations is very likely to be successfully implemented because there is overall agreement amongst agencies involved in wetlands protection (ASCMP, ASEPA, CRAG) that the current delineations are outdated and that they need to be updated. There is also agreement that reassessing trends in wetlands loss is also needed.

Achieving wetlands delineations agreements with three to four villages in the following three years will be dependent upon two main factors: (1) village willingness and availability to work with ASCMP, and (2) capacity at ASCMP to carry out negotiations and agreements with villages.

ASCMP has been able to build relationships with several villages in the past and can build on these successes by working with *matai* from those villages to outreach to target wetlands villages. Additionally, with increased outreach efforts in target villages, ASCMP will be building more awareness of the importance of wetlands and the need for their conservation. These activities will help improve village willingness to work with ASCMP on wetlands delineations. Other factors that will affect the timing of these wetlands agreements may be outside of ASCMP's control, such as the presence of key *matai* at monthly council meetings.

Another factor that can affect the likelihood of achieving wetlands delineations is staff capacity at ASCMP to carry out wetlands negotiations and get agreements. ASG agencies in general have suffered from high turnover rates due to ASG salary scales that are not competitive against private or federal employers, and the limited pool of qualified applicants in the territory. Thus positions can stay vacant for several years at a time, which significantly disrupts programs and management activities. Fortunately, the wetlands coordinator and GIS coordinator positions have been filled at ASCMP for the past one to two years, which has allowed these programs to move forward. The wetlands coordinator is not a contract hire, so the likelihood of that position remaining filled past two years is higher; also, training of ASCMP GIS staff as part of the Village-based Resources Management Planning strategy (see p.68-76) will help provide more

program continuity despite staff turnover. Assuming key positions remain filled in the next few years, there is high likelihood of success of building wetlands conservation awareness and a moderate likelihood of success of developing wetlands delineation agreements with at least three target villages.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps necessary for achieving the program change and/or implementing a previously achieved program change. The plan should identify significant projected milestones/outcomes, a schedule for completing the strategy, and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3).

Total Years: 4

Total Budget: \$40,000

Final Outcome(s) and Products: (1) Updated wetlands delineations in GIS for at least four priority villages; and (2) Wetland delineation agreements with at least three villages.

Year(s): 2-3

Description of activities:

1. Use aerial LIDAR imagery (expected timeframe for LIDAR overflight: summer 2011) to update all wetlands delineations for American Samoa in GIS.
2. ASCMP GIS and Wetlands team to conduct rapid ground-truthing field surveys for 30% of the delineations on Tutuila.
3. *Alternative: In the event that LIDAR survey does not get funded, use the results of the U.S. Forest Service Forestry Classification, as well as results of ground-based mobile LIDAR survey and field ground-truthing surveys to update delineations for four villages on Tutuila.*
4. Use new wetlands delineations to quantify rates of change in wetland areas and identify hot spots of wetland loss.
5. Coordinate with the Office of Samoan Affairs to begin conducting outreach with *matai* in three to four priority villages to discuss importance of wetlands conservation and need for wetlands delineation agreements.
6. Coordinate with Le Tausagi to expand wetlands outreach and education programs in schools and with other community groups in the villages targeted for new wetlands delineation agreement. Incorporate evaluation components in the outreach programs to determine their effectiveness at developing awareness and behavioral changes.

Outcome(s): Updated GIS wetland delineations for at least four priority villages on Tutuila.

Budget: \$12,500

Year(s): 4-5

Description of activities:

1. Continue outreach with *matai* in three to four villages to discuss importance of wetlands and need for delineations.
2. Through negotiations with village councils, secure wetlands delineation agreements with three to four villages.
3. Coordinate with Le Tausagi and other agencies to continue wetlands outreach and education programs in schools and with other community groups in the villages targeted for new wetlands delineations.

Outcome(s): (1) Increased wetlands awareness in target villages; (2) New wetlands delineation agreements with at least three villages.

Budget: \$27,500

VII. Fiscal and Technical Needs

- 3) Fiscal Needs: If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the applying agency has made, if any, to secure additional state funds from the legislature and/or other sources to support this strategy.**

Section 309 funding will be sufficient to carry out the proposed strategy.

