

Bi-Weekly IOOS® Z-GRAM - 27 January 2012

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The Z-Gram is an informal way of keeping you up-to-date on US IOOS® activities. Please advise of additional addressees, or if you are receiving and no longer want to receive. If you think others could benefit from the Z-Gram please pass it on. To see previous Z-Grams go the IOOS website and view under [program updates](#).

IOOS® - A Partnership supporting Lives and Livelihoods

SPECIAL NOTE: It is not too late to attend the Pacific Northwest Waters: Gateway to our Future workshop on Thursday, February 2nd at Microsoft Research with NANOOS as the local hosting IOOS Regional Association. [See Agenda](#). If you would like to attend, please send an email to Josh Young (jyoung@oceanleadership.org) with your name, affiliation, and whether you plan on attending the second day. For more info: <http://www.ioos.us/stakeholder-outreach/pacific-northwest-workshop/>

Governance and Management Subsystem:

- **Certification:** Dave Easter, US IOOS Program Office, worked with NRFA to establish a small team to discuss the promulgation of guidelines for certification. Team members across the Regions include Josie, NFRA: Jen Read, GLOS, Chris Ostrander, PacIOOS and Ann Jochens, GCOOS. The objective of the team is to identify and discuss approaches and issues to the development of guidelines for implementation of the certification criteria. First meeting will be Feb 10.
- **NEPA PEA:** The EA Engineering contract to deliver a draft programmatic environmental assessment is well underway. Periodic meetings are taking place between Government representatives and the contractor. The draft PEA is due Apr 6.

Observation Subsystem:

- **IOOS Observations Assets Map:** This is a **static** Observing Asset Inventory map based on the information submitted by the U.S. IOOS regions in 2011. http://www.ioos.gov/observing/observing_assets/welcome.html
- **AOOS Glider Breaks Records in Chukchi Sea:** An AOOS-funded glider broke records this summer by continuously sampling ocean properties in the Chukchi Sea for over nine weeks, collecting over 11,000 vertical profiles of pressure, temperature, and salinity covering 1,000 km of ocean. The glider was equipped with high-capacity lithium batteries, which enabled it to stay in the water for over two months while continuously collecting and transmitting real-time data. The 2011 mission was the second year of studies on the hydrographic properties of Arctic waters, led by Dr. Peter Winsor at the University of Alaska Fairbanks (UAF) and funded by the Bureau of Ocean Energy Management (BOEM), Conoco Phillips, and Shell Oil. 2011 deployments took place from Wainwright on July 31st, following last year's inaugural

surveys, which covered over 1,000 km of ocean and collected more hydrographic data than all previous studies combined. The glider program is part of a larger project lead by Tom Weingartner at UAF, which includes land-based HF radars, drifters and moorings. The HF radars and glider programs are unique to the Arctic and have been successful mainly due to the excellent technical team of Rachel Potter and Hank Statscewich, assisted by residents of Barrow, Wainwright, and Pt. Lay, who deploy, monitor and service these complex systems in challenging conditions. "The glider data provides detailed biochemical and physical ocean data that previously has been unavailable to us," Winsor said. "However, when we combine the HF radar and AUV glider data a unique view of the ocean emerges, and with features and complexity that are changing our ideas of how this area is functioning," he added.

- **Glider Activities:**

- Wave Glider Demo Update: Wave glider and fetch node demonstration PIs, Oscar Schofield/Scott Glenn from MARACOOS and Neal Pettigrew/Ru Morrison from NERACOOS, are finalizing mission plans and de-conflicting with Liquid Robotics and Sonardyne for a spring deployment.
- Profiling Glider Asset Map: MARACOOS, NANOOS and SCCOOS are working with ASA to get their gliders into a single IOOS glider asset map. We are also working to put together a planning meeting to develop a national glider plan.

- **High Frequency Radar/Radio (HFR): For more information contact the US IOOS HFR Project Manager, Jack Harlan, Jack.Harlan@noaa.gov:**

- **CODAR and Solar Activity:** The recent strong solar activity, which led to extraordinary aurora borealis in the Northern Hemisphere as well as minor communications disruptions, has been tracked using the CODAR signals from IOOS HF radars. Many CODARs synchronize their signal with the GPS satellite system. Space weather enthusiasts are processing the CODAR signal to map the ionospheric density layers.
<http://www.spaceweather.com/archive.php?view=1&day=22&month=01&year=2012>

World Radiocommunications Conference (WRC) is underway and continues through Feb 17. The IOOS agenda item for HF radar permanent frequency allocations is represented by NOAA Office of Radio Frequency Management and by FCC. Negotiations among the international community will result in a set of frequencies for global use.

