

2011 NOAA Northeast Region Teacher at Sea Alumni Workshop Summary
October 22-23, 2011

NOAA Northeast Regional Office
Gloucester, MA

Jennifer Annetta, The College of Exploration/NOAA Teacher at Sea Program

The first NOAA Northeast Region Teacher at Sea Alumni Workshop was held on October 22-23, 2011 in Gloucester, MA at NOAA's Northeast Regional Office. Ten Teacher at Sea alumni from the northeast region attended a two-day professional development workshop in order to strengthen oceanographic content knowledge and build an alumni network in their region. Attendees were asked to create posters that explained their Teacher at Sea experience, thus leading to communication and sharing among colleagues. Two Maury Project instructional modules were taught, and speakers shared topics that demonstrated and imparted: ocean stewardship, ocean content knowledge, and science-driven policies and regulations.

Workshop Goals:

The goals of the workshop are aligned with selected NOAA Teacher at Sea Program goals. Goals are also based on research cited in *The Federal Inventory of STEM Education Investments Survey*. In summary, the goals are to enhance teachers' science content knowledge and begin to build a network of alumni in the northeast region.

Short-term Goals (Skills and Knowledge)

Teachers will:

- Understand how NOAA oceanic and atmospheric research is linked to National Education Science Standards and Ocean Literacy Principles. (Maury Project modules)

Mid-term Goals (Behavior and Action)

Teachers will:

- Use NOAA data and resources in classroom activities. (Poster presentations/lessons, NOAA Fisheries brochures and presentations, NOAA posters)
- Use NOAA-related career information in classroom activities, when mentoring students and when working with colleagues. (Poster presentations, speakers, tour of the NOAA Fisheries NERO facility)

Long-term Goals (Social, Environmental, and Economic)

In support of NOAA's mission, the Teacher at Sea Program will:

- Build an understanding of earth system science among teachers and students. (Maury Project modules, speakers)
 - Model instruction of physical foundations of selected oceanographic topics and issues and explore ways in which these understandings and concepts can be incorporated in curricula.
- Build strong working relationships among teachers, emphasizing collective participation of groups of teachers.

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Main Workshop Components:

- Poster Presentations – Teachers prepared and shared posters describing their NOAA Teacher at Sea experience and how they translated that experience for their students, colleagues, and community.
- Maury Project Modules – *Measuring Sea Level from Space* and *Wind-Driven Ocean Circulation*. Each module was structured in the following manner:
 1. hands-on content demonstration
 2. pre-content knowledge evaluation
 3. background information power point
 4. module instruction
 5. questions and answers
 6. post-content evaluation
- Speakers/Topics
 1. Colleen Coogan - NMFS, Northeast Regional Office: *How Science Informs Fisheries Management: The Science of Counting Fish*
 2. Ellen Keane – NMFS, Northeast Regional Office: Protected Resources Division – *Reducing Bycatch Through Gear Technology*
 3. Deborah Cramer – Author, Smithsonian Ocean: Our Water Our World: *Ocean Stewardship*
- Fisheries Myths and Facts – Ten national fisheries myths and facts: student and teacher perceptions.
- Alumni network round table discussion

Workshop Planning Team:

- Jennifer Annetta, Education Consultant - The College of Exploration/Alumni Coordinator - NOAA Teacher at Sea Program
- Elizabeth Bullock, Program Support Specialist – NOAA Teacher at Sea Program
- Kathi Rodrigues, NMFS Northeast Regional Office - Fishery Policy Analyst/BWET Program Manager

Advisors:

- Jennifer Hammond, Director – NOAA Teacher at Sea Program
- Elizabeth McMahon, Deputy Director – NOAA Teacher at Sea Program
- Marjorie Mooney-Seuss, NMFS Northeast Regional Office – Program Affairs Officer
- Peter Tuddenham, President/Executive Director - The College of Exploration
- Kristina Bishop, Vice-President/Academic Director – The College of Exploration

