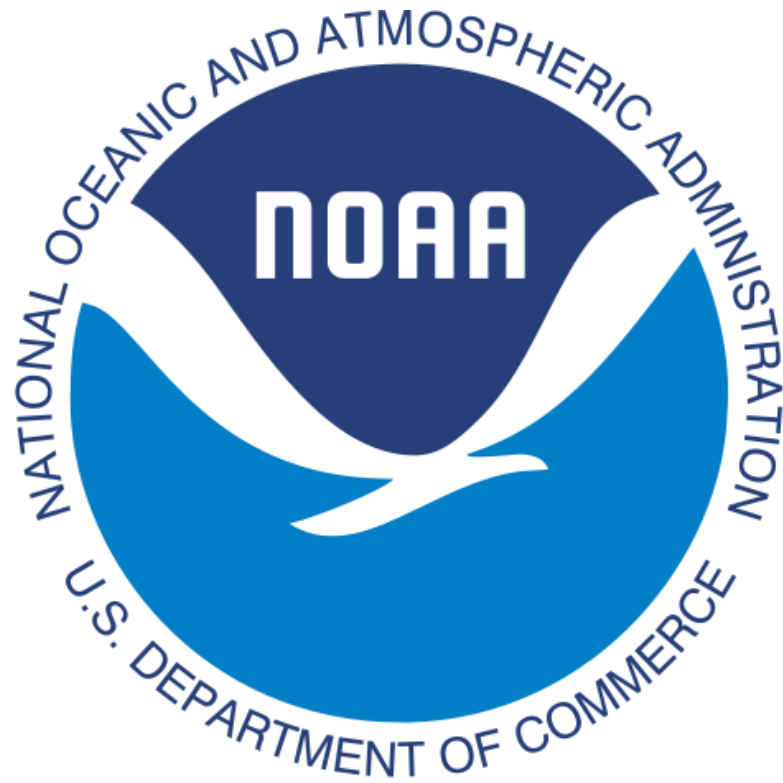




# NOAA's Regional Collaboration Network

## 2015 Annual Report



NOAA's mission is to understand and predict changes in the Earth's environment, from the depths of the ocean to the surface of the sun, and to conserve and manage our coastal and marine resources.

Regional Collaboration Network's mission is to identify, communicate, and respond to regional needs, catalyze collaboration; and connect people and capabilities to advance NOAA's mission and priorities.

## From the Deputy Under Secretary for Operations

It is with great pleasure that I introduce this inaugural annual report for the NOAA Regional Collaboration Network (The Network). The Network's mission is to identify, communicate and respond to regional needs; catalyze collaboration; and connect people and capabilities to advance NOAA's mission and priorities.

Eight geographic regions are represented by Regional Collaboration Teams, comprised of members representing line office mission interests and capabilities. The teams are led by senior level Regional Team Leads and full-time Regional Coordinators. At the national level, Network-wide endeavors are supported and overseen by an Advisory Group consisting of headquarters-level Line Office leadership, and the National Coordinator.

NOAA's Regional Collaboration Teams address regional challenges by providing field-based information to leadership, facilitating internal NOAA connections within each region and serving as a focal point for NOAA expertise. The benefit of regional collaboration includes understanding community needs, fostering dialogue regarding products and services, and building relationships.

I continue to champion the work of the Regional Collaboration Teams as they connect NOAA leadership with regional issues and opportunities. Highlighted in this document are key examples of the diverse and localized efforts within each region across the United States. Please join me in applauding the dynamic work of the Regional Collaboration Network showcased in this 2015 Annual Report.



VADM Michael S. Devany  
Deputy Undersecretary of Operations  
National Oceanic and Atmospheric Administration