- 4) Technical Needs: If the territory does not possess the technical knowledge, skills, or equipment to carry out the proposed strategy, identify these needs. Provide a brief description of what efforts the applying agency has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).**

ASCMP and other ASG agencies have been working with NOAA to identify funding sources that would allow the aerial LIDAR survey to be done in 2011. LIDAR imagery will not only be useful for wetlands delineations but will also fill the needs of a large number of other activities, including coastal hazards mitigation, land use permitting, habitat assessments, etc.

If funding for aerial LIDAR imagery cannot be secured, then ASCMP will utilize existing data, including the results of a 2010 Forestry Classification conducted by the U.S. Forest Service, aerial imagery, and ground-based mobile LIDAR survey results.

Village-based Resources Management Plan

I. Issue Area(s)

The proposed strategy or implementation activities will support the following priority (high or medium) enhancement area(s):

- | | |
|--|--|
| <input type="checkbox"/> Aquaculture | <input checked="" type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy & Government Facility Siting | <input checked="" type="checkbox"/> Wetlands |
| <input type="checkbox"/> Coastal Hazards | <input type="checkbox"/> Marine Debris |
| <input type="checkbox"/> Ocean Resources | <input type="checkbox"/> Public Access |
| <input type="checkbox"/> Special Area Management Planning | |

II. Program Change Description

The proposed strategy will result in, or implement the following type(s) of program changes:

- A change to coastal zone boundaries;
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised local coastal programs and implementing ordinances;
- New or revised coastal land acquisition, management, and restoration programs;
- New or revised Special Area Management Plans (SAMP) or plans for Areas of Particular Concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- New or revised guidelines, procedures and policy documents which are formally adopted by a territory and provide specific interpretations of enforceable CZM program policies to applicants, local government and other agencies that will result in meaningful improvements in coastal resource management.

Describe the proposed program change(s) or activities to implement a previously achieved program change. If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years)

The purpose of this strategy is to develop an accepted Village-based Resource Management Plan for a priority village with important natural resources and significant development threats.

In American Samoa, land use planning efforts by ASG to help minimize cumulative and secondary impacts and to protect important resources have generally been met with significant political opposition. Villages generally regard these planning efforts as an impingement on their authorities to make land use decisions. Consequently, ASG needs to work with the villages to collaborate on these long-term resource management decisions. A village-based planning process will be used to provide avenues for meaningful cooperation between ASG and villages to conserve their own resources.

During the past two years, ASCMP, in cooperation with NOAA PIRO, has worked with Tula and Vatia Villages to develop Community-based Wetlands Management Plans (CWMPs). The PLA process was used to involve villages and develop management plans. PLA tools offer a creative approach to engaging various groups in communities; however, after two years of involvement efforts, the CWMP planning process has fallen short of ASCMP's expectations for more proactive and sustainable wetlands management and conservation by villages.

- *The first proposed activity is to review the CWMP planning process to identify its strengths and weaknesses, to modify it to better reflect village needs, and to ensure that villages have a vested interest in their plan's implementation.* A Draft CWMP for the village of Tula is currently undergoing internal review, and planning for the Vatia Village CWMP is on-going. At this time, these planning activities have not led to the attitude changes and sustainable wetlands conservation efforts ASCMP was hoping for in those villages. With no performance measures for the activities conducted thus far, it is difficult to gauge if any improvements in awareness and attitude changes towards wetlands conservation have been achieved. ASCMP will review the CWMP planning process with the support of a professional community planner that will help identify recommended changes that can be implemented to increase the program's effectiveness.

At a minimum, the review should address the following issues: (1) the CWMPs need to reflect individual village community values and should identify tangible benefits for villages, such as economic benefits and training for those interested in conducting conservation and restoration actions, so as to develop sustainable action plans; (2) the CWMPs also should be rigorously reviewed to ensure that proposed improvements and actions adequately address wetlands resource issues; (3) the perspectives of various groups within each village should be clearly represented in the CWMPs; and (4) implementation of the plan once it is developed, including requiring the development of an implementation plan that identifies action items, time frames for implementation, possible funding sources, and cooperating entities and agencies. These improvements to the CWMPs will help ensure that villages will have a vested interest in implementing their plans, have the capacity to implement the plans, and will benefit from their implementation.

- *The second proposed activity is to implement the recommended CWMP planning process changes in the two villages where CWMPs have been initiated: Tula and Vatia.* Based on the planning process review, the Wetlands Specialist will identify and implement actions that are needed to modify and improve the CWMPs that have been initiated for Tula and Vatia. These actions will include at a minimum: (1) additional community involvement and collaboration to develop clear village needs and opportunities statements, and to identify objectives, projects and action plans to meet those needs; (2) the development of performance measures for community outreach and awareness actions, and for the implementation of CWMPs; and (3) more rigorous CWMP development and review process to ensure that the plan reflects village needs and values, adequately addresses specific wetlands resource issues, and meets ASCMP goals.

