

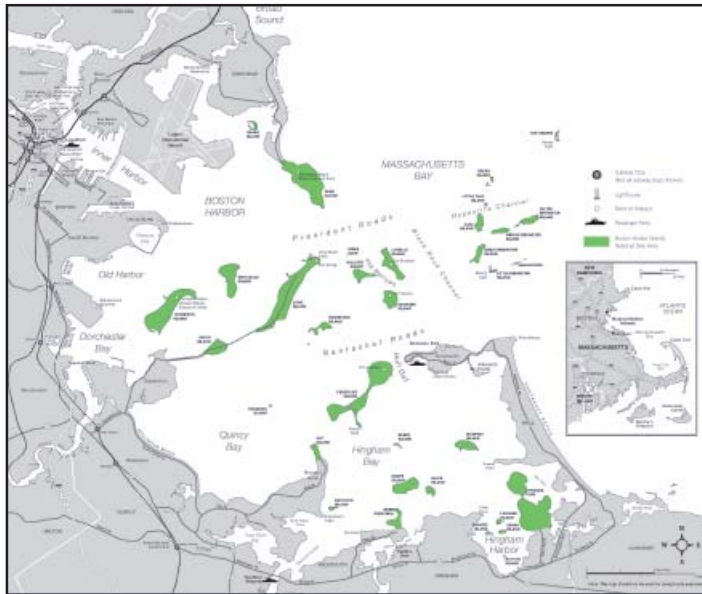
Conference Registration

All registrations must be completed online at:

<https://massmarineeducators.wufoo.com/forms/2013-bhec/>

If paying in advance by check or money order, please make out to MME and mail to:
Gail Brookings, MME Treasurer, 184 Highland Street, Taunton, MA 02780
See page 7 of this brochure for registration rates and discounts.

For registration questions, please contact Conference Co-Chair Nicole Scola at nscola@neaq.org or 617-226-2215 . For other conference information, contact Conference Co-Chair Peg Collins at ccndpclln@aol.com