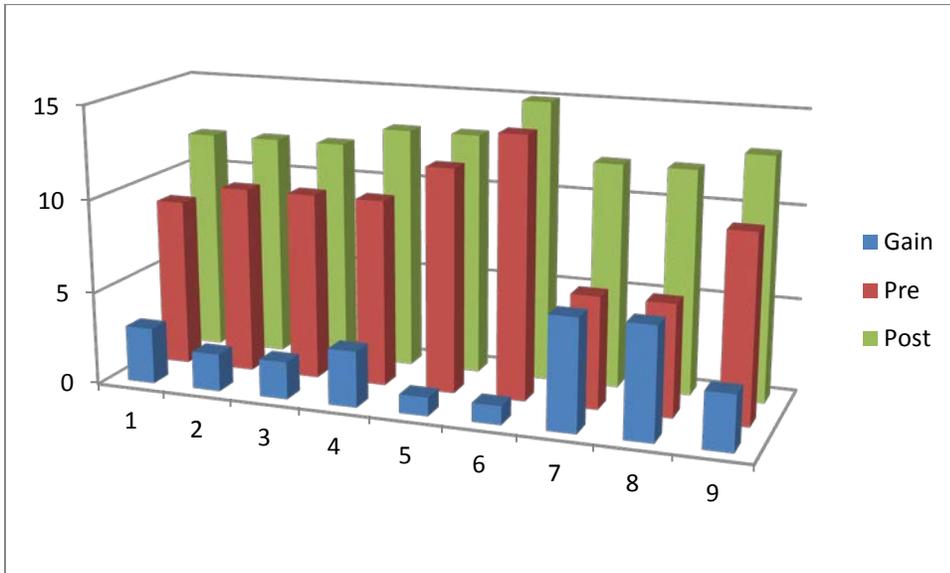
Participants:

- 10 Teacher at Sea Alumni from the Northeast Region
- 2 NOAA Teacher at Sea Staff, 1 videographer
- 3 speakers

Summary of Maury Project Pre and Post Content Knowledge Evaluations:

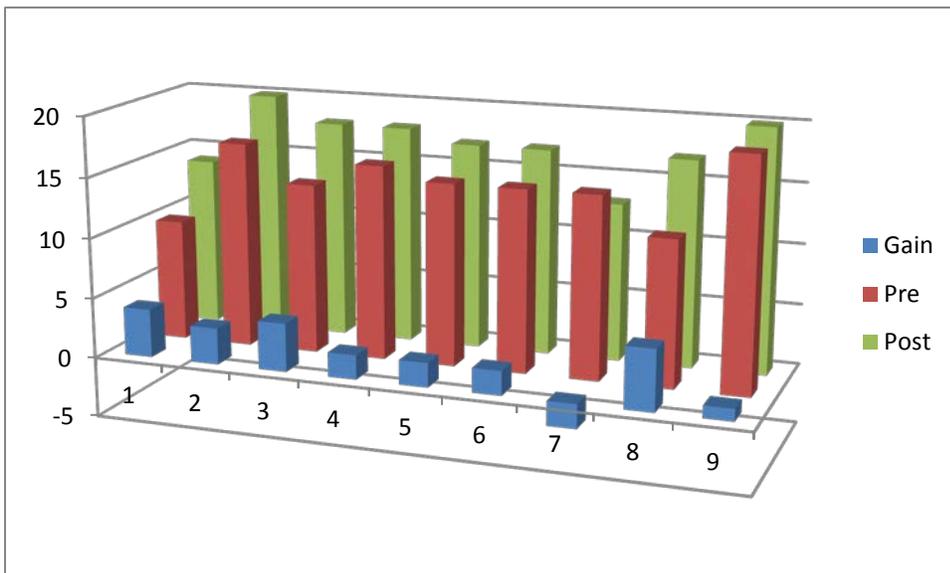
Measuring Sea Level from Space

The same pre and post-test were administered before and after module instruction. The test was comprised of fifteen multiple choice questions. Data shows that teachers had a good understanding of the module objectives prior to instruction, but still demonstrated a gain in knowledge after instruction.



Wind-Driven Ocean Circulation

The same twenty multiple choice questions were administered pre and post-instruction. Again, content knowledge was high prior to instruction, but gains were demonstrated post-instruction.



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Myths and Facts Document Comments:

Demystifying Seafood: Ten Top Myths and Facts Behind Them, a document that highlights ten of the more popular 'factoids' surrounding fisheries and sustainable seafood discussions, was distributed.

Teachers were asked to think about how their students would react to these myths and which of the ten items would be the most beneficial to use in their classroom.

