

Performance Progress Report
Developing the Pacific Islands Ocean Observing System (PacIOOS)
Cooperative Agreement # NA16NOS0120024
Performance Period: June 1, 2022 through November 30, 2022
Submitted December 2022 by:
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This report covers activities conducted during the thirteenth 6-month performance period of a 7-year cooperative agreement. PacIOOS' estimated operating budget for the approved no-cost extension from NOAA IOOS was \$3,884,594.

1.0 Progress and Accomplishments

OUTREACH, STAKEHOLDER ENGAGEMENT, AND EDUCATION SUBSYSTEM

Conduct Outreach and Engagement and Build Capacity in the Insular Pacific; Target completion date: May 2023. **Status:** *Ongoing. The PacIOOS liaison team has undergone some transitions during this reporting period, with the departure of our liaison in the Republic of the Marshall Islands (RMI) and arrangements underway for a new liaison in Palau, through the national Office of Climate Change. We hope to fill the RMI liaison position during the next reporting period. Meanwhile, liaisons in the Commonwealth of Northern Mariana Islands (CNMI) worked with PacIOOS staff in October to host a half day engagement workshop in Saipan. Nearly 20 participants (hybrid in-person and online) from various sectors, agencies, non-profits, and other institutions around the island learned about PacIOOS assets and shared their concerns around knowledge gaps. A workshop report with recommendations for next steps is being finalized. Meanwhile, the Micronesia Conservation Trust, with support from the PacIOOS liaison, deployed a new nearshore water sensor (part of the Water Quality Sensor Partnership Program) in the Federated States of Micronesia (FSM). PacIOOS also hosted its first in-person Governing Council meeting since 2019, which facilitated engagement of staff with advisors and colleagues from PacIOOS stakeholder groups.*

Characterize the ocean data needs for the Pacific Islands Region (specific to the target audience of coastal resource managers); Target completion date: September 2022. **Status:** *Completed. The consultant (ecoLOGIC Consulting) has completed a policy analysis of management and policy decisions related to data sets and tools needed by coastal zone managers in Hawai‘i, American Samoa, the Commonwealth of the Northern Mariana Islands, and Guam. PacIOOS, OCM, and the consultant met with the coastal managers as a group and drafted goals and action steps to address data challenges for priority management issues and determine next steps for implementation. The consultant drafted a report based on the workshop. The report was approved by the steering committee and will be distributed to all participants via email and made available on the PacIOOS website in the next reporting period. The workshop resulted in two top-line project concepts to address data challenges: a data visualization tool*

(i.e., data portal) and new data requests (i.e., specific datasets and data collection technology). Status of implementing those concepts is below.

Implement one or more projects in the Pacific Islands Ocean Data Needs report; Target completion date: May 2023. **Status:** Ongoing. *The report developed by the consultant is guiding the further implementation of the project. The top-line project concepts from the workshop were a data visualization tool (i.e., data portal) and new data (i.e., specific datasets and data collection technology). Next steps to further develop the concepts included data follow ups, geoportal follow ups, and training follow ups. During this reporting period, PacIOOS and the consultant connected with workshop participants who cited datasets needed and explored the possibility of purchasing needed datasets. Additionally, the team connected with past and present OCM and PacIOOS geospatial data experts to explore and ultimately craft two position descriptions to build a geospatial data portal that connects the Pacific region.*

During this reporting period, PacIOOS developed an interactive web map to view individual layers and zoom to the target geography for the previously reported project with USGS Western Geographic Science Center to identify locations of current and future areas of coral reef resilience in Guam and American Samoa. A manuscript on the project is also currently in review for publication. <http://www.pacioos.hawaii.edu/projects/coral-resilience-guam-amsam/>

OBSERVING SUBSYSTEM

Re-deploy, Majuro (RMI) Wave Buoys; Target completion date: September 2022. **Status:** Delayed. **New target completion date:** Spring 2023. *COVID-19 travel restrictions prevented redeployment of the Kalo buoy since it broke its mooring in 2021. The RMI reopened to travel in September 2022, and preparations are moving forward for a redeployment in early 2023. Supplies for the redeployment are currently en route and travel arrangements for the buoy technician are tentatively being made.*

