

Flotsam & Jetsam

A Newsletter for Massachusetts Marine Educators

Special COSEE Edition

www.massmarineeducators.org

Vol. 33, No. 3

President's Message



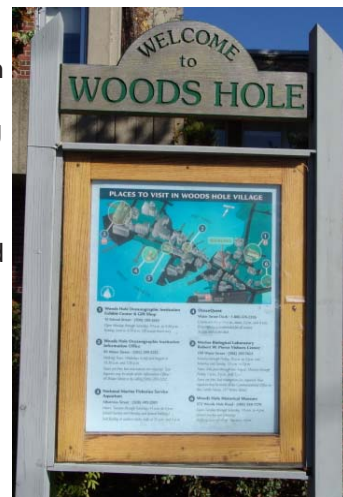
The fundamental goal of Massachusetts Marine Educators is advancing marine education. To achieve that end, MME has dedicated this special edition of **Flotsam & Jetsam** to the New England Center for Ocean Sciences Education Excellence (NE-COSEE). A partnership among New England Aquarium, WHOI and UMass, COSEE was created by the

Division of Ocean Sciences of the National Science Foundation. MME enthusiastically support NE-COSEE and its goals. Our members participate in and lead COSEE workshops in all roles, as teachers, informal educators and scientists. We proudly count NE-COSEE as friend and colleague in our joint mission to educate the nation about the mysteries of the great oceans.

Linda McIntosh

29th Annual MME Conference!

Join us for the 29th Annual MME Conference on April 30th at the Wood Hole Oceanographic Institution. Continuing last year's innovative program, the day will highlight world class scientists presenting cutting edge research, teamed with senior educators offering implementable lesson plans and curricula for your classroom. Check the MME web site for additional information and registration procedures. Early registrants receive a substantial discount!



Center for Ocean Sciences Education Excellence (COSEE) Overview

With the release of two national reports in the last year from two major commissions – the Pew Ocean Commission report *America's Living Oceans: Charting a Course for Sea Change* and the preliminary report of the U.S. Commission on Ocean Policy – the state of the ocean and coastal environments and the future U.S. policies that will affect those environments have moved to the forefront of national discourse. Among concerns that have been raised is the need for increased emphasis on ocean education for all Americans, and the tandem need for engaging education and outreach professionals as well as scientists in the dissemination of that education. The New England Center for Ocean Sciences Education Excellence is directly addressing these needs in the New England region and nationally.

A partnership among the New England Aquarium, Woods Hole Oceanographic Institution (WHOI), and the University of Massachusetts (UMass), NE-COSEE is part of a national network of seven COSEEs responsible for facilitating



collaboration and communication between ocean science researchers and educators. Created in 2002 by the National Science Foundation's (NSF) Division of Ocean Sciences, each COSEE has its own identity and purpose. NE-COSEE's focus is on developing, presenting, and evaluating innovative models for engaging researchers in education and for importing ocean science research into formal and informal education settings throughout New England. From the outset, the NE-COSEE partnership made a determined decision that its work would not be "business as usual," but instead focused its strategy on building pilot programs. This "research and development" (R&D) approach may take longer than simply replicating existing programs, but the team is devoted to innovation and ensuring the value of its products. "New England has rich resources in the form of world-class ocean research and educational institutions and organizations," says Carolyn Levi, a principal investigator (PI) and Director of NE-COSEE. "The NE-COSEE is developing new models for bringing researchers and educators together to create lasting partnerships and increase public knowledge and awareness of the ocean."

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Massachusetts Marine Educators
 c/o Joel Rubin
 New England Aquarium
 Teacher Resource Center
 Central Wharf
 Boston, MA 02110-3399
 Web site: www.massmarineeducators.org

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For Members Only: Members who would like to download the complete current issue of *Flotsam and Jetsam* from our web pages should do the following: Under the graphic of the first page of the newsletter where it says to, click to open a new screen. After the current issue, click to download, and enter the username **mme** and the password (for this year) **whale** (both words all in lower case). This will allow you to download the whole issue as a pdf.