- **GEO Global HF Radar Task Kicks Off** at Oceanology International in London - 13 March.
- **National HF Radar Technical Steering Team:** Arrangements completed for an informal meeting of the Team at Ocean Sciences, Salt Lake City.

- **US IOOS Animal Telemetry Activities**

- **US Animal Telemetry Network:** Working with the National Ocean Partnership Program, the US IOOS will host a steering committee meeting that will be held March 15-16, 2012 at Consortium for Ocean Leadership (COL) in Washington, D.C. All of the regions will be represented by their PIs and will include a representative from ACT. Representatives from several federal agencies (NASA, BOEM, US NAVY, ONR, NOAA/OER, NOAA/NDBC, NOAA/NMFS) will be in attendance.

- IOOS-ONR-Tagging of Pelagic Predators (TOPP) Project: The requirement phase is 90% complete. The discussion is beginning on the technical design solution to serve TOPP historical, physical oceanographic data for ingestion by NAVO and NCEP ocean models.

Data Management and Communications (DMAC) Subsystem: To get on the IOOS System Status list which announces service changes, please contact Derrick (Derrick.Snowden@noaa.gov) or Rob (Rob.Ragsdale@noaa.gov).

- **AOOS Launches Upgraded Real-Time Sensor Map:** On Nov 21st, the Alaska Ocean Observing System (AOOS) released a new version of the AOOS real-time sensor map. New capabilities include the ability to see the latest observations from multiple sensors housed on a single station at the same time, bookmark a specific view to return to or send to a friend, and view wind vectors on the main map, showing wind direction and magnitude. AOOS will soon add wave vectors as well. Users can also view a visual representation of relative differences in temperature, precipitation, or other parameters of their choosing across stations. Congratulations to Rob Bochenek and the rest of the Axiom staff for this accomplishment.
- **AOOS Launches New Oil Spill Response Tool for Cook Inlet:** One of the most important applications of ocean data is for managing spill response. The Cook Inlet Regional Citizens' Advisory Council, NOAA and AOOS are collaborating on the development of the Cook Inlet Response Tool (CIRT) to be released in January 2012 coinciding with the Alaska Marine Science Symposium. This application combines GIS spatial data layers, real time observations, model nowcast/forecasts for winds, waves, and ocean circulation, and a ShoreZone video imagery viewer. www.aos.org
- **New Sensor Observation Service (SOS) Service at NANOOS:** NANOOS's Emilio Mayorga has recently announced released a new SOS data service linked directly to in-situ assets in the NANOOS Visualization System (NVS, <http://nvs.nanoos.org>). This new service now available on the IOOS Catalog provides access to local monitoring assets not previously accessible on a national-scale interoperable system. This SOS service was developed in coordination with IOOS Catalog, SOS Reference Implementation, and ISO Discovery Metadata activities, helping to advance and clarify data service specifications for IOOS; examples include standard specifications for identifying the service as an RA service and for describing asset-provider (owner) information that is accessible on the IOOS Catalog. The new service joins an existing SOS service from a NANOOS partner (OHSU/CMOP) in a seamless integration on the IOOS Catalog.
- **DMAC PLANNING AND IMPLEMENTATION**
 - IOOS Registry, Catalog, Viewer (RCV) Development - On-going refinements to US IOOS Catalog: We are working on the process to "register" web services that provide access to observations data, emerging data discovery tools and enhancements to the map-based "viewer" that includes lightning-fast presentation of the "dots on the map" showing existing observing assets. The team is also implementing a series of recommendations to better integrate the prototype NGDC Geoportal server as a potential component for a refined US

IOOS catalog, particularly as a tool to generate metadata records for the catalog. This includes providing direct links from metadata records in Geoportals search results to pre-filtered IOOS catalog views showing corresponding SOS service platform locations and THREDDS data sets bounding boxes. Linking the publicly-available metadata records directly to the IOOS catalog will help to drive traffic to the catalog and will streamline access to IOOS data services for users.

