

# National Marine Sanctuary of American Samoa

## Water Quality

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### Management Issue

The National Marine Sanctuary of American Samoa (NMSAS or the Sanctuary) is adjacent to populated coastal areas and is not isolated from land based contaminants from human activities. It is essential to understand the water quality in the environment to have an accurate understanding of the potential health of, and threats to, biological resources.

### Description

NMSAS borders a nearby village and the main landfill for the island of Tutuila. There is concern that runoff, non-point source and point source pollution may impact water quality. Initial comprehensive water quality sampling of groundwater seepage and coastal water should be done and regularly monitored. These studies should support the efforts of the American Samoa Environmental Protection Agency and collaborating partners. Illegal fishing with bleach and (plant based chemical 'Avasu) can be detrimental to the health of marine organisms and the presence of these materials should be monitored. Additionally, water quality should be monitored for eutrophication and sedimentation.



*Fagatele Bay is bordered by steep cliffs, a landfill and a nearby village. Image credit: Kip Evans*

### Questions and Information Needs

- 1) Is there contaminant leaching coming from the landfill groundwater runoff into the Sanctuary?
- 2) Do storm events induce runoff of debris?
- 3) Do storm events induce runoff of sediments?
- 4) Do storm events induce runoff of pollution?
- 5) Is bleach and the plant toxin 'Avasu (*Tephrosia piscatoria*) used for fishing in the Sanctuary?
- 6) When land-based contaminants are measurable in surrounding waters is there also a corresponding, measurable impact to marine organisms?
- 7) For those areas where land-based contaminants are measurable in the surrounding waters, what mitigation options are available to address the contamination?

### Scientific Approach and Actions

- Collect water samples around all known land-based sources of contamination to determine if water quality is being impacted
- Develop a perpetual water quality monitoring program
- Collect samples of marine life expected to be impacted by land-based sources of contamination to determine the extent and level of contamination
- Determine priority areas for potential clean up or mediation activities

*Updated: 5/26/2011*

*For More Information -- <http://www.sanctuaries.noaa.gov/science/assessment>*

## Key Partners and Information Sources

Hawai'i Institute of Marine Biology; NOAA/NMFS/PIFSC/Coral Reef Ecosystems Division; NOAA/NMFS/PIFSC/CRED/Pacific Benthic Habitat Mapping Program; NOAA/NMFS/Pacific Islands Fisheries Center; NOAA/NOS/National Center for Coastal Ocean Science; NOAA/NMFS/PIRO, US Fish and Wildlife Service; US Geological Survey/Biological Resources Division; USGS/BRD/National Biological Information Infrastructure/Pacific Basin Information Node; Territorial Government of American Samoa, American Samoa Department of Marine and Wildlife Resources, The National Park Service of American Samoa, American Samoa Environmental Protection Agency

## Management Support Products

- Report with an assessment of contaminants in effluent and water
- Presentations at scientific meetings and conferences
- Utilize field data to determine priority response locations
- List of mitigation strategies

## Planned Use of Products and Actions

- Initiate clean up of areas of highest concern
- Restrict human activities in areas of concern
- Mitigate any affect on wildlife by restricting access to contaminated area, creating new habitats or otherwise limiting exposure

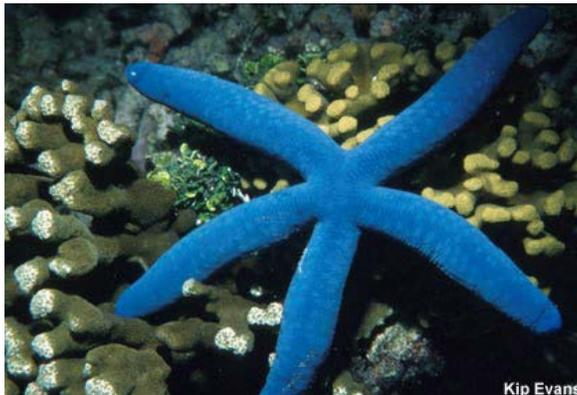
## Program References

### NMSAS Management Plan

- Action Plan 4.1 Marine Conservation Science Action Plan
  - Strategy MCS-5: Continue to enhance research and monitoring programs throughout the life of the plan Action Plan
    - Activity MCS-5.1: Continue long term monitoring efforts and target new monitoring to assess recovery and resilience from natural disasters and coral reef health throughout the life of the plan
    - Activity MCS-5.2: Enhance water quality monitoring to identify point source pollution within one year
    - Activity MCS-5.3: Monitor watershed and land use adjacent to sanctuary resources to assess potential for land based impacts within two years

### NMSAS Condition Report

- Questions 1-4, 7, 8, 11



*Large sea star is known locally as a lima. It is found on reef flats and is a striking bright blue. Not common in Fagatele Bay, the sea star is common on other reef flats of American Samoa.  
Image Credit: Kip Evans*

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