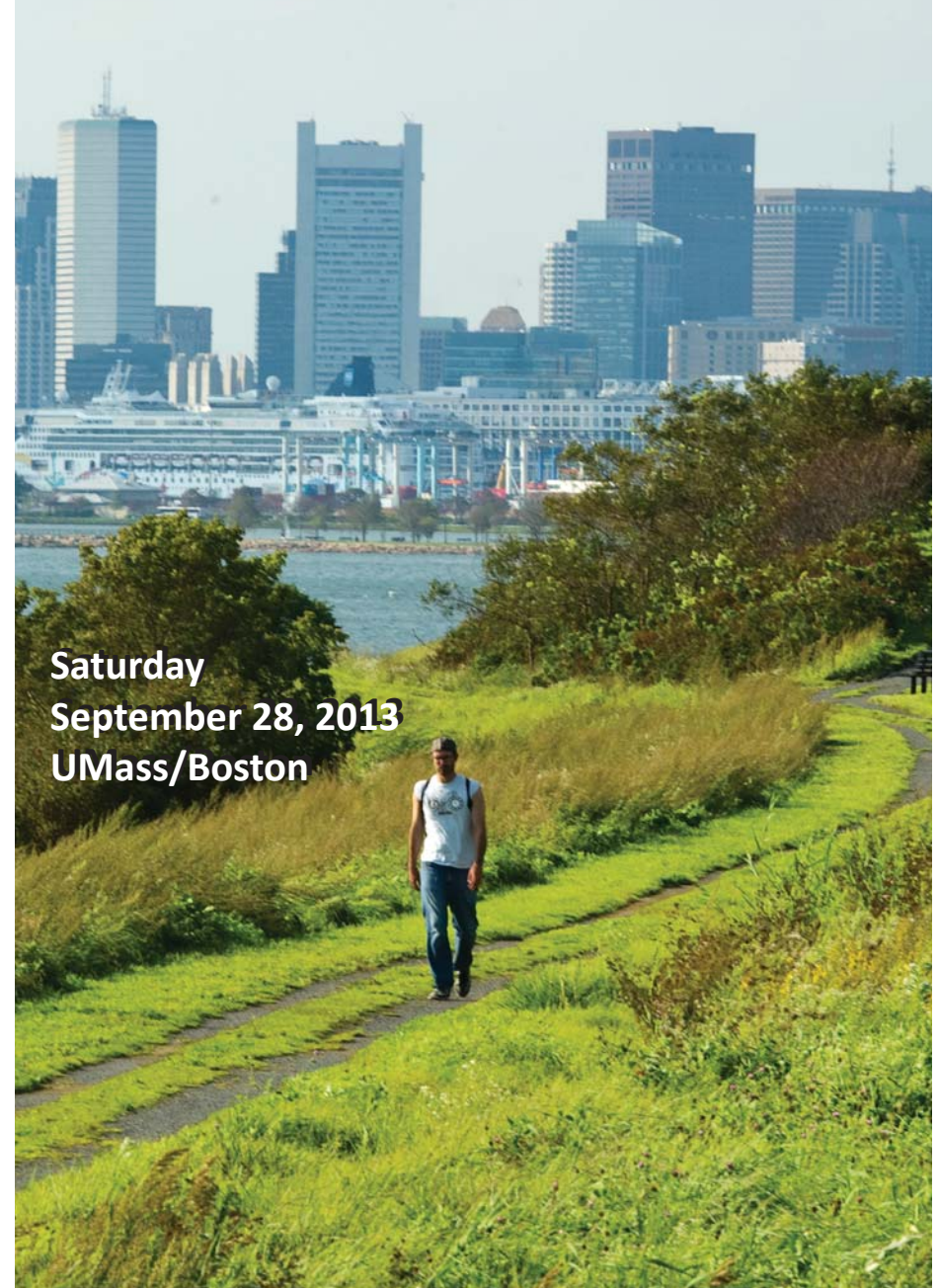


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Massachusetts Marine Educators
Boston Harbor Islands National Park Area
Massachusetts Water Resources Authority
University of Massachusetts/Boston
Urban Harbors Institute, UMass/Boston
Stellwagen Bank National Marine Sanctuary



Boston Harbor Educators Conference 2013



Saturday
September 28, 2013
UMass/Boston

Effects of Changing Oceans on Boston Harbor

Boston Harbor Educators Conference

Saturday, September 28, 2013

Effects of Changing Oceans on Boston Harbor

***Welcome to all teachers, environmental educators, scientists,
naturalists, and interested citizens.***

Boston Harbor is a national treasure -- for its intrinsic beauty, its wealth of resources and its place in American history. However, as we begin to discover (for newcomers) and continue to appreciate (for established visitors) these natural treasures, we are finding that "facts" we once thought incontrovertible are shifting. Our conference this year will focus on the effects of changing oceans on Boston Harbor and how you can bring this information into your classroom lessons.

Our conference introduces an array of modifications to the waters and islands of Boston Harbor. Historically and economically important to the nation, region, state and local communities, the harbor offers a dramatic local setting to study the timely and critical issue of global change.

We hope today's conference will provide you with valuable new insights into the harbor and the spectacular islands scattered throughout. We encourage you to continue your harbor explorations -- in the classroom and on the water -- in the days and years ahead.

Enjoy your day and leave with a greater appreciation of Boston Harbor and its islands and the other marine resources just off our shore.

[http:// www.massmarineeducators.org](http://www.massmarineeducators.org)

Conference Registration Rates

*Free Parking or MBTA reimbursement to the first 50 registrants.

\$40 for current MME members (includes lunch and bag)

\$50 for non-MME members (includes lunch, bag and half-year membership to MME)

\$20 MME student rate (includes lunch, bag and half-year membership to MME)

\$25 non-MME student rate (includes lunch, bag and half-year membership to MME)

\$60 Walk-in registration (includes lunch, bag and half-year membership to MME)

Massachusetts Marine Educators

Massachusetts Marine Educators is a dynamic grassroots organization of teachers (kindergarten through college), representatives from museum, aquaria, government and business, and individuals. Our goal is to create a marine literate society by integrating marine studies into existing curricula. MME develops and shares curriculum materials, holds frequent meetings, and helps provide in-service teacher training. Membership is \$20 per year, which includes a subscription to ***Flotsam & Jetsam***, our newsletter, and notices of upcoming events, including the annual meeting in Woods Hole, the High School Marine Science Symposia on the North Shore and Southeast Massachusetts, and our annual Marine Art Contest.

For more information about MME, visit our website at:

<http://www.massmarineeducators.org>

BHEC Organizing Committee

Many thanks to these committee members who worked diligently and tirelessly to bring you this day.