# NOAA TOP PRIORITIES FOR 2014–2016

1

Make communities more resilient

2

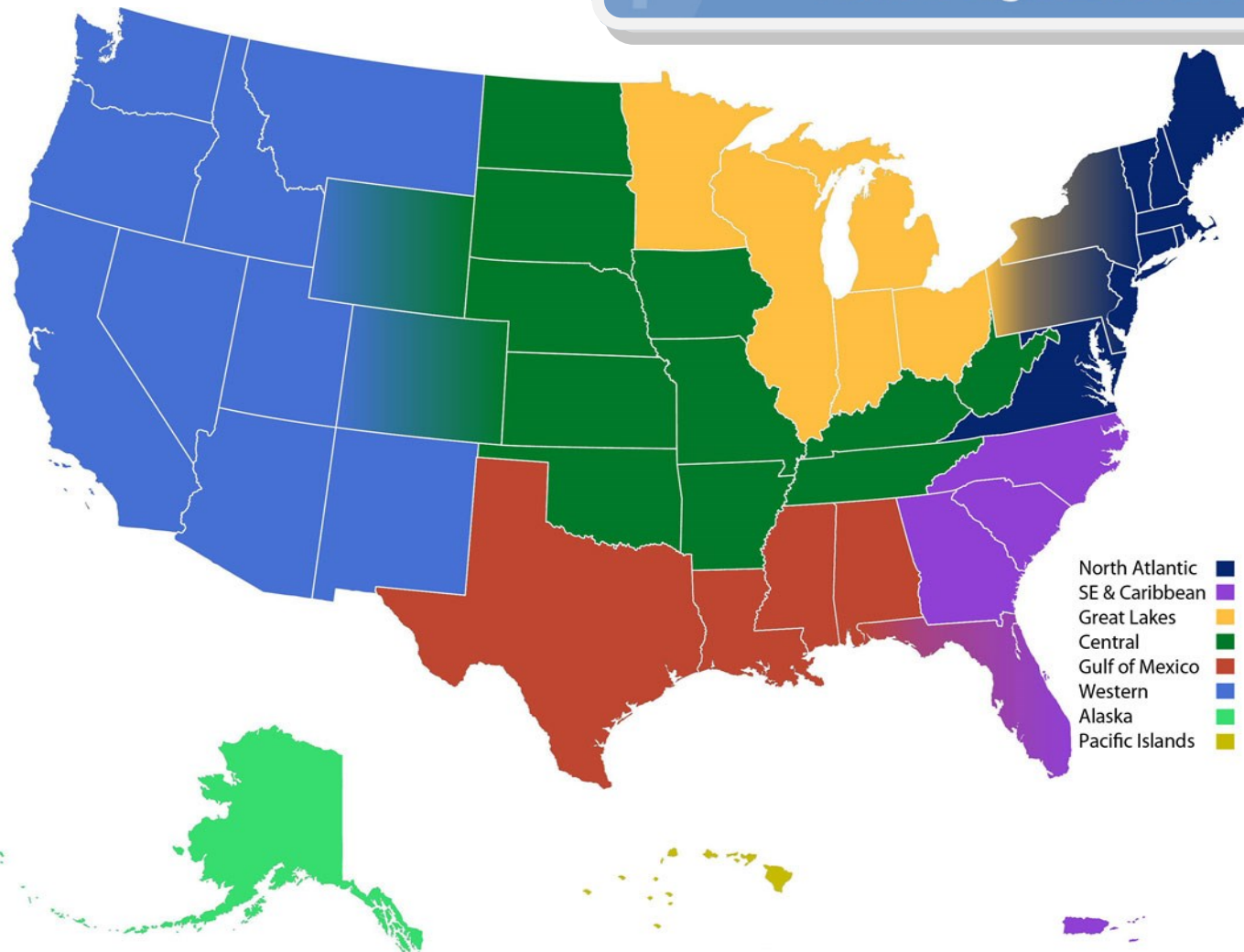
Evolve the Weather Service

3

Invest in observational Infrastructure

4

Achieve Organizational Excellence



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# Regional Collaboration Strategy Map 2015-2020

Regional Collaboration Vision  
*A unified and regionally integrated NOAA*

Regional Collaboration Mission  
*To identify, communicate, and respond to regional needs, catalyze collaboration; and connect people and capabilities to advance NOAA's mission and priorities*

GOAL: Address regional challenges by connecting people and resources

- Conduct regional outreach and engagement to gather information on place-based issues and impacts, and understand the landscape of regional providers and end-users of NOAA data and information
- Identify data, communication, coordination, and resource gaps that could benefit from NOAA regional collaboration and scope, develop and support collaborative projects that close those gaps
- Build NOAA's interdisciplinary capacity and organizational integration through the identification of subject matter expertise, and support of regionally tailored cross-line office activities
- Convene NOAA and partners to address specific regional priorities and shared goals

GOAL: Exchange both national and regional insights that inform action

- Enhance leadership understanding of regional issues and the interconnectedness of NOAA expertise
- Search, gather, integrate, and periodically disseminate information on NOAA priorities, programs, policies, and people to inform regional decision-making
- Search, gather, integrate, and periodically disseminate information on changing regional conditions and issues to inform local, regional, and national decision-making
- Explore and participate as appropriate, in mechanisms to integrate regional input into NOAA's planning, budgeting, and evaluation process
- Provide guidance and support in the development and implementation of NOAA-wide, cross-line regional programs

GOAL: Improve the understanding of and respect for NOAA's broad mission and regional capabilities

- Foster meaningful interaction among headquarters, regional staff, and partners by serving as effective and impartial liaisons
- Assist in developing and tailoring NOAA's engagement strategies for the regional implementation of national policies
- Elevate the visibility and value of NOAA through strategic partnerships and communications
- Create and identify opportunities to build a more informed NOAA workforce

## CORE VALUES

**Regional knowledge and context** matter

**Partnerships and shared responsibility** are foundational

Relationships are based on **mutual trust and respect**

**Collaboration** is essential to successful leadership

**Innovation and creativity** are integral to executing NOAA's mission

# National Perspective: Cross Regions, Cross Lines, Cross Borders

At NOAA, the Regional Collaboration Network is comprised of eight regions: Alaska, Central, Great Lakes, Gulf of Mexico, North Atlantic, Pacific Islands, Southeast and Caribbean, and Western, all having unique landscapes and opportunities for inter-NOAA and stakeholder engagement. In 2015, each regional team continued collaborating, connecting and contributing to projects to enhance NOAA's mission and impacts in the regions. Highlights of the cross-Regional efforts to further NOAA's mission are described below.

A cross-Regional funded effort by the North Atlantic and Southeast and Caribbean Regional Collaboration Teams aligned support given by the NOAA Coastal Storms Program and the National Weather Service's (NWS) Science and Technology office to host a workshop on the topics of rip currents and wave runup (increased elevation of water levels at the beach resulting from breaking waves). It was a combination of a three-year partnership in the North Atlantic on site-specific coastal flood wave runup forecast data capability along with Southeast and Caribbean's effort to join NOAA interests validating and operationalizing a rip current model. Eighty participants convened at a workshop on rip currents and wave runup further developing messaging and strategies to better inform the public and mitigate risks. Results from the workshop include NWS' commitment to provide Near Shore Wave Model guidance and an agency-wide strategy for modeling and evaluating forecasts for future nationwide operations.