Calendar 2005

January 12, 2005

MME Board Meeting. UMass Dartmouth, 285 Old Westport Road, North Dartmouth. Contact: Jack Crowley at t.j.crowley@comcast.net

March 9, 2005

MME Board Meeting. Waquoit Bay Research Reserve, Route 28, Falmouth. Contact: Pat Harcourt

March 16, 2005.

High School Marine Studies Symposium. Check MME web site for details.

March 31 - 3 April, 2005.

NSTA National Convention. NMEA Share-a-thon, Dallas, Texas.

April 30, 2005

29th Woods Hole Conference and Annual Meeting. Information: Sue Wieber Nourse, (508) 748-2000, x2245. Email: snourse@taboracademy.org

May 11, 2005

MME Board Meeting. Stellwagen Banks Hq. Scituate, MA. Welcome new officers and members. Contact: Anne Smrcina

July 10 - 18, 2005

NMEA 2005. Maui, Hawaii. "Look to the Source. Look to the Sea." Contact: Ann Coopersmith at coopersm@hawaii.edu

Flotsam & Jetsam

A Newsletter for Massachusetts Marine Educators

Flotsam and Jetsam is published three times a year (September, January, and May) by the Massachusetts Marine Educators, Inc. Please submit items for calendar, classroom projects, curriculum materials, or other information to the editor. Submit dates for the calendar at least two months prior to the event or call the editor (508 274-5108 (email: theturtleguy@comcast.net).

Interim Publications Officer.....Don Lewis

COSEE Overview -- Continued

Some pilot programs developed over the last two years are in their “second generation,” and are now being offered at other institutions throughout the region. The NE-COSEE team describes these additional workshop sites as “nodes,” hubs of future program development and dissemination. “Node-building is a way for us to engage other partners,” says Billy Spitzer, co-PI of NE-COSEE and Vice President of Programs & Exhibits at the New England Aquarium. “We talked about a network, and now it’s more specific, engaging specific institutions as branch campuses, making connections to educational networks, create lasting partnerships in New England that support the node model. We’re creating an environment for sharing best practices.”



But how do you determine what are the best practices? A central component of NE-COSEE’s grant from the NSF is the evaluation of the Center’s work. This evaluation is conducted by the Program Evaluation and Research Group (PERG), located at Lesley University in Cambridge, MA. Working closely and collaboratively with the NE-COSEE team, PERG evaluators provide the NE-COSEE partners with feedback throughout the inception, development and execution of its programs, and report to the NSF on progress toward the Center’s goals. NE-COSEE partners incorporate evaluations into the “lessons learned” for each program. “NE-COSEE’s role is developmental, and that’s the value of evaluation – it plays a critical role in the development of ideas,” says Carol Baldassari, senior research associate at PERG and the primary evaluator of NE-COSEE.

During its first year, the partnership looked for ways to create innovative programs that served its primary audiences well. A Web-based survey was developed and distributed to WHOI scientists, in order to determine what researchers need in order to contribute to ocean sciences education. This survey is also available for other nodes in the New England region as well as throughout the COSEE network.

The workshop ***Telling Your Story, or How to Survive a Classroom Visit***, which is now in its second generation, was developed with scientists’ needs in mind. *Telling Your Story* gives scientists specific ideas on how to work with the classroom teacher to plan, conduct and follow-up on a classroom visit.

NE-COSEE is also encouraging scientists and informal educators to work together to develop scientifically accurate programs and exhibits. To encourage these partnerships, NE-COSEE developed a workshop called ***Sharing the Challenge of Ocean Science Education***, where scientists and educators share ideas on how they could deliver key messages about ocean science to the public. (See accompanying stories on these two workshops.)

In addition to ***Telling Your Story*** and ***Sharing The Challenge***, NE-COSEE’s first two years of program design, development and implementation also produced the Ocean Science Education Institute, or OSEI, an opportunity for

middle school teachers to train with marine scientists in an intensive environment.