- *The third proposed activity is to expand the community-based planning process to address a wider range of resource issues that are important to villages, and to develop a Village-based Resources Management Plan (VRMP).* Community-based planning methods are best suited to addressing a wide range of issues that are important to villages. Thus, once CWMPs are successfully completed for Tula and Vatia, the process will be expanded to address a wider range of village issues, such as wetlands, water quality and water supply, coastal hazards, subsistence fisheries, agriculture, etc. ASCMP will consult with the Office of Samoan Affairs, community leaders, and other ASG agencies to ensure that the planning process addresses both village and ASG needs.

A VRMP will be developed for a priority village with important natural resources and significant development threats, as well as an existing relationship with ASCMP (e.g. Malaeloa). The VRMP will include village issues and needs, improvement objectives, and recommended actions and policies to meet those objectives and provide tangible benefits to the village. The VRMP will also include an implementation plan and performance measures for the proposed actions and policies. The plan will also identify possible funding sources and cooperating agencies for project implementation, including opportunities for partnership with ASCMP and possible funding of 306A projects. ASCMP will then be able to support the village with implementation of some improvements (e.g. wetlands restoration, storm water management) and enforcement of some policies (through PNRS), while other ASG agencies may be able to support others that relate to their program interests.

This strategy also proposes other activities that will help support this VRMP planning process and will help build the partnership between villages and ASG.

- *The first supporting activity is to use GIS as a visual mapping tool to share complex spatial information with the village and to do visualization and mapping of proposed action items of the VRMP.* GIS is a powerful spatial analysis tool that can help improve communication and understanding between ASG and communities. GIS can be used to communicate data and regulations to communities and also to have communities identify important resources and issues areas. As part of this process, GIS data layers that will support this village-based resources management program (e.g. buildings, utilities, special resources, habitats, land use, etc.) will need to be updated as several ASG GIS layers are outdated and do not reflect current conditions, particularly after the 2009 tsunami. Training will be conducted within ASCMP and in other ASG agencies to increase GIS data management and analysis capacity so as to build a more solid GIS foundation to support future modifications and updates of layers. Once more staff is trained to handle more GIS functions, the GIS coordinator will work with ASCC to provide GIS instruction for the college's natural sciences students so as to continue developing local GIS capacity.
- *The second supporting activity includes developing a pilot information-sharing program with matai of villages that have worked on community-based plans with ASG and to have those matai be advocates of this program to other villages.* Having matai play a leading role in outreach to other villages will be key to gaining interest from other villages. ASCMP will work with interested matai to develop this program and will provide the support needed for the matai to effectively share their message with other villages.

- *The third supporting activity is to promote information sharing among agencies involved in community-based activities and to develop a program to help share experiences and lessons-learned, and to help coordinate future activities.* Several ASG agencies, including ASCC, ASEPA, DMWR, and ASCMP are conducting community outreach and involvement activities. Improved coordination and dialogue among agencies would help increase the effectiveness of those efforts and reduce community “burn out”.
- *The fourth supporting activity is to increase environmental awareness in communities by (1) increasing the level of outreach and education to school children on easily recognized environmental issues such as trash dumping and burning, and (2) developing and publicizing a formal program (e.g. Adopt-a-Stream) to provide support to villages and other groups interested in doing cleanup activities.* ASCMP will develop curricula and presentations on easily recognized environmental issues such as trash burning and dumping, including visual aids, student-parent interaction tasks, etc. and will work with Le Tausagi to bring those curricula to Tutuila schools. ASCMP will also develop a formal program (such as “Adopt-a-Stream” or “Adopt-a-Beach”) to help support efforts of villages and groups interested in doing cleanup activities. A website will need to be developed for this program, which would include at a minimum information regarding impacts of littering and dumping, how to get involved, benefits of the program, a calendar of events, and an awards section to recognize efforts of outstanding individuals and groups. These activities would help build awareness of environmental issues and would help support and encourage individuals and communities who want to take responsibility for managing their village’s resources.