- **QARTOD: Quality Assurance of Real-Time Data:** The US IOOS Program Office is finalizing the plan for establishing QARTOD as a sustaining activity under US IOOS Program Office funding. This project, which would be a more rigorous representation of QARTOD and conducted in close collaboration with NDBC, would establish a forum and process for generating detailed technical QA/QC procedures for each of the US IOOS core variables and representative operational sensors. The current draft has been reviewed by SCCOOS's Julie Thomas and NERACOOS' Ru Morrison and their inputs have been received. The draft has been circulated to all of the IOOS RA Executive Directors and key Federal partners for a broader discussion before the project begins. In the interim the team is compiling a summary and assessment of existing qa/qc procedures per IOOS core variables and widely used sensors.
- **Getting to National Interoperability: Reference Implementation:** The IOOS DMAC Reference Implementation Working Group will be documenting SOS request and response specifications that can be implemented uniformly across IOOS. The outcomes will result or extend recommendations for controlled vocabularies, identifier conventions, default values and behaviors and the SOS request user interface. There will be attendees from the IOOS RAs (SECOORA, NANOOS, MARACOOS, NERACOOS, and AOOS), NOAA (CO-OPS, NDBC and NCBO), and the USACE. The workshop will be held Feb 7-9, Baltimore, MD. For information on the workshop, the draft agenda and workshop materials, please visit the Reference Implementation Working Group IOOSTech Wiki site: <http://code.google.com/p/ioostech/>.
- **IOOS Biological Data Project Terminology:** The IOOS biological data terminology (v0.9) definitions and XSD file have been posted to the IOOS Website (<http://www.ioos.gov/dmac/biology/welcome.html>). The terminology is a list of data fields with names, descriptions and format notes, based on Darwin Core, Dublin Core and proposed IOOS vocabularies. CF Conventions have been applied to the definitions at the field level to assure that the IOOS Biological Project will be compatible with other IOOS geophysical datasets.

Modeling and Analysis Subsystem: For information on the US IOOS Modeling Testbed, please contact the US IOOS Modeling Testbed Project Manager, Becky Baltes, Becky.Baltes@noaa.gov

- **Modeling Testbed:**

- **Inundation Team:** Don Slinn, University of Florida and Inundation team member, was at the National Hurricane Center last week (12/12 – 16) to help

transition a new coupled SLOSH-SWAN model to the operations center. This is an important step for the Testbed in transitioning projects into operations center to further operational missions.

- **American Meteorological Society 92nd Annual Meeting:** Twenty-two talks or posters on the Testbed were presented and representation of this work included a special session on 1/24 on the IOOS/SURA Super-Regional Coastal Modeling Testbed co-chaired by Dr. Doug Levin (Washington College and formerly at US IOOS) and Testbed Technical Advisory Evaluation Group members Dr. Frank Aikman (NOAA/NOS/Coast Survey Development Lab) and Dr. Chris Mooers (Portland State University). The Testbed Team held a half-day planning meeting on 1/25 to discuss the status of the close out of the first grant and to talk about the future Testbed framework and funding opportunities.

Interagency Collaboration:

- **USACE IOOS Activities:** Linda Lillycrop is the USACE liaison to the US IOOS Program. For additional information on USACE activities, contact her at: Linda.S.Lillycrop@usace.army.mil. The USACE FY12 focus is to continue involvement and support of the national IOOS effort and to improve the USACE District Offices participation and collaboration with the IOOS Regional Associations.
 - Meeting with the new USACE Deputy Commanding General for Civil and Emergency Operations, MG Michael Walsh, We took advantage of the quiet time at the end of last year to introduce US IOOS and the talk about the important support USACE provides to the national US IOOS program. Zdenka and Suzanne, US IOOS Program Office Director, were joined by Joan Pope (USACE, HQ), Linda Lillycrop (ERDC and US IOOS Program Office), and Bill Birkemeier (ERDC) where we all agreed on the importance of continuing the partnership.
 - IOOC Meeting: At the December IOOC meeting, the USACE strategy for IOOS involvement along with recommendations for moving forward based on lessons learned from increased USACE participation over the last two years was presented.
 - Regional Association Participation: Joe Vietri (Chief, Planning and Policy for USACE North Atlantic Division and Director, USACE National Planning Center for Coastal and Storm Damage) was elected to the MARACOOS Board of Directors. Donald Cresitello, New York District, presented at the annual MARACOOS meeting held 15-16 December, and representatives from USACE Headquarters, the Engineer Research and Development Center (ERDC), and the Institute for Water Resources (IWR) also attended. Nancy Ferris, San Francisco District, and Linda Lillycrop, ERDC, participated in the CeNCOOS annual meeting 9-10 January.
- **DMAC Steering Team:** The 2012 IOOC DMAC Steering Team (ST) Meeting was held at the Consortium for Ocean Leadership, in Washington, D.C., January 18 – 19 and attended by 24 persons including 10 federal members, 11 invited stakeholders (including SCCOOS' Julie Thomas and NERACOOS' Ru Morrison) and three staff.

