

TERRITORY OF AMERICAN SAMOA -- DRAFT SECTION 309 ASSESSMENT/STRATEGY

DRAFT
Section 309 Assessment and Strategy

FY 2016-2020

American Samoa Coastal Management Program
Department of Commerce
Territory of American Samoa

May 2015

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I. INTRODUCTION

The American Samoa Coastal Management Program (ASCMP) is an agency of the American Samoa Department of Commerce. It is the federally approved coastal management program for the Territory of American Samoa. In collaboration with other agencies of American Samoa Government, ASCMP has extensive responsibilities under the American Samoa Coastal Zone Management Act. ASCMP receives significant funding from the Office for Coastal Management of the National Oceanic and Atmospheric Administration (NOAA).

Every five years, NOAA provides a process under “Section 309” of the Coastal Zone Management Act (as amended) for states and territories to carry out assessments to determine whether or not funding for “program enhancements” may be available, which would strengthen and improve federally approved coastal management programs in one or more of nine designated “enhancement areas”.

To be eligible for “309” funding for the next five-year period, all State and Territory Coastal Management Programs (CMPs) must carry out an approved Assessment and Strategy, using templates provided by NOAA. The “309” process calls for development of a Draft version of the Section 309 Assessment and Strategy, followed by a review period, preparation of a final draft, and approval of program enhancement funding for the CMP, if strategies are acceptable.

The nine “program enhancement” areas to be considered by all States and Territories are:

- Wetlands
- Coastal Hazards
- Public Access
- Marine Debris
- Cumulative and Secondary Impacts
- Special Area Management Plans
- Ocean and Great Lakes Resources
- Energy and Government Facility Siting
- Aquaculture

This document is the Draft version of the Territory of American Samoa’s Section 309 Assessment and Strategy for the US federal government Fiscal Years of 2016-2020, which begins on October 1, 2016 and runs through September 30, 2021. The Assessment and

Strategy was developed by ASCMP, with assistance from a contracted consultant, and with input from a wide variety of American Samoa officials and professionals.

The Coastal Zone Management Act, the NOAA Office for Coastal Management, and the American Samoa Coastal Management Program strongly encourage the involvement of the public and a wide range of stakeholders in the “309” process. **As part of that commitment, this Draft assessment and strategy, and the Final version, are both public documents.**

The “309” process established by NOAA calls first for a “Phase I” assessment of all nine possible program enhancement categories, during which each enhancement option is prioritized as “high”, “medium” or “low”. Enhancement possibilities established as “high” priorities are subjected to a “Phase II” assessment, after which a determination is made that a “309” strategy will (or will not) be developed. Strategies, plans and budgets are then created for specific program enhancements, and then submitted to NOAA for review, editing and approval.

ASCMP’s Phase One 309 Priority Assessment was carried out with stakeholder involvement. This involvement included: an in-person advisory meeting on November 20, 2014 at the offices of the American Samoa Department of Commerce; in-person solicitation of priority ranking suggestions from members of the American Samoa Permit Notification and Review Board (PNRS) at their regularly scheduled meeting on November 19, 2014; review of plans and documents recommended by staff and officials of American Samoa Government; and interviews/ranking discussions with many individuals directly involved with coastal management, energy, public access, coastal hazards, marine debris, wetlands, aquaculture and other issues in the Territory.

At the in-person Advisory Meeting, a ranking activity was conducted after a presentation about the process, and a lively question and answer period. The activity resulted in the following assessment of suggested priorities for ASCMP program enhancements:

High Priorities

- Cumulative and Secondary Impacts (33)
- Coastal Hazards (29)
- Wetlands (23)

Medium Priorities

- Marine Debris
- Special Area Planning
- Ocean Resources

Low Priorities

- Public Access
- Energy and Public Facilities Siting
- Aquaculture

After dividing items into general high, medium and low priorities, further discussion was held to determine the ranking of the “high priorities”. This was done through a voting process and point score in which the highest possible score was a 39 and the lowest was a 0. The score totals for the three high priorities are shown next to those priorities, above. The medium and low priority items were not ranked within their categories.

The remainder of the meeting focused on identifying program enhancement and project ideas related to the top three high priorities. These ideas were developed in small groups, and then discussed by all Advisors and ASCMP staff in attendance.

Additional interviews, discussions and data reviews were carried out after the November 20 meeting, ending on May 15, 2015. While a few individuals placed some of the medium and low priorities in the “high” category, no overall changes emerged in the assessment of the high priorities determined by the 2014 in-person advisory meeting.

A list of the people who shared ideas and rankings during the Phase One assessment can be found below. We would like to thank everyone who took the time to participate in the process. To anyone that we may have missed, please accept our sincere apologies.

From American Samoa Coastal Management Program (ASCMP)

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Joachim Fong	American Samoa Power Authority	Chief Engineer
Jamie Caplan	Jamie Caplan Consulting	Principal
James Bacon	Superintendent	National Park of American Samoa



Photo: Participants at 11/24/2014 ASCMP “Phase I” Assessment and Strategy Advisors’ Meeting

During the “Phase II” Assessment, it was determined that most of the high priority concerns in the “Cumulative and Secondary Impacts” category were also related to “coastal hazard” issues such as flooding, landslides, climate change/sea level rise, tropical storms and storm surges. With this in mind, “cumulative and secondary impacts” was moved to be a “medium” priority, leaving two high priorities: Coastal Hazards and Wetlands.

“Phase II” assessments were carried out for both Coastal Hazards and Wetlands. In both cases, it was decided that “program enhancements” were both possible and desirable. Strategies, actions and budgets appropriate for possible Section 309 funding were then developed.

The leadership and staff of the American Samoa Coastal Management Program want to strongly emphasize that this draft Assessment and Strategy is just that – a draft. We understand that the people of American Samoa, and the dedicated professionals of the American Samoa Government, and its partners in the US Government, have a wealth of knowledge and experience to share regarding the best strategies for coastal management in the Territory.

We are eager to receive all suggestions and comments that can improve the final version of this Section 309 Assessment and Strategy, and result in successful protection and restoration of American Samoa’s priceless natural resources, while assuring a stronger economy for all.

II. PHASE ONE ASSESSMENTS

A. Wetlands

Section 309 Enhancement Objective: Protection, restoration, or enhancement of the existing coastal wetlands base, or creation of new coastal wetlands. §309(a)

Note: For the purposes of the Wetlands Assessment, wetlands are “those areas that are inundated or saturated at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” [33 CFR 328.3(b)]. See also pg. 17 of the CZMA Performance Measurement Guidance for a more in-depth discussion of what should be considered a wetland.

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states.)*

Purpose: To quickly determine whether the enhancement area is a high priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. Using provided reports from NOAA’s Land Cover Atlas or high-resolution C-CAP data (Pacific and Caribbean Islands only), please indicate the extent, status, and trends of wetlands in the state’s coastal counties.

Coastal Wetlands Status and Trends (Prepared with assistance from Robert Koch and the ASCMP GIS staff)		
Current state of wetlands in 2010 (acres) (for the island of Tutuila)		
Percent net change in total wetlands (% gained or lost)*	from 1996-2011	from 2003-2010
	--	+ 4.79
Percent net change in freshwater (palustrine wetlands) (% gained or lost)*	from 1996-2011	From 2003-2010
	--	+5.05
Percent net change in saltwater (estuarine) wetlands (% gained or lost)*	from 1996-2011	From 2003-2010
	--	+1.47

How Wetlands Are Changing (Prepared with assistance from Robert Koch and the ASCMP GIS staff)		
Land Cover Type (for island of Tutuila)	Area of Wetlands Transformed to Another Type of Land Cover between 1996-2011 (Sq. Miles)	Area of Wetlands Transformed to Another Type of Land Cover between 2003-2010 (acres)
Development	N/A	- 0.28
Agriculture	N/A	+2.03
Barren Land	N/A	+0.16
Water	N/A	+2.87

2.If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends of coastal wetlands since the last assessment to augment the national data sets.

ASCMP Response

There has been no significant additional data development regarding the status and trends of coastal wetlands, although there has been significant local work on wetlands protection, as will be seen below. It should be noted that the numbers above are for the island of Tutuila, the largest island in the territory. Overall wetlands loss/gain of wetlands acreage for smaller islands and atolls of the territory during the 2003-2010 period are also registered in the C-CAP database, as follows:

- West Manua (+ 5.17 acres)
- East Manua (+0.28 acres)
- Swains Island (+0.13 acres)
- Rose Atoll (+0.19 acres)

Management Characterization:

1. Indicate if there have been any significant changes at the state or territory level (positive or negative) that could impact the future protection, restoration, enhancement, or creation of coastal wetlands since the last assessment.

Management Category	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	N
Wetlands programs (e.g., regulatory, mitigation, restoration, acquisition)	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
 - a. Describe the significance of the changes
 - b. Specify if they were 309 or other CZM-driven changes; and
 - c. Characterize the outcomes or likely future outcomes of the changes.

ASCMP Response:

Although many parts of American Samoa have significant wetlands, several areas with well-identified wetlands and/or mangrove swamps are: Leone, Malaeloa, Nu'uuli, Vatia, Aua, Masefau, Alofau, Alao, Tula, Aunuu, Ofu, Olosega, Tau, and Aoa.

Wetlands protection, conservation and restoration have been signature parts of ASCMP's programming throughout the program's history. Recent progress on wetlands related projects and programs was described most recently in the *ASCMP Progress and Status Report* for the period of April-September, 2014, and the *ASCMP First Quarter Report: October 1, 2014-December 31, 2014*. Both of these reports were submitted to NOAA as part of ASCMP's required reporting.

Wetlands protection, outreach, and education work at ASCMP is conducted through the work of the Wetlands Specialist and the Permit Notification and Review System (PNRS) Board and staff.

There have not been "significant changes" in management categories and tools used by ASCMP and American Samoa Government in the area of wetlands protection. Work has focused on creative use of existing tools and authorities, including:

- Education/Outreach Presentations
- Mangrove Planting and Education Projects
- Wetland Site Assessments
- Joint Wetland Inspections with American Samoa Environmental Protection Agency
- Wetland Tours
- Wetland Clean-Up Projects
- Restoration projects, as funding provides

Wetlands restoration work is prominently being undertaken in Leone Village, where efforts are underway to restore 18.3 acres of coastal wetland habitat, using a significant grant from the US Fish and Wildlife Service, and matching funds. The Leone wetland area includes one of the largest and most important mangrove swamps in American Samoa.

During July 2014, the firm of Spatial Coast LLC completed a terrestrial laser scan (TLS) and total station survey of mangrove wetlands in Leone. Data were collected to provide a baseline dataset to support anticipated wetland mapping, characterization and restoration efforts.

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

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

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Protection and restoration of wetlands was ranked as a high priority by the Section 309 Advisory Group in their meeting on November 20, 2014 and this ranking was supported by interviews with ASCMP's Program Manager, ASCMP Wetlands Coordinator, PNRS Board members, and others.

Although the total amount of coastal wetland acreage in American Samoa is not large relative to the overall size of the Territory, protection of remaining wetlands is an important goal of ASCMP, for both environmental and public involvement purposes. ASCMP has invested significant resources in this category, both through funded activities over the last two cycles of Section 309 funding, and as a mainstay of the Program's core activities. The wetlands category also represents one of ASCMP's primary sources of connection with other agencies, and with village leaders, community members, schools, and young people.

Although wetlands protection has been a high priority for several years, and some progress has been made, the wetlands category is still ripe for serious innovation and program enhancement. ASCMP staff and leadership have noted the need for new ideas, policies and collaborations which will increase the probability that local people will take charge of wetland protection and restoration and "own" the responsibility for assuring the health of wetlands within their own boundaries.

Finally, protection and restoration of wetlands falls into the responsibilities and management plans of some other American Samoa Government agencies, especially including American Samoa Environmental Protection Agency (ASEPA). In its most recent *Integrated Water Quality Monitoring and Assessment Report for Territory of American Samoa: 2014*, ASEPA reported "no monitoring activity" regarding wetlands, although ASEPA has the authority to assure that this monitoring is done a regular basis for its bi-annual reporting. Since wetlands monitoring is also a priority for ASCMP, possibilities seem good for collaboration of some sort. (More detail about this can be found in the "Secondary and Cumulative Impacts" section of this Phase 1 Assessment).

Wetlands protection is also an important part of forestry resource management in American Samoa, as demonstrated in the *American Samoa Forest Assessment and Resource Strategy: 2011-2015* (June 2010) from the Forestry Program, Division of Community and Natural Resources at American Samoa Community College. And, wetlands protection shows up in the plans and projects of the Department of Marine and Wildlife Resources and the multi-agency Coral Reef Advisory Group.

In preparation for Phase 2 Section 309 program enhancement proposals, the 309 Advisory Group that met on November 20, 2014 suggested that future wetlands protection work in American Samoa should consider projects and programs that would:

- Eliminate dumping of trash in wetlands
- Move all piggeries near wetlands and prohibit future ones
- Assure ongoing monitoring of wetland areas to guide policy and action
- Test designated wetland areas for hazardous materials and create plan for clean-up
- Work with appropriate agencies to stop upstream impact on wetlands
- Create sustainable plans/agreement with local village residents and matai re: wetlands
- Identify, plan, finance, and complete wetlands restoration sites
- Identify and overcome barriers to enforcement of existing wetlands regulations
- Implement removal of abandoned buildings, perhaps in coordination with FEMA
- Consider formal transfer of wetland protection action (with funding) to local villages

B. 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. §309(a)(2)

Note: For purposes of the Hazards Assessment, coastal hazards include the following traditional hazards and those identified in the CZMA: flooding; coastal storms (including associated storm surge); geological hazards (e.g., tsunamis, earthquakes); shoreline erosion (including bluff and dune erosion); sea level rise; Great Lake level change; land subsidence; and saltwater intrusion.

PHASE I (HIGH-LEVEL) ASSESSMENT: (Must be completed by all states.)

Purpose: To quickly determine whether the enhancement area is a high priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

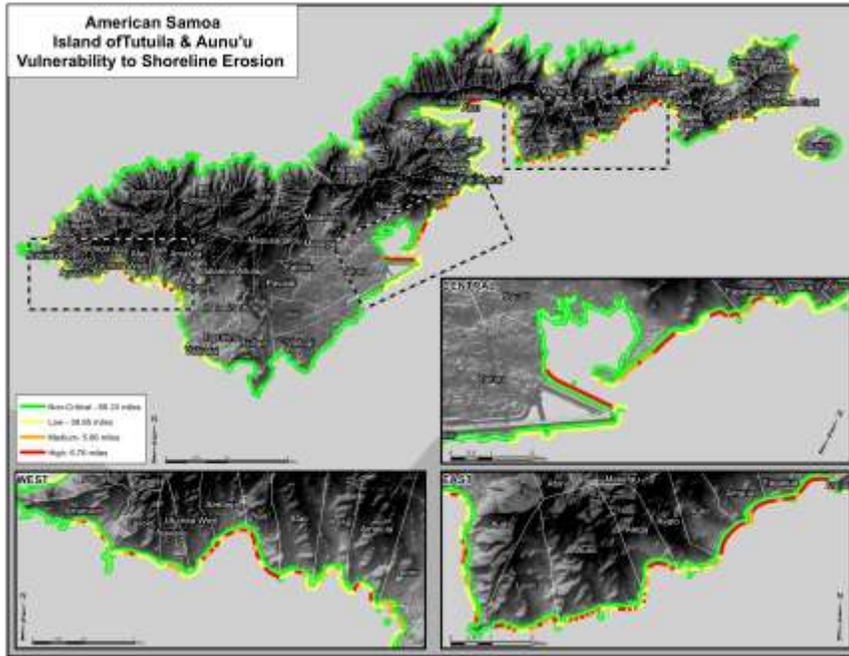
1. **Flooding:** Using data from NOAA’s *State of the Coast* “Population in the Floodplain” viewer and summarized by coastal county through NOAA’s Coastal County Snapshots for Flood Exposure, indicate how many people were located within the state’s coastal floodplain as of 2010 and how that has changed since 2000. You may to use other information or graphs or other visuals to help illustrate.

Population in the Coastal Floodplain			
	2000	2010	Percent Change from 2000-2010
No. of people in coastal floodplain	6,044	5,890	-.02%
No. of people in coastal counties	57,291	55,519	-.03%
Percentage of people in coastal counties in coastal floodplain	10.5%	10.6%	+.01%

2. **Shoreline Erosion** (for all states other than Great Lakes and islands; for Great Lakes and islands, see Question 5): Using data from NOAA’s *State of the Coast* “Coastal Vulnerability Index,” indicate the vulnerability of the state’s shoreline to erosion. You may use other information or graphs or other visuals to help illustrate or replace the table entirely if better data is available.