III. Need(s) and Gap(s) Addressed

Priority Need or Information Gap: Village-level cooperation with ASG to develop or adopt policies to help minimize impacts of development on important resources (CSI)

Land use planning efforts conducted by the ASG to date have been met with opposition from village chiefs, who consider those as an infringement on their local authorities. As a result of this local opposition, land use and resources protection plans such as the Tualauta County Plan or the Malaeimi Valley SAMP have not been adopted by the Governor to date. These plans are still important to help better manage American Samoa’s resources, particularly in its most populated areas. A Village-based Resources Management Plan, while being a time-consuming process requiring significant outreach efforts, would bridge the gap between interests of villages and those of ASG by incorporating the villages in the planning process from the start. A successful Village-based Resources Management Plan could help inform ASG on how to better involve villages and include village concerns, objectives, and ideas in plans so that there can be more community support for their adoption.

Additionally, ASG does not have enough resources to enforce resource management regulations throughout the territory so it is critical for villages to take the lead on improving management and monitoring of their own resources. If villages can see tangible benefits to conserving their resources, then they will be more likely to have a strong interest in the continued implementation of management actions and policies.

Priority Need or Information Gap: Updated GIS data layers for important land use data (utilities, buildings), particularly as a follow-up to the tsunami (CSI)

In order for GIS data layers to be useful in planning, they need to be regularly updated. Several ASG agencies currently lack the staff training and capacity to conduct regular updates of their GIS data. This proposed strategy addresses this gap by (1) having a consultant help update GIS layers relevant to land use planning to ensure that recent changes associated with development and with the 2009 tsunami are recorded in a timely manner; (2) increasing GIS data management and analysis capacity at ASCMP with the support of NOAA PSC so that more staff is able to handle various GIS tasks; and (3) having ASCMP's GIS coordinator work with other ASG agencies and ASCC to develop training for staff and students. By helping to train staff in other ASG agencies as well as ASCC students, ASCMP expects to continue increasing GIS capability in the territory so that future updates can continue to be done on a regular basis by relevant agencies.

Priority Need or Information Gap: Awareness and understanding of impacts of littering and dumping, and impacts of poor land use (CSI/Marine Debris)

As mentioned previously, ASG land use planning efforts are generally met by opposition from villages because they are considered an infringement on their authorities. Consequently, by planning in cooperation with the villages and by increasing awareness of the impacts of poor land use management, ASG can help protect important natural resources of American Samoa.

ASG has conducted significant environmental awareness and outreach efforts but more still needs to be done. Conducting a more intensive outreach campaign on environmental issues that are easily identified, such as litter and trash burning, will be an effective way to continue developing environmental awareness in American Samoa, particularly in the more populated villages of Tutuila. Additionally, schools are good places to conduct education and outreach because students are bilingual and they are generally more willing to learn. By developing a curriculum for outreach, ASCMP anticipates that outreach will be more effective because the message will be consistent across schools and it will also be more time efficient by not requiring significant preparation before each presentation.

In addition to conducting outreach activities, it is also critical to support and publicize the efforts of individuals and groups that are interested in taking responsibility for the conservation of their village's resources and who want to do clean-ups. Developing and publicizing a support program such as "Adopt-a-Stream" or "Adopt-a-Beach" is an inexpensive and effective way to build awareness in communities.

Priority Need or Information Gap: Information sharing among villages to promote wetland management planning (Wetlands)

Developing a pilot information sharing program with *matai* playing a leading role in outreach to other villages would be key to gaining interest from other villages because (1) *matai* are well respected members of the community, and (2) *matai* can share with other villages how their village benefited from collaborating with ASG on developing CWMPs or VRMPs. This will likely be a relatively inexpensive and potentially very effective outreach effort to support improved resources management in American Samoa.

Priority Need or Information Gap: Collaboration among agencies using the PLA or other community-based method for natural resource planning (Wetlands)

Several ASG agencies, including ASCC, ASEPA, DMWR, and ASCMP are conducting community outreach and involvement activities, including community-based resource management planning. In order to help improve the effectiveness of those efforts and to identify methods that are most successful in collaborating with villages, it is essential for agencies involved in those actions to share lessons-learned and ideas for improvements. Developing an information sharing program will help create a platform for this dialogue.

IV. Benefit(s) to Coastal Management

Discuss the anticipated effect of the program change or implementation activities including a clear articulation of the scope and value in improved coastal management and resources protection.