The meeting was chaired by Charly Alexander from the U.S. IOOS Program. There is representation on the DMAC ST from Federal and state agencies or departments, the IOOS Regional Associations, academic institutions and Industry. The meeting introduction emphasized roles, responsibilities and purpose of the ST, which helped recalibrate the group because of recent change in both the chair position and composition. The meeting that unfolded was a series of updates, topical briefs and discussion that traversed high level components of data management and governance. There were updates and discussion on IOOS DMAC and OOI-CI, a brief by NASA JPL's Michelle Gierach, lead project scientist at NASA's Physical Oceanography Distributed Active Archive Center (PO.DAAC), and a presentation on Open Geospatial Consortium (OGC) Web services from OGC's Luis Bermudez on the first day. The issue of governance, the Steering Team's roles and responsibilities, and particularly coordination with the IOOC was a significant topic discussed in the introduction and revisited on day two. Krish Narasimhan (Lockheed Martin) brainstormed a DMAC ST organizational framework diagram to help prompt discussion. The second day was shaped by presentation on the QARTOD plan for sustaining and developing quality assurance and quality control standards, briefed by Derrick and Charly; Jennifer Schopf's (National Science Foundation) presentation of NSF's Earth Cube process for building a cyberinfrastructure that will ease discovery, use and enhance knowledge of data using a community-driven approach and Ru Morrison's facilitation of scenarios the DMAC ST could enable and form recommendations that could be made to the IOOC. The draft meeting minutes should be available within a week and followed by meeting report and a briefing by Charly to the IOOC.

- **IOOS and Links to the National Water Quality Monitoring Network: Coordination with EPA:** The agreement is proceeding and receipt of a draft EPA decision memorandum is forthcoming (although expected on 1/26). The purpose of the agreement is to transfer EPA funds for the project.
- **IOOS and The National Science Foundation (NSF) - Ocean Observatories Initiative (OOI):** Recent discussions, on the biweekly conference calls, with the OOI-CI team have included OOI-CI investigations on an emerging unified data model and the planning pathway towards a more transparent set of specific collaboration tasks for R2 (Release 2) of the OOI-CI. The team is continuing to explore technical priorities per HFR data, glider data in collaboration RA experts per an emerging US IOOS glider asset map, and a possible extension of R1 efforts with coastal modelers as early adopters.

Other:

- **Currents on the Bay: There's an app for that:** A new iPhone and iPad application designed by researchers at San Francisco (SF) State provides real-time and predicted information on surface currents within the San Francisco Bay. The app, called "Bay Currents," relies on data supplied by the Coastal Ocean Currents Monitoring Program in Northern California (COCMP-NC) and the U.S. Integrated Ocean Observing Systems Office (IOOS) from the High Frequency Radar. The app uses Google Maps and GPS to give sailors a real-time look at currents in the Bay, the previous 24 hours of

currents and a projection for the next two hours."A sailor wants to know what is going on around him. And San Francisco Bay is interesting because the currents are so strong, probably the strongest currents on the California Coast," said Professor of Geosciences Newell 'Toby' Garfield, who developed the app along with the Project's Operations Manager Jim Pettigrew. "So if you're out as a sailor, both from a safety point of view, as well as being able to plot a route to your destination, it's good to know what the currents are." Users can locate their current location on the water using the GPS technology or place pins at points in the Bay to get an understanding of the currents at that location. The easily accessible information will help crews competing in the yacht races on the Bay. The app is available for free through the Apple App Store.