Many regions have worked on the Habitat Blueprint, co-led by National Marine Fisheries Service and National Ocean Service. The Great Lakes, North Atlantic, Pacific Islands, and Southeast and Caribbean teams participated in the Habitat focus area selection process, and continue to be part of the implementation teams. In some cases NOAA regional collaboration efforts provided additional value through stakeholder engagement, web content development, travel support funds, and paid internships.

The Central and Gulf of Mexico Regional Collaboration Teams link regional expertise related to hypoxia in the Gulf of Mexico originating from farm runoff in the Central region. This cross-Regional effort has built awareness and created connections between line office initiatives to further the implementation of tools such as the Runoff Risk Advisory Forecast.

The Great Lakes Regional Team works with our Canadian neighbors on many initiatives that concern the Great Lakes region, including the Bi-national Great Lakes Water Quality Agreement (GLWQA) that strives to restore and protect the physical, chemical and biological integrity of the Great Lakes. The Great Lakes Regional Team administers NOAA's participation in the GLWQA and leverages its base funding to help coordinate activities. Within NOAA, the Great Lakes Restoration Initiative (GLRI) is a collaborative effort between four line offices (OAR, NMFS, NOS, and NWS) led by 11 department-level federal agencies in coordination with states, tribes, municipalities, public interest organizations, businesses, academia, and other interested stakeholders. NOAA's ability to deliver on-the-ground services toward restoration and provide information to help inform decision makers has enabled us to be a critical partner in advancing GLRI.

During the 2015 onset of a strong El Niño, NOAA Western and Pacific Islands Regional Collaboration Teams developed strategies and implementation plans to document regional environmental conditions. The Teams are collecting observations and disseminating information at the regional scale, and improving communication on the changing conditions across NOAA line offices and within regional partner networks.



# Alaska Region

Team Lead



Doug DeMaster

Coordinator



Amy Holman

## Providing Leadership Across Arctic Nations

The Alaska Regional Collaboration Team (Alaska Team) members spent months prepping presidential announcements & deliverables, presentations, tours, and briefing materials for the Global Leadership for the Arctic - Cooperation, Innovation, Engagement & Resilience (GLACIER) Conference August 31. Working together the Alaska team helped the media, conference participants, and administration officials gain insights into what's happening in Alaska and how NOAA makes a difference.

NOAA's efforts to Chart the Arctic were highlighted during the event and several new initiatives are underway as a result from this visit.



Meagan Dunphy-Daly, Regional Advisory Group member, staffs Dr. Kathryn Sullivan, NOAA Administrator, in Alaska.

## Alaska Team's Role in Arctic Oil Drilling



Dr. Kathryn Sullivan, NOAA Administrator, hears how Shell monitors operations.

The Alaska Regional Collaboration Team (Alaska Team) plays a large role in NOAA's Arctic Oil Drilling roles and responsibilities (weather & ice prediction, oil spills, and marine mammal protection). Roles include communicating NOAA responsibilities, collaborating with industry and other agencies to maintain operational safety throughout the drill season, deploying instruments for additional observations and data collection, and providing situation briefings to NOAA leadership. As part of these responsibilities, the Alaska Team conducted a review of NOAA's roles and responsibilities related to Shell's Arctic drilling program with regional leadership specific to weather, sea ice, marine mammal issues, and pollution. The Alaska Team's coordination efforts documented known oversight and coordination meetings and mechanisms, and used scenarios to identify duplication of roles and responsibilities. The Alaska Team also conducted multiple interagency and partner coordination calls with Shell (weather and sea ice forecast coordination), the Bureau of Ocean Energy Management (weather and sea ice information to determine project scope and safety) and multiple agencies for protected species oversight. Although Shell pulled out of the Arctic in fall 2015, NOAA activities will continue as several other developments are underway elsewhere in the state.

## Networking to Improve Response to Incidents

The Alaska Regional Collaboration Team (Alaska Team) convenes a cadre of marine biologists, oceanographers, meteorologists, and others who play key roles when disaster events happen, to meet and strengthen relationships. To further build cohesion and knowledge in the group, the Alaska Team coordinates monthly conference calls aligned with the state's monthly training exercises. This effort introduces responders to each other and builds their knowledge and preparedness by examining options to handle different disaster scenarios. Along with emergency response, Alaska Team efforts included formation of an interdisciplinary group of scientists to share and synthesize information on harmful algal blooms. This group established the Alaska Blob Tracker, an online blog with current information about the "Pacific Blob" (a large pool of unusually warm water off the West Coast of the United States and Canada reaching as far north as the Gulf of Alaska). The Alaska Team expanded its efforts outside of NOAA by starting a statewide working group active in tracking and assessing issues related to the toxins produced by the blooms occurring within the waters of the Blob. Despite the unknown cause, the Alaska Team's efforts led to increased data collection, fast testing and distribution of public information that calmed community concerns.



Information sharing key to NOAA's mission in the region.