The anticipated effect of the program change will be the adoption and implementation of Community-based Wetlands Management Plans by two villages, and the adoption of a Village-based Resources Management Plan by a priority village on Tutuila. The proposed strategy will lead to an improved community-based planning process that will address village concerns and issues as well as ASCMP's goals, and will develop action plans that will provide tangible benefits to villagers. Consequently, villages will be more likely to support plan approval and to lead the implementation of proposed actions and policies. If this process is successful, outreach to other villages with resource management issues will be more effective and cooperation between ASG and villages on land use and resource management issues will be improved.

V. Likelihood of Success

Discuss the likelihood of attaining the proposed program change and implementation activities. The state or territory should address: 1) the nature and degree of support for pursuing the strategy and the proposed change; and, 2) the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.

Although the process of involving villages and local communities in land use and resource management planning is time-consuming and involves a significant amount of outreach in the villages, the likelihood of success of this strategy is high because the process addresses village needs as well as ASG goals. Villages are more likely to support this planning process because they are involved from the very beginning in the decision-making. Proposed activities and policies in the VRMP will also be more likely to be implemented and enforced because they will be viewed as benefiting the village. An important factor in getting this strategy completed in a timely manner is to have the wetlands coordinator, GIS coordinator, and other key staff positions at ASCMP and DOC continue to be filled or be replaced in a timely manner so that the program can continue to build momentum.

Likelihood of success of getting GIS layers updated and building GIS capacity at ASCMP and in other agencies is also high because this has been identified as a need by ASCMP as well as by other agencies. Several ASG agencies rely on the ASCMP GIS team for support with GIS and do not have the capacity to conduct significant updates of their GIS layers; however, these agencies

are part of the GIS user group and are very interested in developing GIS capacity in American Samoa, which has been very important in helping to improve resource management and enforcement (PNRS).

Likelihood of success of community support and outreach activities on environmental topics (litter, trash burning and dumping) is probably also high because members of the community have already shown an interest in collaborating with ASCMP to do cleanups.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps necessary for achieving the program change and/or implementing a previously achieved program change. The plan should identify significant projected milestones/outcomes, a schedule for completing the strategy, and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3).

Total Years: 5

Total Budget: \$245,000

Final Outcome(s) and Products: (1) CWMPs for Tula and Vatia Villages completed and adopted; (2) Village-based Resources Management Plan completed and adopted for one priority village; (3) Updated GIS layers for several land use attributes; (4) increased GIS capacity within ASCMP and other ASG agencies; (5) *Matai* information-sharing program on village-based initiatives; (6) community-based activities information-sharing program among ASG agencies; (7) community cleanup support program (e.g. Adopt-a-Stream), and (8) environmental (waste burning and dumping) education curricula.

Year(s): 1

Description of activities: CWMP Planning Process Review and Modification

1. Retain a community planning consultant to help ASCMP review its existing community-based wetlands management planning program in cooperation with NOAA PIRO, to identify its strengths and weaknesses, and to modify it to better reflect village needs, objectives, and ideas.
2. Based on this review, work with the consultant and NOAA PIRO to develop a process that will at a minimum include: (1) integration of village community values, (2) integration of the perspectives of various groups within each village, (3) identification of tangible benefits of resource protection for villages, such as economic benefits and training for those interested in conducting conservation and restoration actions, (4) a rigorous review process to ensure that proposed improvements and actions adequately address resource issues and meet ASG goals.

Outcome(s): CWMPs for Tula and Vatia adopted by villages and ASG.

Budget: \$30,000

Year(s): 1-2

Description of activities: Implement modified CWMP planning process

1. Based on the outcomes of the process review, conduct follow-up planning actions for the CWMPs of Tula and Vatia villages, including at a minimum: (1) additional community involvement activities to develop clear village needs and opportunities statements, and to identify objectives, projects and action plans to meet those needs, (2) development of performance measures for community outreach and awareness actions, and for the implementation of CWMPs, and (3) more rigorous CWMP development and review process to ensure proposed actions are sustainable and adequately address wetlands resource issues.
2. Work with villages to get the CWMPs adopted in the village ordinances and to include CWMP policies in the ASCMP code.

Outcome(s): CWMPs for Tula and Vatia adopted by villages and ASG.