- **GCOOS Partners in Action: Canterbury School of Florida Named First Cousteau Divers School:** GCOOS partners SRI International and the University of South Florida's (USF) Center for Ocean Technology for their recent role in demonstrating the power of collaboration in educating and training the next generation of ocean scientists. Working with Ms. Jenna Cummings, Director of Marine Studies at the Canterbury School of Florida, the Canterbury Marine Science Advisory Committee (MSAC) convinced Pierre-Yves Cousteau, son of legendary ocean explorer Jacques Cousteau, that Canterbury would be an ideal choice for the first Cousteau Divers school. Cousteau Divers is an international not-for-profit organization fostering scientific programs that monitor and conserve marine biodiversity around the world. Students will catalog and track biodiversity in the Gulf of Mexico, create wildlife guide books for the Gulf and monitor water quality through data loggers. The MSAC, which has numerous representatives including the St. Petersburg Downtown Partnership, Tampa Bay Watch, the Pier Aquarium and the GCOOS-RA, was able to demonstrate strong community commitment to environmental education; the signature of downtown St. Petersburg, which is home to several colleges and universities, and numerous local, state and federal resource organizations. Dr. Chris Simoniello, GCOOS Education and Outreach Coordinator and Canterbury MSAC member, is working with Ms. Cummings to explore the feasibility of having the GCOOS Data Portal host the student-collected data. The Canterbury marine education center has been renamed the Cousteau Marine Studies Education Center in honor of the marine conservation and exploration work done by the Cousteau Family.
- **NOAA Announces Regional Ocean Partnership Awards:** On January 10, the Office of Ocean and Coastal Resource Management and the Coastal Services Center awarded \$6.18 million to regional partners through the Regional Ocean Partnership (ROP) Funding Program. IOOS Regions that are receiving dollars under these awards include:
 - **AOOS:** *Developing Coastal and Marine Planning Visualization Tools for the U.S. Arctic and Alaska: Data Tools to Support Future Decision-Making on Arctic Fisheries;* \$760K over 18 months; AOOS serves as lead PI for the award. Information on the project can be viewed at <http://www.aos.org/arctic-data-tools-project/>
 - **SECOORA:** *Funding to support organizational framework, coastal and ocean planning efforts;* SECOORA is sub-award; \$352,000 for one-year; work includes assessing manager needs for information, building on SECOORA's

DMAC to develop an Information Management System for the SAA, and assessing decision support tools that would enable multi-sector marine spatial planning.

- **Mitsubishi Research Institute (1/20):** Charly, Derrick and Suzanne (US IOOS Program), Sid Thurston, NOAA's Climate Program Office/Climate Observing Division, and Krisa Arzayus, National Oceanographic Data Center, met with two scientists from Japan's Mitsubishi Research Institute to share briefings on our programs and answer their questions about NOAA and US IOOS's data management programs as a follow-up to a 2008 US IOOS/MRI meeting. MRI is surveying a number of organizations in support of an emerging data integration and analysis system at the Japan Agency for Marine-Earth Science and Technology.
- **Alaska Marine Science Symposium:** A beautiful, but cold January day greeted my arrival at the Alaska Science Symposium. Several feet of snow that had fallen the week before, making for a picturesque Anchorage, but -10° F temperatures in the mornings required bundling up! Each year, scientists, managers, and others convene at the Alaska Marine Science Symposium held in Anchorage. This event is the largest scientific conference in Alaska, attracting over 1,200 participants and covering a wide spectrum of topics and eco-regions. The Alaska Ocean Observing System (AOOS) is a sponsor of the symposium and plays a significant role in its organization and success. AOOS and COSEE sponsored a fabulous communications workshop to kick off the symposium. The first part of this workshop featured Randy Olson, author of "Don't Be Such a Scientist: Talking Substance in an Age of Style," who discussed how to communicate about your programs using stories. The second part of the workshop featured presentations by Darcy Dugan, AOOS Program Manager, talking about creating your own video; Elizabeth Arnold, journalism professor at the University of Alaska Anchorage and senior reporter for "Encounters with Richard Nelson," discussing how to create powerful radio pieces; and Darin Trobaugh, education specialist at the Alaska Sea Life Center, on creating virtual tours. The research presented at the symposium was top notch, and I was impressed with its vast expanse. As one of the presenters stated, the research extends "from viruses to whales." Phil Mundy of NOAA's National Marine Fisheries Service provided an intriguing talk on the use of physical ocean observations to predict when the salmon would run--and proved you could do this. Tom Weingartner, of the University of Alaska Fairbanks and AOOS, presented his summer work with High Frequency Radar and drifting buoys to understand the circulation in Arctic coastal waters. These were only two of more than 75 talks given at the symposium. During the symposium it was obvious to me that partnerships between the Federal and non-Federal agencies, and other institutions, including industry, within Alaska are strong, and this leads to tight coupling of the research that is being conducted. The Department of Interior, Bureau of Ocean Energy Management, an IOOS agency, is a strong supporter of many of the studies that are being conducted in Alaska. I also saw strong commitment from Shell Oil and ConocoPhillips. Equally obvious in all my interactions is that AOOS is a vital partner in Alaska. AOOS' data portal is gaining significant traction, and customers are lining up to ensure their data is included. The strong leadership of Molly McCammon, AOOS Executive Director, was noted often. I had the opportunity to meet with the AOOS board, and I appreciate their support for the overall goals we are accomplishing