Chairs: Peg Collins and Nicole Scola

Gail Brookings

Russ Bowles

Elisabeth Colby

Carl Johnson

Joe LaPointe

Dennis Leigh

Douglas Maitland

Duncan Maitland

Linda McIntosh

Chris Ratley

Anne Smrcina

Meg Tabacsko

Workshops

Workshop 3: Marine debris data to make a difference: Integrating Rozalia Project's marine debris data and hands-on STEM activities into your curriculum

Workshop Presenter: Rebecca Inver Moffa, Environmental Education Consultant for Rozalia Project for a Clean Ocean

Grade Level: k-12

Subject Areas: Science, math, technology

Background: Rozalia Project is a unique and action-based nonprofit organization taking trash out of the water, rather than just pointing at it, and operating nationwide from docks and shorelines and throughout New England from the record-breaking circumnavigator, *American Promise*, a 60' Ted Hood. We connect people of all ages to their underwater world and inspire them to be part of the solution by using underwater robots (ROVs) and sonar as well as nets to locate and remove marine debris. We are committed to accurate data collection and working with stakeholders (sailors, fishermen, boaters, citizens, schools, town leadership and more) to clean up and forward solutions to the problem of marine debris.

Workshop description: Participants will learn about Rozalia Project for a Clean Ocean's work around the country to find and remove marine debris from the surface to the seafloor. We will learn how Rozalia Project keeps data on all marine debris items that they find and how you can use this data to introduce math and science into your lessons. Guests will also discover how they can create their own data with students in hands-on, engaging ways to not only clean our world's waters but inspire solutions to the problem of marine debris. Finally, Rozalia Project will share with participants how they, and their students, can become part of our virtual crew and receive daily activities that are unique, interactive, and STEM-related.

Workshop 4: Celebrating Saltwater

Workshop Presenter: Bill Andrade. Science Teacher, Swampscott Middle School

Grade Level: 6-8, 9-12

Subject Areas: Science, Math, Technology

Background: Bill is a science teacher at Swampscott Middle School and has more than 30 years experience in science education. Mr. Andrade is former president of the Massachusetts Marine Educators Association and has been inducted into the Massachusetts Hall of Fame for science educators.

Workshop Description: The defining feature of our planet is a layer of saltwater. In this workshop, participants will carry out simple, hands-on activities that will bring relevance to the different properties of fresh and salt water using the scientific process. In addition, this lesson implements practices called for in the *Next Generation Science Standards*.

Boat Trip Information

After our speakers and workshops, consider taking a special cruise through Boston Harbor to visit Spectacle Island! This monument to the natural, cultural, and industrial histories of Boston is one of Boston Harbor's premier locations for rest, relaxation, and reinvention. From shell middens revealing the Native American heritage of the island, to use as a large scale waste remediation site during the "Big Dig" years, Spectacle island unites past and present to make a more fulfilling future. Join us aboard the *Columbia Point* for a brief boat ride followed by a walking tour and leisure time on Spectacle Island.

Conference Schedule

LOCATION: UMass/Boston, McCormack Hall

8:15-8:45	Registration, Coffee & Pastries, Exhibits -- Ryan Lounge
8:45-9:00	Welcome
9:00-9:45	Speaker 1: Vivien Li, The Boston Harbor Association <i>"Renaissance of Boston Harbor"</i>
10:00-11:00	Education Workshops
11:15-12:15	Speaker 2: Chris Watson, UMass/Boston <i>"Climate Change and Coastal Flooding in Boston"</i>
12:15-12:45	Lunch and Exhibits
12:50-1:35	Speaker 3: Anamarija Frankić, UMass/Boston <i>"The Green Harbors and LivingLabs for Resilient Urban Coastal Environments"</i>
2:00-4:00	Boat Tour to Spectacle Island

Speakers

Renaissance of Boston Harbor

Vivien Li, President, The Boston Harbor Association

The Boston Harbor Association (TBHA), a non-profit, public interest organization founded in 1973 to promote a clean, alive, and accessible Boston Harbor, was the first organization to call for the cleanup of Boston Harbor. It has been the leading proponent for completion of a 47-mile HarborWalk public access system. Currently, 40 miles of the HarborWalk system have been completed through Boston's six waterfront neighborhoods. In partnership with the Massachusetts Water Resources Authority, TBHA has hosted Harbor Bound educational field trips for thousands of inner city high school students during the past two decades. In 2010, TBHA convened the first-ever Boston Harbor Sea Level Rise Forum, and earlier this year, at a press conference with Boston Mayor Thomas Menino, released its report, *"Preparing for the Rising Tide."*

In addition to her work at TBHA, Ms. Li serves as chair of Mass Development's Brownfield's Advisory Group, is a member of the Boston Conservation Commission, and co-chairs the visiting committee for the Woodrow Wilson School of Public and International Affairs at Princeton University. She has degrees from Barnard College and Princeton University.

