

The Massachusetts Marine Educators present the:
Boston High School Marine Science Symposium

Thursday, March 5, 2020

Snow Date: Friday, March 6, 2020

Northeastern University, 360 Huntington Avenue, Boston, MA



Please join the Massachusetts Marine Educators (MME) for an exciting glimpse into the marine world through a diversity of perspectives from around Massachusetts. Presenters will include experts from the Atlantic Shark Conservancy, New England Aquarium, NOAA, Center for Coastal Studies, Northeastern University and many others. Students will investigate current and on-going projects in marine science and related disciplines.

Symposium Schedule:

8:00- Registration

8:45- Welcome and Orientation

9:10-9:40- Featured Presentation

9:50-10:30- Session A

10:40-11:20- Session B

11:30-12:10- Session C

12:20- Lunch

Featured Presentation: *"Comics x Science: Using Cartoons to Communicate Complex Ideas"*, presented by writer and illustrator Maris Wicks. Wicks will take you panel by panel through the use of cartoons and comics as a way to educate and engage readers of all ages. Journey to the jungles of Africa, inside the human body, Caribbean coral reefs, Antarctica, and even outer space to see how Wicks uses comics to convey general science concepts and work alongside scientists to help communicate the science behind their research.

Workshops: There will be 15 hands-on marine science workshops that will be repeated in each of the three time slots. Students will attend two workshops during the day in addition to the featured presentation and the ocean science fair.

Ocean Science Activity Fair: Presenters will lead short activities and demonstrations at tables, and students will have 40-minutes to rotate between different tables, learning and networking with marine science professionals.

Space is limited, and registration will take place on a first-come, first-served basis.

To register:

- 1) Fill out the **registration form** here: <https://tinyurl.com/hsmssboston2020>
- 2) **Pay** online via PayPal, or initiate a Purchase Order for payment by check. An invoice will be sent to you upon registration. Full payment is expected by the day of the event.
- 3) Collect **student workshop preferences** via workshop preferences template: by Friday, February 14th. To the greatest extent possible, workshop attendance will be assigned based on student preferences while ensuring an even distribution of participants in each session. Please submit the form to Emily at e.duwan@northeastern.edu.
- 4) Read Northeastern's **Policy on Programs Involving Minors** available at https://www.northeastern.edu/policies/pdfs/Policy_on_Programs_Involving_Minors.pdf and

Code of Conduct for Programs Involving Minors available at

http://northeastern.edu/risk_services/wp-content/uploads/2015/08/Code-of-Conduct-for-Minors-programs-New-Seal.pdf

- 5) Submit a signed copy of the **Third Party Certification** (see below) to e.duwan@northeastern.edu by Friday, February 14th.
- 6) Collect **media releases** (see below) for every attendee. Please bring these with you to the event.

Workshop preferences and final # of students attending are due February 14th. Schools will be charged per student, based on the numbers we have on February 14th. Even if you bring less students on the day of the event, you will be charged for the number registered on February 14th

Cost: \$15 per student includes all materials, morning refreshments, and lunch.

Scholarships: We are pleased to offer a limited number of scholarships to cover student registration. This opportunity is aligned with national efforts to create and foster diversity in the pursuit of academic and career opportunities related to STEM. The scholarships are made possible through the generous support of Northeastern University, Massachusetts Marine Educators, Bow Seat Ocean Awareness Programs, and others.

Scholarships will be offered to students in districts where >40% of students are classified as economically disadvantaged. To determine if your district is eligible, please visit the Massachusetts Department of Elementary and Secondary Education website district profiles at: <http://profiles.doe.mass.edu/>.

Scholarships will be granted on a first-come, first-served basis until all funds have been allocated. Due to the limited number of scholarships, there is no guarantee that the entire group of students from a given school will be supported. Scholarship funds will cover student event admission fees only, and all schools are responsible for providing their own transportation to and from the event. Teachers interested in applying for scholarship funds should indicate on their registration form.

Refreshments: A light snack will be provided during the registration period. Lunch will be provided for all registered students, teachers, and chaperones, and vegetarian options will be available. *If any participant has other specific dietary limitations besides vegetarian, they are advised to bring their own snack and lunch.*

Other logistics: We recommend a chaperone ratio of 1:10. Schools are responsible for their own transportation. Limited bus parking available at the event. Please inquire for more details.