Budget: \$20,000

Year(s): 3-5

Description of activities: VRMP Process and Adoption

1. Expand the scope of the Community-based Wetlands Management Program to address a wider range of village resources management issues and become a Village-based Resources Management Planning Program. This increased scope will address impacts to wetlands, but also cumulative and secondary impacts, coastal hazards, and near-shore resources. The wetlands coordinator will become project lead for this expanded scope and will be supported by other ASCMP and DOC planning team members. The coordinator will also work with the PNRS board and with CRAG agencies to identify needs that should be addressed in the community-based plans and to get feedback on the community-based process.
2. Identify pilot village on Tutuila for the VRMP based on land use and resource management concerns, and willingness to work with ASG on resource management planning.
3. Work with *matai* and other community leaders (those that have gone through the CWMP planning process and those from the pilot village that are interested), as well as NOAA PIRO to develop a village-based resource management planning process that would best meet village needs.
4. Use this process to develop a VRMP for the priority village. This process will require significant community involvement in the village, as well as coordination with other agencies that have resources management responsibilities. Use GIS as a tool to provide spatial information and to do community-based visualization and mapping for the pilot village. The VRMP report will need to include village values, issues and needs, objectives, recommended actions and policies to meet those objectives and provide tangible benefits for villagers, an implementation plan, performance measures, potential funding sources, and cooperating agencies.
5. Coordinate with CRAG and ASCC to hire a student intern to assist the VRMP project lead with community involvement and outreach activities, and planning actions.
6. Work with the village to get the VRMP adopted in the village ordinances and to include VRMP policies in the ASCMP code.

7. Develop an information-sharing program among agencies involved in community-based activities to help improve the process (lessons-learned, outreach and education activities coordination).
8. Develop a pilot information sharing program with *matai* from villages involved in community-based activities. Utilize *matai* as advocates to share experience and lessons of resource management planning process. Have *matai* identify what they need to be able to effectively share their message, e.g. talking points, other information, venues, forums, etc.

Outcome(s): Village-based Resources Management Plan for a priority village.

Budget: \$100,000

Year(s): 1-5

Description of activities: Supporting activity: GIS update and capacity building

1. Use GIS user group to identify data layers at other agencies that need regular updating and which would help support the village-based resources management planning process (land use, buildings, utilities, special resources, habitats etc.). Put together a Memorandum of Understanding (MOU) or update the existing geospatial services user group MOU to include language acknowledging that group members will identify data needs but ASCMP will administer funding for the GIS updates. (year 1)
2. Retain an outside consultant to get data layers updated after MOU agreement. (year 2-3)
3. Work with NOAA PSC to get two ASCMP IT/GIS staff trained to GIS data specialist level and two trained to GIS analyst level to increase GIS data management capacity within ASCMP. Provide basic training on GIS applications to other ASCMP staff that are not on the GIS team but can benefit from GIS mapping. (year 3)
4. Coordinate with other ASG agencies in the GIS user group to develop a GIS training program and identify funding sources that would help build GIS capabilities in those agencies so that they are able to continue doing regular updates of their data without ASCMP support. (year 4)
5. Work with ASCC to provide GIS instruction support for the college's GIS course/training program. (year 3-5)

Outcome(s): (1) Updated GIS layers for land use/resources management attributes needed for VRMP, and (2) increased capacity for GIS data management, updates, and analysis at ASCMP and in other ASG agencies, including ASCC students.

Budget: \$70,000

Year(s): 2-5

Description of activities: Supporting Activity: Community Outreach and Support

1. Develop a formal support program to provide government liaison with villages and groups interested in doing cleanup activities (e.g. "Adopt-A-Stream" or "Adopt-a-Beach"). Have ASCMP's outreach coordinator be responsible for the coordination of this program. Develop information material including a website to publicize this new program, with at least the following information: impacts of

littering and dumping, how to get involved, benefits of the program, a calendar of events, awards recognizing efforts of outstanding individuals and groups.

2. Develop curricula (one-time presentations and series) for outreach focusing on waste burning and dumping impacts in schools, including visual aids and student/parent interaction tasks.
3. Public outreach coordinator to work with Le Tausagi to implement waste education curricula in minimum of 10 schools over the following three years.

Outcome(s): (1) Community Clean-up Support Program (e.g. Adopt-a-Stream), (2) Environmental (waste burning and dumping) education curricula and outreach.

Budget: \$25,000

VII. Fiscal and Technical Needs

- 1) **Fiscal Needs: If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the applying agency has made, if any, to secure additional state funds from the legislature and/or other sources to support this strategy.**

Section 309 funding will be sufficient to carry out the proposed strategy.

