NEOSEC
New England
Ocean Science
Education Collaborative

2012 Ocean Literacy Summit
Concurrent Sessions

Track A, Exploring the Last Frontier

Fundamental Concept: The ocean is the last and largest unexplored place on Earth—less than 5% of it has been explored. This is the great frontier for the next generation's explorers and researchers, where they will find great opportunities for inquiry and investigation.

Session 1.a: Rivers and Estuaries: Exploring Close to Home

Daisy Durant, Marine Research Specialist, Narragansett Bay National Estuarine Research Reserve
Sue Warburton, Fishing Cove (RI) Elementary School
Nicole Scola, Supervisor, New England Aquarium Teacher Resource Center
Brenna Leveille, Dean of Students, Dorchester (MA) Collegiate Academy Charter School
Rachel Cuddeback, Pollard (Needham MA) Middle School

With NOAA funding, NEOSEC members are guiding classroom teachers through development of Meaningful Watershed Education Experiences for their students. Rachel and Brenna will share their programs, which brings his/her middle-school students into the local wetlands and waterways, where they are making their own discoveries and generating their own questions. Online data resources add another dimension to hands-on learning: second graders in Sue Warburton's class conduct water quality monitoring in Narragansett Bay, then compare their findings to National Estuarine Research Reserve (NERR) System Wide Monitoring Program (SWMP) online data. Sue will share her approach with attendees.

Session 2.a: The *Nautilus* Exploration Program: Sharing New Discoveries through Telepresence

Katie Cubina, Sr. Vice President of Educational Programs, The JASON Project and Immersion Learning
Katy Croff Bell, Chief Scientist, E/V Nautilus Exploration Program

The Exploration Vessel (E/V) *Nautilus* brings live, cutting-edge research and exploration from Dr. Robert Ballard's international research team to scientists, students, and educators around the world through the Inner Space Center at URI. Learn how you can be part of the expedition team--on shore or at sea--and explore the wealth of educational resources about ocean exploration created by The JASON Project and its Immersion Learning program.

Session 3.a: The NOAA Ship *Okeanos Explorer*: Sharing New Discoveries through Telepresence

Susan Haynes, Education Program Manager, NOAA Office of Ocean Exploration and Research (OER)
Catalina Martinez, Physical Scientist/Regional Manager, NOAA OER
Brian Kennedy, NOAA CORPS Officer aboard Okeanos Explorer

The NOAA Ship *Okeanos Explorer*, the first Federal ship dedicated to ocean exploration, engages scientists, the public, educators and students in exploration expeditions through its award-winning website and an online ship tracker. Learn about *Okeanos Explorer's* methods of exploration, education materials collection, and online educational resources that bring ocean science and exploration alive.

Track B. Understanding Ocean Systems

Fundamental Concept: Understanding the ocean is more than a matter of curiosity. Exploration, inquiry and study are required to better understand ocean systems and processes.

Session 1.b: Stellwagen Bank National Marine Sanctuary (SBNMS): Protecting New England's Wild Ocean Place for 20 Years

Ben Cowie-Haskell, Deputy Superintendent, SBNMS
Anne-Marie Runfola, Volunteer Program Coordinator, SBNMS

SBNMS staff and partners use cutting edge research to better characterize the sanctuary, understand its uses and subsequent impacts, and inform policy to protect these valuable resources. Education and outreach, including through volunteerism, is essential in building support for Stellwagen Bank Sanctuary and the National Marine Sanctuary system. Come learn more about the work of the sanctuary and how you can incorporate its world-class research and public programs into your curriculum.

Session 2.b: Citizen Science: Investigating Changes Over Time on New England's Rocky Shore

Heather Deschenes, Supervisor of Youth Development Programs, New England Aquarium
Tom Trott, Professor of Biology, Suffolk University
The intertidal diversity of the New England Rocky Coast has been studied by scientists for decades but in recent years has a new breed of scientist has stepped up to help – the Citizen Scientist. Find out how a dozen summer camps have opened new field sites to enhance regional data collection efforts – and how the activity and data have impacted the campers, educators, and scientists who have taken part in the project.

Session 3.b: Lessons Learned: Technology for Engaging New Audiences

Marie Studer, Learning and Education Director, Encyclopedia of Life
Kate Leavitt, Program Manager, Seacoast Science Center
Carole McCauley, Outreach Program Coordinator, Northeastern University Marine Science Center
"Families by the Seaside," a NOAA-funded project, incorporates technology as a tool for engaging underserved families in coastal investigations. The program has facilitated partnerships among educators, community organizations, technology partners, and ocean scientists, leveraging technology for expanded ocean literacy. Learn how the project teams engaged families at coastal habitats using easy-to-implement smart phone and computer applications.

Track C. Sustaining Ocean Resources
Fundamental Concept: Over the last 40 years, use of ocean resources has increased significantly, therefore the future sustainability of ocean resources depends on our understanding of those resources and their potential and limitations.