If you have any questions, please email Emily at e.duwan@northeastern.edu or call 781-581-7370, x373. Please visit www.ma-marine-ed.org or <https://cos.northeastern.edu/marinescience/outreach/high-school-marine-science-symposium/> for more information.





MEDIA RELEASE

I hereby authorize Northeastern University, and those acting pursuant to its authority to:

- (a) Record my likeness and voice on a video, audio, photographic, digital, electronic or any other medium.
- (b) Use my name in connection with these recordings.
- (c) Use, reproduce, exhibit or distribute in any medium (e.g. print publications, video recordings, CD-ROM, Internet) these recordings in connection with Northeastern University Marine Science Center Outreach Programs.

I release Northeastern University and those acting pursuant to its authority from any liability related to my child's participation in the University's programs. I understand that all such recordings, in whatever medium, shall remain the property of Northeastern University. I have read and fully understand the terms of this release.

Participant name

Street address

City, state, zip

Participant signature

Date

If participant is under age 18, please also complete the following:

I further state that I am the Participant's parent/guardian and am fully competent to sign this agreement; and that I execute this release for full, adequate and complete consideration fully intending for myself, for the participant and for the participant's family, estate, heirs, administrators, personal representatives or assigns to be bound by same.

Parent/guardian name

Parent/guardian Signature

Date



REQUIREMENTS AND CERTIFICATION BY THIRD-PARTY SPONSOR OF COMPLIANCE WITH POLICY ON PROGRAMS INVOLVING MINORS AT NORTHEASTERN UNIVERSITY

- **Third-Party Sponsors must acknowledge that they have received, read and understand** Northeastern University's current Policy on Programs Involving Minors and Code of Conduct.
 - **Third-party sponsors must obtain signed Parental Consent Forms for each participating minor.**
 - **Third-party sponsors should obtain permission for Northeastern University and/or its designees to record, film, photograph, audiotape, videotape, interview and/or publicly exhibit, display, distribute and/or publish their likeness, appearance and or spoken words in any form and for any purpose worldwide to perpetuity and without compensation.**
- **Third-Party Sponsors must certify that all persons who will be acting as Responsible Adults in their Program (as defined by Northeastern University's Policy on Programs Involving Minors) have completed:**
 - **Required Training that complies with M.G. L. c. 119, §51A;**
 - **Self-disclosure forms; and**
 - **Criminal background checks (CORI/SORI)**
- **Third-Party Sponsors must keep a current list of names and contact numbers of all Responsible Adults and make the list available promptly to the University upon request.**
- **PLANS AND PROCEDURES.** Third-Party Sponsors must prepare, maintain and provide upon request, written plans and procedures for:
 - a. **Communications and notifications for participants and parents/guardians, including for emergencies and program disruptions;**
 - b. **Medical emergencies;**
 - c. **Transportation, if applicable;**
 - d. **Supervision and staffing ratios; and**
 - e. **Rules of conduct for participants in the Program.**

CERTIFICATION

On behalf of _____, I hereby certify that our organization meets the above three requirements of Third Party Sponsors.

_____ Date: _____

Authorized Representative of Program or Third Party Sponsor

Print Name: _____

Title: _____

Workshop Offerings

Use the **workshop number** in designating student preferences on the workshop preference template:
To the greatest extent possible, workshop attendance will be assigned based on student preferences while ensuring an even distribution of participants in each session.

Workshop preferences and final # of students attending are due February 14th. Schools will be charged per student, based on the numbers we have on February 14th. Even if you bring less students on the day of the event, you will be charged for the number registered on February 14th