Vulnerability to Shoreline Erosion (Island of Tutuila only) Analysis and Maps Prepared by Robert Koch, ASCMP		
Vulnerability Ranking	Miles of Shoreline Vulnerable ¹¹	Percent of Coastline ¹
Very low (>2.0m/yr) accretion	66.33	55.74
Low (1.0-2.0 m/yr) accretion)	39.95	33.57

Moderate (-1.0 to 1.0 m/yr) stable	5.96	5.01
High (-1.1 to -2.0 m/yr) erosion	6.76	5.68
Very high (<-2.0 m/yr) erosion		



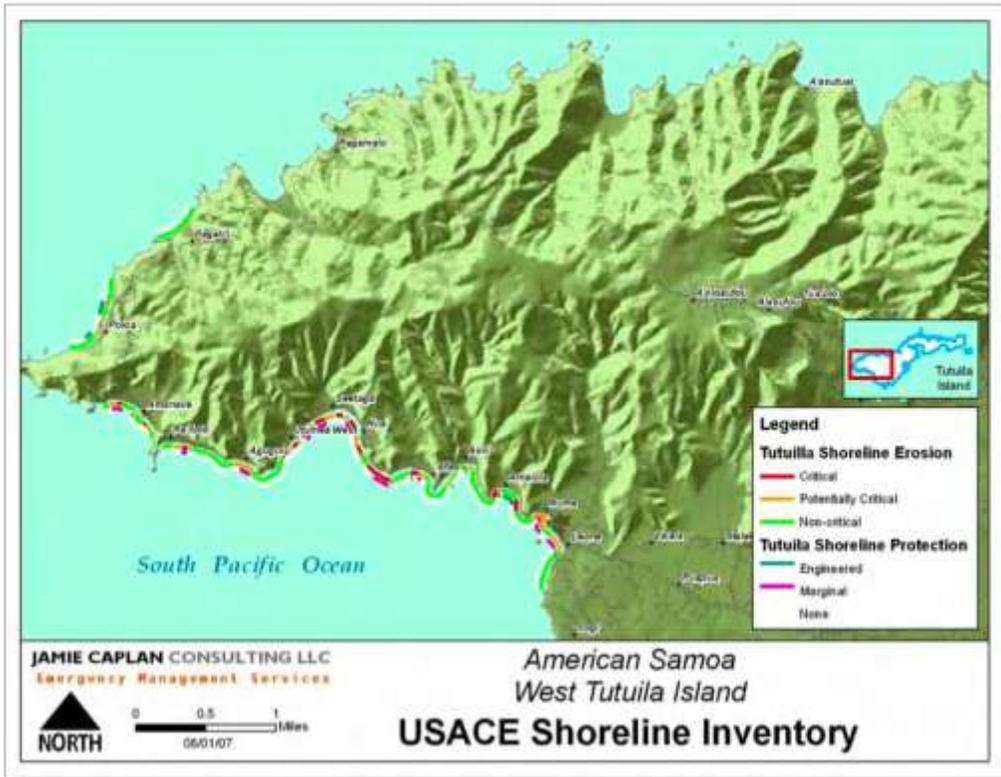
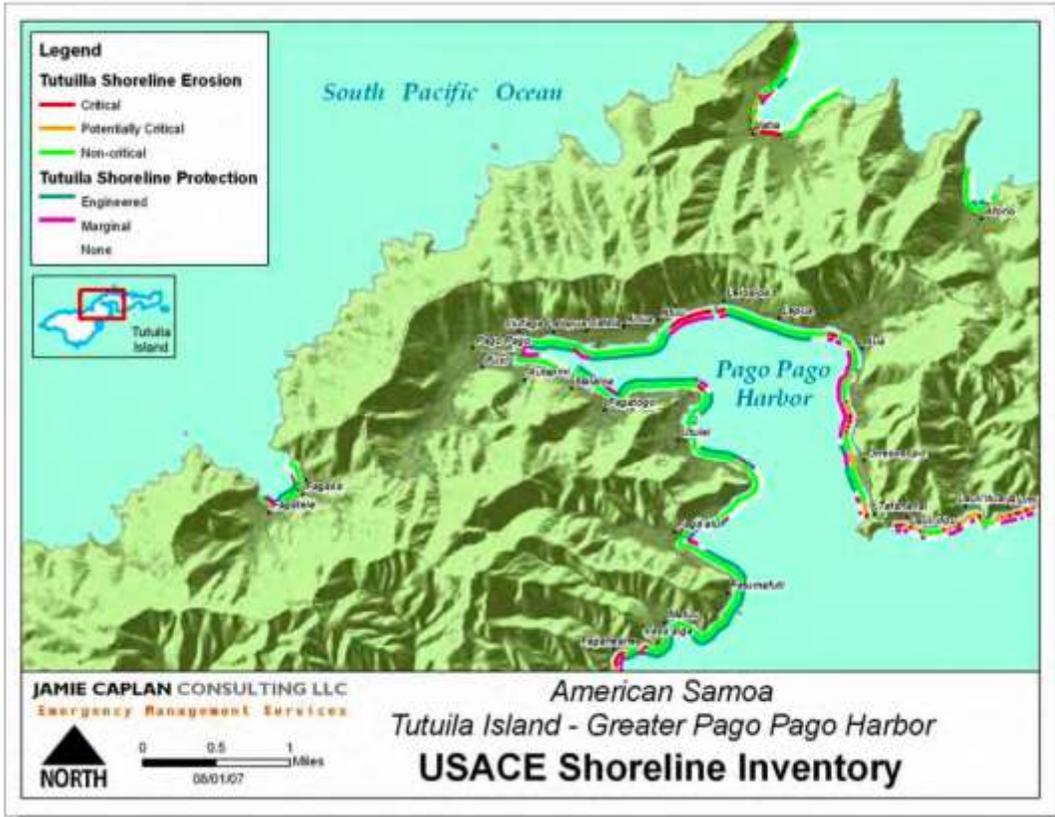
Related maps and data about shoreline erosion vulnerability were created by the US Army Corps of Engineers as part of a shoreline study of Tutuila and Aunu'u islands. It identified three levels of shoreline erosion status (critical, potentially critical, and non-critical). In addition, the assessment noted types of shoreline protection (engineered, marginal, no protection). Charts and maps based on this assessment are included the *Territorial Multi-Hazard Mitigation Plan* (May, 2015) posted online at: <http://doc.as.gov/resource-management/ascmp/2015-hazard-mitigation-plan-2/>.

County	Approx. Measured Shoreline (miles)	Critical Shoreline (miles)	Percent Critical Shoreline
TUTUILA ISLAND			
East Vaifanua (East District)	3.39	0.20	6%
Ituau (East District)	3.42	0.78	23%
Lealataua (West District)	5.69	0.92	16%
Leasina (West District)	N/A	N/A	N/A
Maoputasi (East District)	7.42	0.65	9%
Saole* (East District)	4.40	0.63	14%
Sua (East District)	6.70	1.99	30%
Tualatai (West District)	1.29	0.11	9%
Tualata** (West District)	1.35	0	0%
West Vaifanua (East District)	1.40	0.19	14%
TOTAL	31.23	8.94	29%

*No areas of critical shoreline reported in Aunu'u

**Tualauta County includes the area around the Pago Pago Airport, which is an area of non-critical erosion status.





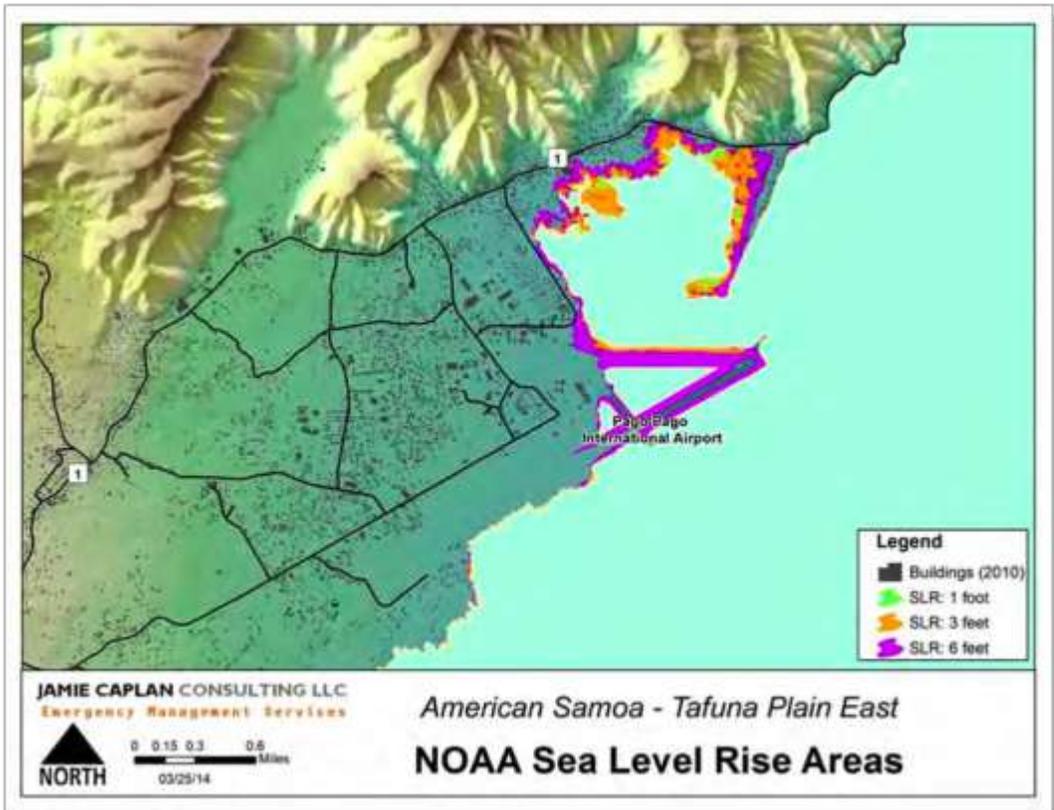
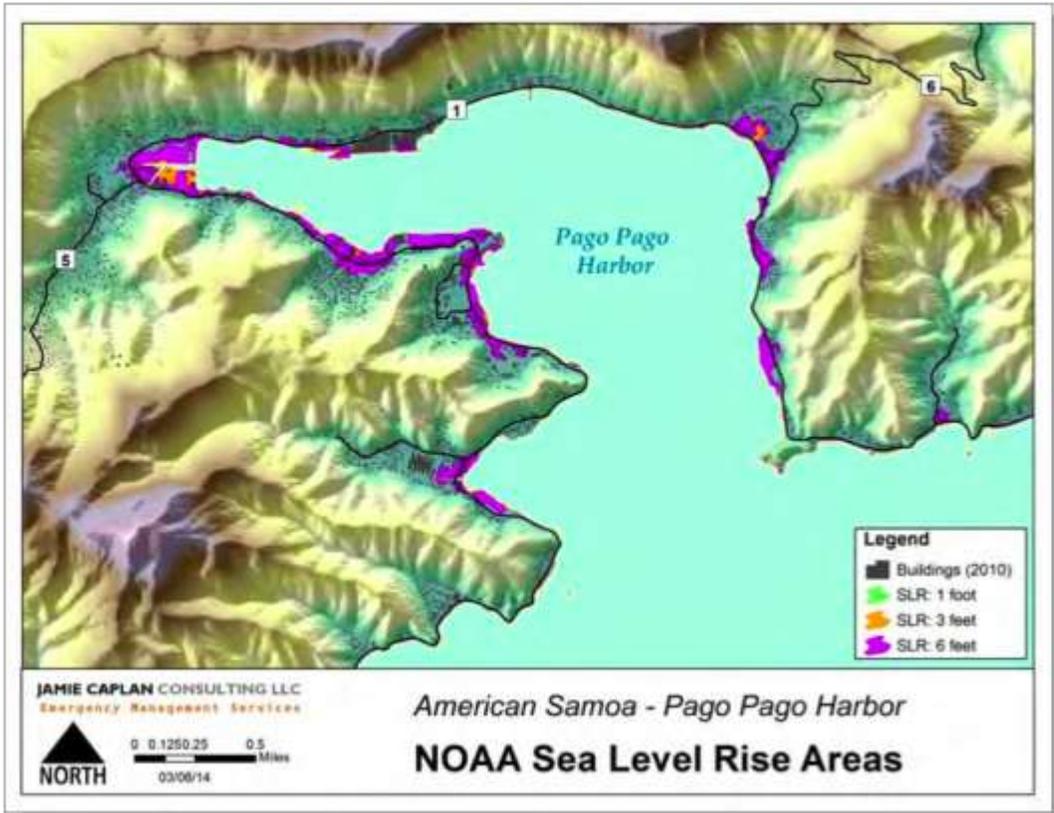
3. **Sea Level Rise** (for all states other than Great Lakes and islands; for Great Lakes and islands, see Question 5): Using data from NOAA's *State of the Coast "Coastal Vulnerability Index"*, indicate the vulnerability of the state's shoreline to sea level rise. You may provide other information or use graphs or other visuals to help illustrate or replace table entirely if better data is available.

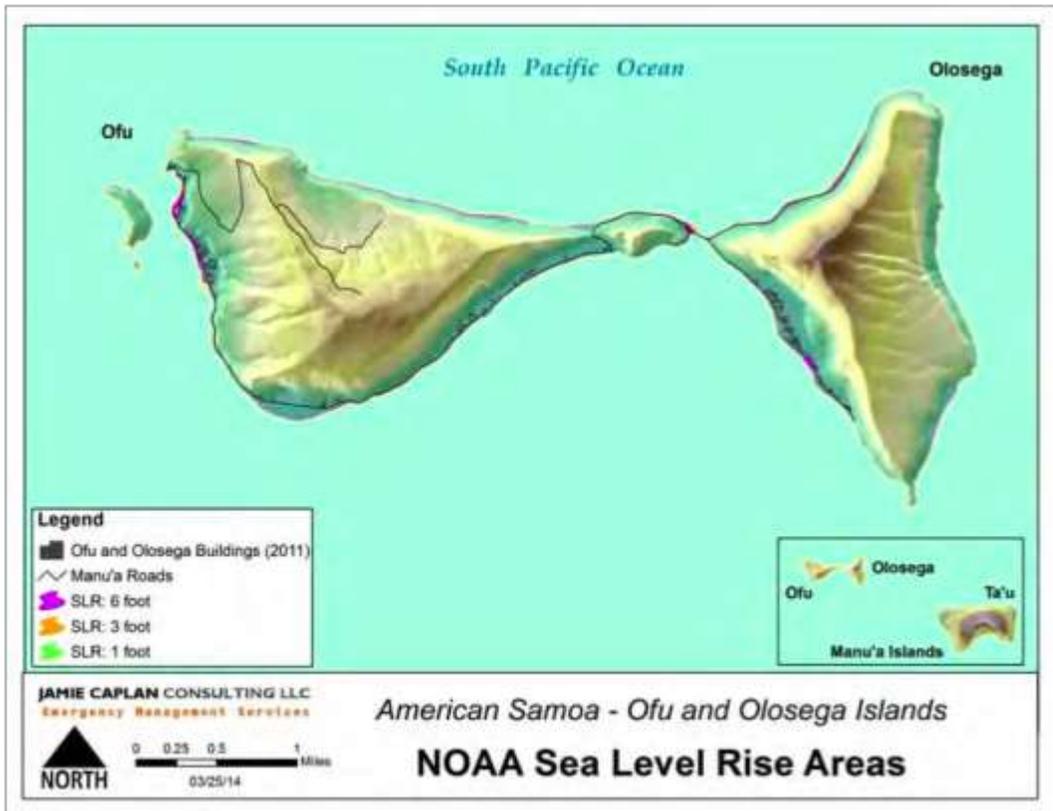
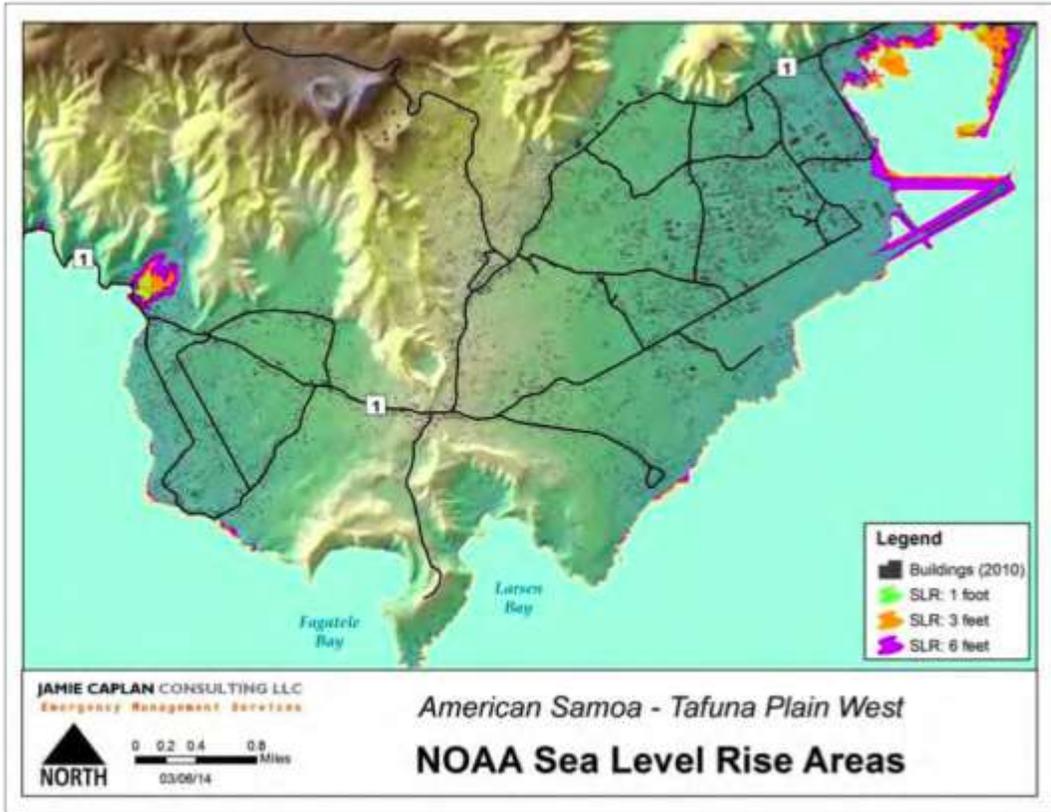
ASCMP Response:

As allowed for in the instructions above, we have removed the table asking for coastal vulnerability to sea level rise to be shown as "miles of shoreline vulnerable" and "percent of coastline vulnerable" on a 5-point ranking scale from "very low" to "very high".

As a substitute, we are including maps from the *Territorial Multi-Hazard Mitigation Plan*, referenced above.

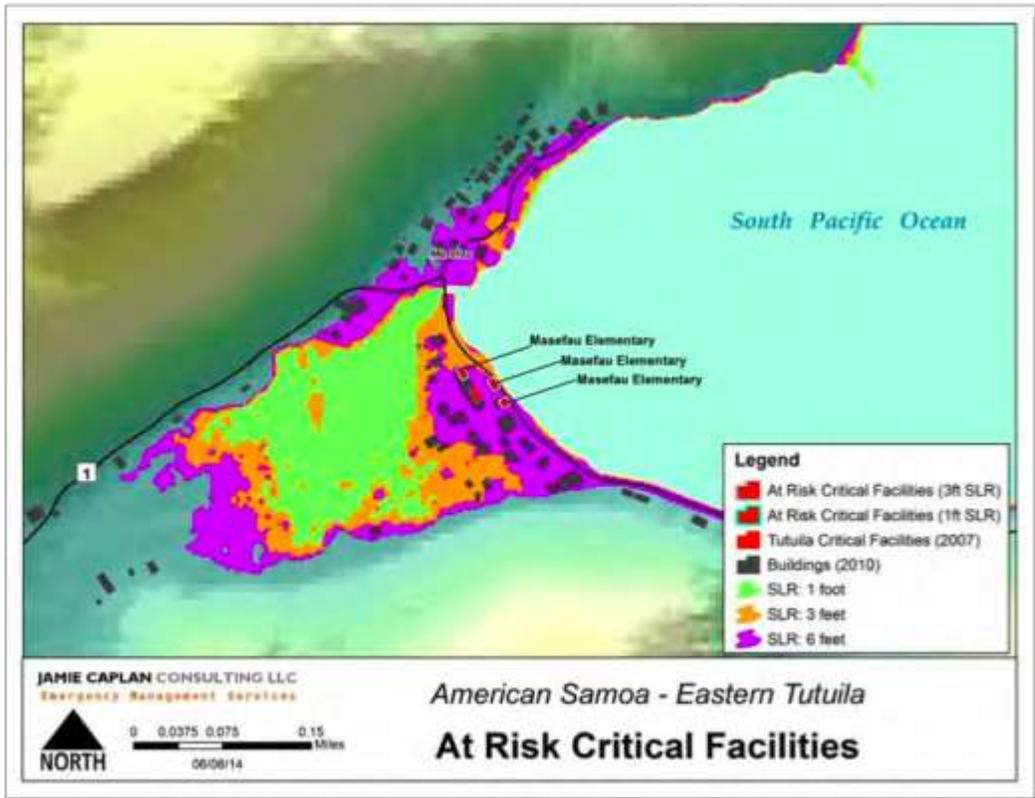
As indicated by the maps immediately below, there are a few significant areas that are at high risk for sea level rise, including at levels suggested as possible under climate change models.