But innovative ideas need continual support. “Follow-up is an important piece for NE-COSEE. When the workshop is over we aren’t finished – that’s just the start,” says John Anderson, Program Manager of NE-COSEE. “After the program happens, we look at what can we do to support the participants. It’s a longer-term engagement, an ongoing process from the start. This does make it slower, but we try to be very intentional about the process and the pieces along the way. R&D is an intensive process.”

Results from the first generation of programs are impressive. OSEI produced five collaborative teams of teachers and researchers, with eight-plus ocean science (OS) studies, units and lessons used in classrooms. ***Telling Your Story*** had five participants make presentations in educational settings, reaching approximately 700 students in grades 4 through 9. ***Sharing the Challenge*** resulted in five ideas for exhibits, citizen science programs and to help scientists and educators connect in the future. These ideas may become the basis for future grant projects.

An innovative process can bring unexpected results. After participating in the ***Telling Your Story*** workshop, one scientist went on to create a Registry of Science Outreach Volunteers, or ROV to facilitate connections between teachers and researchers interested in educational partnerships in the K-12 arena. It was created for the Woods Hole Science Technology Education Partnership (WHSTEP), a partnership of schools, scientific institutions, businesses, and community resources, whose purpose is to support, promote, and expand science and technology education and science literacy in the participating communities of Falmouth, Mashpee and Bourne. “Having the WHSTEP registry is important because after taking the ***Telling Your Story*** workshop the participating scientists are very enthusiastic, and this is a place where they can quickly register, and hopefully find a teacher who would like to work with them,” says Debbie Smith, co-PI for NE-COSEE and Senior Scientist at WHOI. (Find out more at <http://www.whoi.edu/ccod/rov.html>.)

NE-COSEE’s work has expanded to a national front as well. During the first year, NE-COSEE established a task group to propose a working definition of ocean science literacy against which to measure ocean sciences educational resources: the awareness and understanding of a set of fundamental ideas about the ocean that every citizen should have. “We recognize it is a working definition and expect to modify it over time,” says Kate Madin, an educational coordinator and writer at WHOI. Recently, the decision was made to share the draft definition with national COSEE as part of the process of developing a unified voice regarding ocean sciences literacy. “We’ve taken leadership in defining what ocean science literacy is,” says Spitzer. “We initiated this at NE-COSEE and it has become part of the national agenda.” (This project has now also become a public effort; see the Resources list for how to add your comments to the Ocean Science Literacy Definition.)

Continued Page 5

Sharing the Challenge of Ocean Science Education

In March, 2004 NE-COSEE hosted a workshop at the New England Aquarium called **Sharing the Challenge of Ocean Science Education**. The goal was to stimulate collaboration between ocean scientists and informal education leaders, by facilitating dialog about good ideas for ocean science education. "Researchers and informal educators both have something to offer," says John Anderson, NE-COSEE Manager at the New England Aquarium, "and the workshop was intended as a catalyst to initiate communication between the two."

Speakers touched on issues facing both communities: public misconceptions about ocean science and the need to train scientists to communicate effectively about the oceans; how informal education centers such as museums and science centers offer scientists tremendous opportunities to get their messages out to large and diverse audiences; integrating research with education and public outreach; and the current funding climate.

After the workshop NE-COSEE sought feedback. All participants who responded said that they had met colleagues that they hoped to contact again. One quarter of respondents also said that they planned to work with other participants to design new programs and exhibits. Respondents mentioned two needs in particular. Scientists and informal educators both said they would appreciate more specific ideas about funding to support education programs and exhibits, and they both expressed interest in getting help to meet people across disciplines, beyond the participants in the program.