# Central Region

Team Lead



John Ogren

Coordinator



Bethany Perry

## Addressing Hydrology Related Challenges

In 2015, the NOAA Central Regional Collaboration Team (Central Team) continued providing support for the Runoff Risk Advisory Forecast (RRAF), a tool to show the day-to-day risk of runoff across an area of land. This interactive map is closely coordinated with the states it covers and provides decision support at the family farm level. The RRAF is a precipitation based forecast of potential runoff conditions, which helps farmers know when to apply surface manure and fertilizers. This knowledge reduces costly waste for farmers and lessens impacts to rivers, streams and other water bodies. Fewer nutrients, from runoff, results in healthier ecosystems. Started as a pilot in Wisconsin, the RRAF has spread to several other Midwest states and is expanding to provide service delivery nationwide. The \$2,000 in initial seed money provided by NOAA Regional Collaboration at the beginning of the engagement process helped garner support and gather stakeholder input for the RRAF, which now has increased budget allocations of more than \$365,000.

## Strengthening Capacity for Regional Climate Services

The High Plains Regional Climate Center at the University of Nebraska-Lincoln, in partnership with the NOAA Central Region Collaboration Team (Central Team), conducted an in-person short course focused on increasing capacity to address people's climate-related needs. This short course focused on 13 NWS Climate Focal Points, representing nine different forecast offices. It allowed participants to discuss collaborative opportunities for a wide range of climate products and services. Featured topics during the training included: an introduction to Regional Climate Services; hands-on experience with climate data and information tools; mesonets in the Missouri River Basin, and familiarization with key regional partners such as Regional Climate Service Directors, Regional Climate Centers, State Climatologists, the National Drought Mitigation Center and the Central Team. Participant evaluations and feedback from this first short course will help define additional training in 2016 and 2017. With a seemingly overwhelming amount of climate data and information available, addressing the needs of NWS Climate Focal Points, and engaging them as collaborators is imperative to enhancing regional climate services in the Central Region.



This mesonet station is one of the many within a network of automated weather monitoring stations



High Plains climate Center staff explain the process and techniques used in validating climate observation tools and methods within calibration labs.



## Developing A Drought Early Warning System

The NOAA Central Region Collaboration Team (Central Team) works to understand stakeholder needs and help them prepare for climate variability and change as it occurs or is projected to occur across the region. In 2015, the Central Team worked closely with the National Integrated Drought Information System (NIDIS) to plan and develop two Drought Early Warning Systems (DEWS) for the Missouri River Basin and the Midwest. Team members serve in leadership and supporting roles in a multi-year process to determine regional needs, develop and strengthen partnerships, explore solutions to meet gaps and connect resources. DEWS provide an opportunity to help decision makers access climate data and information, revise and develop tailored drought plans, and explore mechanisms to address regional gaps—such as the need for increased monitoring, all valuable resources for preparing and responding to drought conditions throughout the region. By collaborating with NIDIS, which builds on existing drought related system infrastructure, data, and operational products from various agencies, the Central Team becomes a force multiplier for decision makers.



# Great Lakes Region

Team Lead



Debbie Lee

Coordinator



Felix Martinez

## Great Lakes Adaptation to Climate Change through Climate Toolkit

The NOAA Great Lakes Regional Team (Great Lakes Team), in partnership with the Great Lakes and St. Lawrence Cities Initiative (GLSLCI), sponsored University of Michigan graduate students to develop a climate adaptation toolkit. The toolkit helps cities in the Great Lakes region with climate adaptation and resiliency planning. Communities are provided a variety of tools including case studies, customizable city infographics, descriptive GIS maps of local climate vulnerabilities, and webinar-style climate adaptation training modules. The case studies provide an overview of best practices and common roadblocks to adaptation. Also included are lessons learned scenarios of adaptation efforts, customizable training modules introducing the topic of climate change and in-depth exploration of specific municipal climate adaptation topics. The toolkit is now available online at GLSLCI's YouTube channel, MARS Portal and Municipal Climate Adaptation websites.



Michigan students working to provide climate information.

## Overseeing NOAA's implementation of the Great Lakes Restoration Initiative

The Great Lakes Restoration Initiative GLRI is a coordinated, multi-agency effort with over \$146 million allocated to NOAA, addressing the most significant environmental problems facing the Great Lakes. Within NOAA, the Great Lakes Regional Collaboration Team (Great Lakes Team) works as part of a collaborative effort between four of the five NOAA line offices representing Research, Fisheries, Ocean and Weather Services. The Great Lakes Team members are working together to align both NOAA's mission and the GLRI goals and objectives. NOAA has focused its interdisciplinary strengths on an inter-related portfolio of projects across the five focus areas of the GLRI Toxic Substances and Areas of Concern; Invasive Species; Nonpoint Source Pollution Impacts; Habitats and Species; and Foundations for Future Restoration Actions. Topics supported by Great Lakes Team efforts include habitat restoration in Areas of Concern, coastal resiliency, climate adaptation, place-based Great Lakes education, land acquisition, forecasting tools to reduce nutrient runoff, research, modeling and monitoring capabilities for watersheds and the lakes, focusing on water quality, HABs, and food webs. NOAA's ability to deliver on-the-ground services toward restoration, and to provide information that can help inform effective restoration actions and other decisions, has enabled the Great Lakes Team to be a critical partner in advancing the Great Lakes Restoration Initiative.