Country (District)	Total Number of Buildings	Total Number of Buildings in the 1-foot SLR area	Type	Total of Buildings in the 3-foot SLR area	Type
TUTUILA ISLAND					
East Vaifanua (East District)	497	0	--	6	6 residential
Ituau (East District)	1,075	3	1 commercial	61	1,402
Lealataua (East District)	2,026	3	3 residential	36	36 residential
Leasina (West District)	474	0	--	0	--
Maoputasi (East District)	2,246	0	--	0	--
Saole (East District)	543	0	--	2	2 residential
Sua (East District)	938	0	-	0	--
Tualatai (West District)	903	0	--	0	--
Tualata (West District)	7,441	0	--	1	1 residential
West Vaifanua (East District)	172	0	--	5	5 residential
Tutuila Island Total	16,315	16	--	141	--
AUNU'U ISLAND					
Saole (East District)	179	0	--	0	--
Aunu'u Island Total	179	0	--	0	--
MANU'A ISLANDS					
TAU					
Faleasao (Manu'a District)	18	0	--	0	--
Fitiuta (Manu'a District)	180	0	--	0	--
Tau (Manu'a District)	208	0	--	1	1 fale
Ta'u Island Total	469	0	--	1	--
OFU ISLAND					

Ofu (Manu'a District)	133	1	unknown	2	unknown
Ofu Island Total	133	1	--	2	--
OLOSEGA ISLAND					
Olosega (Manu'a District)	101	--	--	--	--
Olosega Island Total	101	--	--	--	--
TOTAL	17,018	16	--	141	--



4. **Other Coastal Hazards:** In the table below, indicate the general level of risk in the coastal zone for each of the coastal hazards. The state’s multi-hazard mitigation plan is a good additional resource to support these responses.

ASCMP Response:

Type of Hazard	General Level of Risk (H, M, L)
Flooding (riverine, stormwater)	High
Tropical Cyclones (including storm surge)	High
Geological hazards (e.g., tsunamis, earthquakes)	Tsunamis = High Earthquakes = Moderate
Shoreline erosion	Moderate overall – High in specific areas
Sea level rise and climate change	Moderate to Potentially High
Great Lake level change	N/A
Landslides	High
Saltwater intrusion	Moderate (not assessed by Hazard Mitigation Plan)
Other (please specify)	Soil hazards (L), High surf (M), Drought (M)

The assessments of hazard risks above were created by ASCMP using data from the American Samoa Land Use Portal, NOAA data, and the USGS assessment of coastal hazards facing the National Park of American Samoa. These were combined with review of the previous Section 309 assessment for 2011-2015 and the recently published *Territorial Multi-Hazard Mitigation Plan*.

5. If available, briefly list and summarize the results of any additional data or reports on the level of risk and vulnerability to coastal hazards within your state since the last assessment. The state’s multi-hazard mitigation plan or climate change risk assessment or plan may be a good resource to help respond to this question.

ASCMP Response:

As suggested above, we relied on the *Territorial Multi-Hazard Mitigation Plan*, existing data found on ASCMP’s Land Use GIS Portal, and a 2014 document entitled *CASE STUDY: A Projected Sea-Level Assessment of Tutuila and Aunu’u Islands, American Samoa*, prepared by Duncan McIntosh.

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) have occurred that could impact the CMP’s ability to prevent or significantly reduce coastal hazards risk since the last assessment.

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these that address:			
<i>elimination of development/redevelopment in high-hazard areas</i>	Somewhat (the realistic affect of some regulations)	Somewhat (technical assistance and regulatory)	N

	is to essentially eliminate development from certain areas)	discussions with residents creates understanding of what is allowed)	
<i>management of development/redevelopment in other hazard areas</i>	Y	Y	N
<i>climate change impacts, including sea level rise or Great Lake level change</i>	Somewhat (ex: Amouli plan)	N	Y
Hazards planning programs or initiatives that address:			
<i>hazard mitigation</i>	Y	Y	N
<i>climate change impacts, including sea level rise or Great Lake level change</i>	Somewhat (Hazard Mitigation Plan discusses it)	N	Y
Hazards mapping or modeling programs or initiatives for:			
<i>sea level rise or Great Lake level change</i>	Y	Y	Y
<i>other hazards</i>	Y	Y	Y

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
 - a. Describe the significance of the changes;
 - b. Specify if they were 309 or other CZM-driven changes; and
 - c. Characterize the outcomes or likely future outcomes of the changes.

ASCMP Response:

ASCMP’s involvement in coastal hazards work in American Samoa has not changed significantly over the last several years. By far the most important aspect of ASCMP’s involvement in this area remains its role as the lead agency in charge of managing permitting of development and land use changes through the Permit Notification and Review System (PNRS) Board. Permitting requirements through the PNRS require developers to demonstrate that their proposals are in keeping with regulations that touch on coastal hazards, such as avoiding steep slopes and certain prohibited areas of the coastal shoreline.

The overall attention to coastal hazards in the Territory, however, **has** risen significantly, and with it, the need for ASCMP to become more involved in coordinating with other agencies of American Samoa Government to address coastal hazards, and to use coastal hazards prevention as a new metric for ASCMP’s own programmatic work.

As seen in the *Territorial Hazard Mitigation Plan*, risks related to flooding, landslides, tropical cyclones, storm surges and tsunamis are all rated as “high”.

In addition, few need a reminder about the disastrous 2009 tsunami, which caused widespread destruction and resulted in the death of as many as 100 American Samoa residents. Some areas of American Samoa are still dealing with the aftermath of the tsunami – almost six years later.

Political changes have also resulted in greater attention to coastal hazards, and the appropriate policies and technical means to address them. In July of 2013, American Samoa Governor Moliga commissioned a high-level task force to craft a plan to spur much needed economic development and job creation in the territory. The resulting *American Samoa Economic Development Implementation Plan: 2014-2017* (<http://doc.as.gov/american-samoa-economic-plan-2014-2017/>) focuses attention on seven economic development areas, including: Transportation Services and Infrastructure, New Business and Industry, Federal Government Constraints and Business Climate, Agriculture, Tourism, Fisheries, and Workforce Development.

The plan appropriately draws attention to the need to balance economic development and job creation with protecting the environment, assuring public safety, and valuing traditional American Samoa culture. At the same time, it makes clear that economic development is itself a significant priority for American Samoa Government, and points to the need to include economic development progress prominently among other factors in decision-making.

As in the past, the American Samoa Coastal Management Program will be one of the places where the territory's conversation about the balance among different factors is carried out. Methods of dealing with coastal hazards will certainly be among the items being discussed and decided. The appropriate role of tools like seawall construction and maintenance, beach nourishment, sand mining, preservation of open space, expedited permitting, and "green infrastructure" design features are all likely to come up – many in discussions framed in the language of coastal hazard risk (or the lack of it).

In addition to approval and launch of the economic development implementation plan, Governor Moliga reconstituted the previously moribund American Samoa Zoning Board in December, 2014. The Governor appointed nine new members, and assigned professional staff to assist the Board.

The *Samoa News* of December 6 reported:

"In his memo announcing the new board, the governor said the board has many significant responsibilities, including assuring that economic development is encouraged by enlarging the opportunities for private sector investment and facilitating government services by providing for the orderly extension of utilities, roads and other services.

Furthermore, they are to promote public health, safety and welfare by preventing unreasonable congestion and concentration of population; protect the unique character of American Samoa and the right of all residents to have a planned and attractive environment; and to provide and preserve space for a growing population."

Taken together, the launching of the economic development implementation plan and the reconstituting of the Zoning Board represent political realities that will have an impact on the conversation regarding management of coastal hazards in American Samoa.

Finally, attention to community resilience in the face of climate change is on the rise in American Samoa. Although the *Territorial Multi-Hazard Mitigation Plan* rates sea level rise as a moderate risk, there are a significant number of climate change related plans and projects throughout the territory.

One notable initiative is the development and creation of a *Climate Resiliency Responses and Actions Plan: 2012-2015* for Amouli Village. This plan was created by village residents, acting through an Amouli

Resiliency Planning Committee, with assistance from NOAA Fisheries-PIRO, and funding from NOAA Fisheries and NOAA Coral Reef Conservation Program. Similar plans are in the works for the Villages of Vatia and Aunu'u. Actions in these plans are directly related to perceived local climate change risks.

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

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

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Developing a program enhancement related to coastal hazards was ranked as a high priority by the Section 309 Advisory Group in their meeting on November 20, 2014, and this ranking was supported by interviews with ASCMP's Program Manager and other American Samoa officials.

Reasons given for the high priority correlate to the data and descriptions above and with the assessment and recommendations in the *Territorial Hazard Mitigation Plan*, referenced several times, above. In summary, Advisors agreed that the flooding, erosion, tropical storms, tsunamis, storm surges and landslides were significant concerns to the residents of American Samoa, and that ASCMP's increased involvement was both appropriate and necessary.

It should be noted that in the Advisory sessions for the previous (2011-2015) Section 309 Assessment and Strategy (conducted by Green Economy with assistance from Townscape, Inc) Advisors initially ranked coastal hazards as a high priority at first, but later moved it to a "medium" priority under the logic that other agencies of American Samoa government had primary responsibility and that additional involvement of ASCMP was not really needed.

The current Advisors/interviewees ranked coastal hazards as a high priority and felt that ASCMP should be involved, with other players.

Advisors had several suggestions related to coastal hazard prevention and mitigation. These suggestions included (but were not limited to):

- Establishing a interagency Coastal Hazards Commission, or repurposing the current "Ocean Resources Council" to focus on coastal hazards;
- Creating an interagency program for combined action on designing, funding and implementing coastal preservation and restoration projects;
- Carrying out a research program to identify possibilities for "green infrastructure" approaches to coastal hazards, as a complement to seawalls and other shoreline hardening approaches;
- Developing a comprehensive program regarding appropriate uses and locations for sand mining;
- Developing a program to use traditional Samoan approaches to community design with coastal hazards in mind;
- Improving connections between all departments and the Department of Public Works.

- Developing a strong partnership between ASCMP and AS Department of Homeland Security.

C. 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. §309(a)(5)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states.)*

Purpose: To quickly determine whether the enhancement area is a high priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

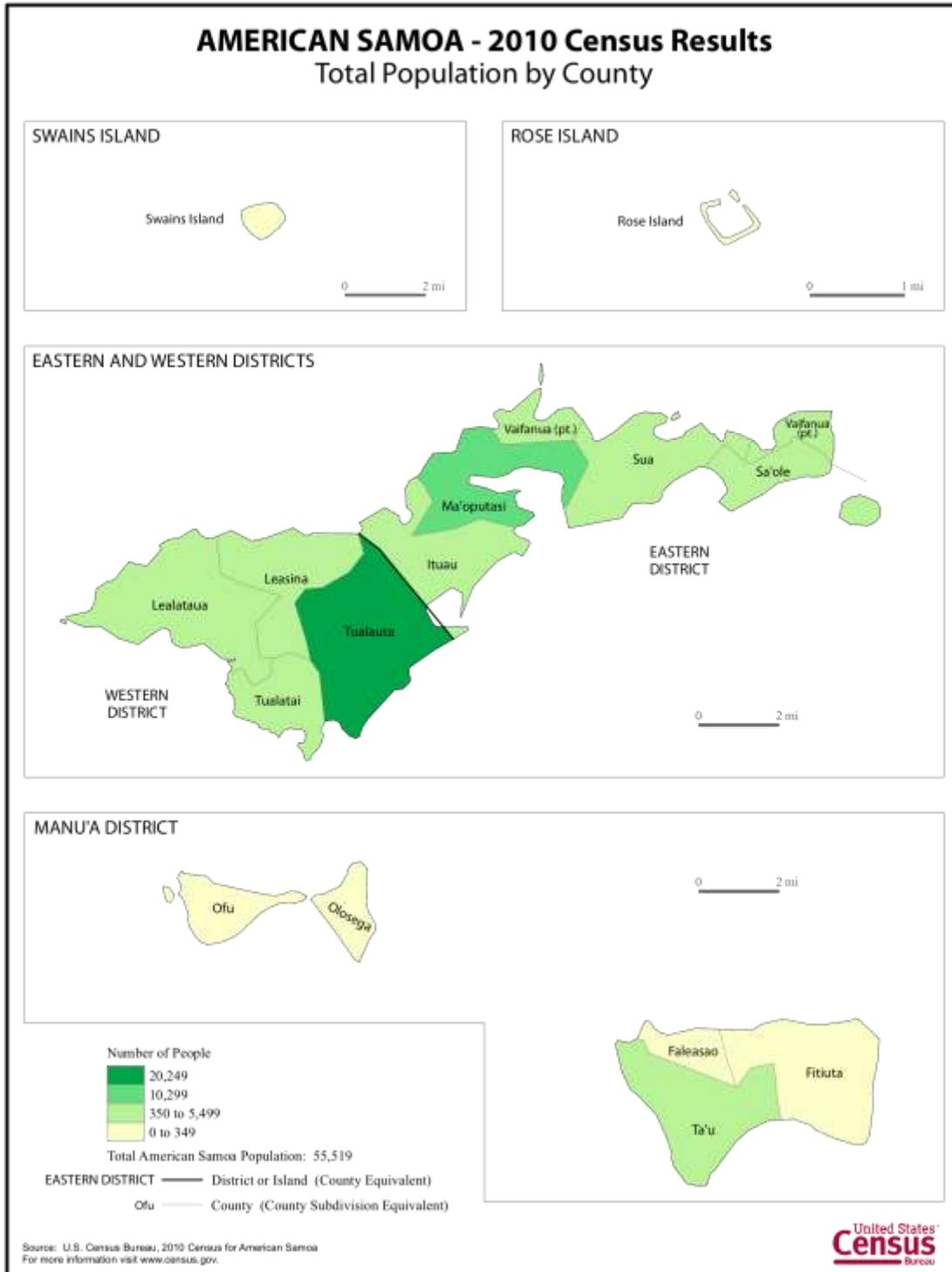
Resource Characterization:

1. Using National Ocean Economics Program Data on population and housing, please indicate the change in population and housing units in the state's coastal counties between 2012 and 2007. You may wish to add additional trend comparisons to look at longer time horizons as well (data available back to 1970), but at a minimum, please show change over the most recent five year period (2012-2007) to approximate current assessment period.

ASCMP Response:

American Samoa is not covered by the National Ocean Economics Program Data site referenced. As a substitute, we have inserted U.S. Census Data indicating a very tiny drop in population for American Samoa over the ten-year period from 2000 to 2010. In addition, please find below data and maps from the U.S. Census about the location of American Samoa's population by district and county.

Geographic area	2000	2010	
American Samoa	57 291	55 519	
Eastern District	23 441	23 030	
Ituau county	4 312	4 676	
Ma'oputasi county	11 695	10 299	
Sa'ole county	1 768	2 187	
Sua county	3 417	3 323	
Vaifanua county	2 249	2 545	
Manu'a District	1 378	1 143	
Faleasao county	135	162	
Fitiuta county	358	270	
Ofu county	289	176	
Olosega county	216	177	
Ta'u county	380	358	
Rose Island	0	0	
Swains Island	37	17	
Western District	32 435	31 329	
Lealataua county	5 684	5 103	
Leasina county	1 739	1 807	
Tualatai county	2 987	3 561	
Tualauta county	22 025	20 858	



2. Using provided reports from NOAA’s Land Cover Atlas or high-resolution C-CAP data (Pacific and Caribbean Islands only), please indicate the status and trends for various land uses in the state’s coastal counties between 2006 and 2011. You may use other information and include graphs and figures, as appropriate, to help illustrate the information. Note that the data available for the islands may be for a different time frame than the time periods reflected below. In that case, please specify the time period the data represents.

Distribution of Land Cover Types for the Island of Tutuila Derived from Coastal Change Analysis Program (C-CAP) Data		
Land Cover Type	Land Area Coverage in 2010 (Acres)	Gain/Loss Since 2003 (Acres)
Developed, High Intensity	2,142.35	+ 135.83
Developed, Low Intensity	0.00	0.00
Developed, Open Space	1,914.80	+88.07
Grassland	414.42	+199.37
Scrub/Shrub	985.66	+151.54
Barren Land	457.56	-0.65
Open Water	7,372.77	-1.55
Agriculture	1,003.83	+146.44
Forested	26,831.46	-725.58
Wetland	185.59	+7.71

2. Using provided reports from NOAA’s Land Cover Atlas or high-resolution C-CAP data (Pacific and Caribbean Islands only), please indicate the status and trends for developed areas in the state’s coastal counties between 2006 and 2011 in the two tables below. You may use other information and include graphs and figures, as appropriate, to help illustrate the information. Note that the data available for the islands may be for a different time frame than the time periods reflected below. In that case, please specify the time period the data represents.

Development Status and Trends on Tutuila			
	2003	2010	Percent Net Change
Percent land area developed	3,833.25 (9.28%)	4,057.15 (9.82%)	223.90 (0.06%)
Percent impervious surface area	1,878.04 (4.55%)	2,001.82 (4.85%)	123.79 (0.07%)

** Note: Islands likely have data for another time period and may only have one time interval to report. If so, only report the change in development and impervious surface area for the time period for which high-resolution C-CAP data are available.*

How Land Use Is Changing on Tutuila	
Land Cover Type	Areas Lost to Development Between 2003-2010 (Acres)
Barren Land	19.02
Wetland	0.58
Open Water	1.06
Agriculture	9.42

Scrub/Shrub	41.65
Grassland	14.81
Forested	274.55

** Note: Islands likely have data for another time period and may only have one time interval to report. If so, only report the change in land use for the time period for which high-resolution C-CAP data are available.*

- Using data from NOAA’s State of the Coast “Shoreline Type” viewer indicate the percent of shoreline that falls into each shoreline type. You may provide other information or use graphs or other visuals to help illustrate.

Shoreline Types	
Surveyed Shoreline Type	Percent of Shoreline
Armored	7%
Beaches	41%
Flats	4%
Rocky	45%
Vegetated	3%

Additional ASCMP Response:

The data about shoreline types from NOAA’s online “shoreline type” tracker covers the entire territory of American Samoa (not just the main island of Tutuila). Other data in this section about land cover changes refers only to Tutuila, as referenced in the chart titles.

We also note that although the armored shoreline in American Samoa represents a relative small percentage of the total shoreline miles, these “engineered” areas are heavily concentrated in the same areas that are the most densely populated. We have included Army Corps of Engineers mapping of “engineered” areas in the “Coastal Hazards” section of this document.

- If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the cumulative and secondary impacts of coastal growth and development, such as water quality and habitat fragmentation, since the last assessment to augment the national data sets.

ASCMP Response:

Measurement of water quality is one possible indicator of negative cumulative and secondary impacts from development activity in American Samoa. Every two years, American Samoa Government reports on water quality in streams and rivers, and in waters of the coastal shoreline.

An “American Samoa Water Quality Assessment Report” from the US Environmental Protection Agency in 2012 revealed a number of causes for concern. These reports are based on data submitted by the American Samoa Environmental Protection Agency. Among other things, the 2012 report found that:

- 210.1 miles of rivers and streams (out of 230.6 miles assessed) had “impaired” water quality
- 72.2 miles of coastal shoreline (out of 124.2 miles assessed) were “impaired”
- 72.1% of assessed rivers and streams and 52.4% of coastal shoreline were “impaired” for support of aquatic life
- 58.5% of assessed coastal shoreline was “impaired” for swimming, and 100% of rivers/streams.

The probable sources of water quality problems in American Samoa are fairly easy to identify, and some are examples of “cumulative and secondary impacts”. The USEPA report noted specific sources as including: sanitary sewer overflows (collection system failures), animal feeding operations, multiple/unspecified non-point sources, and contaminated sediments.

In 2014, American Samoa Environmental Protection Agency submitted an updated “Integrated Water Quality Monitoring and Assessment Report: 2014”. The tables below report findings regarding streams (chart labeled C2) and ocean shoreline (chart labeled C5). For reasons noted in the report, some of the significant reporting categories are not assessed fully because of insufficient data.