Speakers

Climate Change and Coastal Flooding in Boston

Chris Watson, Research Assistant, School for the Environment, UMass/Boston

As the impacts of climate change are increasingly felt, we can expect coastal flooding events to become more frequent and more severe. Superstorm Sandy highlighted the growing relevance of climate change and is drawing attention to the importance of taking steps today to be prepared for the likely events of tomorrow. This presentation will provide an overview of the science of climate change and sea level rise, and our projections of the impacts of sea level rise in Boston through the end of the century. Additionally, based on our work for The Boston Harbor Association, site-specific case studies will serve as examples of how to assess vulnerability and increase resilience to coastal flooding over time. Additional background information is available at tbha.org/slr

Mr. Watson's current research activities include global climate change, sea level rise and the modeling of coastal flooding. He has a Graduate Certificate in Geographic Information Technology and has co-authored several publications related to coastal flooding.

Green Harbors and LivingLabs for Resilient Urban Coastal Environments

Anamarija Frankić, Director [Green Harbors Project](#); Faculty at UMass/Boston; and Adjunct Professor, Institute of Fisheries and Oceanography, Split, Croatia

Anamarija Frankić is a Biomimicry Educational Fellow, Fulbright Fellow, and member of the advisory council at AASHE (Association for the Advancement of Sustainability in Higher Education). Her background in biology, ecology, limnology and marine science guided her interdisciplinary work in coastal and watershed ecosystem management and restoration, nationally and internationally. In 2008, Dr. Frankić and her students established the Green Boston Harbor Project to research how urban harbors can become healthy, wealthy and resilient, right here and now. Her work was recognized by EPA Region 1, which selected Dr. Frankić to help lead the urban community watershed restoration initiative in the Boston area and Mystic River watershed. She established "LivingLabs" to practically connect campuses and coastal communities through "learning and teaching by doing" concrete sustainable projects and applying solutions locally. Her present work is based on learning from nature's three coastal keystone habitats that can only be restored and protected when addressed together: salt marshes, shellfish beds (oyster reefs) and eelgrass beds. Her premise is that "*the environment sets the limits for sustainable development.*" It is a collaboration and symbiosis that makes adaptations and resilience possible in nature, not competition.

Workshops (continued on next page)

Workshop 1: Harbor Healthcare: Promoting Positive Human Impacts on Coastal Environments

Presenter: Elisabeth Colby, Education Program Coordinator, Boston Harbor Islands National Park Area

Grade Level: 7-12

Subject Areas: Biology; Biodiversity, Coastal Ecology; Civic Engagement

Background: Boston Harbor has a long and complicated history. From Native Americans' living in harmony with an abundant landscape to the marked increase in resource consumption and urban development, this city has laid witness to a period of dramatic change. In the last few decades, the changes that have affected Boston Harbor so negatively - human waste, decreasing fish populations, reduction in avian and mammalian habitat and biodiversity, and an increase in invasive species - are now being curbed. Around the same time that Boston Harbor was recognized as being the filthiest harbor in the U.S., citizens of Boston began making bold and empowering moves to restore the water and islands east of the city to what they once were. Development of a sustainable water treatment facility, implementation of renewable energy resources, and an enormous response from an engaged community have put Boston Harbor back in the spotlight.

Workshop Description: Participants attending this workshop will view a slide show depicting the positive changes currently occurring in Boston Harbor, wherein a variety of community engagement and service learning opportunities will be presented. Afterwards, a group discussion will break down those opportunities and propose ways in which teachers can bring positive actions from the classroom into natural ecosystems. Participants will receive materials, such as coastal clean-up checklists, and find ways in which "home grown" service projects can connect communities on land to those along the coastline, empowering students to become the change they most want to see.

Workshop 2: Investigating Coastal Waters with the GLOBE Program

Workshop Presenter: Kama Thieler, Outreach Coordinator, Woods Hole Oceanographic Institution

Grade Level: 6-8, 9-12

Subject Areas: Marine Science, Chemistry, Geography

Background: The Global Learning and Observations to Benefit the Environment (GLOBE) program is an international, hands-on environmental science and education program. GLOBE links students, teachers and the scientific research community in an effort to learn more about our environment through student data collection, observation and inquiry-based investigations. The GLOBE partnership based at the Woods Hole Oceanographic Institution (WHOI) works with schools in the region using hydrology and atmosphere protocols to investigate coastal ecosystems.

Workshop Description: The workshop will introduce the GLOBE Program through its website, sampling protocols and learning activities. We will take a look at the sampling equipment and characterize a few "mystery" water samples. We will discuss how water chemistry measurements relate to current research on nutrient loading of coastal waters and climate change. Participants will learn how to become a GLOBE-certified teacher and school, and how to report and access GLOBE data from around the world for analysis, comparison or student research projects.