## NOAA in the Great Lakes Water Quality Agreement

The NOAA Great Lakes Regional Collaboration Team (Great Lakes Team) represents NOAA at a myriad of regional meetings, committees, and working groups, which proves to be logistically challenging due to the large number of requirements and the involved geographic area. As Agency ambassadors, the Great Lakes Team members become familiar with the NOAA mission and the work of its different offices to ensure a consistent NOAA approach, messaging and communications are used. An example of these coordinated efforts is shown their engagement in the Binational Great Lakes Water Quality Agreement (GLWQA). The treaty was signed in 1972 in response to serious environmental threats affecting the waters of the Great Lakes. The agreement's goal is to restore and protect the physical, chemical and biological integrity of the Great Lakes, with many of its provisions being codified in the Clean Water Act. This agreement serves as the foundation for many regional priorities and governance structures that exist in the region today. The Great Lakes Team administers NOAA's participation in the treaty and leverages its base funding to help coordinate these activities. The Great Lakes Team has placed NOAA staff to serve key roles within the GLWQA including its Executive Council, Climate Change Impacts committee and additional annex committees addressing lake-wide management planning, habitat, and science. Staff also participates on extended subcommittees addressing chemicals, nutrients, aquatic invasive species and groundwater.



The Great Lakes ever changing landscape benefits from Regional monitoring and partnerships in the region.

and governance structures that exist in the region today. The Great Lakes Team administers NOAA's participation in the treaty and leverages its base funding to help coordinate these activities. The Great Lakes Team has placed NOAA staff to serve key roles within the GLWQA including its Executive Council, Climate Change Impacts committee and additional annex committees addressing lake-wide management planning, habitat, and science. Staff also participates on extended subcommittees addressing chemicals, nutrients, aquatic invasive species and groundwater.

# Gulf of Mexico Region

Team Lead



Brian LaMarre

Coordinator



Kristen Laursen

## Gulf Coast Ecosystem Restoration Council Science Evaluation

The Gulf of Mexico Regional Collaboration Team (Gulf Team) helps to coordinate and share information among different Gulf restoration initiatives. Gulf Team leadership provided scientific expertise for the Gulf Coast Ecosystem Restoration Council (RESTORE Council) by organizing and running the independent scientific evaluation of proposals to its RESTORE Council's Selected Restoration Component of funds. The evaluation entailed 150 independent scientific reviews from experts across the country. These reviews informed the development of the RESTORE Council's Initial Funded Priorities List, which funds over \$156 million in restoration activities and reserves over \$26 million for implementing future priority activities. The Gulf Team leadership developed reviewer guidelines and analyzed scientific reviews for the RESTORE Council and explained the review process and its findings to the RESTORE Council's Steering Committee. They also acted as a science liaison with other funded Gulf restoration entities including the Treasury Department, National Academy of Sciences, National Fish and Wildlife Foundation, and the Gulf of Mexico Research Initiative.

## Gulf of Mexico Team Strategic Refresh



The NOAA Gulf of Mexico Regional Collaboration Team (Gulf Team) established new focal

themes for its activities as part of a strategic reboot. These themes include improving resilience, increasing internal understanding of NOAA, and promoting Gulf restoration. Secondary themes include data synthesis and total water. Together, these themes will be central to strategic efforts taken by the Gulf Team to support NOAA's mission. To strengthen relationships and further develop this strategic refresh for NOAA regional collaboration, Gulf Team leadership visited NOAA offices and partners in Mississippi and Alabama to discuss opportunities provided by the Team's new alignment. Focusing on improving communications, they spoke with the Southeast Fisheries Science Center Pascagoula Laboratory, the National Seafood Inspection Laboratory, Office of Marine and Aviation Operations Fleet in Pascagoula, Mississippi-Alabama Sea Grant, the NOAA Disaster Response Center, the Gulf of Mexico Alliance, and NOAA offices at the John C. Stennis Space Center including the National Centers for Environmental Information, Northern Gulf Institute, Office for Coastal Management, Fisheries Southeast Regional Office, RESTORE Act Science Program,



Gulf Team in strategic discussions in Fort Worth, TX.

and the National Data Buoy Center. These efforts by the Gulf Team serve NOAA by broadening efficiency, promoting clarity and sharing strategic thinking.

## Gulf of Mexico Climate Outreach Community of Practice

The Gulf of Mexico Regional Collaboration Team (Gulf Team) supported the 6th annual Gulf of Mexico Climate Outreach Community of Practice (CoP) meeting, bringing together education, outreach, and extension professionals with local government staff for an exchange of ideas and best practices. Members of the Southeast and Caribbean Climate CoP also participated in the meeting exploring synergies between the two networks. Participants shared over 100 examples of climate outreach and planning successes, learned about useful and innovative resources during demonstrations, and discussed strategies for communicating climate science and techniques that communities are using to promote resilience. Paired with the CoP was a Climate Education Workshop, offering professional development for educators to increase their climate science knowledge, learn about regional impacts, and share education resources. This was a joint offering of the CoP and the NOAA Climate Stewards Education Program, one in a series of workshops advertised by the President's Climate Education and Literacy Initiative. Together, the CoP and the Education Workshop promote increased public awareness and improved resilience to climate and storm-related impacts in coastal communities around the Gulf of Mexico. The Gulf Team partners with organizations across the region to encourage collaborative efforts through extension, outreach, and education.



Educators learn about the web-based SURGEDAT storm surge data center.