through U.S. IOOS and AOOS. The AOOS team and I also met with Shell Oil, ConocoPhillips and Statoil leadership to continue to the work the details on the memorandum of agreements that are being written for the sharing of data by the oil and gas companies a significant partnership. [See full story on the IOOS website](#)

- **The value of strong collaboration is demonstrated at the Central and Northern California Region's Annual Meeting:** The value of strong collaboration among U.S. Integrated Ocean Observing Systems was demonstrated by the [Central and Northern California Association of the Coastal Ocean Observing Systems \(CeNCOOS\)](#) Annual Meeting on January 9 and 10, 2012. Collaboration among CeNCOOS, the Northwest Association of Networked Ocean Systems (NANOOS) and the Southern California Coastal Ocean Observing System (SCCOOS) is resulting in sustained High Frequency Radar operations, tests and evaluations of wave gliders, and advancements in research of Ocean Acidification and Harmful Algae Blooms. Zdenka Willis, U.S. IOOS Program Director, and Jenifer Rhoades, U.S. IOOS Program Regional Program Analyst, attended and provided a national overview of U.S. IOOS during the meeting. More than 50 stakeholders attended the meeting, which focused on reviewing the efforts of CeNCOOS partners and developing a new strategic plan for the Regional Association. The still-emerging strategy is focused on improving Harmful Algae Bloom forecasting, standardizing data and observations, and continuing the successful partnership with [SCCOOS](#) and [NANOOS](#) to advance common areas of interest, such as the development of a state-wide atmospheric model. Heather Kerkering, CeNCOOS Program Coordinator, highlighted CeNCOOS' accomplishments over the last two years. These included the use of High Frequency Radar, a technology started in CeNCOOS, in support of the COSCO Busan (2007) and Deepwater Horizon (2010) oil spills, as well as for [Search and Rescue efforts](#). It is estimated the search area is reduced by 65% over 96 hours and up to 50 lives are saved annually as a result of data supplied to search and rescue agencies. Also, highlighted were improved water quality, coastal hazard data and forecasting for inundation and tsunami, and outreach and education offerings. Tom Evans, Warning Coordination Meteorologist at the National Weather Service's Monterey, CA, Forecast Office, described the importance of CeNCOOS provided data and information for decision making. He mentioned the importance of Coastal Data Information Program (CDIP) buoy data in providing wave height and swell train information to develop marine forecasts. Heather Kerkering was also recognized by CeNCOOS for her dedicated efforts to coordinate and support the advancement of CeNCOOS. She recently accepted a position with the Pacific Islands Ocean Observing System (PacIOOS) as its Deputy Executive Director.
- **MARACOOS teams us to aid fishermen in the butterflyfish conundrum.** Story taken from www.maracoos.org, by Teresa Messmore: Butterflyfish may sound delicious, but local fishermen would rather keep them out of their nets. The small, silvery fish are protected by fishing limits yet frequently surface in tows when fishermen are trawling for squid. Too much of this unintended butterflyfish "bycatch" can get a fishery shut down by regulators for the year – before the squid allocation is caught. The University of Delaware's Matthew Oliver, assistant professor of oceanography in the [College of Earth, Ocean, and Environment](#) (CEOE), is helping to address the problem. Combining satellite data with radar information on ocean currents, he and others are developing a model to predict where butterflyfish populations are most likely to be on any given day.