- 2) **Technical Needs: If the territory does not possess the technical knowledge, skills, or equipment to carry out the proposed strategy, identify these needs. Provide a brief description of what efforts the applying agency has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).**

ASCMP is interested in working with NOAA PSC to provide GIS training to its staff so as to build GIS capacity within the agency. Currently, ASCMP does not have enough staff trained to GIS data management or analyst level to do its own training or to meet all of its data management and update needs. This training would help free up the GIS coordinator to conduct additional GIS outreach and capacity building with other agencies and with ASCC, which would help develop GIS knowledge further in the territory.

ASCMP will also be working with several ASG agencies and with the PNRS on development of the VRMP. This collaboration will be important to address concerns of various agencies as well as to involve them as experts on specific resources.

Ocean Resources Management Plan Update

I. Issue Area(s)

The proposed strategy or implementation activities will support the following priority (high or medium) enhancement area(s):

- | | |
|--|---|
| <input type="checkbox"/> Aquaculture | <input type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy & Government Facility Siting | <input type="checkbox"/> Wetlands |
| <input type="checkbox"/> Coastal Hazards | <input type="checkbox"/> Marine Debris |
| <input checked="" type="checkbox"/> Ocean Resources | <input type="checkbox"/> Public Access |
| <input type="checkbox"/> Special Area Management Planning | |

II. Program Change Description

The proposed strategy will result in, or implement the following type(s) of program changes:

- A change to coastal zone boundaries;
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised local coastal programs and implementing ordinances;
- New or revised coastal land acquisition, management, and restoration programs;
- New or revised Special Area Management Plans (SAMP) or plans for Areas of Particular Concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- New or revised guidelines, procedures and policy documents which are formally adopted by a territory and provide specific interpretations of enforceable CZM program policies to applicants, local government and other agencies that will result in meaningful improvements in coastal resource management.

Describe the proposed program change(s) or activities to implement a previously achieved program change. If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years)

The purpose of this strategy is to review and update the American Samoa Ocean Resources Management Plan. The previous ORMP was adopted in 2003 and needs to be updated to better align with the National Oceans Policy and to meet current ocean resources management needs of the territory. Current needs and issues identified by ASG agencies include continuing water quality issues and use conflicts in Pago Pago Harbor, non-point source and debris pollution, the need for better coordination of research on fisheries and coral reefs to more clearly identify trends and human impacts, the need to coordinate ocean and near-shore resource enforcement efforts, the continued need to coordinate among agencies for improved natural hazard mitigation (including Climate Change) and disaster preparedness, and the need to improve regional coordination with Samoa to have more effective ocean resources management programs.

The updated plan will be issued as an Ordinance that will be signed by the Governor of American Samoa and will direct agencies to implement the plan. ASCMP will also consider American Samoa statutes revisions to help give more weight to the ORMP and to ensure long-term commitment by ASG agencies.

III. Need(s) and Gap(s) Addressed

Priority Need or Information Gap: Revise ORMP to meet current needs and to coordinate with national goals and current actions in the territory

The previous ORMP was completed in 2003 and established four advisory groups (Near-Shore, Harbors, Territorial High Seas, and Watersheds) that developed actions plans for ocean resources management improvements. Between 2004 and 2006, several positive actions and improved coordination occurred through these advisory groups. However, due to the vacancy of the ORMP coordinator position between 2006 and 2010, actions of the various advisory groups were put on hold, except for those of the Near-Shore Advisory Group which was folded into the CRAG. Since 2006, agencies involved in the CRAG have conducted various projects and programs addressing issues associated with fisheries management, climate change impacts, population pressure, and land-based pollution of near-shore waters.

Additionally, in 2010, the National Oceans Policy was adopted by the Federal Government to “ensure the protection, maintenance, and restoration of the health of ocean, coastal, and Great Lakes ecosystems and resources, enhance the sustainability of ocean and coastal economies, preserve our maritime heritage, support sustainable uses and access, provide for adaptive management to enhance our understanding of an capacity to respond to climate change and ocean acidification, and coordinate with our national security and foreign policy interests.”

Consequently, the ORMP needs to be updated to meet current and developing needs associated with ocean resources management in the territory, to better coordinate the actions of various agencies, to align with the National Oceans Policy, and to develop a robust action planning and implementation process.

IV. Benefit(s) to Coastal Management

Discuss the anticipated effect of the program change or implementation activities including a clear articulation of the scope and value in improved coastal management and resources protection.

