

# A Call to Action

## Crystal Clear

National Park Service  
U.S. Department of the Interior

Kaloko-Honokōhau  
National Historical Park



## Evaluating Potential Water Quality Changes in Hawaii



Aerial view of Aimakapa Fishpond in Kaloko-Honokōhau National Historical Park (Hawaii). NPS PHOTO

Kaloko-Honokōhau National Historical Park, on the west side of the island of Hawaii, was established in 1978 to preserve, interpret, and perpetuate traditional Native Hawaiian culture and activities. Vital to this mission are a variety of culturally and ecologically significant resources that are dependent on water. These include ancient Hawaiian fishponds and anchialine pools (small brackish coastal pools that have an underground connection to groundwater and the ocean) and ocean waters. In order to effectively protect these waters, the National Park Service seeks to understand how neighboring developments (golf course, industrial parks, residential areas, and resort complexes) influence the water quality and quantity in the park.

### Background

In Hawaii, the water cycle between the mountains and ocean is hydrologically complex. When rain falls on the mountains it enters a high-level groundwater system that is distinct from the coastal groundwater system. The purpose of this study is to determine whether the high-level groundwater system near Kaloko-Honokōhau is connected to the park's coastal system, including ancient Hawaiian fishponds, anchialine pools, and coastal waters.

#### *Approach*

Multiple groundwater and surface-water samples will be taken during wet and dry, and high and low tide, conditions. In the laboratory, samples will be analyzed for components

such as ions, metals, and salinity. Data will be used to create a model of the groundwater system. This model will determine the degree of similarity or dissimilarity between the high-level and coastal groundwater systems.

With the information from this study, park managers will be able to (1) evaluate the potential impacts on water quantity and quality associated with proposed development, (2) effectively communicate with regulatory agencies and other stakeholders, (3) recommend or require appropriate best management practices for developers to reduce the risk of contamination, and (4) guide future water-quality monitoring in the park.

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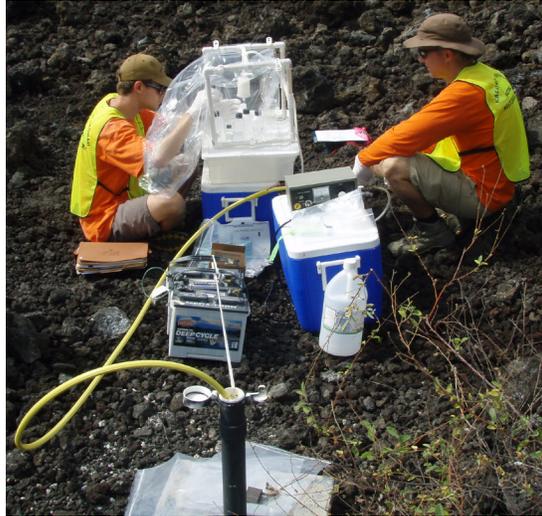
## Status

A majority of the sampling for this project was completed during June 2012 and March 2013. During these sampling periods water samples were collected from groundwater monitoring wells, production wells, anchialine pools, fishponds, and the ocean. Rainfall samples continue to be collected. Data analysis will begin in late autumn 2013.

**Near right: Water-quality sampling from a monitoring well in the park.** USGS PHOTO

**Far right: Endangered Hawaiian stilt in Aimakapa Fishpond.** NPS PHOTO

**Below: Anchialine pool and Pu'uoina Heiau at Aiopio Fishtrap, Kaloko-Honokōhau NHP.** NPS PHOTO



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## More Information

Sallie Beavers  
Chief of Integrated Resources  
Kaloko-Honokōhau National Historical Park  
808-329-6881  
sallie\_beavers@nps.gov

[www.nps.gov/kaho](http://www.nps.gov/kaho)