# North Atlantic Region

Team Lead



Jason Tuell

Coordinator



Nicole Bartlett

## Roundtables with Congressional District Staff

The North Atlantic Regional Collaboration Team (North Atlantic Team) held four thematic roundtables with district Congressional staff (two in Virginia, one in Connecticut and one in New Jersey) continuing a multi-year effort to educate elected officials in the North Atlantic on the value of NOAA products and services to their constituents. The North Atlantic Team worked with NOAA subject matter experts, end-users and partners to host, share information and field questions about NOAA's mission of providing science, service and stewardship at the local level. The themes were geographic and issue-based, e.g. maritime commerce in Norfolk, VA, resilient communities and ecosystems in Gloucester, VA, Groton, CT and Tuckerton, NJ. Nineteen representatives from all Senate offices and 13 congressional offices attended, as well as more than 50 partners and 30 NOAA representatives. NOAA's role as convener and authoritative data source was highlighted by many participants, as was the utility of NOAA information across sectors and the necessity of NOAA's work for local, state and Federal partners. A direct result of the roundtables is increased engagement between attendee Member's offices and NOAA.

## Linking Freshwater and Marine Modeling Efforts

To advance work on a Northeast integrated ecosystem assessment and total water prediction efforts, the NOAA North Atlantic Regional Collaboration Team (North Atlantic Team) convened and provided funding for a workshop focused on the opportunities and challenges in linking freshwater and ocean dynamics towards integrative ecosystem modeling. The workshop was held at the Norrie Point Environmental Center of the Hudson River National Estuarine Research Reserve in Staatsburg, NY and included participants from across NOAA, EPA, and various non-profit and academic institutions. The workshop was co-chaired by the University of Mass.-Amherst and the University of Maine. Attendees made significant progress in describing key physical and biological processes, challenges and opportunities, and a summary of lessons learned and ideas for fruitful research and monitoring efforts. The North Atlantic Team continues to fund activities that will sustain the collaboration necessary to advance ecosystem-based modeling in the North Atlantic.



Connecticut Roundtable attendees aboard the R/V Connecticut.



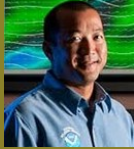
Modeling workshop attendees at the Norrie Point Environmental Center.

## Connecting NOAA's Work in Ocean Planning

President Obama's National Ocean Policy mandated the creation of Regional Planning Bodies (RPB) in the Northeast and Mid-Atlantic in 2010. Today, these RPBs are poised to be the first in the Nation to deliver regional coastal and marine spatial plans stretching from the coast out to 200 miles offshore. The North Atlantic Regional Collaboration Team (North Atlantic Team) provided funding and the mechanism (through their Coastal and Ocean Uses sub-team) to enable staff from NOAA Fisheries and NOAA's National Ocean Service to meet this year and continue a multi-year effort to share best practices and strategies within the broader North Atlantic region. Almost two dozen forum attendees discussed NOAA's overall approach, including status, timelines, and outcomes. The group identified ways that current ocean planning activities can complement and support NOAA efforts to leverage investments in ocean planning. NOAA Northeast and Mid-Atlantic RPB leads left with a better understanding of planned outcomes and benefits for NOAA. The North Atlantic Team provided the framework and resources to enable the inter-region collaboration necessary to keep these significant regional ocean plans on schedule.

# Pacific Islands Region

Team Lead



Raymond Tanabe

Team Co-Lead



Kristina Kekuewa

Coordinator



Seema Balwani

## Support for Pacific Islands Student Education

NOAA Pacific Islands Regional Collaboration Team (Pacific Islands Team) partnered with the Hawaii Academy of Science to hold the Hawaii State Science and Engineering Fair in Honolulu, HI. Over 40 NOAA scientists participated in judging science projects from students across the state. Projects covered a wide range of science and engineering disciplines. In addition to providing funding, NOAA awarded two summer internships on the NOAA campus providing an opportunity to work with scientists on their projects. The Pacific Islands Team also supported the 2015 NOAA Science Camp at the Daniel K. Inouye Regional Center, Oahu, Hawaii. The theme *Using Technology to Study Ocean Life and Ecosystems* inspired students who were invited from both underserved communities and charter schools on Oahu. This free event enabled NOAA to reach students who may not have exposure to marine science at school. The collaborative effort included over 30 NOAA staff, who developed and taught the science modules.



Educating youth in Hawaii.

## El Niño Fact Sheets for Resilient Communities

**El Niño and its Impacts on the Republic of the Marshall Islands**

**What is El Niño?**  
 The El Niño – Southern Oscillation (ENSO) is a recurring climate pattern involving changes in the temperature of waters in the central and eastern tropical Pacific Ocean and the patterns of sea level pressure, lower- and upper-level winds, and tropical rainfall across the Pacific basin. On periods ranging from about two to seven years, the surface waters across a large swath of the tropical Pacific Ocean warm or cool by anywhere from 1°C to 3°C, compared to normal. This irregular oscillation between warm and cool patterns, referred to as the ENSO cycle, directly affects rainfall distribution in the tropics and can have a strong influence on weather across the Pacific basin. El Niño and La Niña are the extreme phases of the ENSO cycle; between these two phases is a third phase called ENSO-neutral.

**ENSO-neutral:** Under normal conditions strong trade winds blow from the east along the equator, pushing warm water into the western Pacific Ocean.

**El Niño in the RMI**

<b>Rainfall</b>	Less
more at first, but then much less	↓
<b>Typhoon Winds</b>	Less
weaker, with occasional westerly winds	↓
<b>Tropical Cyclones</b>	More
increased risk, as more storms form closer to the islands	↑
<b>Sea Level</b>	Less
lower at first, then gradually recovering	↓
<b>Ocean Conditions</b>	More
warmers in the year after El Niño	↑

**Every El Niño is a little bit different!**  
 El Niño conditions can start in May or June and "strong, dull" subside in fall.