In response to this feedback and evaluation, NE-COSEE is ready to take the next steps. Currently, the partnership is seeking three new host sites for a pilot **Sharing the Challenge** workshop, which will be modified based on lessons learned. Each host will be involved in shaping the final agenda. To date, MIT and the University of New Hampshire Seacoast Science Center have expressed interest in hosting these pilot programs. NE-COSEE is in dialog with them toward setting dates, revising the agenda and setting up the programs. "The idea to reach beyond the three partners and have additional institutions as host sites, or nodes," says John Anderson. "These are locations and colleagues interested in working together, replicating and refining the workshop based on the reaction from the first one."

In addition, NE-COSEE has allocated funds to support teams in convening to develop ideas from each **Sharing the Challenge** workshop. Currently, funds are available to participants from the March 2004 workshop. This funding is intended to help collaborative teams of ocean scientists and informal educators to develop a product such as a funding proposal, a prototype or a program for ocean sciences education in informal learning settings.

NE-COSEE hopes that these steps will encourage more scientists and informal educators to come together to develop exciting new ocean science programs and exhibits for the public.

Telling Your Story or How to Survive a Classroom Visit -- Collaboration

At NE-COSEE's **Telling Your Story** pilot workshop, held in January 2004 at the Woods Hole Oceanographic Institution (WHOI), twenty scientists heard first-hand how to work with a classroom teacher to plan, conduct, and follow-up on classroom visits; how to prepare materials, how to engage with students, and how to focus a presentation.

Dr. Jian Lin, a geophysicist in the Department of Geology & Geophysics at WHOI, participated in the workshop, and Nicki Bibbo, a fourth grade teacher, was one of the workshop facilitators. In June, 2004, Jian visited Nicki's classroom. Evaluator Carol Baldassari asked them about their experiences. Following is their story:

Jian: *"I visited Nicki Bibbo's School, Witchcraft Heights Elementary School, in Salem, Massachusetts, on Monday, June 7th. During the visit I had three sessions (each 40 to 50 minutes, with 20 to 30 students) with Nicki's 4th grade students.*

Our discussion topic was earthquakes on land under the oceans. I used a PowerPoint slide show, including movie animations, throughout the discussion. I also brought with me an emergency kit package that is recommended for residents of California to keep in preparation for earthquakes.

Overall the visit went well. I love those kids and felt connected to them!

Most importantly, I contacted Nicki many times by e-mail to find out about her kids. That was clearly a good idea suggested at the workshop.

I had done some homework beforehand. For example, I found out the maximum magnitude of historical earthquakes in Massachusetts, which I am sure kids in Massachusetts schools would want to know.

I also talked to my two boys (the younger one is 9 year old) about the subject beforehand, so that I know what subjects would excite them, and what may not get their attention.

And I followed the workshop's recommendation to ask for a follow up evaluation of my visit, so that I will know what worked and what can be improved for future visits.

I also received detailed notes from the kids in the school, which are also very illustrative. For example, it was the first time that I described small quakes as small 'popcorns' in my movie of the earthquakes in the ocean. Based on the words and drawings in the 'Thank You' notes from the kids, I see that this simple analogy works very well.

Overall my feeling is that the NE-COSEE Telling Your Story workshop was very useful. It was through the WHOI workshop that I was hooked up to Nicki. I hope that as researchers working on the forefront of Earth sciences we can do more for our school kids and teachers!"

Feedback from Nicki: *"Participating in Telling Your Story was very invigorating. I was really taken aback by how interested the scientists were in the teacher's perspective. They had a lot of questions directed at me. Having Jian visit my classroom was very exciting. He really listened to the suggestions we made during the workshop. I couldn't*

Continued on Page 5

COSEE Overview -- Continued

Moving the search for a definition of ocean science literacy to the national level is an indication of how the relationship between the regional COSEEs and the national COSEE is changing. "We're now seen as more effective if we unify our voices," says Anderson. The regional COSEEs see themselves as more likely to have a lasting impact and be sustainable if they work together. Collaboration on some projects has already started.