Their habitat model could assist fishermen in avoiding butterfish while fishing for squid. The study is a collaborative effort with Greg DiDomenico of the Garden State Seafood Association, John Manderson of the National Marine Fisheries Service (NMFS), and Josh Kohut and Laura Palamara of Rutgers University. The researchers recently tested the accuracy of their predictions with an eight-day field experiment, sending daily reports to a fishing vessel roughly 200 miles offshore. “We were taking real-time observations from satellites and high-frequency radar and sending it to fishermen to guide their fishing efforts,” Oliver said. “I think it may have been the first time anything has been done like that.” Each afternoon Oliver provided NASA satellite data collected by CEOE’s satellite receiving station to colleagues at Rutgers University, including ocean temperature and color indicating where water conditions change quickly. They combined it with updates on ocean currents and understanding of butterfish behavior; for example, the fish are more likely to be at the ocean’s bottom during the daytime. Then they used the data to create color overlays on Google Earth maps that looked similar to weather maps, except the color blue indicated poor zones for butterfish to live and orange marked areas with prime butterfish conditions. The scientists then beamed their daily butterfish forecast map by satellite phone to fisherman Chris Roebuck and NMFS’s Manderson aboard a squid boat near the edge of the continental shelf. The information was received through an underwater robot glider, a remote-controlled device that looks like a missile and normally darts through the ocean to sample water conditions. The team strapped the glider to the top of the boat to both transmit information and track the boat’s location every hour, which was preferable to the ship’s satellite phone since it already had a communication protocol in place. The fishermen used the map to sample areas where scientists predicted butterfish would and would not be to check if they were right. They sent catch data back to the team onshore through the glider. Results showed that sometimes the model was slightly off, while the fisherman’s guesses were correct. Other times, the model suggested successful spots the fishermen would not have otherwise tried. Overall, the model pointed the boat in the right direction to find butterfish based on features of the ocean’s surface. Next, the researchers will analyze where and why the model was incorrect in some cases and how to improve predictions. The model may help define what preferred butterfish habitat is, Oliver said, and possibly shed light on why butterfish and squid seem to prefer similar habitats. The hope is to give fishermen another tool beyond sonar and past experience in deciding where to trawl. The fishermen’s initial feedback on the habitat model was that they could use it in a way similar to a weather forecast, providing general guidance on when and where to drop their nets. The fishermen’s input was valuable in developing the model, and Oliver, Kohut and Manderson held workshops with them to decide what’s important for the model based on their real-world experience. The collaboration between the fishing industry, academia and government demonstrates how real-time ocean observing can be useful and important for fisheries, Oliver said.

Congressional: No update

Communications/Outreach:

- **NERACOOS new Website:** The website was redesigned to help highlight NERACOOS activities and partners and easily get you to the data and tools you use. We've been working closely with our web development partners, the Ocean Data Products group at the Gulf of Maine Research Institute to also bring you more data and tools from the GoMOOS website, which will be going offline in the upcoming months. <http://www.neracoos.org/>
- **US IOOS Website: January Updates:**
 - [Home Page](#) - 2 feature stories: Alaska Marine Science Symposium, CeNCOOS Annual Meeting
 - [News Splash](#) – 5 Briefs
 - [Communications](#) – 3 presentations added: Report to LFA, ESIP, CeNCOOS
 - [All regional pages](#) – 2011 One Pagers posted on all RAs pages
 - [Observing Systems](#) – The U.S. IOOS 2011 Regional Observing Assets Inventory
 - DMAC/IOOS Biology – [IOOS Biological Data Terminology](#)

IOOS Conference Involvement: This section will highlight those conferences where US IOOS is a sponsor/or has a major footprint.