Table C2: Individual Use Support Summary for Streams (miles) (FY12 and FY13 data only)
Total Miles of Streams = 258

Goals	Use	Size Assessed (miles)	Size Fully Supporting	Size Partially Supporting	Size Not Supporting	Size Insufficient Data
Protect & Enhance Ecosystems	Aquatic Life	-	-	-	-	257.5
Protect & Enhance Public Health	Fish Consumption	-	-	-	-	-
	Shellfishing	-	-	-	-	-
	Swimming	58.4	0	0	58.4	199.1
	Drinking Water	*	*	*	*	*
Social & Economic	Agricultural	*	*	*	*	*
	Cultural/Ceremonial	*	*	*	*	*

Notes:

zero (0) = Category applicable, but size of water in category is zero

dash (-) = Category applicable no data available

Asterisk (*) = category not applicable

Table C5: Individual Use Support Summary for Ocean Shoreline (miles) (FY12 and FY13 data only)
Total Miles of Ocean shoreline = 149.5

Goals	Use	Size Assessed (miles)	Size Fully Supporting	Size Partially Supporting	Size Not Supporting	Size Insufficient Data
Protect & Enhance Ecosystems	Aquatic Life	45.1	15.5	12.8	16.8	104.4
Protect & Enhance Public Health	Fish Consumption	7.9	0	0	7.9	141.6
	Shellfishing	-	-	-	-	-
	Swimming	104.2	45.5	5.9	52.9	45.2
	Drinking Water	*	*	*	*	*
Social & Economic	Agricultural	*	*	*	*	*
	Cultural/Ceremonial	*	*	*	*	*

Notes:

zero (0) = Category applicable, but size of water in category is zero
dash (-) = Category applicable no data available
Asterisk (*) = category not applicable

The 2012 Water Quality Report posted by USEPA can be found at:
http://ofmpub.epa.gov/waters10/attains_state.control?p_state=AS

The 2014 Water Quality Report submitted by ASEPA can be found at:
<http://www.epa.gov/region9/water/tmdl/pacislands/amsamoa2014-integrated-report.pdf>

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if there have been any significant state-level changes (positive or negative) in the 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, since the last assessment.

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	Y	N

Guidance documents	Y	Y	N
Management plans (including SAMPs)	Y	Y	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
 - a. Describe the significance of the changes;
 - b. Specify if they were 309 or other CZM-driven changes; and
 - c. Characterize the outcomes or likely future outcomes of the changes.

There have been few significant changes affecting management practices or policy in American Samoa Government’s approach to addressing cumulative and secondary impacts of development, and none that were driven primarily by Section 309 projects or ASCMP generally. “No significant change”, however, does not mean “no progress”. Instead, it should be interpreted that the methods for addressing cumulative and secondary impacts are largely the same as they have been across the major ASG environmental and resource management agencies, including ASCMP.

Among the few changes that could potentially be considered “significant”, one that is worthy out of note is the re-constitution of the American Samoa Zoning Board (as discussed in the section on Coastal Hazards, above). The use of zoning is a common land use planning tool to protect against negative cumulative and secondary impacts by allowing whole categories of activities to occur only in selected areas.

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

High _____
Medium xxxxxx
Low _____

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Cumulative and Secondary Impacts was ranked as a high priority by the Section 309 Advisory Group in their meeting on November 20, 2014 and this ranking was supported by interviews with ASCMP’s Program Director and other environmental agency leaders and staff, among others.

As the Section 309 process proceeded, ASCMP concluded that many of the concerns defined as cumulative and secondary impacts also showed up in the section on coastal hazards. With this in mind, the priority of this category was shifted to “medium” and the “high” priority ranking of coastal hazards was further reinforced.

“Cumulative and secondary impacts” was selected as a significant priority partially because of a sense that it is a category under which innovations in inter-agency coordination, and coordination with civil society, can be considered. Although American Samoa is a small territory, with a population of just over 55,000 people, the territory’s governance is divided among a myriad of different territorial agencies,

U.S. federal government jurisdictions, special boards, groups, committees and task forces; village councils, and traditional family and land tenure structures.

Moreover, many of the most important environmental and natural resource management agencies have planning and funding cycles and requirements that are guided as much by the rules of U.S. federal agencies as they are by the priorities and concerns of local and territorial entities. There is a perceived need for better coordination of planning, decision-making and sharing of resources by entities that share responsibility for different aspects of a common problem.

Finally (as noted in the section on Coastal Hazards), Governor Moliga has made economic development a top priority for his administration. Although not using the specific language of “cumulative impacts”, the Moliga administration seeks greater attention to the connection between environmental and land use policy and impacts on economic opportunities for the residents of American Samoa.

In preparation for the possible approval of “cumulative and secondary impacts” as a priority for program enhancement activity under Section 309, Advisors at the meeting on November 20, 2014 (and those who were interviewed) offered ideas for possible future activities, including:

- Examine opportunities and limitations that the PNRS Board has in its ability to incorporate cumulative and secondary impacts into decision-making;
- Examine opportunities and limitations that the re-constituted Zoning Board offers for incorporating cumulative and secondary impacts into decision-making;
- Provide training and opportunities for collective planning to village mayors and leaders;
- Collect and review planning documents to identify areas of overlap and develop options for better coordination and collaboration among all responsible parties
- Identify realistic methods of improving creation and review of engineering/site plans, including assessment of cumulative and secondary impacts in site plans;
- Conduct a thorough infrastructure review of the territory, including estimated cost of needed repairs. Then, “pinpoint what we can fix”.

D. 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. §309(a)(3)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states.)*

Purpose: To quickly determine whether the enhancement area is a high priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. Use the table below to provide data on public access availability within the coastal zone.

Public Access Status and Trends (Drawn from National Park of American Samoa and AS Department of Parks and Recreation)			
Type of Access	Current estimates	Changes or Trends Since Last Assessment (↑, ↓, -, unkwn)	Cite data source
Beach access sites	~10 (not including "swimming beaches for village use") ¹⁸	Improved (post-tsunami)	NPSAS Super't, NPSAS website, 2013-17 TCORP
Shoreline (other than beach) access sites	~22	Improved	As above
Recreational boat (power or nonmotorized) access sites	~10	Improved	As above
Number of designated scenic vistas or overlook points	~15	Improved	As above
Number of fishing access points (i.e. piers, jetties)	Need additional data	Not clear	As above
Coastal trails/ boardwalks	No. of Trails/ boardwalks ~16	Improved	As above
	Miles of Trails/boardwalks ~41 miles		
# of acres park and open space	Total sites ~9,800 acres	Improved	As above
Other (please specify)			

- Briefly characterize the demand for coastal public access and the process for periodically assessing demand. Include a statement on the projected population increase for your coastal counties. There are several additional sources of statewide information that may help inform this response, such as the Statewide Comprehensive Outdoor Recreation Plan, the National Survey on Fishing, Hunting, and Wildlife Associated Recreation, and your state's tourism office.

The population within the state's coastal shoreline counties is projected to increase (or decrease) by zero percent between 2010 and 2020.

3. If available, briefly list and summarize the results of any additional data or reports on the status or trends for coastal public access since the last assessment.

The *American Samoa Territorial Comprehensive Outdoor Recreation Plan 2013-2017 (T-CORP)* is an excellent document that details all parks and recreation facilities in the Territory, and offers a detailed five-year plan for the advancement of outdoor recreation. Public access information can be derived from the T-CORP, although it does not include a stand-alone public access guide. It is produced by the American Samoa Department of Parks and Recreation.

The National Park of American Samoa Visitor's Guide is a useful document. It can be found online at: http://www.nps.gov/npsa/planyourvisit/upload/NPSA-Visitor-Guide_web-January-2015.pdf.

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if there have been any significant state- or territory-level management changes (positive or negative) that could impact the future provision of public access to coastal areas of recreational, historical, aesthetic, ecological, or cultural value.

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	N	N	N
Operation/maintenance of existing facilities	N	N	N
Acquisition/enhancement programs	N	N	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
 - a. Describe the significance of the changes;
 - b. Specify if they were 309 or other CZM-driven changes; and
 - c. Characterize the outcomes or likely future outcomes of the changes.

There were no significant changes generated by the Territory that were noted by stakeholders, or revealed by document research. However, a significant expansion of publicly owned area is represented by the growth of the National Marine Sanctuary of American Samoa.

3. Indicate if your state or territory has a publically available public access guide. How current is the publication and how frequently it is updated?

Public Access Guide	Printed	Online	Mobile App
State or territory has? (Y or N)	N	N	N
Web address			

(if applicable)			
Date of last update			
Frequency of update			

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

High _____
Medium _____
Low XXX

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Public access was not viewed as a major concern by any of the Advisors or interviewees, or by the ASCMP leadership or staff. It was almost universally rated as a low priority for ASCMP program enhancement.

Several people noted that American Samoa cultural traditions affect public access to coastal resources in unique ways. Townscape, Inc. of Hawaii summarized the situation in *Section 309 Assessment and Strategy for the American Samoa Coastal Management Program* (February, 2011) Assessment, writing:

“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 (e.g. 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.”

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. §309(a)(4)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states.)*

Purpose: To quickly determine whether the enhancement area is a high priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. In the table below, characterize the existing status and trends of marine debris in the state’s coastal zone based on the best available data.

Source of Marine Debris	Existing Status and Trends of Marine Debris in Coastal Zone (based partially on assessment from Mike King, ASPA Solid Waste Coordinator)		
	Significance of Source (H, M, L, unknwn)	Type of Impact (aesthetic, resource damage, user conflicts, other)	Change Since Last Assessment (↑, ↓, -, unknwn)
<i>Land-based</i>			
Beach/shore litter	High	aesthetic	No change
Dumping	High	Damage to corals, water quality, more	No change
Storm drains and runoff	High	Water quality damage	No change
Fishing (e.g., fishing line, gear)	Low	Abandoned nets have some impact	Unknown
Other (please specify)			
<i>Ocean or Great Lake-based</i>			
Fishing (e.g., derelict fishing gear)	Low	Little impact	Unknown
Derelict vessels	Low	Some aesthetic	Improved
Vessel-based (e.g., cruise ship, cargo ship, general vessel)	Low	Some aesthetic (mainly from tuna industry)	Unknown
Hurricane/Storm	High	Resource (corals, etc.) and infrastructure damage can be high	No change
Tsunami	Hard to assess. High if they happen, but are very infrequent	High impact on all natural and human resources	Last tsunami was 2009
Other (please specify)			

2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends or potential impacts from marine debris in the coastal zone since the last assessment.

Although not always directly related to “marine debris”, overall attention to trash and garbage of all kinds is a major concern in American Samoa, and one of the environmental issues that draws almost universal comment and support for action. ASCMP is a recognized Territorial leader in clean-up activities of many kinds and ASCMP’s footprint in this issue area is growing with successful outreach and partnership to a growing number of private sector partners and local communities.

Clean-up activities are also an environmental priority of American Samoa Governor Lolo Moliga. On December 30, 2014, Governor Moliga issued Executive Order 007-2014 “creating the Island Wide Cleanup Committee to Develop and Implement a Strategic Cleanup Plan for the Territory”. Among other things, this Committee will “organize clean-ups of the Territory on a regular basis” using “the services of staff and equipment as needed and shall include the resources of (many agencies, including DOC).”

Over the course of the Section 309 period, ASCMP involvement in clean-up activities related to wetlands, streams, mangroves, beaches and other natural areas will almost certainly be extensive.

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if there have been any significant state- or territory-level management changes (positive or negative) for how marine debris is managed in the coastal zone.

Management Category	Employed by State/Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Marine debris statutes, regulations, policies, or case law interpreting these	Y	Y	Y (ASCMP involved with other agencies in clean-up actions)
Marine debris removal programs	Y	Y	Y (Improved inter-agency planning and action)

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
 - a. Describe the significance of the changes;
 - b. Specify if they were 309 or other CZM-driven changes; and
 - c. Characterize the outcomes and likely future outcomes of the changes.

ASCMP Response

There has been significant improvement from September, 2011 through March, 2014 and continuing to the present in the results from American Samoa’s Marine Debris Program, as reported in a *Final Performance Progress Report: Monitoring Report*. The document reported on successes related to two

marine debris goals, including: (1) Remove (2009) tsunami-generated marine debris that remains in the coral reef environment around Tutuila Island; (2) Develop and implement a “Trash Free Territory Program” involving community-based clean-ups and educational outreach to change attitudes about marine debris in American Samoa.

After a survey of the location of major marine debris, a determination of priorities for removal, and an assessment of the best methods of removal, a contractor removed 5.76 tons of debris from the villages of Fagasa, Poloa, Amanave, Leone, Asili, Nua-Seetaga, Aunu’u, Ausasi, and Tula.

The “Trash Free Territory Program” involved the participation of several American Samoa agencies, including ASCMP, and exceeded most of its goals. For example, over the term of the program, Over 43,000 pounds of “small debris” was removed against a goal of 30,000 pounds.

A grant proposal to continue and improve the program has been submitted to the National Fish and Wildlife Federation. The proposal includes a role for ASCMP focused on removal of debris from wetlands and mangrove swamps.

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

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

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

The “medium” priority rating for Marine Debris from Advisors, interviewees and ASCMP staff was consistent, and reflected an assessment that this issue – while certainly requiring more attention and money – did not appear to have a strong need for entirely new ordinances, regulations, or other “program enhancements”.

Special Area Management Planning

Section 309 Enhancement Objective: Preparing and implementing special area management plans for important coastal areas. §309(a)(6)

The Coastal Zone Management Act 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.”

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states and territories.)*

Purpose: To quickly determine whether the enhancement area is a high priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. In the table below, identify geographic areas in the coastal zone subject to use conflicts that may be able to be addressed through a special area management plan (SAMP). This can include areas that are already covered by a SAMP but where new issues or conflicts have emerged that are not addressed through the current SAMP.

Geographic Area	Opportunities for New or Updated Special Area Management Plans
	Major conflicts/issues
None currently identified	

There are certainly geographic areas in American Samoa that have unique conflicts or issues. Development in areas with high concentrations of drinking water wells, for example, may be areas in which Special Area Management Plans may be a useful tool. This would include, for example, Malaeimi, Malaelo, and Tafuna. Arguments have been made for a SAMP that would help contribute to protection of a remaining patch of lowland rainforest in Ottoville. And, there are probably more.

However, the previous history of Special Area Management Plans in the Territory is not encouraging. In the text for the *2011 Section 309 Assessment and Strategy* (February 2011), ASCMP wrote: “There are three areas with SMA designation: Pago 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.” Four years later, this statement is still true.

In addition to the lack of SAMPs for areas designated as Special Management Areas, there has been difficulty getting new areas formally approved. For example, Malaeimi Valley was proposed for SMA designation, but was never approved. A draft SAMP for Malaeimi developed at the time it was recommended for designation was used by the PNRS Board to help review permit applications.

If action is to be taken in the area of SAMPs, it would be best to focus it on creating and approving meaningful SAMPs for the already designated three SMAs, as a first priority.

2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends of SAMPs since the last assessment.

None found.

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if there have been any significant state- or territory-level management changes (positive or negative) that could help prepare and implement SAMPs in the coastal zone.

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
SAMP policies, or case law interpreting these	Y	Y	N
SAMP plans	Y	Y	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
 - a. Describe the significance of the changes;
 - b. Specify if they were 309 or other CZM-driven changes; and
 - c. Characterize the outcomes or likely future outcomes of the changes.

There were not significant changes in the use of SAMP plans, policies or case law, although it is interesting to note there have been changes in use of marine protected areas, expansion of the National Marine Sanctuary of American Samoa, and changes at the National Park of American Samoa. No changes were driven by 309 or ASCMP.

A list of these areas is found below.

Marine Protected Areas

- Alofau
- Amanave Village
- Amaua and Auto
- Aoa
- Fagamalo
- Masausi Village

Marine National Monument/Wildlife Refuge

Rose Atoll

National Park of American Samoa

- Tutuila site
- Tau site
- Ofu site

Matu'u and Faganeanea Village
Poloa Village
Sa'ilele Village
Vatia Village

National Marine Sanctuary of American Samoa
Fagatele
Fagamaa
Aunuu
Swains
Rose
Tau

Marine Parks
Ofu Vaoto
Alega

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

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

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

When considering the kind of conflicts that might generate the need for SAMPs, Advisors, interviewees and ASCMP leadership and staff were more likely to push for more rigorous enforcement and use of existing regulations and planning tools - including through the Permit Notification and Review System, than to suggest SAMPs. It was noted that SAMPs were very difficult to get approved politically.

Ocean and Great Lakes Resources

Section 309 Enhancement Objective: Planning for the use of ocean [and Great Lakes] resources.
§309(a)(7)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states and territories.)*

Purpose: To quickly determine whether the enhancement area is a high priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. Understanding the ocean and Great Lakes economy can help improve management of the resources it depends on. Data from the suggested “Economics: National Ocean Watch” (ENOW) source are not available for the territories. The territories can provide alternative data, if available, or a general narrative, to capture the value of their ocean economy.

ASCMP is seeking complete data for this section for the final draft about the Territory’s ocean economy, including fisheries, tuna canneries, cruise ships, vessel traffic, tourism, coral reefs, and more.

2. In the table below, characterize how the threats to and use conflicts over ocean and Great Lakes resources in the state’s or territory’s coastal zone have changed since the last assessment.

Significant Changes to Ocean and Great Lakes Resources and Uses	
Resource/Use	Change in the Threat to the Resource or Use Conflict Since Last Assessment (↑, ↓, -, unkwn)
Resource	
<i>Benthic habitat (including coral reefs)</i>	Threat has increased
<i>Living marine resources (fish, shellfish, marine mammals, birds, etc.)</i>	Expansion of protected areas – including National Marine Sanctuary - expected to decrease threats to living resources
<i>Sand/gravel</i>	No change
<i>Cultural/historic</i>	No change
<i>Other (please specify)</i>	
Use	
<i>Transportation/navigation</i>	No change
<i>Offshore development</i>	No change
<i>Energy production</i>	No change
<i>Fishing (commercial and recreational)</i>	Expansion of no take zones may increase conflicts – not known
<i>Recreation/tourism</i>	No change
<i>Sand/gravel extraction</i>	More data needed
<i>Dredge disposal</i>	No change
<i>Aquaculture</i>	No change

<i>Other (please specify)</i>	
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- For the ocean and Great Lakes resources and uses in Table 2 (above) that had an increase in threat to the resource or increased use conflict in the state’s or territory’s coastal zone since the last assessment, characterize the major contributors to that increase.

Major Contributors to an Increase in Threat or Use Conflict to Ocean and Great Lakes Resources												
Resource	Major Reasons Contributing to Increased Resource Threat or Use Conflict (Note All that Apply with “X”)											
	Land-based development	Offshore development	Polluted runoff	Invasive species	Fishing (Comm & Rec)	Aquaculture	Recreation	Marine Transportation	Dredging	Sand/Mineral Extraction	Ocean Acidification	Other (Specify)
<i>Example: Living marine resources</i>		X	X	X	X	X		X	X			
Benthic habitat and coral reefs	X		X	X							X	

The American Samoa Coral Reef Advisory Group reports that “the threats to American Samoa’s coral reef habitat have increased over the past four years, partially due to the Crown of Thorns seastar outbreak and bleaching, as well as the existence of overarching threats such as over-fishing, increasing land-based sources of pollution, and the impacts of climate change”.

- If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends of ocean and Great Lakes resources or threats to those resources since the last assessment to augment the national data sets.