- Provide a list of vocabulary words that you could go over with your class before they see the myth statements. Example: Teachers mentioned that "world capture fishery" would be difficult to understand and abstract for most of their students
- Many of the questions would have to be altered for an elementary audience.
- **Numbers 4, 7, 9, and 10 seem to be the myths that students could relate to well. These are questions that involve eating and purchasing seafood. Numbers 4 and 9 were said to be the most accessible to a wide audience.**
- Many students have not heard of Chilean Sea Bass.
- We need to say "Gulf of Mexico" because students in Maine would think "Gulf of Maine" if you just say "Gulf."
- The question about farming seafood might be good for high school.
- **Students have more of a local perspective of fisheries not global. Many students have parents or relatives who make a living from the ocean (fishing, clamming, aquaculture). They would not think that fish came anywhere other than from their families and that there is no way that fish would run out.**

Overall Workshop Evaluation (October 22-23, 2011):

An overall evaluation was given at the end of the workshop in order to measure how well the workshop objectives were met and to provide teacher feedback on various workshop arrangements.

	Excellent	Good	Adequate	Poor
Overall Workshop	100%	0%	0%	0%
Quality and usefulness of the materials distributed	100%	0%	0%	0%
Relevance of workshop to work/professional development	80%	20%	0%	0%
Ability of the workshop to meet the following workshop goals: Participants will learn physical foundations of selected oceanographic topics and issues and will explore ways in which these understandings and concepts can be incorporated in their curriculum	100%	0%	0%	0%

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Participants will define and outline the goals of their regional alumni network	90%	10%	0%	0%
Poster Presentations: usefulness and value of listening to presentations	90%	10%	0%	0%
Maury Project Modules: Gained content knowledge (Did you learn something new?)				
Measuring Sea Level from Space	100%	0%	0%	0%
Wind-Driven Ocean Circulation	100%	0%	0%	0%
Maury Project Modules: Usefulness in your classroom (Will you be able to adapt/use some/all of the module to fit your grade level?)				
Measuring Sea Level from Space	60%	30%	0%	10%
Wind-Driven Ocean Circulation	70%	10%	10%	10%
Speakers: Quality and usefulness				
Deborah Cramer: <i>Smithsonian Ocean</i>	90%	10%	0%	0%
Colleen Coogan and Ellen Keane: NMFS <i>How Science Informs Fishery Management</i>	70%	30%	0%	0%
Workshop Date	80%	20%	0%	0%
Workshop Location	100%	0%	0%	0%
Meeting Room Space	100%	0%	0%	0%
Food Quality	90%	10%	0%	0%
Hotel Accommodations	100%	0%	0%	0%
Communication Prior to the Workshop	100%	0%	0%	0%

Evaluation Comments:

What was the most valuable part of the workshop?

- Deborah Cramer's presentation – it was moving, inspirational and personal. She made me rethink how to incorporate stewardship in my classroom.

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- So many! **Meeting other TAS participants and hearing firsthand about their experiences and also what they teach. Sharing strategies about the challenges of teaching. Feeling more connected to the NOAA TAS community, so it's not just a one-time experience, but an ongoing part of my life.** Deborah Cramer was inspirational and I feel privileged to have had an opportunity to hear her speech.
- **The Maury Project Modules. I will be able to easily implement them in my classroom. The poster presentations – to hear about each person's experience and various NOAA research projects. Deborah Cramer was inspiring.**
- **I really liked the poster session because I got to hear about the other experiences teachers had. It was also very useful to see how other teachers were applying what they learned in their classrooms.**
- Learning other lessons to use in class, meeting other TAS and seeing what and how they teach.
- Making connections with a group of outstanding educators.
- I really enjoyed and benefitted from interacting with other Teachers at Sea. I got great ideas to use with my students from the formal presentations and from the informal conversations. I appreciated meeting everyone and am looking forward to stronger connections.
- Putting faces to names-actually making a connection with other NE TASA's. I liked the published materials to take back to school.
- Having a chance to meet colleagues in a beautiful space with excellent food and wonderful companionship.
- The activities that I can take and use immediately in my classroom. Meeting people and hearing their experiences.

How could the workshop have been improved?

