

Announcing the Second Annual North Shore High School Marine Science Symposium

Thursday, March 20, 2014
Endicott College, Beverly, 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 Northeastern University, the Massachusetts Division of Marine Fisheries, Seacoast Science Center, Massachusetts Bureau of Underwater Archaeology, and others. Students will have the opportunity to investigate current and on-going projects in marine science and related disciplines.

Symposium Schedule:

8:00 am	Registration and Refreshments
8:45 am	Welcome
8:50 am	Keynote Presentation: Live Skype from Antarctica
9:10 am	Workshop Session 1
10:10 am	Workshop Session 2
11:15 am	Keynote Presentation: Alliance for Climate Education
12:15 pm	Lunch
1:00 pm	Adjourn



Workshops: There will be 15 hands-on marine science workshops that will be repeated in each of the two time slots. Students will attend two workshops during the day in addition to the two keynote addresses. Please complete the attached Participant Detail Form by Friday, March 7th. This will be emailed to you upon registration, or you can request it in advance by emailing msscouteach@gmail.com. Workshop attendance will be assigned by MME to accommodate student preferences to the greatest extent possible.

Cost: \$10 per student includes registration materials and morning refreshments.

Other logistics: Light refreshments will be provided during the registration period. Student participants may provide their own lunch or purchase a box lunch for \$9.00 (cash only) in the Endicott cafeteria. If they plan to buy lunch, they must indicate this in advance so that the cafeteria prepares enough food. (Endicott College is on Spring Break this week, and cafeteria activity is therefore significantly reduced.) Teachers and chaperones will be provided boxed lunches at no cost. Students must be accompanied by a teacher and/or chaperone at all times. We recommend a ratio of one adult for each ten students. Schools are responsible for their own transportation.

Space is limited, and registration will take place on a first-come, first-served basis. Payment can be made by check or credit card, however if paying by check, a purchase order number must be provided at the time of registration. Please register here: <https://massmarineeducators.wufoo.com/forms/2014-north-shore-hs-marine-science-symposium/>

If you have any questions, please email Samantha at msscouteach@gmail.com or call 781-581-7370, x321. Please visit www.massmarineeducators.org for more information about MME.

This event is sponsored by:



Northeastern University
Marine Science Center

Workshop Offerings

Please use the workshop number in designating student preferences on the Participant Detail Form.

#	Topic	Content
1	Marine Calcification and Ocean Acidification	This interactive demonstration will provide examples of how ocean acidification may potentially harm many of the ocean's benthic organisms. In addition, an experiment will be provided that mimics the reaction these organism use to create their carbonate skeletons. Various shells and skeletons will be available to study and touch.
2	How Old is that Fish?	The age of a fish is one of the most valuable pieces of information scientists use to manage species, but how do we figure it out? In this workshop we will explore a few of the many different techniques that we use to decipher the age of a fish. Learn how to remove scales and otoliths ("ear stones") from specimens and then interpret the markings on these structures to discover their ages.
3	A Whale of a Comparison	Stop! Look! It's a skeleton! There's the rib cage, a spine, a skull... If you were on the CSI forensic science squad, you'd be investigating human remains. But could it be some other mammal? There are an amazing number of similarities when comparing anatomy between different marine mammal species. Using real bones, students will "reconstruct" skeletons and learn about form and function of these marine mammals.
4	Marine Archaeology: Mapping a Shipwreck	The field of archaeology is a destructive science. In order to maintain context, understanding how each piece of the puzzle relates and connects to its surroundings, archaeologists record everything they observe. Learn how marine/nautical archaeologists survey, record, and interpret a shipwreck.
5	Astronomy and the Ocean Through the Rhythm of the Tides	With graphic tide data and a large interactive model of the Earth/Moon System, we will gain a better understanding of our connection with the Moon through the patterns that we see in the rise and fall of the tides. You'll also make a simple model that you can take with you to better understand the connection between tides and the forces exerted on our planet from the Moon and our nearest star.
6	Life on a Rocky Shore: Challenges and Adaptations	We will learn about rocky shores in New England, focusing on the challenges faced by organisms living in such a stressful environment. We will observe live intertidal organisms (including seaweeds, snails, and crabs) and examine their adaptations for surviving on rocky shores. You will also have the opportunity to use what you've learned to invent your own creature adapted for the intertidal zone.
7	Marine Ecosystem Structure and Food Web Dynamics	We have two interactive display boards depicting a) a marine ecosystem where students place organisms in their correct habitat by depth and b) a Gulf of Maine food web through time that demonstrates how food web interactions structure communities, especially when human-induced factors are added into the mix.
8	Don't Touch Me! Remote Technology and Climate Change Ecology	When studying ecology, animals of interest are often handled and even sometimes probed. These interactions can be stressful to the animals, which can change their natural physiological and behavioral response. Here we introduce two different innovative technologies: infrared thermal imaging and Gigapan virtual tours. These techniques enable scientists to measure and study climate change ecology without stressing the organism.
9	Sensational Seaweed! Ecology, Art and Cuisine	If you've ever wondered why seaweed grows on rocky beaches all over New England, what role it plays in the ecosystem or how people might use it, this workshop will answer all those questions and more. You will learn how scientists identify different species of seaweed, create your own seaweed art and even try some tasty snacks made from this delicious aquatic vegetation!
10	Out Of Sight Out Of Mind? Things You Can Do Now to Help The Environment	Hear from a group of high school students from Lynn about their experience at Girls Inc. of Lynn leading programs in marine and environmental science. Also, learn about the Great Pacific Garbage Patch, and the correct way to recycle through exciting hands-on games and competitions.
11	Explore Ocean Currents With Drifters	Deployment of ocean drifters by educators and their students help scientists better understand transport pathways by providing surface current information to modelers. Students receive a hands-on introduction to physical oceanography through hands on activities and learn about how your school can build, deploy, and track your own Drifter!
12	Experiences in Underwater Film-Making	Jonathan Bird, host and producer of the Emmy award-winning PBS series "Jonathan Bird's Blue World" will give a seminar on underwater video production including gear, techniques and behind the scenes stories about what it's like to travel the world filming underwater.
13	Climate Change and The Ocean	Using some interactive table-top activities, staff from the New England Aquarium will demonstrate the connections between climate change and the oceans.
14	TBD	
15	TBD	

PARTICIPANT DETAIL FORM

North Shore High School Marine Science Symposium

Using the workshop descriptions and #s as reference, please fill out the following form with student names, grade levels, top 4 workshop choices (use the workshop # provided), and lunch plans. Please return this via email to mscoutreach@gmail.com or fax to 781-581-6076 by Friday, March 7th.

Failure to submit the form by that time may result in student preferences not being considered. Students must declare their intent to purchase lunch at Endicott College by March 7th at the latest; otherwise, there is no guarantee that lunch will be available.

SCHOOL NAME: _____

LEAD TEACHER: _____

Student name	Grade	Workshop 1 st choice	Workshop 2 nd choice	Workshop 3 rd choice	Workshop 4 th choice	Intend to buy \$9 lunch @ Endicott? (Yes/No)
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