

Success Story

University of Guam Sea Grant Uses PacIOOS Data to Assist Local Community

Ecosystem in Decline

Pago Bay, Guam, is a fringing reef flat that used to contain consistently clean waters and countless fish and wildlife. Residents and visitors partake in near shore activities such as swimming, snorkeling, diving, fishing, and kayaking in the bay. In addition, many depend on the bay for reef fish and invertebrates for sustenance. Unfortunately, recent impacts from activities on the slopes of the

watersheds emptying into the bay have degraded the water quality and reefs of Pago Bay. Off-roading, fires, an unlined, closed landfill, and development have contributed to the bay's declining health. Fires are purposefully set by hunters in order to attract deer, which love the fresh green grass that first appears after a fire in this area.



Credit: Jason Biggs



Credit: Jason Biggs

Pago Bay with differing water quality conditions.

Preparing for Impact

Due to increasing local concerns of Pago Bay's environmental health, PacIOOS teamed up with the University of Guam (UOG) Sea Grant to deploy a near shore water quality sensor in the bay in June 2012. The sensor takes measurements of water temperature, conductivity (salinity), pressure (depth), turbidity (water clarity), and chlorophyll every four minutes. Bimonthly, the UOG Sea Grant team collects the data from the sensor to send to PacIOOS for processing. Data are then made available to the public via the PacIOOS website and PacIOOS Voyager.



PacIOOS near shore water quality sensor.



Having the sensor in place was critical to being able to provide quantifiable data regarding the perturbations to the ecological system, easing fears that there was something toxic in the water.



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Addressing Serious Community Concerns



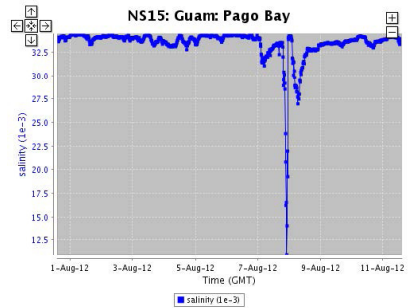
Credit: Laura Biggs

August 2012, just two months after the PacIOOS water quality sensor was deployed in Pago Bay, there was a massive fish kill in the bay that worried members of the community. Immediately, there were concerns that dangerous chemicals leached from the landfill into the bay. Data from the PacIOOS sensor showed a significant decline in salinity and increases in turbidity and water temperature coinciding with the fish kill. The UOG Sea Grant team notified Guam EPA and other

partners in the community of the data. By mid-August, Guam logged 18.21 inches of rain, which was 10.5 inches above the average monthly rainfall level recorded by NOAA. The rainfall led to an increase in soil runoff into the bay, stemming from erosion caused by activities in the uplands. With this information, Guam EPA and UOG Sea Grant were able to ease the concerns by educating residents about the actual causes of the fish kill.

Providing Accurate Water Quality Data

The data collected by PacIOOS partners were essential for communicating about the issue with concerned citizens. PacIOOS continues to partner with UOG Sea Grant and other agencies on Guam in order to provide accurate water quality data to monitor the health of the bay and to increase local capacity to effectively respond to environmental incidents and threats, such as the fish kill in August 2012.



Data recorded by PacIOOS Pago Bay near shore sensor in August 2012, show a significant decrease in salinity at the time of the event.

Nearshore Sensor in Pago Bay

www.pacioos.org/focus/waterquality/wq_marianas.php

University of Guam Sea Grant

www.oug.edu/seagrant/

Contact us for questions and feedback at info@pacioos.org, or visit us at www.pacioos.org.

The Pacific Islands Ocean Observing System (PacIOOS) provides easily accessible and reliable ocean observation and forecasting data to keep Pacific Island communities safe, support livelihoods and lifestyles, and sustain ocean resources. PacIOOS is based within the School of Ocean and Earth Science and Technology at the University of Hawai'i at Mānoa. It is one of 11 regional associations of the U.S. Integrated Ocean Observing System (IOOS®).