*Note: There is a layer of water in which...*

Regional Climate Tiger Team's country-specific fact sheets on El Niño

These educational fact sheets will help raise awareness of the impacts of El Niño by answering common questions including: What is El Niño?, What might the impacts be in your region?, What about impacts such as sea level rise, tropical cyclones, and rainfall?, What does El Niño mean to you?. The National Weather Service, among other NOAA offices, will use the fact sheets as part of their outreach to decision makers, emergency managers, and local communities. These specialized fact sheets were developed for Palau, Hawaii, Guam, American Samoa, Federated States of Micronesia, and the Republic of the Marshall Islands, and are part of a larger NOAA effort to ensure consistent messaging and effective communication about the current El Niño event with partners and stakeholders.

With direction provided by the NOAA Pacific Islands Regional Collaboration Team (Pacific Islands Team), a NOAA-led Pacific Islands El Niño Tiger Team, including the Pacific ENSO Applications Climate Center and the University of Hawaii, developed seven country-specific El Niño fact sheets to distribute to region-wide Pacific Islands communities.

## Annual Pacific Risk Management Ohana (PRIMO) Meeting

The 2015 Pacific Risk Management Ohana (PRiMO), a coalition of organizations committed to enhancing the resilience of Pacific communities, held a conference with the theme of *The Rising Pacific: Currents of Change and Solutions for Resilience* in Honolulu, Hawaii. Members of the Pacific Islands Regional Collaboration Team (Pacific Islands Team) participated in the conference which highlighted communities and projects that are engaged in finding solutions to disaster management, climate change, and sustainability challenges in the Pacific region. With 25 sessions and professional development trainings, the conference program was designed to facilitate partnerships that transcend geographic boundaries and disciplines, providing unique opportunities for collaboration. Over 200 participants from a diverse range of backgrounds attended, including representatives from state and federal agencies, non-profits, conservation groups, and the business, health and industry sectors. PRiMO partnerships have improved product development and service delivery, strengthened the regional capacity to manage hazard risks, and resulted in significant cost savings by minimizing duplication of effort and improving efficiency.



PRIMO Conference Attendees.

# Southeast & Caribbean Region

Team Lead



Richard Bandy

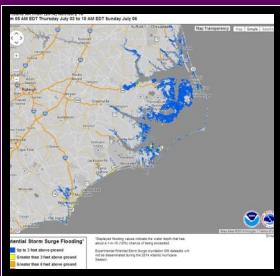
Coordinator



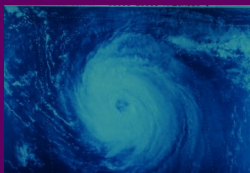
Geno Olmi

## Hurricane Webinar Series

NOAA's Southeast and Caribbean Regional Collaboration Team (Southeast & Caribbean Team) hosted three webinars reaching 547 registrants, with 307 unique sites participating, to better prepare emergency managers and forecast media for the 2015 hurricane season. The webinars provided a brief review of the 2014 Atlantic hurricane season and presented information about new products and services, including tropical cyclone products and forecasts, storm surge modeling and forecasts with new graphical displays, and news ways that warnings will be communicated to decision-makers and the public. The Southeast & Caribbean Team addressed the needs of Spanish-speaking constituents by providing a specialized webinar in Spanish. By providing this information about improved forecasts and warnings in English and Spanish, the Southeast & Caribbean Team serves to better prepare communities to utilize NOAA products to protect lives and property.



Experimental storm surge graphic presented during the webinar.



## Post-storm Assessments Improve Inundation Forecasts

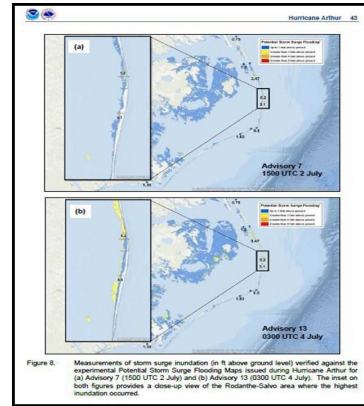


Figure 8. Measurements of storm surge inundation (in ft above ground level) verified against the experimental Potential Storm Surge Flooding Maps issued during Hurricane Arthur for (a) Advisory 7 (1500 UTC 2 July) and (b) Advisory 13 (0300 UTC 4 July). The inset on both figures provides a close-up view of the Florida-Cuba area where the highest inundation occurred.

Testing of National Hurricane Center Inundation Graphic using surge survey results

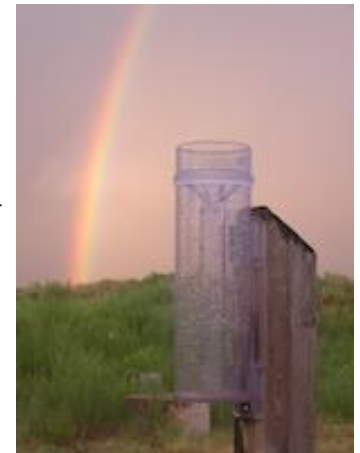
Caribbean Team began efforts to implement this methodology by purchasing water level survey equipment and then providing the equipment to regional Sea Grant Offices. The data collected from this equipment provides critical data used by local Weather Forecast Offices and the National Hurricane Center to protect lives and property. To further implement the methodology, the Southeast & Caribbean Team hosted two storm surge measuring workshops – one for South Florida and Puerto Rico and the other for North Carolina, with participants representing NOAA National Weather Service Weather Forecast Offices, National Sea Grant Office, United States Geological Survey, United States Fish and Wildlife Service, Federal Emergency Management Agency and local emergency management personnel. The workshops presented ways to improve water level inundation measurements following significant storm surge events and provided training on use of the equipment used for collecting the data. The Southeast & Caribbean Team provided important leadership and coordination to improve storm surge observations in the region.