ASCMP is reviewing appropriate data for this section including reporting from the National Coral Reef Monitoring Program, the recently approved Marine Conservation Plan, and more.

Management Characterization:

- Indicate if the approach is employed by the state or territory and if any significant state- or territory-level changes (positive or negative) in the management of ocean and Great Lakes resources have occurred since the last assessment?

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	Y	N
Regional comprehensive ocean/Great Lakes management plans	N	N	N
State comprehensive ocean/Great Lakes management plans	N	N	N
Single-sector management	N	N	N

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
plans			

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
 - a. Describe the significance of the changes;
 - b. Specify if they were 309 or other CZM-driven changes; and
 - c. Characterize the outcomes or likely future outcomes of the changes.

Updating the 2003 Ocean Resource Management Program (ORMP) was to have been one of the program enhancements for ASCMP as outlined in approved 2011-2015 Section 309 Assessment and Strategy. Among other things, that approved strategy outlined hiring or contracting of a new Ocean Resources Management Coordinator, re-invigoration of advisors for ocean resource issues, creation of a new ORMP and ratification of the new Plan as a Territorial Ordinance.

For a variety of reasons, including staff vacancies/changes and a political change in the Governor’s office (among others), most of these activities were not completed.

The future of efforts to update an Ocean Resource Management Plan and assign implementation duties to new inter-agency advisory councils, or directly to existing agencies, is unclear.

3. Indicate if your state or territory has a comprehensive ocean or Great Lakes management plan.

Comprehensive Ocean/Great Lakes Management Plan	State Plan	Regional Plan
Completed plan (Y/N) (If yes, specify year completed)	Y - 2003	
Under development (Y/N)	N	
Web address (if available)		
Area covered by plan	Whole Territory	

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

High _____
 Medium XXXXX
 Low _____

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

The assessment of Ocean and Coastal Resources as a “medium” assessment arose partially from the awareness of stakeholders that efforts to update the 2003 Ocean Resources Management Plan did not move forward successfully, and that future decisions in this area are connected to other decisions about environmental and other concerns in front of the Governor.

The issue did not receive a “low” ranking because issues related to careful management of ocean resources, including water quality concerns, fisheries and coral reef management, relationships with other governments in the region, desire for more cruise ship tourism, and other issues are very real.

Energy and Government Facility Siting

Section 309 Enhancement Objective: 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. §309(a)(8)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states and territories.)*

Purpose: To quickly determine whether the enhancement area is a high priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. In the table below, characterize the status and trends of different types of energy facilities and activities in the state’s or territory’s coastal zone based on best available data.

Status and Trends in Energy Facilities and Activities in the Coastal Zone				
Type of Energy Facility/Activity	Exists in CZ		Proposed in CZ	
	(# or Y/N)	Change Since Last Assessment (↑, ↓, -, unkwn)	(# or Y/N)	Change Since Last Assessment (↑, ↓, -, unkwn)
<i>Energy Transport</i>				
Pipelines	N	None	N	
Electrical grid (transmission cables)	Y	New tie-in line connecting Tafuna and Satala power plants replacing the previous one taken out by the 2009 tsunami	N	
Ports	N	None	N	
Liquid natural gas (LNG)	N	None	N	
Other (please specify)		None	N	
<i>Energy Facilities</i>				
Oil and gas (Tutuila has 2 diesel-fired power plants)	Y	Replacement of Satala power plant taken out by the 2009 Tsunami	N	
Coal	N	None	N	
Nuclear	N	None	N	
Wind	Y	Studies	?	

Status and Trends in Energy Facilities and Activities in the Coastal Zone				
Type of Energy Facility/Activity	Exists in CZ		Proposed in CZ	
	(# or Y/N)	Change Since Last Assessment (↑, ↓, -, unkwn)	(# or Y/N)	Change Since Last Assessment (↑, ↓, -, unkwn)
Wave	N	None	N	
Tidal	N	None	N	
Current (ocean, lake, river)	N	None	N	
Hydropower	Y	Studies	?	
Ocean thermal energy conversion	N	None	N	
Solar	Y	Increased	Y	Increased
Biomass	Y	Studies underway	Y	Increased
Other (please specify)				

2. If available, briefly list and summarize the results of any additional state- or territory-specific information, data, or reports on the status and trends for energy facilities and activities of greater than local significance in the coastal zone since the last assessment.

ASCMP Response

Much of the energy facility-related activity in American Samoa over the last several years has related to recovery from the 2009 tsunami. The tsunami took out both the 23.5 MW diesel-fired Satana electrical power plant and the tie-in line connecting that facility to the Tafuna diesel-fired plant. Bringing these facilities back to pre-tsunami level – including construction of an entirely new Satana plant - has been a major priority.

Another significant effort has involved implementation of American Samoa Executive Order #004-2010, requiring the development and initial implementation of renewable energy plans and strategies aimed at decreasing American Samoa’s deep dependence on fossil fuels (diesel) for electricity generation.

An update of the key goals and current accomplishments related to renewable energy planning and deployment can be found on the website of the American Samoa Renewable Energy Committee at: <http://www.asrec.net/2014/09/24/asrec-action-plan-update/>. The asrec.net site also includes full copies of the Territory’s energy plan and energy strategy.

American Samoa’s approach involves three core strategies:

- 1) Serve electricity needs in the Manu’a Islands from renewable energy sources alone.
- 2) Deploy wind and solar energy on Tutuila
- 3) Assess the potential for geothermal development on Tutuila

In addition to these strategies, work has also “been completed, or initiated and ongoing” related to:

- A waste-to-energy facility
- Conversion of streetlights to energy-saving LED installations
- Net metering for private solar installations
- Use of waste heat recovery technology

- Restoration assessment of the historic Fagatogo /Matafao Hydroelectric Power System

Management Characterization:

- Indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) that could facilitate or impede energy and government facility siting and activities have occurred since the last assessment.

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	N	Action on Executive Order re: Renewable Energy
State comprehensive siting plans or procedures	Y	N	None

- For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
 - Describe the significance of the changes;
 - Specify if they were 309 or other CZM-driven changes; and
 - Characterize the outcomes or likely future outcomes of the changes.

In 2011, with the exception of a few small renewable projects, American Samoa was completely dependent on fossil fuels for meeting its energy generation needs. In 2012, American Samoa installed a 1.75-megawatt (MW) PV system at the Tafuna airport, allowing for 10% of energy generation needs to be met with renewables.

Beyond this system and utility-owned installations, solar energy use has grown rapidly in American Samoa. In all categories (residential, commercial, schools, and government), “net metering” solar connections have increased, according to the American Samoa Power Authority.

Enhancement Area Prioritization:

- What level of priority is the enhancement area for the coastal management program?

High _____
 Medium _____
 Low XXXXX

- Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Although a transition to a more clean energy economy was clearly felt to be a high priority for the Territory as a whole, the number and difficulty of energy and government siting issues that would affect

the Coastal Management Program were seen to be minimal. In addition, existing regulations and permitting processes were felt to be adequate for expected developments.

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. §309(a)(9)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states and territories.)*
Purpose: To quickly determine whether the enhancement area is a high priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. In the table below, characterize the existing status and trends of aquaculture facilities in the state’s coastal zone based on the best available data. Your state Sea Grant Program may have information to help with this assessment.

Type of Facility/Activity	Status and Trends of Aquaculture Facilities and Activities (based partially on interviews with AS Sea Grant extension)		
	# of Facilities	Approximate Economic Value	Change Since Last Assessment (↑, ↓, -, unkwn)
Tilapia Aquaculture Farm	1	unknown	No significant change
Non-commercial/subsistence/hobby aquaculture	~25	Non-commercial	No significant change

ASCMP Response:

Interviews and data requests revealed only one commercial aquaculture operation; that of Duke Purcell, farm in Mapusaga Fou, where fresh tilapia are produced. We would be very glad to learn about all additional commercial aquaculture in American Samoa.

2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends or potential impacts from aquaculture activities in the coastal zone since the last assessment.

No additional significant data sources.

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if there have been any state- or territory-level changes (positive or negative) that could facilitate or impede the siting of public or private aquaculture facilities in the coastal zone.

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Aquaculture comprehensive siting plans or procedures	N	N	N
Other aquaculture statutes, regulations, policies, or case law interpreting these	Y	Y	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
 - a. Describe the significance of the changes;
 - b. Specify if they were 309 or other CZM-driven changes; and
 - c. Characterize the outcomes or likely future outcomes of the changes.

ASCMP Response

There were no significant changes. ASCMP’s involvement in aquaculture is fairly limited. Commercial aquaculture operations require a business license from the Department of Commerce, zoning approval from the zoning board, and an approved permit through the Permit Notification and Review System (PNRS) Board.

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

High _____
Medium _____
Low xxx

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

Aquaculture received the highest number of “low priority” check marks during the Section 309 Advisors meeting on November 20, 2014 and this assessment was supported by interviews with other Advisors. The full list of those providing suggestions and rankings is in Section II of this document.

The low priority ranking for aquaculture as a possible Section 309 program enhancement for ASCMP should not be taken as a statement about the commercial possibilities for an aquaculture industry in

American Samoa. Aquaculture, in fact, may offer significant economic development opportunities for the Territory. The low priority ranking here is more a reflection that ASCMP itself is not engaged in significant efforts to grow the industry, nor is it facing resource problems or conflicts that relate to commercial (or even non-commercial) aquaculture.

III. PHASE TWO ASSESSMENTS

Wetlands

In-Depth Resource Characterization:

Purpose: To determine key problems and opportunities to improve the CMP's ability to protect, restore, and enhance wetlands.

1. What are the three most significant existing or emerging physical stressors or threats to wetlands within the coastal zone? Indicate the geographic scope of the stressor, i.e., is it prevalent throughout the coastal zone or specific areas that are most threatened? Stressors can be development/fill; hydrological alteration/channelization; erosion; pollution; invasive species; freshwater input; sea level rise/Great Lake level change; or other (please specify). When selecting significant stressors, also consider how climate change may exacerbate each stressor.

	Stressor/Threat	Geographic Scope (throughout coastal zone or specific areas most threatened)
Stressor 1	Unpermitted fill	In all areas
Stressor 2	Water pollution	In all areas
Stressor 3	Trash and Debris	In all areas

2. Briefly explain why these are currently the most significant stressors or threats to wetlands within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

Conversations with the ASCMP staff members with responsibilities for wetlands education/outreach, and for coordination of the Permit Notification and Review System, confirm that unpermitted filling and trash dumping in wetlands are significant stressors. Regarding water pollution in wetlands, there is no direct monitoring of wetlands (as reported in the *Territory of American Samoa Integrated Water Quality Monitoring and Assessment Report: 2014*), but the data in that report document significant water pollution concerns in surrounding streams and water bodies.

3. Are there emerging issues of concern but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	Information Needed
No additional emerging issues were identified	

In-Depth Management Characterization:

Purpose: To determine the effectiveness of management efforts to address identified problems related to the wetlands enhancement objective.

1. For each additional wetland management category below that was not already discussed as part of the Phase I assessment, indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) have occurred since the last assessment.

Management Category	Employed By State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Wetland assessment methodologies	Y	Y	N
Wetland mapping and GIS	Y	Y	Y
Watershed or special area management plans addressing wetlands	Y	Y	N
Wetland technical assistance, education, and outreach	Y	Y	Y
Other (please specify)			

2. For management categories with significant changes since the last assessment, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information.
 - a. Describe significant changes since the last assessment;
 - b. Specify if they were 309 or other CZM-driven changes; and
 - c. Characterize the outcomes or likely future outcomes of the changes.

Wetland mapping and GIS

As reported by Robert Koch of ASCMP (May, 2015):

“The biggest change since the last assessment is the addition of LiDAR data. LiDAR has been used to derive the American Samoa National Hydrography Dataset (NHD) for 2012. The new 2012 NHD is at a much higher resolution and accuracy than previous versions (last NHD was released in 2001). The 2012 NHD was produced using a 1 meter DEM, whereas the 2001 NHD was produced using a 10 meter DEM. That being said NHD is typically one of the standard data-sets used for producing and interpreting wetland delineations. Any new delineations will utilize the 2012 NHD.

This will improve the ability for ASCMP to field-verify wetland delineations. The new wetlands data used with any type of RTK GPS will allow ASCMP to pinpoint areas in which wetlands may be growing, shrinking and/or where infrastructure may be encroaching. This would, however, require the use of a high accuracy-precision GPS system.”

Wetland technical assistance/education/outreach

Wetlands technical assistance, education and outreach work has been a major part of ASCMP's work, including that supported by Section 309, over the last five years. This work was largely summarized in the Wetlands Section Phase 1 and Phase 2, found earlier in this report. Additional information here would be duplicative of that text.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's or territory's management efforts in protecting, restoring, and enhancing coastal wetlands since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state's or territory's management efforts?

Beyond regular reporting to NOAA and other federal funders on the ASCMP wetlands program, and the Leone Village wetlands restoration program, there has been no study of American Samoa's effectiveness in protecting and restoring wetland resources. Development of a wetlands monitoring program could help assure that the effectiveness of management efforts can be objectively assessed.

Identification of Priorities:

1. Considering changes in wetlands and wetland management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve its ability to more effectively respond to significant wetlands stressors. (*Approximately 1-3 sentences per management priority.*)

Management Priority 1: Need for ongoing wetlands monitoring with community involvement

Description: There is no ongoing monitoring of wetlands health in American Samoa, either by ASCMP (for wetlands loss or degradation), or by the Territory's environmental agencies (for water quality status in wetlands), or both. A lack of ongoing monitoring results in a continuing inability to adequately assess and report on the current status and long-term trends regarding wetlands. In addition, a lack of a monitoring program deprives the Territory of ancillary benefits in terms of environmental education, and possible eco-tourism opportunities (e.g. boardwalk trails, etc.). Finally, the presence of a monitoring program can itself act as a tool for wetland protection, as one part of a more comprehensive wetlands program.

Management Priority 2: Need for wetlands clean-up/restoration with community involvement

Description: The presence of trash and debris in wetlands continues to be the concern most reported to ASCMP and the ASCMP wetlands coordinator by community residents. Active programs to remove trash, especially involving young people, are both popular and important. Larger restoration projects, like the one in Leone Village, are also in need of financial support. There are significant opportunities for American Samoa to restore some of the hundreds of acres of original wetlands (including mangroves) that were lost to development. Much of American Samoa's wetlands were lost to development between 1900 and 1961, and 30% of the remaining wetlands were lost between 1961 and 1991.

Management Priority 3: Need for increased education re: unpermitted fill/dumping trash in wetlands

Description: Continued examples of unpermitted filling and trash dumping in wetland areas demonstrate the need for improved education and outreach regarding the importance of wetlands to the community, and the regulatory requirements prohibiting filling and dumping. Education and outreach methods must be tailored to the needs and special conditions in specific villages and regions – and must be continually reinforced - to be effective.

2. Identify and briefly explain priority needs and information gaps the CMP has to help it address the management priorities identified above. The needs and gaps identified here do not need to be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	N	
Mapping/GIS	Y	Need mapping data that supports ongoing monitoring
Data and information management	Y	Need continually updated data on wetlands health
Training/capacity building	Y	Need improved capacity for both professional wetlands ecology/health assessment and training/support for student and citizen “scientists” for community protection of wetlands
Decision-support tools	N	
Communication and outreach	Y	Need continued improvement in creating and sustaining community involvement in wetlands protection
Other (Specify)		

Enhancement Area Strategy Development:

1. Will the CMP develop one or more strategies for this enhancement area?

Yes XXXX
No _____

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

As noted in previous sections of this report, wetlands protection was one of two items selected as a high priority of Section 309 program enhancement assistance. An enhancement related to wetlands monitoring connects with one of the highest management priorities for wetlands management.

Coastal Hazards

In-Depth Resource Characterization:

Purpose: To determine key problems and opportunities to improve the CMP's ability to prevent or significantly reduce coastal hazard risks by eliminating development and redevelopment in high-hazard areas and managing the effects of potential sea level rise and Great Lakes level change.

- 1a. **Flooding In-depth** (for all states besides territories) *National data are not available for territories. Territories can omit this question unless they have similar alternative data or include a brief qualitative narrative description as a substitute.*

2010 Populations in Coastal Counties at Potentially Elevated Risk to Coastal Flooding				
	Under 5 and Over 65 years old		In Poverty	
	# of people	% Under 5/Over 65	# of people	% in Poverty
Inside Floodplain				
Outside Floodplain				

- 1b. **Flooding In-depth** (for all states besides territories)

Critical Facilities in the FEMA Floodplain						
	Schools	Police Stations	Fire Stations	Emergency Centers	Medical Facilities	Communication Towers
Inside Floodplain						
Coastal Counties						

ASCMP Response: As noted above, this data is not available for US territories, including American Samoa. However, detailed information about all flooding hazards in American Samoa, can be found in the May, 2015 revision of the *Territorial Multi-Hazard Mitigation Plan*, posted online at <http://doc.as.gov/resource-management/ascmp/2015-hazard-mitigation-plan-2>. A collection of maps detailing “buildings at risk” and “critical facilities at risk” can be found on pages 148-161 of the posted document.

2. Based on the characterization of coastal hazard risk, what are the three most significant coastal hazards within the coastal zone? Also indicate the geographic scope of the hazard, i.e., is it prevalent throughout the coastal zone or are specific areas most at risk?

	Type of Hazard	Geographic Scope (throughout coastal zone or specific areas most threatened)
Hazard 1	Flooding	Most areas
Hazard 2	Landslides	All steep slope areas
Hazard 3	Tropical storms/surges	Most areas

- Briefly explain why these are currently the most significant coastal hazards within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

In the most recent *Territorial Multi-Hazard Mitigation Plan* (May, 2015), flooding, landslides, and tropical storms/storm surges are referenced as significant natural hazards for American Samoa. This document is referred to in the text below as “the HMP”.

These same hazards were selected as priority concerns in interviews with ASCMP staff and management, during the November, 2014 meeting of Section 309 assessment and strategy Advisors, and in additional conversations with staff people from NOAA and ASG environmental agencies.

Flooding

The priority status of flooding is described in detail, with accompanying maps and charts, on pages 129-161 of the HMP, and summarized in the conclusion below, from pages 144-145. We have shown some statements in bold print to emphasize their conclusions.

“Flooding is an increasingly serious problem in American Samoa.....Although the flood hazard does have a defined boundary, **all current and future structures and populations should be considered at risk.** As noted throughout this section, flooding may not occur in designated areas. **Changes in development and climate have increased the severity of this hazard** for the islands and **flood is considered a high hazard** based on the PRI results.”

Landslides

The priority status of landslides is described in detail in the HMP on pages 164-176, which includes maps showing specific locations in which buildings and critical facilities are at risk. The summary concludes on page 173 with the statement that: “Vulnerability to landslides in American Samoa is high”.

Tropical Storms/Storm Surges

The priority status of tropical storms/storm surges is described in the HMP on pages 181-197, which includes maps showing specific locations in which facilities are at risk. The summary includes a conclusion on page 197 that states: “All current and future structures and populations are considered at risk to the tropical cyclone hazard. All counties and villages within have equal vulnerability to this hazard. This includes all critical facilities and infrastructure.”

- Are there emerging issues of concern, but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	Information Needed
Climate change/sea level rise	Location specific options for improved resilience responses at the local level.

In-Depth Management Characterization:

Purpose: To determine the effectiveness of management efforts to address identified problems related to the coastal hazards enhancement objective.