Deploy new wave buoys in the Freely Associated States; Target completion date: May 2023. **Status:** Delayed. **New target completion date:** beyond May 2023*. *The buoys for this objective have been purchased and received. As of September and October 2022, the RMI and FSM, respectively, re-opened to vaccinated foreign travelers. A buoy location for Pohnpei has been selected and work is proceeding to obtain permits. Meanwhile, location selection for RMI buoys, particularly around Jaluit Atoll, has been delayed due to a lack of sufficient high-resolution bathymetry data. These data are particularly critical for assessing the steepness of the ocean bottom and ensuring that moorings will remain securely in place. The PacIOOS team is exploring a number of options for improving access to these data for current and future deployment efforts.*

** Due to numerous complications and challenges resulting from the response and impacts of the global pandemic, we anticipate that we will not be able to complete this milestone by May 2023. We are doing our best to advance this milestone as quickly as possible, but it is likely that we will require an additional No Cost Extension for this milestone.*

Deploy new wave buoy in American Samoa; Target completion date: November 2022.

Status: *In progress. New target completion date:* May 2023. *Delays in site selection occurred due to potential interactions of the chosen site with vessel traffic. All partners have now agreed on a revised site location and PacIOOS staff are proceeding with the permitting process, as well as logistical preparations for the new location.*

Deploy new HFR stations on CNMI and Guam; Target completion date: May 2023. **Status:**

Delayed. New target completion date: Beyond 2023*. *The systems have been purchased and fabricated and are being prepared for shipment in early 2023. During this reporting period, we secured a permit with the USFWS on Guam to locate one of the sets of antennae, but the other desired location was deemed by the US Marine Corps to not be permissible due to plans for a firing range at the location, due to an expansion of Camp Blaz. The team is now working to secure an HFR site on Andersen Air Force Base instead, but negotiations continue. Site exploration for CNMI (Rota) will proceed after the location on Guam is confirmed.*

** Due to numerous complications and challenges resulting from the response and impacts of the global pandemic and the U.S. military expansion on Guam, we anticipate that we will not be able to complete this milestone by May 2023. We are doing our best to advance this milestone as quickly as possible, but it is likely that we will require an additional No Cost Extension for this milestone.*

Run glider missions; Target completion date: May 2023. **Status:** *Planned for next reporting period. The PacIOOS Seaglider facility has been set up, a short test run of the glider to ensure functionality was accomplished, and a route has been planned and permitted. We plan to run a glider mission in February 2023 in order to characterize the large phytoplankton blooms that occur off the Maui Nui island group in the Hawaii ROMS output.*

DATA MANAGEMENT AND CYBERINFRASTRUCTURE (DMAC) SUBSYSTEM

No new activities to report.

RESEARCH AND DEVELOPMENT SUBSYSTEM

Deploy an array of oceanographic satellite tags on large pelagics in the Main Hawaiian Islands; Target completion date: May 2022. **Status:** *Delayed. New target completion date:* May 2023. *One successful "bathygraph" tag was deployed during this period. Shark ID 176027 was tagged June 23rd and the last data were received on November 4th representing a total deployment of 133 days. During this time, the tag transmitted 4,104 messages and provided 343 ocean depth/temperature profiles. The track can be viewed on the PacIOOS web site [Hawai'i Tiger Shark Tracking](#). During this time, the team also serviced several motes (land-based receivers) in the local array, although no new units were deployed. The team published a [manuscript](#) that covers the topic of using oceanographic data transmitted by sharks.*

2.0 Scope of Work

No changes to the project scope of work are anticipated. Remaining objectives/deliverables are those included in the NOAA-approved no cost extension.

3.0 Personnel and Organizational Structure

No new activities to report.

4.0 Budget Analysis

Spending for this award is on track with projected program expenditures. The University of Hawai'i Office of Research Services submitted a semi-annual financial report for the period ending September 30, 2022, through Grants Online. That report shows total receipts of \$13,778,087.17. As of December 1, 2022, internal budget tracking shows expenditures of \$13,898,386.64, representing a drawdown of 91.08% of the federal funding for this 7-year award.

Addendums

As recommended by the IOOS Office, addendums are not included with this progress report; they will be included with the progress report due in January for our NA21 award.