Leveraging funding from the National Sea Grant Office, NOAA's Southeast and Caribbean Regional Collaboration Team (Southeast & Caribbean Team) engaged a coalition of partners and developed methodology to obtain accurate measurements of storm water

levels needed for model and forecast improvements. The Southeast &

## Monitoring Precipitation in the U.S. Virgin Islands

Inspired by stakeholder input regarding the need for additional meteorological observations in the U.S. Caribbean, the Southeast & Caribbean Regional Collaboration Team (Southeast & Caribbean Team) collaborated with NOAA National Weather Service Southern Region and National Environmental Satellite, Data and Information Service National Center for Environmental Information to expand the Community Collaborative Rain Hail and Snow precipitation monitoring network (CoCoRaHS) into the US Caribbean. CoCoRaHS is a community-based network of volunteers measuring and mapping precipitation including rain, snow, and hail. After a successful 2014 launch of CoCoRaHS in Puerto Rico, CoCoRaHS began ingesting data from the US Virgin Islands in March of 2015. Staff from the San Juan Weather Forecast Office, including a Southeast and Caribbean Team member, coordinate the CoCoRaHS effort in the U.S. Caribbean, making information rapidly available to meteorologists, climatologists, hydrologists, and anyone interested in precipitation. The information benefits other NOAA products including the National Integrated Drought Information System.



CoCoRaHS precipitation gauge.

# Western Region

Team Lead



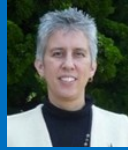
John Stein

Team Co-Lead



Michelle Stokes

Coordinator



Timi Vann

## West Coast Harmful Algal Bloom Response

During 2015, the entire West Coast experienced a Harmful Algal Bloom (HAB) event that was unprecedented in its extent and magnitude. The bloom extended from California northward to Vancouver Island, affecting the outer coast of Washington, where sea lions were sickened from eating toxic shellfish, and State officials banned razor clamming and closed Dungeness crab harvesting. Officials in California warned people not to eat mussels, clams, anchovies and sardines; and in Oregon, officials shut down shellfish harvesting and banned razor clamming across the state. Scientists suspected a link to the anomalous warm water conditions in the Eastern Pacific, and a NOAA Fisheries science team sought to “piggy back” on a scheduled fisheries survey on the Bell M. Shimada in order to collect samples of the West Coast wide HAB event. The fisheries scientists lacked funding to mobilize and request help from the NOAA Western Regional Collaboration Team which quickly provided a modest amount of funding and facilitated the rapid deployment of the fisheries science team to join the Fisheries survey.

## Regional Climate Services Landscape Survey

In the Western region, there is little information available on the provision and use of climate services within the region, gaps in information needs, or potential overlap in service delivery. To address these needs, the NOAA Western Regional Collaboration Team (Western Team) kicked off a project to develop a relational database tool capable of generating a regional landscape report of climate services within the western region. The goal of the project is to inform NOAA and its partner network of the current landscape of climate services provided and used across sectors and at federal, state, tribal and local levels. The climate services landscape project is implemented through the Cooperative Institute for Research in Environmental Sciences, the Western Water Assessment RISA, and the Climate Assessment for the Southwest RISA. The tool will operationally reside with the Western Regional Climate Center where it will be updated and available to the public. Climate Services, as defined by the American Meteorological Society, are scientifically based information and products that enhance users’ knowledge and understanding about the impacts of climate on their decisions and actions. The Western Team, through this project, provides valuable information to help inform

regional climate service engagement and improve organizational efficiencies by identifying service gaps and areas of overlap.

## Leadership Engagement

The NOAA West Regional Collaboration Team (Western Team) provided information and engaged with NOAA Leadership including the NOAA Administrator, Deputy Under Secretary for Operations, the Chief of Staff, and Office of

Dr. Kathryn Sullivan, NOAA Administrator, viewing native oyster hatchery operations at NOAA Manchester Research Station.



Communications on a quarterly basis. The team provides highlights on regional issues and needs, and tells compelling stories of cross mission activities and partnerships. Working with the NOAA Program Coordination Office, the Western Team scopes, plans and executes engagements that highlight leadership priorities in the region. This work provides valuable insights that help to convey messages on how NOAA delivers service to the Nation. Team members are also called to help develop leadership opinion pieces for regional media outlets, utilizing their knowledge of regional issues and politics, as well as their extensive in-region partnership networks. The Western Team is an effective liaison between regional interests and NOAA Headquarters.



Timi Vann, Western Team Regional Coordinator interviews VADM Michael Devany, NOAA Undersecretary of Operations, as part of an interactive NOAA All Hands.

Western Team is an effective liaison between regional interests and NOAA Headquarters.

## Regional Collaboration Advisory Group

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**David Holst** (National Ocean Service)

**Donna Franklin** (National Weather Service)

**Jennifer Lukens** (National Marine Fisheries Service)

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**Lisa Nakamura** (Office of Education)

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Photo Credit: Linda Taylor

<http://www.regions.noaa.gov/main/>



NOAA's Regional  
Collaboration Network