1. For each coastal hazard management category below, indicate if the approach is employed by the state or territory and if there has been a significant change since the last assessment.

Management Category	Employed by State/Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Change Since the Last Assessment (Y or N)
Statutes, Regulations, and Policies:			
<i>Shorefront setbacks/no build areas</i>	Y	Y	N
<i>Rolling easements</i>	N	N	N
<i>Repair/rebuilding restrictions</i>	Y	Y	N
<i>Hard shoreline protection structure restrictions</i>	Y	Y	N
<i>Promotion of alternative shoreline stabilization methodologies (i.e., living shorelines/green infrastructure)</i>	Y	Y	N
<i>Repair/replacement of shore protection structure restrictions</i>	Y	Y	N
<i>Inlet management</i>	N	N	N
<i>Protection of important natural resources for hazard mitigation benefits (e.g., dunes, wetlands, barrier islands, coral reefs) (other than setbacks/no build areas)</i>	Y	Y	N
<i>Repetitive flood loss policies (e.g., relocation, buyouts)</i>	N	N	N
<i>Freeboard requirements</i>	N	N	N
<i>Real estate sales disclosure requirements</i>	N	N	N
<i>Restrictions on publicly funded infrastructure</i>	Y	Y	Y
<i>Infrastructure protection (e.g., considering hazards in siting and design)</i>	Y	Y	Y
<i>Other (please specify)</i>			
Management Planning Programs or Initiatives:			
<i>Hazard mitigation plans</i>	Y	N	Y
<i>Sea level rise/Great Lake level change or climate change adaptation plans</i>	Y	N	Y
<i>Statewide requirement for local post-disaster recovery planning</i>	N	N	N
<i>Sediment management plans</i>	N	N	N
<i>Beach nourishment plans</i>	N	N	N
<i>Special Area Management Plans (that address hazards issues)</i>	Y	N	N
<i>Managed retreat plans</i>	N	N	N
<i>Other (please specify)</i>			
Research, Mapping, and Education Programs or Initiatives:			
<i>General hazards mapping or modeling</i>	Y	Y	Y
<i>Sea level rise mapping or modeling</i>	Y	Y	Y
<i>Hazards monitoring (e.g., erosion rate, shoreline change, high-water marks)</i>	N	N	N

<i>Hazards education and outreach</i>	Y	N	Y
<i>Other (please specify)</i>			

2. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state’s management efforts in addressing coastal hazards since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state’s management efforts?

At least two major studies/reports shed light on American Samoa’s response to coastal hazards. The first is the new (May, 2015) *Territorial Multi-Hazard Mitigation Plan* (HMP), extensively referenced throughout this section, and found online at <http://doc.as.gov/resource-management/ascmp/2015-hazard-mitigation-plan-2/>. On pages 274-280, the HMP offers the following recommendations (in areas that relate to ASCMP’s responsibilities) for improvement of coastal hazard management:

Flood	Most chronic hazard—threat to roads, homes, businesses, and critical facilities.	Improvements in Land Use and Flood Plain Management and Regulation; Relocation of Existing Structures; Elevation of Existing Structures; Structural and Non-structural Flood Mitigation Projects.
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<p>Tropical Cyclones (including storm surge) and High Wind Storms</p>	<p>Most serious threat in terms of economic impact and widespread damage to buildings and utilities.</p>	<ul style="list-style-type: none"> • Harden existing facilities and utilities. For example, install hurricane clips, provide shutters for windows, and anchor roofs; • Harden or strengthen infrastructure with anchor utility poles, use steel or concrete poles, install underground wires and cables, harden bridges, and identify bypass roads; • Increase public education and awareness, motivating people to prepare their homes and communities against disasters; • Consider land use zoning to minimize development in areas of known potential high waves, storm surge, and coastal erosion; • Consider new flooding design standards in the International Building Code (or ASCE 24) to minimize risk in identified and/or mapped zones of high waves, storm surge, and coastal erosion; • Increase public awareness and education about the risks from high waves, storm surge, and coastal erosion; • Locate development away from the shoreline; • Harden bridges and roads and allow proper drainage; • Relocate facilities and houses out of the designated VE zones or away from eroding shorelines; • Public education to anchor loose outdoor items and properly store hazardous chemicals.
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Hazard	Major Concerns	Mitigation Strategies
Landslides	<p>Serious threat to villages and roads.</p> <p>Limited land use regulation can result in high-risk development.</p>	<p>Improvements in Land Use Management and Regulation (including new building permit approval);</p> <ul style="list-style-type: none"> • Relocation of Existing Structures; • Village Mitigation Ordinances; • Mitigation of repetitive rock fall hazards to populations; • Consider the landslide hazard map zones for land use decisions, where applicable; • Enforce building setbacks through Permit Notification and Review System for slopes less than 40% grade and no building on slopes 40% or greater; • Build on the least risky areas of the land parcel or leave a buffer between the building and a steep slope (above or below) the property; • Relocate or condemn structures that are at high risk; • Establish village mitigation ordinances that limit use of high-risk areas while allowing villagers to develop alternative parcels of land; • Leave local vegetation in place and replant areas that are barren from development or fire, for example; • Enact regulations to require non-eroding drainage for new development; • Increase public awareness and education about the risks from landslides including when and where occurrence is most likely; • Further investigate critical facilities at risk to determine if mitigation projects or relocation would be cost effective; • Track and map all occurrences and include relevant information such as location, type, size and cause; • For slopes in agricultural areas, prevent grading and clearance. Cultivate and reforest with deeply rooting plants to prevent erosion on slopes.

Hazard	Major Concerns	Mitigation Strategies
Climate Change	<p>Sea-level rise and coastal erosion as a result of more frequent and more severe periods of drought and flooding;</p> <p>According to the United Nations Confronting Climate Change report, the significant impacts of climate change to the pacific islands and small island nations is: "inundation of low-lying coral islands as sea level rises; salinization of aquifers; widespread coral bleaching; more powerful typhoons and possible intensification of ENSC extremes." ²</p>	<ul style="list-style-type: none"> • Enforcement of the shoreline setback rules of the Coastal Zone Management Act through better risk maps and improved PRNS permitting and inspections; • Education programs to increase awareness and mitigation of impacts of climate change on island environments; • Local monitoring and hazard mapping program; • Continue to implement and expand actions in Executive Order (EO) 0101A-2007, which focuses on reducing climate change impacts.

The second is the March, 2012 *American Samoa Tsunami Study (ASTA)*, produced by the United States Army Corps of Engineers Honolulu District, and EA/HHF Joint Venture, with inter-agency participation by NOAA and others, and with extensive stakeholder participation by leaders and professionals associated with American Samoa Government, including ASCMP.

While this document is focused on responses related to the 2009 American Samoa tsunami, it includes many conclusions and recommendations that provide important guidance to the Territory's efforts to become more resilient in the face of all coastal hazards.

The ASTA calls out several management efforts related to quality coastal hazards efforts, some of which Advisors and interviewees to this project also noted, as seen below, from page 4-7 of the ASTA:

- NOAA/UH DURP Village Capacity Building for Resilience – The ongoing, village-level efforts by NOAA and UH (to develop community planning practices that promote community resilience within a sustainable ecosystem framework) are recognized as an extremely important initiative that should be expanded to all the villages in American Samoa. The Tsunami Study recognizes the importance of understanding and working with the Matai in achieving the broad societal change necessary to embrace resiliency and includes recommendations to promote and expand this initiative.
- NOAA Community Resilience toward Climate Change Impacts – A two part pilot project, started in Amouli village, includes digital elevation modeling and sea level rise modeling and a participatory, bottom-up community planning component to address potential impacts. The village planning committee is developing its Village Climate Resiliency Responses and Actions Plan, scheduled for completion before April 2012.
- NDPTC & Volunteer Responders – NDPTC's ongoing efforts to provide technical training to the *aumaga* and the broader community are commendable and need to be continued and broadened. Groups of volunteer responders are being developed and trained through initiatives such as Community Emergency Response Teams (CERT) and Citizen Corps. Tsunami Study recommendations promote the continuance and expansion of village-based training initiatives.
- PRiMO – The PRiMO Executive Director and members provided steadfast support for the Tsunami Study initiative by fostering communication between related parties and providing valuable input to discussions. They also recognize and are actively involved in supporting efforts to develop grass-roots, village-based awareness of natural disaster threats, and the means to build community resilience. The coordination framework and technical support provided under the PRiMO umbrella married well with the on-island advisory committee framework created by Governor Togiola.

In keeping with ASCMP’s main focus on land use and development permitting through the PNRS Board, we have reprinted a table of recommendations in these area from the report, below. The numerical notation of the figure (Table 4.7) is from the ASTA, not this document. We note that several of these recommended actions require the involvement of ASCMP and/or the Department of Commerce.

Table 4.7 – Land Use & Structural Design Recommendations

Focus	Recommendation	Priority	Cost	Timeline	Type
3.1 - Tsunami Modeling	Conduct a tsunami inundation modeling study to determine inundation extents for several high magnitude tsunami scenarios.	Top	> \$400K	1 st Yr	Study
		Participating AS Organizations: ASDHS/TEMCO, DOC Participating Outside Organizations: FEMA, NOAA, USGS, UH, USACE			
3.2 - Relocations	Prepare critical facility assessment (including school and church shelters, Tafuna EOC and hospital) to identify tsunami vulnerability, suitable locations for facility relocation (if indicated and feasible), and recommendations for structural modifications where relocation is not feasible.	Top	≤ \$400K	1 st Yr	Study
		Participating AS Organizations: ASPA, ASTCA, DOC, DOE, DOH, DPA, DPW, EAC, LBJ, OSA, ASDHS/TEMCO Participating Outside Organizations: DOE, DOI-OIA, FEMA, NOAA, NWS-WSO, UH, USACE			
3.3 - Building Techniques	Develop a structural modification guidebook for coastal homes in American Samoa and provide outreach to homeowners and builders.	Top	≤ \$400K	< 5 Yrs	Plan/ Proj
		Participating AS Organizations: DPW Participating Outside Organizations: NOAA, UH, USACE			
3.4 - Building Regulations	Increase coordination between DOC and DPW to standardize permitting more effectively in the coastal zone and require resilient construction methods; increase education and outreach on more resilient building techniques.	High	< \$50K	< 5 Yrs	Policy & Plan
		Participating AS Organizations: DOC, DPW, OSA Participating Outside Organizations: NA			
3.5 – Replacement Housing	Develop design guidelines and siting criteria for permanent replacement housing.	High	≤ \$400K	< 5 Yrs	Study
		Participating AS Organizations: DOC, DPW Participating Outside Organizations: NOAA, UH, USACE			
3.6 - Shore Protection	Conduct a study to identify where shoreline hardening could build resilience to tsunami hazards, with special attention to critical facilities and infrastructure, and make recommendations for improvements.	High	≤ \$400K	< 5 Yrs	Study
		Participating AS Organizations: ASPA, ASTCA, ASVB, DPA, DPW Participating Outside Organizations: DHS, USACE			
3.7 - Long Range Land Use	Develop long range land use plans addressing the future economy, population growth and natural resources to help guide future development away from tsunami hazard areas.	High	≤ \$400K	< 5 Yrs	Plan/ Proj
		Participating AS Organizations: DOC, OSA Participating Outside Organizations: COC			
3.8 - Hospital Modification	Identify costs for structural modification or vertical evacuation possibilities at LBJ Tropical Medical Center.	High	≤ \$400K	< 5 Yrs	Plan/ Proj
		Participating AS Organizations: DOH, Governor, LBJ Participating Outside Organizations: DHSS, FEMA			
3.9 - Tsunami Loss	Conduct a tsunami loss estimation study to estimate the cost of home and business losses and potential economic impacts.	Med	< \$50K	< 5 Yrs	Study
		Participating AS Organizations: ASDHS/TEMCO, DOC Participating Outside Organizations: FEMA, NOAA, UH			

Focus	Recommendation	Priority	Cost	Timeline	Type
3.10 - Natural Resource Education	Increase public outreach on the value of mangroves (supporting coastal resources, lessen coastal flooding impacts, preventing tsunamis from pulling bulky hazardous debris to reefs) to prevent the clearing of this resource in the few areas where it exists.	Med	≤ \$400K	< 5 Yrs	Study
		Participating AS Organizations: DOC, OSA Participating Outside Organizations: NOAA			
3.11 – Aquifer Vulnerability	Conduct an assessment to determine the vulnerability of aquifers in American Samoa to tsunami inundation.	Med	< \$50K	< 5 Yrs	Study
		Participating AS Organizations: ASDHS/TEMCO, DOC Participating Outside Organizations: NOAA			
3.12 - Flood Mapping	Update FEMA FIRMs for American Samoa based on run-ups and inundation depth determined by tsunami inundation modeling (and determine established floodways based on riverine flooding).	Med	< \$50K	< 5 Yrs	Plan/ Proj
		Participating AS Organizations: DOC Participating Outside Organizations: FEMA			
3.13 - Land Use Management	Conduct a feasibility study to identify applicable land use management tools including the identification of incentives for developing in low risk/ low impact areas of the islands.	Low	> \$400K	< 5 Yrs	Plan/ Proj
		Participating AS Organizations: DOC, Governor Participating Outside Organizations: NOAA			
3.14 - Nutrient Pollution	Continue piggery/livestock outreach, inspections, and funding for structural upgrades to reduce nutrient loading in ground and stream water that can result from tsunami inundation or storm runoff/flooding.	Low	< \$50K (R)	< 5 Yrs	Study
		Participating AS Organizations: ASEPA, DOC Participating Outside Organizations: USACE			

Identification of Priorities:

1. Considering changes in coastal hazard risk and coastal hazard management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve its ability to more effectively address the most significant hazard risks. *(Approximately 1-3 sentences per management priority.)*

Management Priority 1: Incorporate coastal hazard mitigation concerns more directly into the work of ASCMP and the deliberations of the PNRS Board

Description: While issues of flooding, tropical storms, storm surges, landslides and climate change/sea level rise are long-standing concerns of ASCMP and the permitting requirements of the Permit Notification Review System (PNRS), establishing coastal hazards as a higher priority will allow ASCMP to review and amend its activities to assure it is appropriately focused on effectively mitigating coastal hazard concerns.

Management Priority 2: Improve coordination with other agencies of American Samoa Government related to coastal hazards and the 2015-2020 Territorial Multi-Hazard Mitigation Plan.

Description: Although coordination with the other agencies represented on the Territorial Hazard Mitigation Council is already significant, completion of the 2015-2020 update to the Hazard Mitigation Plan in close proximity to the Section 309 timetable represents an opportunity to more closely align activities around a common general blueprint for action.

Management Priority 3: Maintain needed Geographic Information System (GIS) resources related to coastal hazards to support mitigation efforts and decision-making.

Description: ASCMP has the primary responsibility for developing, maintaining and sharing GIS data about coastal hazards needed to support policies and actions to mitigate serious hazard risks. Maintaining these GIS resources (found at <http://portal.gis.doc.as>) is a constant challenge in a Territory with limited financial and technical resources.

2. Identify and briefly explain priority needs and information gaps the CMP has for addressing the management priorities identified above. The needs and gaps identified here should not be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	N	
Mapping/GIS/modeling	Y	GIS/maps related to coastal hazards need constant updating
Data and information management	Y	A lack of data gathering according to standards of funding agencies hinders ability to successfully apply for funding of mitigation projects, including those in the new HMP update.
Training/Capacity building	Y	Total territorial professional staffing related to understanding and mitigating coastal hazards is insufficient

Decision-support tools	N	
Communication and outreach	Y	Successful messaging regarding actions that citizens, businesses and agencies can take to mitigate coastal hazards requires consistent repetition.
Other (Specify)		

Enhancement Area Strategy Development:

1. Will the CMP develop one or more strategies for this enhancement area?

Yes XXXX
No _____

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

Understanding and mitigating coastal hazards (flooding, tropical storms, storm surges, landslides and sea level rise) is among the most important legislative mandates for the American Samoa Coastal Management Program. It is also among the mandated actions for the American Samoa Hazard Mitigation Council, and a primary concern of other agencies. With the recent (May, 2015) approval of a new, five-year Territorial Multi-Hazard Mitigation Plan, ASCMP is in a unique position to collaborate with others on implementation efforts in the area of coastal hazards.

We note, also, that the category of “coastal hazards” is a NOAA priority for all states and territories.

Strategy Name: ASCMP Involvement in Implementation of the Territorial Multi-Hazard Mitigation Plan (HMP)

I. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas:

Coastal Hazards

II. Strategy Description

A. The proposed strategy will lead to, or implement, the following types of program changes (*check all that apply*):

New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;

New or revised guidelines, procedures, and policy documents which are formally adopted by a state or 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.

B. **Strategy Goal:** Create, and support, a new coastal hazards initiative within ASCMP that will coordinate with others in American Samoa Government on implementation of the 2015-2020 Territorial Hazard Mitigation Plan (HMP).

C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above.

As described in both the “Phase 1” and “Phase 2” Coastal Hazards sections of this report, the Territory of American Samoa is required to revise and update its current Territorial Hazard Mitigation Plan (HMP) every five years to be eligible for non-emergency public assistance from the Federal Emergency Management Agency (FEMA), Pre-Disaster Mitigation project grants, Hazard Mitigation Grant Program funding, and Flood Management Assistance Grants.

American Samoa’s Hazard Mitigation Plan for 2015-2020 was recently completed and is expected to be approved as final by FEMA during the week of May 18, 2015. The Territory’s HMP aligns with the same five year period covered by this Section 309 Strategy (FY 2016-2020).

The 533-page plan can be found online at: <http://doc.as.gov/resource-management/ascmp/2015-hazard-mitigation-plan-2/>.

Development and approval of the HMP updates is one of the Territory’s most intensive formal processes for assessing and reducing risks from the same coastal hazards that ASCMP is most concerned with, including: flooding, landslides, tropical storms, storm surges, and sea level rise. In addition to reviewing and approving specific mitigation projects for possible funding and implementation, the HMP also

provides a valuable trove of maps and data about coastal hazards, and suggestions for policies and strategies that can help guide coastal hazard planning, management and community action.

In the past, the American Samoa Coastal Management Program has not used the assessments, recommendations and proposed projects in the Territorial Hazard Mitigation Plan to help guide its planning and programming in the area of coastal hazards as much as it would have preferred to. In addition, ASCMP has not been able to bring its resources and authorities to bear to help assure that important mitigation projects in the HMP are funded and implemented as much as it would have liked.

The strategy and action steps described below are designed to bring the Territorial Hazard Mitigation Plan process and conclusions more formally into the daily workings of ASCMP and the American Samoa Permit Notification and Review System (PNRS).