The update of the ORMP will result in renewed and improved efforts to implement ocean resources management improvements. The ORMP will help coordinate ASG agency efforts to address more effectively a variety of ocean-related issues that are affecting the territory, including water quality concerns, fisheries and coral reef management, coastal hazards, and regional management issues. Additionally, the ORMP update will align the territory’s ORMP with the National Oceans Policy, thus better coordinating the territory’s goals with those of the Federal government. Because the ORMP is a territorial Ordinance and could be incorporated in the territory’s statutes, it will have the political and regulatory support needed to have agencies work together to develop action plans and to implement proposed actions.

The ORMP is key to improving management of the territory's ocean resources, which are vital to its community, and it is also important for better agency coordination in the holistic management of American Samoa's ocean resources.

V. Likelihood of Success

Discuss the likelihood of attaining the proposed program change and implementation activities. The state or territory should address: 1) the nature and degree of support for pursuing the strategy and the proposed change; and, 2) the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.

The likelihood of success for this strategy is high because it will build on an existing plan that was shown to be successful when the ORMP coordinator was present, and this update has been identified as a high priority by ASCMP and other agencies. Additionally, an ORMP coordinator has been hired that will help push the process forward and manage coordination efforts with other agencies. The role of the coordinator is critical in determining how ASG agencies will cooperate and in rebuilding momentum for this important program.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps necessary for achieving the program change and/or implementing a previously achieved program change. The plan should identify significant projected milestones/outcomes, a schedule for completing the strategy, and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3).

Total Years: 5

Total Budget: \$90,000

Final Outcome(s) and Products: (1) Updated ORMP, (2) ORMP Ordinance adopted by American Samoa Governor, (3) ORMP regulation incorporated in Territory statutes, and (4) ORMP adopted in ASCMP Administrative Code.

Year(s): 1-2

Description of activities: ORMP Update

1. Review and reassess the ORMP, including goals, objectives, recommended management actions, recommended policies, and advisory groups to address current issues and ASG agency needs associated with ocean resources management; and align the ORMP with the National Oceans Policy. Coordinate with affected agencies and other stakeholders to incorporate comments and recommendations in the process.
2. Conduct two Territory-wide public hearings on the Draft ORMP Update. Revise and Finalize ORMP based on comments received.

Outcome(s): Updated ORMP document

Budget: \$50,000

Year(s): 3-4

Description of activities: ORMP Ordinance Update and Adoption, and identify changes to statutes and regulations.

1. Have ASCMP Legal Counsel modify the ORMP Ordinance to match the policies of the updated ORMP document.
2. Coordinate with the Governor's office and others as needed for Ordinance adoption.
3. Have ASCMP Legal Counsel identify and prepare proposed legislation and/or rule changes to implement the ORMP. Conduct hearings with the *fono* and other coordination as needed to get proposed ORMP legislation/rules passed.

Outcome(s): ORMP Ordinance adopted by American Samoa Governor

Budget: \$30,000

Year(s): 5

Description of activities: ORMP Code Adoption

1. Have ASCMP Legal Counsel modify the ASCMP Administrative Code to match the policies and regulations of the updated ORMP Ordinance and possibly legislation.
2. Coordinate DOC Director adoption of the Administrative Code updates.

Outcome(s): ORMP Administrative Code Update adopted by DOC Director

Budget: \$10,000

VII. Fiscal and Technical Needs

- 3) Fiscal Needs: If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the applying agency has made, if any, to secure additional state funds from the legislature and/or other sources to support this strategy.**

Section 309 funding will be sufficient to carry out the proposed strategy.

- 4) Technical Needs: If the territory does not possess the technical knowledge, skills, or equipment to carry out the proposed strategy, identify these needs. Provide a brief description of what efforts the applying agency has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).**

ASCMP will develop the ORMP update with input and support from other ASG agencies.

Five-Year Budget Summary by Strategy

Strategy Title	Year 1 FY 2011	Year 2 FY2012	Year 3 FY 2013	Year 4 FY 2014	Year 5 FY 2015
Wetlands Delineations	\$0	\$5,000	\$7,500	\$12,500	\$15,000
Village-based Resources Management Plan	\$45,000	\$50,000	\$52,500	\$47,500	\$50,000
ORMP	\$30,000	\$20,000	\$15,000	\$15,000	\$10,000
TOTAL	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000

APPENDIX A

MEETING NOTES