One such collaboration is the development of a national strategy for helping scientists to get involved in education and outreach. "At the national meeting [last May] we recognized the common need to get scientists more involved," says Andrea Thorrold, NE-COSEE coordinator at WHOI. "It was obvious that the New England, Mid-Atlantic and California COSEEs were all working specifically on how to engage scientists, so we should work together. This is a work in progress; we will be reporting on our recommendations in December." Thorrold sees the partnering of three regional COSEEs as a big step forward. "These are the first steps for us starting to work together nationally," she said. "It's a great collaboration. There is a lot of learning going on." Another NE-COSEE project that has moved into national distribution is the survey of Informal Science Educators (ISEs). "We are determining how best to serve informal educators by asking them how they work with researchers in ocean sciences education," says Levi. "We want to find out their experience in engaging researchers plus what would help them most in increasing ocean science content in their work." The survey will continue through the end of the year. (See Resources list for how to participate.) "At that point we'll analyze the results and use them to help design programs. We'll be sure to share results widely," says Levi. PERG is instrumental in this evaluation process. "We watch their development, and push the PIs to be more strategic," says Baldassari. "We have a good working relationship with the PIs. Everyone's working really hard, finding out what's useful, what's the strategy for getting it. When it works best, it's a real collaboration between evaluator and the project staff. I value the relationship a lot." Baldassari sees the NE-COSEE heading in positive directions. "The first year was one of organizing and trying out, with not much to communicate about. They needed design and organizational time. Now is the time to communicate. It's exciting work – everyone is eager to hear about the results and interested in working with each other." The focus now for NE-COSEE is to extend its programs and develop the regional nodes, engaging more scientists and more educators, and also more institutions. Nationally, NE-COSEE will be working to integrate its efforts with the other COSEEs. "The commission reports and the establishment of COSEE creates a real opportunity now to be more effective at ocean sciences education," says Anderson. "We need to unify our voices to take advantage of this opportunity."



Telling Your Story -- Continued

believe that he was willing to travel so far to visit my classroom. His presentation enthralled me and my students. He presented his information and expertise in a way that we all could understand and relate to. That was made most evident by the questions that the students asked. When students ask questions, it is a true indicator that they have been attentive and are processing the information. It is very important that students get the opportunity to converse and interact with people in the field of science. The interaction of the teacher and the scientist ahead of time to organize and plan the presentation so that it addresses the interests and curriculum of the students is very important. Jian was very receptive to both of those and came with extremely interesting information [about] his work. He was very personable and responded very openly and honestly with the students.

Jian's visit was such a wonderful follow-up of the workshop. It showed me that what we had presented made sense and was very effective. I would like to hope that I will have more experiences like this. This model should be broadcast and implemented in many arenas."

Just as Nicki suggests, **Telling Your Story** is indeed being replicated. It was offered again at WHOI on September 14th. Based on feedback from the first workshop, the format for the second was modified by TERC, the Cambridge-based not-for-profit education research and development organization that developed the program, to provide an even better experience for participants. "Here at WHOI we are trying to engage scientists, to present them with opportunities without arm-twisting," says WHOI scientist and NE-COSEE PI Debbie Smith. Six participating researchers were invited to the Boston Harbor Conference this fall. They presented their research for 30 minutes, and got feedback regarding best ways to present to a student audience.

NE-COSEE's current strategy is to replicate the program after the second workshop. "At the conclusion of the second workshop we want to be able to write a Request for Proposals (RFP) and perhaps produce a small handbook for researchers," says Debbie Smith. "**Telling Your Story** is a test for the node concept: how to you replicate projects in other areas? What keeps it going?" Carolyn Levi, Director of NE-COSEE at the New England Aquarium, drafted an RFP which will be revised based on evaluation of the program on September 14th. "The first workshop lead to the second," says Carolyn. "Now we want to enable others to take what we've learned and run with it." The plan is for three or more workshops to run between November 2004 and February 2005.