#	Topic	Content
1	Ocean Smog: Understanding Plastic Pollution and Creating Solutions	Plastic Pollution is a leading threat to marine ecosystems throughout the world. This workshop provides students with an overview of this global problem, a hands-on activity, ideas for studying plastic pollution locally, and solutions that all of us can adopt to curb this problem. Presented by the Center for Coastal Studies
2	Experiments in Art, Science, and Climate Change	Tap into your creative side while making marine science art! During this hands-on workshop, students will combine chemistry and painting to explore climate change and ocean acidification, a serious issue impacting our local waters and marine life in the Gulf of Maine. No art experience is necessary. Presented by the Bow Seat Ocean Awareness Programs
3	Protecting coastal communities from storm surge	How can coastal communities stay safe from storm surge during hurricanes and nor'easters? Storms are expected to become more intense and destructive as climate changes and sea levels rise. Together, we will test different methods of coastal protection and discuss environmental and policy implications for each solution. Presented by the Northeastern University Marine Science Center
4	Seaweed Chefs: From Farm to Table	Interested in learning how to help save the world and cooking yummy food at the same time? Join us to hear about Hurricane Island's kelp farm, learn about its ecological importance and its role in climate change mitigation, create your own kelp dish, taste other kelp-made products, and (if you like it) find ways to incorporate it into your daily diet. Presented by Hurricane Island
5	Squid - Inside and Out!	From color changing cells to three hearts, come learn about one of the most fascinating animals in the ocean! Students will participate in a hands-on squid dissection to learn dissection skills, squid biology, and a little about the people who work at the Aquarium. Presented by the New England Aquarium

6	Hands-on activity in ocean acidification	Seawater becomes more acidic as carbon dioxide increases in our atmosphere. Students will dissolve CO ₂ in a flask, experimenting how an atmospheric gas dissolves in seawater. More acidic seawater will challenge marine organisms in producing their skeletons from carbonates and in other ways such as disrupting fish sense of smell. Students will experimentally examine these effects on shells of oysters and mussels, and will discuss potential consequences of these effects in marine communities. Presented by MIT Sea Grant
7	Can you hear me now? Marine mammal bioacoustics	We will explore the diversity of sound produced by local whales, dolphins, and seals! Become familiar with certain species and then use your new knowledge to identify mystery sounds. Use "whale morse code" to find your pod mate and finally, learn how scientists at the NOAA Northeast Fisheries Science Center and the Woods Hole Oceanographic Institution use information from marine mammals sounds in conservation. Presented by Woods Hole Sea Grant
8	The Science of Climate Change and How to Build Resilience	Come and debunk climate change myths and discover the impact it is having on flooding in Massachusetts. In this workshop, you will learn about the science behind climate change, explore how climate change is impacting us, and what we can do to prepare our communities for the future. Through a hands-on design activity, you will explore solutions and ideas to building climate change resiliency, particularly against inland flooding in Massachusetts. Presented by Beach Sisters of Northeastern Marine Science Center and Girl's Inc.
9	Public engagement in environmental decision-making	Choices we make about how we manage the ocean and coastal environment are influenced by and have an impact on people. In this workshop, students will learn what a stakeholder is and why it is important to include them in the environmental decision-making process. Students will get the chance to participate in a "meeting" about a coastal development project and will play the role of someone who has an interest in how the project is designed. This is a great opportunity to explore how science and public engagement work together to influence policy and decision-making. Presented by Urban Harbors Institute, UMASS Boston
10	Finding a Balance: How Humans and Wildlife Coexist Along the Coastline	Humans are constantly adapting to changes along our coast. On the beaches of Cape Cod, humans are learning how to coexist with great white sharks and other wildlife. By learning about technology used in great white shark research and tracking, learn how the towns on Cape Cod are adapting to sharks along the coast. With data and information given, you will be able to think like a decision maker and decide where you would install/test new public safety initiatives, technology, etc. Presented by Atlantic White Shark Conservancy
11	Help Whales from Man-Made Issues!	Marine mammals, particularly large whale species, including the endangered right whale are prone to mortality due to anthropogenic interactions. The two major man-made issues arise from interacting with fishing gear and vessels. Using miniature replicas of a number of fishing gears, we will discuss and hopefully add some outside the box ideas or answers, to this ongoing and difficult marine mammal story. Presented by NOAA Fisheries Service
12	Climate Impacts on Seafood as a Resource	We can't "fix" climate change. We can only adapt. Things are happening in the Gulf of Maine faster than we can understand. The implications to seafood are significant. Get your hands on live green crabs while talking about Gulf of Maine ecosystem shifts and impacts on predator-prey relationships, migratory patterns, ocean acidification, and adaptation. You'll leave with a better understanding of how decisions on land affect seafood as a resource, whether you eat seafood or not. Presented by One Fish Foundation