Specifically, we propose the following:

- i. Recruitment and contracting of a “coastal hazard project coordinator” to increase ASCMP’s capacity in the area of coastal hazards, and to serve as the main source of staff connection between ASCMP and other actors engaged in implementing the 2015-2020 Hazard Mitigation Plan, and addressing coastal hazards in general.
- ii. Incorporation of representation from the Hazard Mitigation Council (HMC) into the deliberations of the Permit Notification and Review System (PNRS) in an appropriate manner, to assure that issues of coastal hazards (on both a site and territory-wide basis) receive priority attention in land use and building permit review.
- iii. Incorporation of representation from the American Samoa Coastal Management Program into the deliberations of the Hazard Mitigation Council and related agencies responsible for implementing the Hazard Mitigation Plan.
- iv. Formal review of PNRS permit requirements and processes to determine if new or additional requirements are needed to effectively address coastal hazards identified in the AS Hazard Mitigation Plan, including flooding, landslides, tropical storms, surges, and sea level rise.
- v. As identified through action iv., (above), take action to develop, approve and implement new permit requirements or processes to improve the effectiveness of the PNRS as one actor in the Territory’s Hazard Mitigation Plan implementation team.
- vi. Development and delivery of regular training sessions/management retreats for ASCMP staff, PNRS Board members, and selected community members to create (and maintain) a detailed understanding of the coastal hazards described in the Hazard Mitigation Plan; the general strategies proposed to address them; the purpose, location and cost of the specific mitigation projects approved by the HMC; the process and obstacles involved in applying for funding to finance mitigation projects; and the current status of potential projects likely to come before the PNRS Board for review and decision.
- vii. Development and initial implementation of a system for PNRS staff and board to track the status of proposed coastal hazard mitigation projects (individually and collectively), with special attention to aspects of the projects (location, scale, site environmental impact, cumulative environmental impact, etc.) that are likely to come before the PNRS Board for consideration.

- viii. Development and partial implementation of a school-based outreach and education program aimed at helping young people understand American Samoa's coastal hazards, and providing opportunities for youth to get involved in local community projects aimed at reducing the risk from such hazards.
- ix. Funding and completion of the coastal hazards-related mapping/GIS project that was described and approved in the current HMP as "Project 15". This project is described in more detail in the "Strategy Work Plan", below.

III. Needs and Gaps Addressed

Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.

The text below references specific needs and gaps identified in the "Phase 1" and "Phase 2" assessments related to coastal hazards, and details how the strategy proposed helps to meet the need and fill the gap.

Need #1: Increase ASCMP capacity to understand and address coastal hazards and collaborate with other American Samoa Government (ASG) partners on mitigation planning and implementation.

Strategy approach: Recruit and contract a qualified "coastal hazards special projects coordinator".

Need #2: Assure that the current PNRS development requirements are sufficient to guarantee that project review and decisions adequately consider identified coastal hazards (e.g. flooding, landslides, tropical storms, surges, sea level rise) at both the site and territory-wide level.

Strategy approach: Conduct a review and deliver recommendations to PNRS Board.

Act on recommendations by making improvements to PNRS requirements.

Need #3: Improve both formal and informal connections between ASCMP, the Hazard Mitigation Council (HMC), and individual member agencies and entities of the HMC regarding development and implementation of the Territorial Hazard Mitigation Plan.

Strategy approach: Provide for representation of HMC in the PNRS process and decisions.

Provide for representation of ASCMP in HMC planning and decisions.

Need #4: Certain coastal hazard mapping and GIS needs have been identified.

Strategy approach: Fund and implement project #15 in the current Hazard Mitigation Plan.

IV. Benefits to Coastal Management

Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.

Reducing risks to people, property and the natural environment from coastal hazards (flooding, tropical storms, storm surges, landslides and sea level rise) is one of the primary goals of coastal management in American Samoa. Assessing, and attempting to mitigate risks from these coastal hazards is among the mandated responsibilities of the American Samoa Coastal Management Program. Addressing coastal hazards is among the priority concerns of the Territory's Permit Notification and Review System.

Among the Territory's processes and tools for hazard mitigation, few are as helpful as the regular update of the Territorial Hazard Mitigation Plan (HMP). This detailed assessment contributes to the Territory's

roadmap for addressing and reducing risk for natural hazards. It is also a necessary action that must be completed before funding requests can be made to help pay for needed mitigation projects.

As noted above, past connections between the plans and programs of ASCMP, and the assessments and recommendations in the HMP have not been as strong as they could have been. It's unclear exactly how much a lack of conscious connection between ASCMP programming and the conclusions of the HMP have hindered coastal management results in American Samoa. Still, all agree that the Territory cannot afford to waste **any** of the limited time, staff capacity, money, or leadership attention available to be spent on coastal hazard mitigation.

With this in mind, the strategy of improving coordination and collaboration among two of the ASG entities most responsible for assessing and mitigating coastal hazards has a high probability of having a major impact. Among other things, it will:

- Assure that assessment of development projects by the PNRS Board has greater – and better informed – attention to assessing and mitigating coastal hazards.
- Dramatically reduce the potential for duplicative studies and plans related to flooding, tropical storms, storm surges, landslides and sea level rise, by preferencing the approved 2015-2020 Hazard Mitigation Plan as the benchmark and venue for assessment and planning.
- Take advantage of ASCMP's skill and capacity for outreach and education – especially aimed at young people in school settings – to educate the community about coastal hazards and mitigation possibilities.
- Bring much needed additional contractor capacity to problem-solving work on coastal hazards.
- Help to increase the possibility of successful funding of proposed mitigation projects by tracking project progress (or lack of it) and bringing this information before the PNRS Board leadership and others.
- Collaborate with existing hazard mitigation staff people at other agencies to assure there is sufficient staffing capacity to gather application data information needed to successfully apply for funding of approved mitigation projects.

V. Likelihood of Success

Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change and 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.

We believe that the likelihood of reaching the strategic goals for this priority coastal hazards program change is exceptionally high. A great deal of care has gone into crafting goals and projects that are both high impact in concept, and achievable on the ground with the level of resources requested.

In support of this high level of optimism, we note the following facts:

- The recently completed Hazard Mitigation Plan is complete, well researched, and supported by representatives from most of the agencies of ASG that have responsibilities for hazard mitigation. One of the reasons for the high quality of the HMP is the contractor continuity of the primary researcher/author of the plan (Jamie Caplan Consulting), in collaboration with the Hazard Mitigation Council. This firm prepared the American Samoa HMP in 2008-2010, 2011-2014, and now 2015-2020.
- Leaders at ASCMP, the AS Department of Homeland Security, the Department of Commerce, and the AS Hazard Mitigation Council, are all in agreement that this program enhancement on the part of ASCMP is an important contribution to overall coastal management in the Territory.

- All eleven members of the current Hazard Mitigation Council were appointed by the current Governor.
- The program enhancement work plan includes the addition of a full-time coastal hazards special projects coordinator, providing much needed capacity and helping to assure that actions will be completed.
- The strategy and work plan is largely focused on using and improving the processes and decisions of the PNRS Board and the ASCMP staff that supports the PNRS. Management of the PNRS is the acknowledged strength of ASCMP and is the core of the CMP's legislatively mandated responsibilities.
- Coastal hazards are a national NOAA priority, and CZM programs in every state and territory are developing and sharing ideas and success stories with each other. NOAA assistance in this area is also available from the Office for Coastal Management, the NOAA liaison in American Samoa, and the staff at the NOAA Pacific Services Center.
- Representatives at FEMA and the US Department of Homeland Security are eager to see ASG make efforts to implement some of the elements in the 2015-2020 Hazard Mitigation Plan.
- While the strategy engages other agencies of ASG, none of the strategy's key elements rely on others for ASCMP to successfully carry them out. ASCMP takes full responsibility for the proposed strategy and action steps.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) 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). While the annual milestones are a useful guide to ensure the strategy remains on track, OCRM recognizes that they may change somewhat over the course of the five-year strategy unforeseen circumstances.

The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.

Strategy Goal: Create, and support, a new coastal hazards initiative within ASCMP that will participate with others in American Samoa Government on implementation of the 2015-2020 Territorial Hazard Mitigation Plan (HMP) and mitigation of coastal hazards in general.

Total Years: 5

Total Budget: \$ 300,550

Year(s): 1-2

Description of activity 1: Hire or contract an American Samoa Coastal Hazard Project Coordinator

Description of activity 2: Develop mechanisms for formal collaboration between ASCMP, the PNRS Board, and the entities responsible for creation and implementation of the Territorial Hazard Mitigation Plan.

Major Milestone(s):

- Incorporate ASCMP participation into the work of the Hazard Mitigation Council and selected agency staff teams charged with implementing the 2015-2020 Hazard Mitigation Plan. – By end of year one
- Late Fall 2016: Coastal Hazard Project Coordinator is in place
- Incorporate Hazard Mitigation Council and selected staff team representation into the review processes of the Permit Notification and Review System (PNRS) Board, and the work of the Coastal Hazard Project Coordinator – By end of year one
- Complete ASCMP review of Hazard Mitigation Plan themes, recommendations, overall strategic approach, priorities, mitigation projects, role of different actors, funding, progress to date, and possibilities for innovative coastal hazard prevention and mitigation approaches, to inform recommendations (if any) for new permit requirements or processes by the PNRS Board – By end of year two

Budget: \$ 80,220 (for years 1-2)

Total annual compensation for the Coastal Hazard Project Coordinator is estimated to be \$40,110 per year. The annual compensation total includes salary (or contract labor), plus benefits and indirect costs, as determined by ASCMP using ASG guidelines (May, 2015).

Year(3): 3-5

Description of activity 1: As needed, take action (including legislation or executive orders if required) to develop, approve and implement new permit requirements or processes to improve the effectiveness of ASCMP and the PNRS as one actor in the Territory's Hazard Mitigation Plan implementation team.

Description of activity 2: Develop and deliver regular training sessions/management retreats for ASCMP staff, PNRS Board members, and selected community members to create (and maintain) a detailed understanding of the coastal hazards and needed actions as described in the Hazard Mitigation Plan.

Description of activity 3: Develop and implement a system for PNRS staff and board to track the status of proposed coastal hazard mitigation projects (individually and collectively), including funding requests.

Description of activity 4: Provide assistance to the Department of Homeland Security, Office of Disaster Assistance and Petroleum Management, and Hazard Mitigation Board in assuring that data and other materials needed to successfully apply for coastal hazard mitigation projects is available and accessible.

Description of activity 5: Development and implementation of a school-based outreach and education program aimed at helping young people understand American Samoa's coastal hazards, and providing opportunities for youth to get involved in local projects aimed at reducing the risk from such hazards.

Description of activity 6: Completion of coastal hazards mapping and education project, described in detail below. This project was slightly amended by ASCMP GIS contractor Robert Koch in May, 2015

from the version approved as “Project 15”, and found on pages 299-300 of the *Territorial Multi-Hazard Mitigation Plan*. If the project described below has been funded by other means before the beginning of the Section 309 performance period, ASCMP will submit an adjusted coastal hazards GIS project.

The mapping/GIS project has three components, including:

- Phase (1) Data Assessment and Development
- ArcGIS Online Mapping Hazard Mitigation and Coastal Resiliency Viewer
- Related Education, Outreach and Training

Phase (1) Data Assessment and Development

American Samoa Building Footprint: ASCMP will produce a new building footprint GIS layer from a 2012 Aerial Imagery and Light Detection and Ranging (LiDAR). The update of the territories building footprint layer is crucial for hazard analyses in the territory. The building footprint layer currently in use was derived from 2005 imagery and does not include infrastructure changes since 2005. This dataset can be used to support socio-economic vulnerability assessments.

The project will also leverage external data sources including natural hazard datasets developed by the University of Hawaii, NOAA Pacific Services Center (PSC) and other organizations. These include tsunami impact modeling and sea level rise/inundation datasets. ASCMP is possession of the sea level rise data (NOAA PSC) and will seek permission to include the tsunami data developed at the University of Hawaii.

Participatory Mapping: ASCMP staff has worked closely with NOAA programs to facilitate participatory mapping workshops in the Fagaloa region of Tutuila. These workshops have focused on the collection of coastal and marine data for watershed mapping and analysis. Funding for this project will support future participatory mapping efforts to collect additional data in support of coastal hazard identification. These efforts greatly supplement current hazard data and engage local communities in the data development process. Most importantly, these workshops raise aware of natural hazards and help efforts to foster resilient communities.

Hazards Geodatabase: ASCMP GIS is in possession of a variety of natural hazard GIS layers including landslide, flooding, tsunami and volcanism data. The metadata and sources of these datasets will be revisited and examined to determine the data integrity and applicability to hazard mitigation planning in the territory. A needs assessment of the data will be produce to assist in the planning and development of future datasets. All developed and reviewed GIS layers will be compiled into a centralized geodatabase hosted on ASCMP servers. Final GIS layers will include FGDC metadata and will available in a geodatabase format as outlined in the ASCMP annual data management plan.

(2) ArcGIS Online Mapping: Hazard Mitigation and Coastal Resiliency Viewer

Maps, apps, and desktop map viewers can access services from anywhere on the Internet using ArcGIS Server. The hazards geodatabase will be hosted on the ASDOC server to leverage these applications. Specifically these services will hosted in ArcGIS online to display, query, and editing on the web. Hosting data through ArcGIS Online services is an easy way to share data with an Internet audiences in American Samoa.

Additionally ASCMP will launch and host an online web portal through ArcGIS Viewer for Flex. The portal will provide a smart, intuitive framework for looking at and interacting with hazard mitigation data online. The portal will feature hazard data compiled in Phase one of the project, most notably the 2012

Building Footprint layer. It will include tools, widgets and features to view analyze and disseminate data pertaining to natural hazards relation to infrastructure.

The tool would follow similar workflows as developed for the Land Use Web Portal system currently in place on ASDOC servers (<http://portal.gis.doc.as/Landuse/>) and will include a report generation tool with similar functionality. The report generation tool will prompt users to choose an area of interest such as a single building footprint, a highlighted area of interest (multiple building footprints), and or a selection based up an attribute of a boundary layer e.g., a village or district. Upon selecting the area of interest, the user can generate a report detailing the proximity of the area selected to different hazards.

The American Samoa Hazard Mitigation and Coastal Resiliency portal will be hosted on ASDOC servers and continually updated as data becomes available. The portal will be hosted on the ASDOCs and ASCMP web portal homepages. The ArcGIS Viewer for Flex was chosen due to ASCMP staff familiarity this framework from the success of the Land Use web portal.

(3) Education, Outreach and Training

ASCMP will conduct an internal (ASDOC) and external (ASG) training workshops to provide training on use of the American Samoa Hazard Mitigation and Coastal Resiliency Viewer. Training will help promote use and facilitate the use of the tools and data throughout the territory. Additionally, ASCMP distribute the geodatabase throughout the territory through the GIS users' group meetings.

Major Milestone(s):

1st Quarter, Year 3: PNRS receives recommendations (if any) for new permit requirements and/or processes aimed at preventing or mitigating coastal hazards and/or implementing the HMP. Tracking system of HMP project implementation is in place and being used.

3rd Quarter, Year 3, 4, 5: PNRS Board/Staff Retreats are held, including coastal hazard progress review.

End of Year 4: 2-year mapping project is complete

Budget: \$215,330 (for years 3-5)

Staffing: \$120,330 (\$40,110 total annual compensation for Coordinator x 3 years)

Mapping project: \$50,000 for contractor

Community outreach/education: \$50,000 for supplies, events and awards

VII. Fiscal and Technical Needs

A. 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 CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.

ASCMP Response: No additional funds beyond Section 309 support are expected to be needed.

B. Technical Needs: If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what

efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).

ASCMP Response: Beyond the addition to ASCMP of the Coastal Hazard Project Coordinator, no additional technical needs are anticipated.

Strategy Name: Feasibility Study for Development of Wetlands Monitoring to Help Guide Protection and Restoration Planning and Action

VIII. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas:

Wetlands

IX. Strategy Description

D. The proposed strategy will lead to, or implement, the following types of program changes (*check all that apply*):

- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised coastal land acquisition, management, and restoration programs;

E. **Strategy Goal:** Assure that American Samoa has reliable data on wetlands health from ongoing wetlands monitoring to guide development of future plans, regulations and restoration decisions, and to assess the success of wetland protection actions.

X. Needs and Gaps Addressed

Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.

Both the Phase I and Phase II assessments identified a need for continually updated data about the status and health of wetlands in American Samoa, including wetlands water quality. The assessments also identified a need for community education and involvement in protecting local wetlands. A wetlands monitoring program, which includes citizen and student engagement and the use of raised boardwalks, is potentially the most direct way to achieve these ends.

Conversations between ASCMP leadership and other American Samoa Government agency representatives, however, reveal a number of serious questions about the details of developing, implementing, managing, and maintaining a wetlands monitoring program. These questions include issues of location, methodology, equipment selection, roles and responsibilities of different agency personnel and contractors, data collection and management, cost, sources of funding, involvement of students and “citizen scientists”, security and vandalism concerns, and more.

With these things in mind, a feasibility study is needed to both answer questions and provide a forum for partnering agencies and villages to work together.

XI. Benefits to Coastal Management

Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.

As discussed in the Phase I assessment, wetlands protection efforts are a significant focal point of the entire American Samoa coastal management program. Protection of the Territory's remaining wetlands, and possible restoration of some of the wetland acres have been lost, is a goal that connects with the public in direct, local ways. It lends itself to community involvement through activities like clean-up efforts and youth activities. Wetlands protection is both an end in itself, and a connection to the wider range of coastal management issues.

The ability to set goals for the protection of wetlands, and the improvement of wetland water quality and ecological health, is hampered by a lack of ongoing wetlands data to demonstrate year-over-year success - or raise concerns about limited progress. Developing a wetlands monitoring program – even one that focuses on only a small number of select wetlands – would be a big help.

Finally, data gathered through a wetlands monitoring program would help evaluate the success of current wetlands protection efforts, including set-back requirements and other development regulations administered through the Permit Notification and Review System.

As seen above, however, it is not enough to argue logically for the benefits of wetlands monitoring. Detailed answers about design, implementation, management, roles, costs and funding sources are needed before responsible parties can seriously consider moving forward. A feasibility study and plan outline will go a long way toward answering these questions.

XII. Likelihood of Success

Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change and 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.

It is ASCMP's assessment that ongoing wetlands monitoring in American Samoa will not happen without a feasibility study and plan outline like the one suggested here. If wetlands monitoring is deemed to be important, completion of a feasibility study and plan outline is an absolutely necessary first step. Initial conversations between ASCMP and ASEPA, for example, generated agreement that wetlands monitoring would be a big help towards improving wetlands water quality, but also many reasonable questions about a variety of details regarding funding, staffing and other issues.

We are calling the study a "feasibility study", however, because we cannot guarantee that completion of the study will assure that a successful, ongoing, wetlands monitoring program will happen. The study process – including the essential involvement of other agency and village partners – may result in an understanding that the cost, technical requirements, lack of reliable funding sources, or staffing needs are barriers that cannot be overcome.

If wetlands monitoring is possible and cost-effective in American Samoa, there are many who understand that it would be an important tool in part of an overall wetlands management strategy. A feasibility study and plan outline would give us the roadmap we need to take action. If a monitoring program is not feasible for technical, financial, political, or other reasons, it's best to find out through a professional process, so that ASCMP and others can develop an appropriate "Plan B".

XIII. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) 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). While the annual milestones are a useful guide to ensure the strategy remains on track, OCRM recognizes that they may change somewhat over the course of the five-year strategy unforeseen circumstances.

Strategy Goal: Determine feasibility of developing and implementing a wetlands monitoring program in selected wetland areas of American Samoa.

Total Years: 2

Total Budget: \$75,000

Year: 2-3

Description of activities:

A contractor will be engaged to carry out a study to determine the feasibility of developing and implementing a wetlands monitoring program in American Samoa, including: selection of wetland sites, preferred methodology, needed equipment, roles and responsibilities, possible agency and village partners, total costs, and prospective funding sources.

To provide a detailed understanding of what a wetlands monitoring program **might** involve, we have provided an example below of a possible process for wetlands monitoring in Leone Village. The feasibility of implementing monitoring like that described below would be determined through the feasibility study.