NE-COSEE Resources

On the NE-COSEE website <http://necosee.net/> you can:

Publicize your organization's event. If your organization is holding an event related to ocean science that you would like to post on the NE-COSEE calendar, send the information to ne-cosee@neaq.org. Be sure to include your contact information. View the calendar at <http://necosee.net/calendar.html>

Download a guide to grants for classroom support. This guide contains a list of recommended grants and foundations, tips for grant writing and a list of links for state and local granting organizations.

<http://necosee.net/resources/grants.php>

Add your comments to the Ocean Science Literacy definition.

<http://necosee.net/resources/commentform.php>

Participate in a survey for Informal Science Education (ISE) institutions. NE-COSEE has designed an online, national survey to guide us and our fellow COSEE centers in planning programs for informal science education institutions. We invite employees of all ISEs with an institutional mission that includes, or plans to include, ocean science programming to take the survey.

<http://necosee.net/getinvolved/index.php>

Sign-up to receive the NE-COSEE eNewsletter, a timely electronic newsletter describing current activities of the NE-COSEE partnership.

<http://cosee.who.edu/Default.aspx?PagelD=1011>

View a list of links to resources for formal and informal marine educators. <http://necosee.net/resources/links.php>

Read reports and articles on NE-COSEE activities <http://necosee.net/activities/articles.php>

including interviews with workshop participants <http://necosee.net/activities/interview.php>

and curriculum activities

http://www.necosee.net/activities/articledownloads.php?article_id=13

Give feedback on the website

<http://necosee.net/feedback.php>

For all general inquiries contact the NE-COSEE Coordinator at ne-cosee@neaq.org or phone 617-742-5446



MME 2004 Conference at WHOI

Massachusetts Marine Educators celebrated their 28th annual conference at the world renowned Woods Hole Oceanographic Institution on May 1st under the theme **"Islands of Life."** In partnership with WHOI and in the spirit of COSEE, MME created a new format with leading marine scientists presenting cutting edge research, teamed with master educators to import these studies directly into the classroom with lesson plans and curriculum units.



Dr. Larry Madin, Director of WHOI's Ocean Life Institute, keynoted and emceed the conference. He served as our tour guide in a journey of discovery through the world's oceans where we found startling habitats that harbor delicately balanced ecosystems created by unique physical and chemical conditions. Dr. Jean Whelan, senior research specialist at WHOI and author of over 100 scientific publications, presented her special insights into cold seeps and their implications for the ocean environment. Dr. Amy Samuels of WHOI and Chicago's Brookfield Zoo offered her research findings on dolphin behavior, focusing on socialization and maturation in juveniles. Dr. Samuels documents these discoveries for students in the book, **"Follow That Fin: Studying Dolphin Behavior,"** and in an on-line educational game **"Dolphins in Depth"** (see www.brookfieldzoo.org).

MME board members Sue Nourse, Erin Gordon and Don Lewis translated this research into lesson plans directly importable into K – 12 classrooms. Diana Payne, Connecticut Sea Grant education coordinator, conducted an afternoon workshop on seamounts. **"Mountains of the Sea – Exploring New England's Seamount Chain"** showed teachers how to enable students to model ocean exploration and to bring ocean scientists virtually into the classroom to share the excitement of real-time connections to these missions.

This day of discovery was capped with teacher resource tours of Woods Hole facilities: the WHOI Exhibit Center, the Woods Hole Coast Guard Station, and a walking tour of Woods Hole with a view of WHOI's new ocean research vessel, the Tioga, and a visit to the National Marine Fisheries science aquarium.