- More outdoor time
- Go down to the pier and talk to an actual fisherman.
- One outside activity taking advantage of being in Gloucester.
- Working lunches or only 30 minutes for lunch. Starting at 10 am and ending at 3 pm would be ideal. This also gives us time to explore the area we are in and plan for dinner.
- Something outside.
- I would have liked to hear each person present their posters. I spent a lot of time on mine and I am sure other people did as well.
- **I love the idea of adding a field-based activity or some other way to experience the local resources.** An hour trip to a beach for example.
- Add another presentation or lessons. It really was powerful and invigorating.

What other topics would you like covered in future workshops?

- Ecology as it pertains to our oceans
- **Sharing activities, connecting with research scientists**
- I like the oceanography activities – one area I am weaker in.

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- Deep sea, coastal change (erosion- especially relating to RI beaches), tagging programs and why they are used.
- Science content inquiry activities
- More hands-on , ready to go, science activities, science content
- Marine mammals (necropsy lab @WHOI), estuaries/salt marsh, maybe go out on water with a scientist or engineer
- Anything that I can take back with me and run in the classroom is awesome.
- More on weather and atmosphere.

Other comments:

- **This was such a great weekend! It was nice to finally meet everyone. I am taking so much information back with me!**
- Thanks! I loved this!
- Thank you. This weekend was really beneficial and the treatment we received as participants was wonderful.
- Great weekend.
- Wow! This was great. A little more free time to explore would be great.
- I would like to see more encouragement in collaborating with our research team from our ships.
- **I was nervous about the poster presentation and didn't know what to expect. Having done this, I feel like I might be able to do it somewhere else. For a teacher, I am ridiculously shy about public speaking!**
- Thank you for another fabulous TAS experience.

Building a Northeast Region NOAA Teacher at Sea Alumni Network:

Teachers had the opportunity to discuss their alumni network. They were given focus questions and then participated in a round table discussion and brainstorming session.

Focus Questions:

- How do you feel about meeting in person for this type of workshop? Would you rather meet through webinars or online?
- Would you like to have other in person workshops?
- What kind of content would you like to see in future workshops?
- What other elements would you like to see incorporated in your alumni network?

Alumni Network Discussion Comments:

- **Teachers unanimously supported the idea of a future in-person workshop over a weekend.**
- **Teachers would like to incorporate a field experience, time with a scientist, and time with local people during the workshop.**

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- Online materials, webinars, and courses are convenient but it's hard to interact with the instructor or other students. These can be used to supplement an in-person experience.
- For webinars, they are best if they are not time-specific and you can complete the webinar when it is convenient for you.
- **One teacher mentioned that without something like this workshop, you feel like your experience ends, so it's nice to have the support to continue with NOAA. Sometimes it's hard to know if you're even allowed to speak for NOAA at conferences without getting support from the headquarters office.**
- The teachers liked that they were given two solid activities that they can take back home. That's really valuable.
- One teacher said that at conferences sometimes you're presented with many different wonderful ideas but they're all too expensive to implement. The Maury modules were not like that because they're really easy to bring directly back to your classroom and require cheap materials.
- **Possibility of a Share-a-Thon format where many teachers bring activities and there is time built into the workshop to present them. Or a new teacher each time could bring a new lesson plan to share with the group and then there could be a field experience that relates to the lesson.**
- It would be nice to have a place to share lesson plans. Could this happen through either Google Docs or The College of Exploration?
- Teachers said that they don't know how to make connections with NOAA in their area.
- For the next workshop, teachers would like to be able to extend an invitation to their principals. Even if they don't come they would at least be aware of all the work that goes into it.
- In the future, could teachers have a continued connection with the scientist they worked with on the ship? Teachers would like to know where the projects went after they left the ship. The scientists get a lot out of this relationship as well.

Next Steps:

Based on the success of the first regional alumni workshop, a future alumni workshop is proposed. There was an overwhelming opinion by northeast alumni to reconvene in the spring. Teachers liked the idea of meeting at Woods Hole and would like to see both a field experience with a scientist and resources that they can use in their classroom. Additional topics and speakers will be explored.

- NOAA Northeast Region Teacher at Sea Workshop at NOAA's National Marine Fisheries Service Northeast Fisheries Science Center in Woods Hole, MA in the spring of 2012
- Contact NE TAS Alumni in January to see which spring dates work the best for everyone.
- Research potential scientists and field experiences that would be applicable to a wide audience of teachers (grade level, subject area).

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- Assign teachers to create or rework lessons/resources that are related to the field experience that is selected.
- Discuss other topics and speakers with NOAA TAS team.