Monitoring Program Objectives

The primary objective of a wetlands monitoring program in American Samoa is to increase the knowledge of short and long term changes in wetland habitats in selected study areas. The project seeks to conduct a successful assessment of the effects of short-term variability and long-term change in the structure, function, and integrity of estuarine, wetland and watershed environments. The monitoring program will execute strategies outlined in ASEPA and ASCMP (NOAA CZM) wetland guidance documentation.

The wetlands and watersheds located in Leone Village is one of several target sites likely to be selected for participation in any wetlands monitoring program in American Samoa. The 17.75 acre site is representative of wetland systems in the Territory - predominantly mangroves and secondary scrub

bordered by urbanized, cultivated and agricultural land. Like other wetlands in the territory, it is threatened by rising sea level, coastal hazards and development pressures. The village and community in Leone have expressed interest in the past in supporting this type of monitoring program to protect and manage their village resources.

The prospective wetlands monitoring program will also encompass a water quality monitoring program. The objective of the water quality program is to identify and track short-term variability and long-term trends in the water quality of wetlands, like those in Leone, and correlate them with anthropogenic factors to guide effective coastal zone management and broader implementation of Clean Water Act (CWA) and Safe Drinking Water Act programs.

Monitoring Program Strategy

A Leone project would incorporate a “three-tier” framework for the Leone wetlands monitoring and assessment program. The guidance, monitoring design and assessment indicators used in the pilot project are derived from ASEPAs and CZM guidance and adapted to fit the local programmatic needs, resources and technical capabilities ASCMP and ASEPAs.

Level 1 Objective: Register American Samoa Wetlands delineations as a National Geospatial Data Asset (NGDA) in the U.S Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI).

As part of the level one assessment, datasets will be analyzed with imagery, LiDAR, soils and vegetation data to update Tutuila wetland delineations. Delineation methodologies and interpretations will be guided by NOAA Pacific Services Center (PSC), USGS and USFWS staff. This will ensure that American Samoa wetland delineation methodologies are consistent with those currently register in the NWI database. Additionally, it will include American Samoa wetlands in a nationwide inventory, where it can be accessed and utilized for scientific and geospatial applications.

ASCMP is a leader in Geographic Information Systems (GIS) in the Territory and maintains an extensive geospatial database of wetlands information. This includes Aerial LiDAR (2012), terrestrial LiDAR (2014), aerial imagery (2012), and Coastal Change Analysis Program (C-CAP) lands-cover data. Additionally, ASCMP partnered with the United States Geological Survey (USGS) in 2013 to develop the National Hydrography Dataset (NHD) for American Samoa from LiDAR, aerial Imagery and ground-verification surveys. The NHD project will conclude in June 2015, at which time updated stream and watershed maps for the Territory of American Samoa will be made available. NHD datasets will be hosted on ASCMP servers in addition to the USGS NHD online viewer.

Final wetlands delineations will include geometry, attributes and metadata consistent with data standards for acceptance into the Wetlands Master geodatabase (MGD). The final wetlands boundary delineations produced from this effort will be considered “scientific” wetlands delineation. The delineations will then be agreed upon in consultation with the village and referenced by ASG regulatory bodies as the authoritative wetlands dataset.

Level 2: Characterization of the overall cumulative condition and establishment of baseline wetland conditions in Leone and/or report changes in condition in a State’s Clean Water Act (CWA) Section 305(b) report.

The level two assessments will investigate the current wetland conditions in Leone and rate it on a spectrum of other wetlands, from full ecological function to highly degraded. The comparison will be based upon historical data, government and academic publications (American Samoa EPA Watershed Study conducted by Pedersen Planning Consultants) and historical aerial and satellite imagery.

The characterization will utilize field surveys to classify and geo-register the Leone wetlands layers into appropriate subcategories. These subcategories include mangrove swamp, marsh, cultivated land, streams, and open water. In August 2014, ASCMP conducted a terrestrial LIDAR survey of Leone wetlands to provide a baseline dataset to support wetland mapping, characterization, and restoration efforts. The final LiDAR dataset is composed of 8.6 million survey points of coordinate position, elevation, signal return intensity, RGB (color) values, and classification (ground, buildings, vegetation). Surface elevation survey points were collected on the ground using a Total Station, across the mudflat area and along the retaining wall and of the northeast portion of the study area to provide breakline in areas where LiDAR was unable to penetrate. For instance, LiDAR cannot penetrate water, and therefore a Total Station survey was used to determine elevations in submerged areas.

The terrestrial LiDAR dataset is extremely valuable for characterizing existing and future site conditions in the wetlands and adjacent developed land. The integration of ground surveys with newly acquired terrestrial LIDAR data will provide high resolution delineations of the wetlands boundaries in the southern region of the Leone. The LiDAR contains imagery information (RGB values) and surface intensity information embedded into the LiDAR which can assist with topographic characterizations such as landscape context, biotic condition, abiotic condition and spatial statistics.

Monitoring Restoration:

DMWR are currently using Leone wetlands as mangrove restoration sites. DMWR has worked closely with NOAA Sea Grant, American Samoa Community College Land Grant Program, ASMCP and Leone village leaders. In any wetlands monitoring program scenario, ASCMP would work closely with DMWR and ASEPA to conduct site visits to verify restoration techniques and monitor changes. Monitoring restoration will include mapping areas of land cover change, specifically the re-establishment of pre-existing mangrove area. Spatial statistics and monitoring will be dependent on the use of aerial/satellite imagery and ground surveys.

Level 3: Intensive Site Assessment and Long Term Monitoring

This wetlands monitoring program envisions the construction of a multi-purpose boardwalk access way through the interior of the southwest portion of the Leone Wetlands. The installation of an access way will not only provide opportunity for outreach, education, and eco-tourism, but it will also provide an access way for workers to easily monitor interior wetland regions without disturbing the environment. The eco-walk will be the primary means of access for the level-3 monitoring and assessment program.

The final walkway location will be determined after the completion of level 1 and 2 site assessments. A preliminary design idea, however, envisions a loop trail that starts and finishes at the ASG owned land in the heart of the wetlands. This region provides easy access and provides the best option for public access, ASG staff, students and researchers.

Wetlands can be greatly affected by natural variability, climate change, and environmental disturbances like floods, droughts, and hurricanes. Long-term data on environmental conditions is necessary to understand the wetland's changes in response to both natural forces and restoration efforts. Water

quality includes measures of temperature, clarity, dissolved oxygen, salinity, and nutrient concentrations, and is an important driver of wetland health and response to restoration efforts. While it is not cost-effective to continuously monitor all these parameters, long term water quality data can be collected by field personnel, as well as education and outreach groups, to monitor important trends in the environmental conditions of the wetland.

Long term monitoring of the Leone wetland will include the installation of a small, autonomous weather station that records data on basic meteorological parameters including wind speed, rainfall, barometric pressure, and air temperature. Where the Leone stream enters the wetland, a staff gage and water level sensor will be installed to monitor water inflow to the wetlands. Water temperature will be recorded by the water level sensor and another small temperature sensor at the wetland outlet.

For other water quality parameters, water quality sondes and field water quality kits can be deployed during regular site visits to measure baseline conditions, and monitor trends. The water quality kits and measurement methods are simple enough for eco-tourists and education groups to participate in the long-term monitoring, and their efforts will be displayed on educational materials posted at the trailhead of the eco-walk. The instrument data can also be displayed in real-time on a hosted web-page to promote the restoration effort, and provide up to date information to the public, and officials.

Major Milestone(s):

Beginning of Year 2: Contractor is selected and contract signed.

End of Year 2: Study is completed, and feasibility recommendations submitted.

XIV. Fiscal and Technical Needs

A. 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 CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.

We anticipate that Section 309 funding will be sufficient to complete the feasibility study.

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

Beyond the study contractor, no additional technical needs are expected.

5-Year Budget Summary by Strategy

At the end of the strategy section, please include the following budget table summarizing your anticipated Section 309 expenses by strategy for each year.

Strategy Title	Year 1 Funding	Year 2 Funding	Year 3 Funding	Year 4 Funding	Year 5 Funding	Total Funding
ASCMP Involvement In Hazard Mitigation Plan and Implementation	\$40,110	\$40,110	\$80,110	\$80,110	\$60,110	\$300,550
Wetlands Monitoring Feasibility Study/Plan		\$37,500	\$37,500			\$75,000
Total Funding	\$40,110	\$77,110	\$117,610	\$80,110	\$60,110	\$375,550

Attachment A:

Role of ASCMP and PNRS in Coastal Hazard Review and Mitigation as Described in 2015-2020 *American Samoa Territorial Multi-Hazard Mitigation Plan*

Development in Hazard Prone Areas

The legal framework for regulating development in areas subject to natural hazards is Public Law 21-35, the *American Samoa Coastal Management Act (ASCMP)*. This law ensures that development is restricted in areas subject to natural hazards. *The American Samoa Coastal Management Program Administrative Code* gives the Department of Commerce, the agency that now contains the Coastal Management Program, responsibility to restrict development in areas subject to flooding, storm surge, tsunamis, landslides, and coastal erosion in order to minimize losses from these disasters.

The *American Samoa Coastal Management Act (26.0202)* mandates the establishment of a system of environmental review known as the Project Notification and Review System (PNRS). The Act includes development standards, procedures for the designation, planning and management of Special Management Areas, procedures for environmental assessments, and procedures for determination of federal consistency. The land use management system provides a mechanism for regulating unsafe building practices. It also mitigates the risk of natural hazards by monitoring the location of construction and avoiding development in hazardous areas.

Rules establishing and regulating development in Special Management Areas are explicitly aimed at reducing the impact of the natural hazards described in Chapter 4. The rules define and delineate Special Management Areas as:

“...Areas which, if development were permitted, might be subject to significant hazard due to storms, landslides, floods, erosion, settlement (subsidence), or salt water intrusion...”³⁸

The ASCMP Administrative Rules establish an explicit coastal hazards policy to restrict development in hazardous areas. The policy on coastal hazards and shoreline development mandates (1) protection of life and property, (2) denial of projects, uses, or activities in coastal hazardous areas, (3) compliance with the American Samoa Flood Plain Management Regulations. The shoreline development provisions of the regulations restrict development in a 200-foot shoreline setback. The regulations also provide legal backing for Village Mitigation Ordinances established through agreements between the American Samoa Coastal Management Program, eight villages on Tutuila, and one village in the Manu’a Islands.

A soil erosion policy in the Administrative rules explicitly targets restriction of development in areas subject to landslides. It permits projects, uses, or activities in areas with slopes of grades from 0-20%. It allows conditional use permits for development in areas with grades of 20-40% and mandates the denial of permits for projects, uses, or activities on slopes of greater than 40%.

38 Rizer, J. P., Michael P. Hamnett, and Caroline Sinavaiana. (2011). “Section 309 Assessment and Strategy for the American Samoa Coastal Management Program.” Pacific Basin Development Council. Retrieved September 30, 2014 from <http://coastalmanagement.noaa.gov/mystate/docs/as3092011.pdf>

Droughts are serious threats to the wellbeing of the people of American Samoa. Mitigation of the drought risk is addressed indirectly through general planning functions of the Department of Commerce conducted in conjunction with the Coastal Zone Management Act and the Project Notification and Review System. However, drought impacts are mitigated directly through the management of ground water resources by the American Samoa Power Authority; efforts to minimize agricultural losses by the Land Grant College extension program and the Department of Agriculture; and fire suppression efforts. Drought impacts are also mitigated through seasonal to inter-annual climate forecasts issued by the Pacific ENSO Application Center and the U.S. National Weather Service.

Project Notification and Review System³⁹

The American Samoa Land Use Permitting Portal “is a compilation of data relating to land use from the Department of Commerce (DOC), Environmental Protection Agency (ASEPA), and the American Samoa Power Authority (ASPA). Board members on the Project Notification and Review System (PNRS) provided all data for this portal to help with permitting. Users are encouraged to use this data to visually verify existing setbacks and hazard zones when looking into possible development locations by clicking on different data layers. This data should be used in conjuncture with the PNRS review process. This is the best available data, but it may not represent all recent changes. The development of the Land Use Permitting Portal was completed by the American Samoa Department of Commerce in partnership with the National Oceanic and Atmospheric Administration (NOAA) Pacific Services Center.”⁴⁰

The Department of Commerce, under its statutory responsibility, is responsible for insuring that changes in the planning and land use management systems adopted as part of this plan are implemented. These changes should be coordinated through the Hazard Mitigation Council. The Project Review and Notification System will continue to serve as the primary means for insuring that future development does not increase the vulnerability of American Samoa to natural disasters.

PNRS is the primary land use management and regulation mechanism. It is coupled with other land use planning and permitting functions within the American Samoa Government. The PNRS is, however, the primary mechanism for mitigating the risk of natural hazards by controlling the location of new structures and avoiding development in the hazardous areas. It is also integrated with the administration of the building code and flood plain management regulations.

The PNRS Board meets twice a month and reviews major projects. The PNRS Board conducts site visits to these projects every Tuesday. Major projects usually require the review and approval of technical plans prior to full permit approval. The applicant provides these technical plans, which are reviewed by the agency given jurisdiction (e.g., DPW would review parking and drainage plans). The PNRS Board only reviews Land Use Permits classified as Major projects.

The PNRS Board is composed of representatives from agencies with land use and environmental management responsibilities in the Territory (Table 1). Each agency plays a role in the PNRS review process and votes on projects based on their agency jurisdiction. In general, major development projects must be carefully planned and reviewed for environmental compliance prior to final approval. Technical information provided to the Board by the applicant must be complete.

³⁹ American Samoa Department of Commerce GIS Web Portal. (2014) Retrieved September 30, 2014 from <http://portal.gis.doc.as/LandUse/>

⁴⁰ Ibid.

Code. Ten or more separate inspections were required, including special inspections by an engineer, during the course of construction. FEMA Region 9 requested that an engineer and the SHMO provide some additional information for this application.

DPW officials believe that the existing building safety program has done much to reduce the risk of losses to government buildings, commercial structures, community buildings, and homes. However, improvements can be made and those endorsed by the Hazard Mitigation Council are included in a later section of this chapter.

In 1991, the Governor promulgated the Territory of American Samoa Floodplain Management Regulations through Executive Order 02-1991, to meet requirements for participating in the National Flood Insurance Program (NFIP). The Executive Order adopted the 1991 Flood Insurance Rate Maps (FIRMs) and declared that no structure could be constructed, located, extended, converted, or altered without full compliance with the terms of the regulations contained in the Executive Order and other applicable regulations. It also states that violators of these regulations may be subject to sanctions, both civil and criminal, according to Title 24, Chapter 05, and Title 26, Chapters 02 and 10 of the American Samoa Code Annotated. The Executive Order appointed the Office of Economic Development and Planning, now the Department of Commerce, to administer and implement the Floodplain Management Regulations.

As indicated above, the land use permit obtained through the PNRS is the mechanism for insuring compliance with the Floodplain Management Regulations. The Executive Orders that established the Floodplain Management Regulations require that a determination should be made based on whether a structure is in a Special Flood Hazard Area during the preliminary review of the Land Use Permit/Building Permit Application. The Floodplain Administrator determines the Base Flood Elevation for a proposed location and the Survey Branch of the Department of Public Works provides the applicant with a determination of the actual elevation of the construction site. When the applicant has received the Base Flood Elevation Determination and the determination of the actual elevation of the proposed construction site, a final plan may be prepared and submitted to the Floodplain Administrator for review prior to issuance of the Land Use Permit through the PNRS.

It is also the responsibility of the Floodplain Administrator to notify the community and applicable federal agencies prior to any alteration or relocation of a watercourse, to submit evidence of such notification to FEMA, and to require that the flood carrying capacity of the altered or relocated portion of said watercourse be maintained.

Under the floodplain management regulations, variances may be issued for new construction and substantial improvements being erected on a lot of one-half acre or less in size which is contiguous to, and surrounded by, lots with existing structures constructed below the base flood level. As the lot size increases beyond one-half acre, the technical justification required for issuing the variance must increase.

Variances may be issued for the reconstruction, rehabilitation, or restoration of "historic structures" upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure, and that the variance is the minimum necessary to preserve the historic character and design of the structure. Variances may be granted for new construction, substantial improvement, and other proposed new developments necessary for the conduct of a "functionally dependent use" with certain restrictions. The structure or other development must be protected by methods that minimize flood damages during the base flood and create no additional threats to public safety. Variances are not granted within any designated floodway or floodway setback area if any increase in flood levels during the base flood discharge would result.

Agency	PNRS Function or Responsibility
American Samoa Coastal Management Program within Department of Commerce (ASCMP/DOC)	Administrative Coordinating Agency for the PNRS process. The goal of the ASCMP is to preserve, protect, develop, and enhance coastal resources. Also lead agency for flood plain management.
The Department of Public Works (DPW)	Infrastructure requirements: traffic flow, parking, drainage, and building design. Reviews plans for major construction activities that involve major earthworks. Responsible for building code administration.
American Samoa Environmental Protection Agency (ASEPA)	Impacts on land, air, and water quality. Projects involving hazardous materials, chemicals, and pesticides must be approved by ASEPA.
American Samoa Historical Territory Office (ASHPO)	Documentation and review of ancient cultural and historic sites throughout American Samoa. Projects receiving federal funds must conduct a Section 106 review of historic findings at the site.
Department of Marine and Wildlife Resources (DMWR)	Protection of plant and animal habitats, especially endangered species. DMWR also reviews projects that may impact reef and fishery resources.
American Samoa Power Authority (ASPA)	Major utility provider. Reviews projects based on water distribution and resources, such as groundwater and wastewater treatment.
Department of Health (DOH)	Public health, including new facilities, such as restaurants or food distribution centers, and pollution from sources that will impact the public.
Department of Parks and Recreation	Park and government owned land, recreation opportunities, and shoreline access.

The PNRS requires the collaboration of the agencies listed in the above table. In order for the agencies to effectively evaluate and issue permits, they must first obtain all of the appropriate information from the applicants. Should the applicant fail to include information, the entire process may be delayed for months. Therefore, the PNRS has developed a substantive packet of instructions for applicants that outline the process. PNRS has proven to be a very effective way to restrict development in hazardous areas, although, as discussed below, improvements are needed in the system.

The building code and its enforcement, the Project Notification and Review System, and the American Samoa Flood Plain Management Regulations are the primary ways in which the American Samoa Government prevents losses from future development. As described below, the three regulatory regimes function as an integrated system to mitigate damage to future development from floods, tropical cyclones including storm surge, landslides, tsunamis, earthquakes, and drought.

The 1997 Uniform Building Code is used by engineering and design professionals in the Territory and by the Department of Public Works (DPW) in administering building and safety code regulation.

An application for a land use permit from the Department of Commerce is required before a building permit application can be provided and issued by the Department of Commerce. Plans are submitted with the building permit and land use permit applications. The Architecture and Engineering Division of the DPW reviews the building permit application. As an example, under the 5% Initiative, ASDRO, with support from DPW, submitted an application for HMGP-1859-DR-AS for compliance with the 1997 Uniform Building

Code. Ten or more separate inspections were required, including special inspections by an engineer, during the course of construction. FEMA Region 9 requested that an engineer and the SHMO provide some additional information for this application.

DPW officials believe that the existing building safety program has done much to reduce the risk of losses to government buildings, commercial structures, community buildings, and homes. However, improvements can be made and those endorsed by the Hazard Mitigation Council are included in a later section of this chapter.

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