Ocean Science Education Institute 1

With the goal of infusing current ocean research into middle school classrooms, the Ocean Science Education Institute gathered 16 teachers and 7 researchers from the Boston and New Bedford areas. OSEI is the longest running, most intense interaction between researchers and educators that NE-COSEE offers. Through 8 days spread over 9 months, participants worked closely to share resources and expertise, learn more about ocean science and ocean scientists, form a network of individuals and organizations, and develop research-based lesson plans. OSEI-1 kicked off in May 2003 at UMass Boston with inspirational presentations. David Gallo of WHOI wowed participants with an insider's look at research in the ocean depths. Educational consultant Kathy Brown focused on middle school learners and key characteristics of teaching inquiry. Sue Wieber Nourse of Tabor Academy and Don Lewis of Mass Audubon discussed their widely successful, nationally funded project to engage students in original research involving threatened and endangered marine turtles. Small group discussions ensued to break down barriers inhibiting cooperation between researchers and educators.

An intense week in July blended research talks with field experiences in Boston Harbor, a coastal marsh, and the inter-tidal zone,



leading to a joint goal to develop research-based lesson plans to be implemented in the fall. Presentations by scientists Bob Chen (UMass Boston), Brandy Moran (MIT SeaGrant), Juanita Urban-Rich (UMass Boston), Curtis Olsen (UMass Boston), George Hampson (WHOI and UMass Dartmouth), and Nancy O'Connor (UMass Dartmouth) and senior educators Bill Andrade, David Weinstein, Sukey Padawer and Jack Crowley were followed with brainstorming by all participants of what aspects of this research were transferable to middle school classrooms. Action plans created on the last day were designed to ensure continued interactions between researchers and educators. Follow-ups were conducted to share implementation experiences, evaluate lesson plans and refine them so that improved curricula could be shared nationwide through the NE-COSEE website. OSEI-1 created sustainable, adaptable lesson plans. Teachers from Fairhaven, New Bedford, Boston, and Milton school districts teamed with researchers to form a supportive learning community with lasting impact on middle school education. It allowed as many as 2400 middle school students to experience a dose of ocean science research. OSEI-1 will serve as a model for ocean science workshops throughout New England.

Ocean Science Education Institute 2

For 2004-2005 NE-COSEE developed OSEI-2 as a three-pronged approach to integrate ocean science research into middle school classrooms. Building on lessons from the first OSEI, OSEI-2 focuses on working with whole school districts to include curriculum coordinators. About 18 teachers and 5 curriculum coordinators from Fairhaven, Global Learning Charter School (New Bedford), Plymouth, and Boston were selected to work with 10 New England ocean scientists from 6 research institutions.

In Boston where the Full Option Science System (FOSS) has been adopted within all 28 middle schools, the OSEI planning team, working with the Director of Science, identified two likely areas to integrate ocean science into trial classrooms. One team of 4 teachers and 2 researchers focuses on the 7th grade curriculum unit on "Diversity of Life" with the introduction of the world's most abundant organism, the copepod, and designing a mudsnail curriculum with the support of the New England Aquarium for trial classrooms this year and potential importation into all 7th grade classrooms next year.

The second team is working to design an eco-scenario to be used with the "Populations and Ecosystems" FOSS curriculum used in 8th grade. Currently not a single eco-scenario available for student research involves pelagic systems. An OSEI team is developing a marine eco-scenario on the Stellwagen Bank Marine Sanctuary.

The third and more general approach is the OSEI tri-district project for Fairhaven, the Global Learning Charter School and Plymouth. Twelve teachers, 3 science coordinators, and 6 ocean scientists came together to learn about earth science, life science and physical science within an ocean research framework. District teams work closely with ocean researchers to implement research related lesson plans into their school year.

Teachers have the opportunity to visit research labs, and researchers visit middle school classrooms as the ocean science curriculum is implemented during the 2004-2005 school year. All three teams will come together in December and again in May 2005 to report on successes and lessons learned during their yearlong foray integrating ocean science research into middle school classrooms.



Membership Application

May 1, 2004 - April 30, 2005



Please send this application and your check made out to MME to:

Massachusetts Marine Educators
c/o Joel Rubin
New England Aquarium
Teacher Resource Center
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Boston, MA 02110-3399

- I wish to become a member of MME New Renewal in the following category:
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|--|---|
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