

Developing the Pacific Islands Ocean Observing System (PacIOOS)

Dr. Brian Taylor

Dean

School of Ocean and Earth Science and Technology

University of Hawaii at Manoa

1680 East-West Road

POST 801

Honolulu, Hawaii 96822

Phone: (808) 956-6182 FAX: (808) 956-5903 E-mail: taylorb@hawaii.edu

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<http://www.pacioos.org>

LONG-TERM GOALS

The primary goal of the proposed work is to continue the development of an operational ocean monitoring and forecasting system that provides integrated, customized, and timely products that enable an ocean-literate and well-informed public and policy makers. PacIOOS has focused initial development on water quality sensing, ocean-state and forecasting, the provision of marine ecosystem information, prediction of coastal hazards, and the development of integrated data visualization capabilities to inform marine spatial planning, operations, commerce, and recreation. Through this proposed effort, PacIOOS will enhance development of observing and product suites in each of the aforementioned focus areas and will continue to engage users, stakeholders, and system partners in the use, extension, education, and outreach of technical capacity, data visualization, and ocean information.

OBJECTIVES

The work supported by this award will continue to strengthen and integrate Federal and non-Federal observing assets within the PacIOOS region with other regional associations into the national system. An iterative, participatory process of engagement, outreach, and extension of PacIOOS capacity and data products has led to clearly defined stakeholder needs for additional customized and integrated data and information products in both Hawaii and the Insular Pacific region. To that end, PacIOOS will continue to develop the observational, modeling, data management, and outreach components of the observing system to generate products that help ensure a safe, clean, and productive ocean and resilient coastal zone for the U.S. Pacific Islands.

APPROACH AND WORK PLAN

Key Individuals (all University of Hawaii at Manoa, unless indicated otherwise):

Dr. Jason Adolf, Dept. of Marine Sciences, University of Hawaii at Hilo

Dr. Glenn Carter, Dept. of Oceanography

Dr. Yi-Leng Chen, Dept. of Meteorology

Dr. Eric DeCarlo, Dept. of Oceanography

Mr. Simon Ellis, Marine and Environmental Research Institute of Pohnpei (MERIP)

Dr. Kwok Fai Cheung, Dept. of Ocean and Resources Engineering

Dr. Pierre Flament, Dept. of Oceanography

Ms. Melissa Iwamoto, PacIOOS

Dr. Kim Holland, Hawaii Institute of Marine Biology

Dr. Doug Luther, Dept. of Oceanography

Dr. Margaret McManus, Dept. of Oceanography

Dr. Mark Merrifield, Dept. of Oceanography & Director, UH Sea Level Center
Dr. Darren Okimoto, UH Sea Grant College Program
Mr. Chris Ostrander, Director, PacIOOS
Dr. Geno Pawlak, Dept. of Ocean and Resources Engineering
Dr. Jim Potemra, Hawaii Institute of Geophysics and Planetology
Dr. Brian Powell, Dept. of Oceanography
Dr. Alexander Shor, Associate Dean for Research, SOEST

Governing Council

Mr. Todd Barnes, Chief of Eng. & Const., Honolulu Division, US Army Corps of Engineers
Dr. Rusty Brainard, Division Chief, NOAA PIFSC Coral Reef Ecosystem Division
Ms. Donna Brown, Chairperson, Marine and Coastal Zone Advocacy Council
Mr. Donald Hess, Vice President, College of the Marshall Islands
Mr. Yimnang Golbuu, Acting CEO, Palau International Coral Reef Center
Dr. John Joyner, Senior Advisor, Office of the Governor of the CNMI
Dr. Chuck Kelley, Vice President KF Development, Outrigger Enterprises, Inc.
Mr. Alan DeClerk, Liquid Robotics
Mr. Sean Martin, Chairman, Western Pacific Regional Fisheries Management Council
Mr. Jesse Souki, Director, Hawaii State Office of Planning
Mr. Gary North, Executive Director, Hawaii Harbor's User's Group
Dr. Brian Taylor, Dean, School of Ocean and Earth Science and Technology
Mr. Davis Yogi, Administrator, Hawaii Department of Transportation—Harbors Division
Mr. Ray Tulafono, Director, American Samoa Department of Marine and Wildlife Resources
Mr. Joseph Artero-Cameron, President, Guam Department of Chamorro Affairs

Partner organizations (contributing funding, in-kind support, data, or personnel to support PacIOOS)

Federal: NOAA (Pacific Islands Fisheries Science Center—Coral Reef Ecosystem Division, IDEA Center, National Data Buoy Center, National Weather Service, Pacific Marine Environmental Lab, CO-OPS, Pacific Services Center, National Marine Sanctuary Program, Pacific Islands Benthic Habitat Mapping Center, Coastal Storms Program), US Army Corps of Engineers, US Coast Guard, US Navy (Oceanographic Office, Joint Typhoon Warning Center, Naval Maritime Forecast Center, Office of Naval Research), US Geological Survey, Environmental Protection Agency 9th District, Department of Homeland Security (National Center for Island, Maritime, and Extreme Environment Security (CIMES), Federal Emergency Management Agency), Western Pacific Regional Fishery Management Council, National Park Service, National Science Foundation, US Department of Agriculture

