

# A Call to Action

## Crystal Clear

National Park Service  
U.S. Department of the Interior

National Park of American Samoa



## Assessment of Potential Contaminants from a Dump to an Adjacent Coral Reef Lagoon on the Island of Ofu



Low tide at Ofu in the National Park of American Samoa. NPS PHOTO

The remote island of Ofu in the National Park of American Samoa contains a spectacular Indo-Pacific coral reef of extraordinary scenic, cultural, and scientific value. The lagoon associated with Ofu contains over 80 species of corals. That is more coral species than are found in the state of Hawaii or the entire Caribbean. The dump for the village of Ofu is adjacent to this world-class coral reef. The dump has been in operation since 1985 and contains trash buried in unlined pits with porous soils that may allow chemical leaks to the reef. These chemicals may be harmful to the coral reef and human health. Before now, there has never been a study to determine whether pollutants are moving from the landfill to the lagoon.

### Background

The purpose of this study is to determine whether pollutants are being carried from the dump to the lagoon via groundwater. Information from this study will be used to make decisions about management of the dump on Ofu.

#### *Approach*

To determine whether contaminants are moving from the landfill to the lagoon, sediment samples were collected by the US Geological Survey from the dump, and water and sea cucumber samples were collected from Ofu lagoon. These samples were analyzed for organic and metal contaminants.

In addition, data on ocean currents, water temperature, and salinity were collected to help scientists understand how long fresh groundwater remains in the lagoon before it is flushed out to sea.

Samples were taken during two dry seasons and two wet seasons. Sediment, water, and sea cucumber samples were also collected at locations away from the dump to determine whether contaminants and nutrients found in the lagoon water are coming naturally from the volcanic soils versus originating in the dump.

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## Status

Samples taken during the 2012 dry season and the 2013 wet season suggest that there was little organic pollution (such as pesticides and chemicals associated with plastics) detected in the Ofu lagoon. At the same time, trace metals (such as lead, arsenic, and mercury) were above natural background levels in both dump sediment and sea cucumbers from the lagoon.

For now, data analysis continues. Once complete, and the severity of the problem is evaluated, the park may conduct refined surveys or consider options to isolate or remove the source of contaminants if appropriate.

This information will also be critical for discussion with the American Samoan government to determine how to correctly dispose of garbage on Ofu Island in the long term. Some options include removing large appliances (including refrigerators) and recyclable items and shipping them off island, lining the dump, or moving the dump to another location.

**Near right: Life in a coral reef at National Park of American Samoa.** NPS PHOTO

**Far right: Collecting sediment sample at the Ofu dump.** USGS/ ANNE BRASHER

**Below: Towing water quality sampling equipment (under boogie board) and GPS unit (on boogie board) around the lagoon to collect data on temperature, conductivity, and salinity.** USGS/ANNE BRASHER



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## More Information

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