



# Massachusetts Marine Educators 41<sup>st</sup> Annual Meeting and Conference

## *Revealing our Ocean's Secrets and bringing them into the classroom*

Saturday, April 8, 2017

8:30am – 4:15pm

Quissett Campus at Woods Hole Oceanographic Institution



Art: Erik Z., 8<sup>th</sup> gr.  
MME Art Contest

### KEYNOTE SPEAKERS

#### ***Insights into Leatherback Behavior using Tags, Cameras and Robots***

Dr. Kara Dodge, Postdoctoral Investigator,  
Biology Dept., Woods Hole Oceanographic  
Institution

#### ***Hands across the Water: Introducing students to science at sea***

Kenneth Kostel, web writer/editor, Woods  
Hole Oceanographic Institution

### SCHEDULE

8:30 am	Registration in Clark Bldg, 5 <sup>th</sup> Fl.
9:00 am	Welcome and Opening Remarks
9:15 am	Keynote Lectures
12:00 pm	Business Meeting, Awards, Lunch
1:30 pm	Workshop 1
3:00 pm	Workshop 2
4:15 pm	Reception at Sea Education Association

### REGISTRATION

Early Bird, Regular and Student registrations include a one-year MME membership, lunch, social reception, and all conference activities.  
Check the website for descriptions of workshops.

Early Bird Registration: \$90 by March 28, 2017

Regular Registration: \$95 after March 28, 2017

Walk-In Reg. (April 8): \$100 (*lunch not guaranteed*)

Full Time Student: \$55

Life Member: \$55

**Conference questions?** Contact: Anne Smrcina  
[anne.smrcina@noaa.gov](mailto:anne.smrcina@noaa.gov) or 781-546-6007

Register online: <https://massmarineeducators.wufoo.com/forms/m15x0641tpx1o8/>

[www.ma-marine-ed.org](http://www.ma-marine-ed.org)

## MME ANNUAL MEETING AFTERNOON WORKSHOPS

### Seabird CSI: Using chemical tools to study the biology of seabirds

Grade Level: 7-12

Unfortunately, birds cannot communicate about their diet, their preferred habitat, or their ailments; seabird scientists must instead use a range of different chemical and biological tools to piece together such crucial ecological data. This workshop will offer attendees insight into ongoing seabird research in Stellwagen Bank National Marine Sanctuary; attendees will get a behind the scenes look at data collection, chemical tools and instruments in use, sample analyses, and current results describing seabird diet, plastic ingestion, and exposure to human-created pollutants. Attendees will receive a scalable classroom activity related to the described seabird research and gas chromatography/mass spectrometry (relevant to NGSS HS-PS1-11(MA)). **Bring a Wi-Fi enabled laptop or tablet.**

**Disciplines: Chemistry, Biology, Marine/Environmental Science** (designed for chemistry teachers & other educators with an interest in marine chemistry)

### How Do We Explore?

Grade Level: 6-12

With an eye to the NGSS, come explore technology-based activities from the NOAA Ship *Okeanos Explorer* Education Materials Collection, Volume 2: How Do We Explore? We will dive into hands-on and computer-based activities focused on multibeam sonar mapping, including building a 3D bathymetric map, and consider the engineering design process as we build a robotic arm. Participants will also learn about current expeditions exploring the unknown deep waters of the Pacific Ocean and how to find associated online education resources. Lesson books and other resources will be provided. (A Double Session 1:30-4:00 pm)

**Disciplines: Biology, Marine/Environmental Science, Oceanography, Engineering/Technology**

### Turtle TLC: Using sea turtles, Cape Cod sea turtle strandings and turtle rehabilitation as subject material for STEM Lessons

Grade Level: 3-12

Do you love turtles? Are you interested in incorporating turtles into your curriculum? Turtles can be used as subject material for just about any STEM/STEAM/STREAM lesson you would like to teach! In this workshop, learn more about sea turtles of Cape Cod, why they strand, and how they are rehabilitated. Then, learn how this information can be incorporated into educational activities. Walk away with lesson plans that you can bring back to your classroom.

**Disciplines: Biology, Marine/Environmental Science, General Science, Language Arts, Mathematics, Engineering/Technology**

### Using Atlantic Salmon Telemetry Data and Developing Stream Obstruction Bypass Solutions

Grade Level: 5-8

Based on research by scientists with the Northeast Salmon Team (NEST) at NOAA's Northeast Fisheries Science Center here in Woods Hole, this activity models real life research. NEST is tasked with gathering information on the critically endangered Gulf of Maine Atlantic salmon population. In activity one, participants will focus on the journey salmon smolts take as they migrate "downstream" to the ocean. We will work with real telemetry data and see the various challenges these fish face on their perilous journey, the information we can get from telemetry data and how we can use that information in salmon conservation. In activity two, we focus on the challenge of obstructions, such as dams or roads, and the current solutions being utilized.

**Disciplines: Biology, Engineering/Technology, Geography**

### The Educational Whale Watch

Grade Level: 4-12

A whale watch field trip can be an exciting experience for students, many of whom may never have been out on the water. However, this ocean safari can also be a great opportunity to model scientific research and to explore a variety of STEM topics, including anatomy and physiology, seafloor geology, wind/waves/ weather, and food web dynamics. Even if you cannot afford a whale watch trip, Stellwagen Bank Sanctuary's life-sized inflatable whale can make a trip to your school. Explore activities based on actual research and real data.

**Disciplines: Biology, Geology, Geography, Marine/Environmental Science, General Science, Oceanography, Mathematics, Language Arts**

### Using Ocean Data in the Classroom

Grade Level: 6-12

Presenting ocean data to your students can be a challenging task. The key, though, is to focus on discussions around relatable topics. Using data provided by NERACOOS (Northeast Regional Association of Coastal Ocean Observing Systems), educators can approach ocean observing from a local level with their students. Bring your computers and learn what's available, how to access it, and how much fun it can be to share this capability with your students. **Bring a Wi-Fi enabled laptop or tablet.**

**Disciplines: Biology, Marine/Environmental Science, General Science, Physics, Oceanography, Mathematics**

### Tour WHOI's New High Speed Mass Spectrometry Laboratory

Grade Level: 7-12

MME members participating in this special tour will learn about the newest scientific equipment being used to detect a wide range of chemicals found in the ocean and in the bodies of marine creatures. A member of the lab will relate stories about recent exciting and intriguing work.

**Disciplines: Chemistry, Biology, Marine/Environmental Science** **\*\* Warning: For medical reasons, persons with pacemakers or metal implants should not enter the room as this flagship instrument may cause serious harm.**

### From STEM to STREAM: Using an Interdisciplinary Marine Theme

Grade Level: K-12

MME has been sponsoring a marine art contest for grades K-12 for many years. The popularity of this contest is growing as teachers have found value in using art to reinforce scientific studies. In that same vein, writing assignments, from scientific reports to poetry, will help student to better understand the subject matter they are attempting to draw. We will explore various forms of expression as we celebrate the diversity of life in Stellwagen Bank National Marine Sanctuary.

**Disciplines: Biology, Marine/Environmental Science, General Science, Art, Language Arts**