State: Department of Land and Natural Resources, Department of Health, Ocean Resources Management Plan (Office of Planning), Department of Transportation – Harbors, Hawaii Community Development Authority, Hawai'i State Civil Defense, Pacific Disaster Center, Marine and Coastal Zone Advocacy Council, State Office of Planning—Coastal Zone Management Program, University of Hawai'i (SOEST, Hawai'i Institute of Marine Biology, Joint Institute for Marine and Atmospheric Research, Infrasound Laboratory, UH Sea Level Center, International Pacific Research Center, EPSCoR, Hawaii Mapping Research Group, UH Sea Grant College Program, Pacific Aquaculture and Coastal Resources Center, Waikiki Aquarium),

Territorial: American Samoa Environmental Protection Agency, American Samoa Community College, American Samoa Department of Marine and Wildlife Resources, American Samoa Department of Commerce, American Samoa Coral Reef Task Force, University of Guam, Guam Bureau of Planning and Statistics, Office of the Governor of the Commonwealth of the Northern Mariana Islands, CNMI Coastal Resources Management Office, CNMI Department of Environmental Quality

International: College of the Marshall Islands, Marshall Islands Department of Justice, Marshall Islands Sea Patrol, Marshall Islands Coastal Management Advisory Council, College of Micronesia, Palau International Coral Reef Center, Palau Automated Land and Resource Information System

Local: County of Hawai'i (Office of Planning), County of Maui (Office of Planning, Office of the Mayor), City and County of Honolulu (Board of Water Supply, Department of Environmental Services, Ocean Safety Division), County of Kauai (Office of Planning, Ocean Safety Division)

NGO: Alliance for Coastal Technologies, Conservation Society of Pohnpei, Hawaii Harbor's User's Group, Marine and Environmental Research Institute of Pohnpei, Mariana Islands Nature Alliance (MINA), Pacific Marine Resources Institute (PMRI), Yap Community Development Program

Private: Atlantis Adventures, Guam Fisherman's Cooperative, Hilton Hawaiian Village, Honolulu Yacht Club, Liquid Robotics Inc., Outrigger Hotels and Resorts, Sea Engineering, Sheraton Waikiki Hotel, Waikiki Yacht Club

MILESTONES (start of work delayed until Q1, FY12): Text in **blue** denotes equipment deployment, **red** denotes product/data development, and black denotes modeling development.

FY11 Q4	FY12 Q1	FY12 Q2	FY12 Q3
2 3-month glider missions per year.			
Glider data assimilated by numerical ocean models			
		Kaena HFR Deployed	
HFR surface currents online			
8 Waverider buoys in operation in Hawaii, Guam, and the Marshall Islands			
2 Coastal cameras operational in Hawaii			
Real-time wave data and forecasts online			
High-water level forecasts available online			
Coastal camera imagery available online			
AUV survey data on-line			
Water quality data and products online			
		American Samoa water quality system deployed	
Water quality indices on-line			
Sea level heights/trend products on-line			
ROM circulation model in operation for Hawaii			
WRF atmospheric model in operation for Hawaii			
Regional WWIII wave model in operation			
		Development of circulation model for Pacific basin	
Model data and products on-line			
Vessel traffic on-line			
Route forecasting and ocean condition products online			
Transmitting tags deployed on pelagics throughout year			
Service acoustic receivers throughout year			
Collate and prepare biological results for integration/model forecasting			
Integration of biological data into data management system ongoing			

WORK COMPLETED

Funds for FY11 were not received until the end of the fiscal year. Work for this award began at the start of FY12 and will be reported in the next update to NOPP.

RESULTS

As concisely as possible, please describe meaningful scientific and/or technical results achieved in the report fiscal year. Make the significance clear. Emphasize what was learned, not what was done. This should be a

short summary of significant results and conclusions. If you include figures, please include the caption in the report text and not as part of the picture or graphic. This is necessary to meet accessibility requirements.

IMPACT AND APPLICATIONS

Funds for FY11 were not received until the end of the fiscal year. Work for this award began at the start of FY12 and will be reported in the next update to NOPP.

TRANSITIONS

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RELATED PROJECTS

Closely related to aspects of the PacIOOS operational mission are activities being undertaken by the Department of Homeland Security funded Center for Island, Maritime, and Extreme Environment Security (CIMES) at the University of Hawaii at Manoa. CIMES is focused on the development of new HF-radar technology, acoustic monitoring of coastal waters, satellite acquisition of maritime data (for Maritime Domain Awareness), and data fusion. PacIOOS and CIMES work closely on the development and deployment of HF-radar technology in the region.

OUTREACH MATERIALS

Outreach materials are posted here: <http://oos.soest.hawaii.edu/pacioos/outreach/factsheets.php>.