Session 1.c: From the Ocean to Your Plate: Sustaining New England Fisheries

Sam Grimley, Sustainable Seafood Project Manager, Gulf of Maine Research Institute (GMRI)
Elizabeth Fitzsimons, Outreach Coordinator for Sustainable Seafood Program, New England Aquarium
Sustainable seafood, including aquaculture and managed harvest, is a key to sustaining New England fisheries. Learn how scientists, fishermen, and seafood buyers are collaborating to make it happen.

Session 2.c: Mapping the Ocean for Energy Resources

John Jensen, Maritime Studies and Policy Faculty, Sea Education Association
Ru Morrison, Executive Director, Northeastern Regional Association of Coastal Ocean Observing Systems
Offshore energy development is very active in the Northeast. Speakers will describe scientists' efforts to measure ecological impacts of ocean energy alternatives, as well as work to determine specific parameters for siting everything from energy facilities to aquaculture and shipping. The session will highlight the archaeological as well as ecological aspects of ocean energy development.

Session 3.c: Using Fish Telemetry to Teach About Sea-Run and Highly Migratory Fishes at Sea

John Kocik, Fisheries Biologist, NOAA Fisheries Northeast Fisheries Science Center
Susan O'Brien, G. B. Weatherbee School (ME)
Advances in technology have made it easier for scientists to track fish that leave Northeast rivers and travel to and through our oceans. Learn how technology has allowed biologists to track a 6-inch salmon smolt over 500 miles from a river in Maine to the coast of Newfoundland. With the help of marine animals like salmon and sturgeon to get students excited about the ocean and ocean habitats, educators can introduce river plumes, tides, and major currents such as the Gulf Stream and Eastern Maine Coastal current.

Track D. New Technologies
Fundamental Concept: New technologies, sensors and tools are expanding our ability to explore the ocean. Ocean scientists are relying more and more on satellites, drifters, buoys, subsea observatories and unmanned submersibles.

Session 1.d: Ocean Observing Information for Everyone

Cassie Stymiest, Program Coordinator, Northeastern Regional Association of Coastal Ocean Observing Systems
James O'Donnell, Professor of Marine Sciences, University of Connecticut Avery Point
Learn how ocean observing information is being used by scientists and educators, and leave this session with tools for accessing ocean information (and even collecting your own) to use for everything from predicting the weather to tracking trends in ocean acidification. Ongoing research utilizing these data in Long Island Sound will be featured.

Session 2.d: New Technologies to Study and Teach Climate Variability
Jonathan Hare, Oceanography Branch Chief, NOAA Fisheries Service
Billy Spitzer, VP for Programs Exhibits and Planning, New England Aquarium
This session will showcase the new technologies – from satellites to buoys – are being used to study climate variability. Find out how this scientific information is transferred to audiences in informal science venues such as aquariums, zoos, national parks, and science/nature centers as part of an ongoing, national collaborative effort to communicate about climate change.

Session 3.d: Hands-on Oceanography with GPS Drifters

Jim Manning, Oceanographer, NOAA Northeast Fisheries Science Center
Jack Buckley, Executive Director, Cohasset Center for Student Coastal Research
Student-built GPS drifters are being deployed around U.S. coastal waters by local fishermen, and contribute to NOAA's online ocean observing system, from which anyone can track the drifters' path and download their data. A student from the Cohasset Center for Student Coastal Research will share their experience, and participants will walk away with the inspiration and know-how to build and track drifters in their own setting.

Track E. Models
Fundamental Concept: Use of mathematical models is now an essential part of ocean sciences. Models help us understand the complexity of the ocean and of its interaction with Earth's climate. They process observations and help describe the interactions among systems.

Session 1.e: Introduction to Modeling

Carla Companion, Christie Herren, Center for Ocean Sciences Education Excellence Ocean Systems (COSEE OS)
Ocean scientists use models to predict outcomes, plan experiments, and interpret data in their research, and those models can take many forms. This session will discuss what models are, explain the different types are used in ocean sciences, and how COSEE OS has helped scientists to explain their models and research through a variety of methods (including concept maps, webinars, lessons, and other outreach efforts).

Session 2.e: Hurricanes
Isaac Ginis, Professor of Oceanography, University of Rhode Island Narragansett Bay
Chris Knowlton, Educator, University of Rhode Island Graduate School of Oceanography
Using state-of-the-art computer models, hurricane research can be shared with the public in an easy to understand way. Investigate the science behind predicting hurricanes through hands-on activities.

Session 3.e: Predicting Hazards Using Scientific Models

Tom Shyka, Outreach & Communications Specialist, Northeastern Regional Association of Coastal Ocean Observing Systems
Kevin O'Brien, Connecticut Department of Energy and Environmental Protection
Computer models can be used to help us better understand and predict coastal hazards, sea level rise, the need for shellfish closings, and to understand circulation patterns. But how can these complex things be explained and shared? Come learn how scientists use models in their work.