Don't Miss the IOOS events at the AGU Sciences Meeting - February 20-24 Feb:

- **010 Ocean Observing Systems -- Regional and Global: Monday 20 Feb, all day, including a poster session; Location: Ballroom J:** Session Organizers and papers include the Who's Who of Ocean and Coastal Observing. Session organizers are Albert Fischer IOC/UNESCO; Eric Lindstrom NASA; Ru Morrison NERACOOS, Suzanne Skelley U.S. IOOS Program Office, Harvey Seim University of North Carolina/SECOORA, Michael S. Tomlinson University of Hawaii, School of Ocean and Earth Science and Technology/PacIOOS; Eric Heinen De Carlo, University of Hawaii, School of Ocean and Earth Science and Technology/PacIOOS, Jim Potemra, University of Hawaii, School of Ocean and Earth Science and Technology/PacIOOS.
- **010 Panel Discussion of Designing Ocean, Coastal and Great Lakes Observing Systems to Address Societal Issues: Monday 20 Feb, 15:45, Ballroom J:** Harvey Seim, Past-Chair, Southeast Coastal Ocean Observing Regional Association, Chapel Hill, NC, Suzanne Skelley, Deputy Director, US IOOS Program Office, Eric Lindstrom, Co-chair, Interagency Ocean Observation Committee, Jerry Miller, Acting Dep. Director, National Ocean Council Office and Asst. Director for Ocean Sciences, OSTP.
- **109 Integrating Oceanography and Animal Tracking - the Ocean Tracking Network: Monday 20 Feb, Poster Session: TOWARD A U.S. ANIMAL TELEMETRY OBSERVING NETWORK FOR OUR OCEANS, COASTS AND GREAT LAKES:** Hassan Moustahfid, US IOOS Program Office; Churchill Grimes, Retired, NOAA/NMFS, Southwest Fisheries Science Center, Fisheries Ecology Division; John Kocik NOAA/NMFS, Northeast Fisheries Science Center; Barbara Block, Hopkins Marine Station, Stanford University; Kim Holland, Hawaii Institute of Marine Biology, University of Hawaii; John Payne, University of

Washington;Dewayne Fox,Delaware State University;Andrew Seitz, University of Alaska Fairbanks;Charles Alexander,US IOOS Program Office.

- **EVW05: Interagency Ocean Observation Committee (Town Hall):Wednesday February 22, 12:30 – 14:00, Ballroom I:** The Interagency Ocean Observation Committee (IOOC) is bringing together ocean observers, researchers, and data managers to discuss how to shape the next decade of ocean observing. This town hall is an opportunity for Ocean Sciences '12 attendees to **participate in the Integrated Ocean Observing System Summit being held in the fall.** The IOOC will seek audience input during facilitated discussions and look to attendees for suggestions on enhancing marine research, operations, and funding
- **EVTH12: Multi-sensor Improved SSTs (MISST) for IOOS Remote Sensing Systems (Workshop);Thursday February 23, 18:00 – 20:00, Ballroom B:** Organizer: Chelle Gentemann,gentemann@remss.com. The Multi-sensor Improved Sea-Surface Temperature (MISST) for IOOS project builds on the successful partnership developed for the MISST for GODAE project (2004-2009). The objectives of this project are to (1) improve and continue generation of satellite SST data and SST analyses in the IOOS DMAC and CF compliant Group for High Resolution Sea Surface Temperature (GHRSSST) Data Specification GDS format; (2) distribute and archive these data; and (3) use this improved SST data in applications, many specifically targeted for the Integrated Ocean Observing System (IOOS).The partnership consists of 28 scientists from industry, academia, and government with wide ranging experience spanning the initial calibration of satellite sensors, development of SST algorithms, assessment of SST uncertainties, production of NRT satellite data, research into data fusion methodologies and the production of blended data sets, research into diurnal warming and the cool skin effect which both affect satellite SST measurements, and applications that utilize SSTs. This workshop will be used to coordinate research and activities for this project.For more information visit: <http://www.misst.org>

Upcoming Meetings: To see the IOOS calendar, please visit: <http://www.usnfra.org/calendar.html> or <http://www.ioos.gov/about/calendar.html>

Cheers,

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Zdenka Willis

Director, US IOOS Program Office

www.ioos.gov

