NOAA’s Teacher at Sea Program

2013 Year in Review

December 2013
NOAA’s Teacher at Sea Program
2013 Year in Review

Overview
- 2013 NOAA Teacher at Sea (TAS) Season Snapshot
- Return on Investment
- Future Opportunities
- Background Material

“In addition to introducing me to the process of hydrographic surveying, I felt that the diversity of experiences I had was very enriching. I didn't just learn about the science, but got to participate as part of a research team and felt like I was contributing productively to the process.” - Rosalind Echols, TAS 2013
2013 Snapshot

By the Numbers

- Teachers sent to sea: 35
- Days at Sea: 520
- Research Hours: 6200
- States represented: 24
- Active Alumni: 300+
- Outreach events: 25
- Science blogs: 200
- Graduate Credits Awarded: 16
- Teachers placed lab & field (pilot program): 8
- Media (articles, radio, TV): 65

“I did not see the ocean until I was an adult and although I live by lakes, I couldn’t fully grasp its importance and power until this [research] experience.” – Bill Lindquist, TAS 2013
2013 Teacher at Sea Class

[Map of the United States showing the number of participants from each state.]

NOAA’s Teacher at Sea Program  December 2013  http://teacheratsea.noaa.gov
2013 Return on Investment

Program Operations

- 35 teachers sailed on NOAA research cruises
- Teachers represented 24 states and every grade level
- Teachers worked side-by-side with NOAA scientists equivalent to 520 days at sea or 6200 hours
- 100% of the 2013 teachers who sailed completed post-cruise survey stated:
  - They benefited from participating
  - They would recommend the program
  - They were very satisfied with their research experience

NOAA’s Teacher at Sea Program is competitive and had 220 teachers apply for the 2013 season. All applications were peer-reviewed by a 70-person selection committee, and over 70 scientists volunteered to host and mentor our teachers.
2013 Return on Investment

Web & Social Media Communication
- Launched a new lesson plan search feature - searchable by topic, grade level, geographical region, and teacher
- 400,000+ visitors to the TAS website
- Managed content of 200+ science blogs
- Managed ~12,000 free for public photos
- Doubled number of Facebook “Likes” and reached ~5,000 people each week
- Increased Twitter followers by 55%

“It has allowed me to expand my horizons outside of the classroom and give first-hand experiences to my students. I feel that it is important that we ‘practice what we preach’ and this experience will allow me to do just that. I gained a great appreciation for NOAA, not just in fisheries science but the NOAA Corps as well.” - Jennifer Petro, TAS 2013
2013 Return on Investment

Web & Social Media Communication

- Implemented responsive design - retrofitted website to respond to any device
- Maintained and developed creative social media and web campaigns to lead people to blogs and photos
  - Published over a year of “Photo of the Week” photos – provides science info about NOAA research at sea
  - Launched a new web and print “Did You Know” educational product – interactive images and science content from blogs

Elizabeth Eubanks (TAS 2007) has a Smart Board in her classroom and uses the “Did You Know” product each day to engage her 8th grade students in a conversation about real-world scientific research.
2013 Return on Investment

Teacher at Sea Alumni Activities

- Presented and worked at 25 education and science conferences (with approximately ~600,000 attendees) on behalf of NOAA
- Were mentioned in 65 media posts (articles, TV, radio, web, etc.)
- Produced 80+ lesson plans, 50+ presentations, 1,000+ photos
- Distributed 20,000+ TAS books and other NOAA education products
- Alumni earned 16 graduate credits

Yaara Crane (TAS 2013) and Elizabeth Bullock (TAS 2011) shared hands-on STEM activities related to their NOAA Teacher at Sea research cruise during the *Change the World: Science & Engineering Careers, a public STEM fair* (U.S. Representative Frank Wolf and the National Science Foundation) sponsored on September 28, 2013 in Dulles, VA.
Throughout the year, many of our alumni receive special recognition. For example, Michele Brustolon (TAS 2010) and her eighth-grade science students welcomed U.S. Senator Jeanne Shaheen, D-NH, to their school. After Ms. Brustolon presented at the Smithsonian National Museum of Natural History at the Scientist is In: Ask an Expert event, Senator Shaheen wanted to see first-hand what Ms. Brustolon was teaching in her classroom.

“I was really impressed to see them honor Ms. Brustolon. I really wanted to come down and find out what things she is teaching in class.” - Senator Jeanne Shaheen

Photos courtesy of Mary Schwalm, Eagle Tribune
Future Opportunities

- Expansion of program to include
  - Teacher at Sea
  - Teacher in the Lab (pilot phase)
  - Teacher in the Field (pilot phase)
  - Teacher in the Air (pilot phase)
- Leveraging alumni network to expand reach beyond classrooms
- Enhancing communication and outreach capabilities online
- Increasing external partnerships

“I received instant respect from the scientists and ship crew. They gave me the opportunity to participate right away and to be part of the team. The scientists, were very open to answering questions and took time to explain the value of the research and why they do what they do.” – Louise Todd, TAS 2013
A Teacher’s Perspective…

“My experience will help me show the kids at the Springs Nature Preserve all about how healthy oceans keep our desert healthy, and how they can grow up to be the scientists or ship crew members who protect our oceans.” – Emilisa Saunders, TAS 2013

“This experience gives teachers a better understanding of what the expectations are so we can help our kids work toward those things. We want to make our teaching meaningful and memorable for our students so they can apply today’s lessons in the future to solve problems.” - Marla Crouch, TAS 2013
“The TAS Program serves a critical role in the success of these AT [acoustic trawl] surveys. Not all positions on the Science Team need be filled by acoustically-trained fish biologists. A positive attitude and willingness to learn (along with a good set of “sea legs”) are all that is needed in the Fish Sampling Lab. In our 21 years of experience, we have yet to sail with a teacher who has not represented the best of their profession.

The value of the TAS Program to teachers, and their students and the public-at-large is well established. We would like to acknowledge and say thanks for the many positive benefits your Program has brought to our time at sea and our overall research efforts.”

- Douglas DeMaster, Science and Research Director, Alaska Region, NOAA Fisheries

“My enthusiasm for the experience and the subject matter are exponential. People have said as such when I have been telling them about the trip. This excitement will be apparent back in the classroom as well.” – Julia Harvey, TAS 2013
Background Material

“As a teacher and coach, education and teamwork are at the very heart of everything I do. The real education I received during our 16 day voyage surpassed a large majority of the education I received during my college career. Ultimately, it is that gift that everyone has given me that will be the essence that changes the lives of my students forever.” - Paul Ritter, 2013
# 2013 Teacher at Sea Class

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Subjects</th>
<th>Grades</th>
<th>School/Institution</th>
<th>School City</th>
<th>State</th>
<th>NOAA Research</th>
<th>Days at Sea</th>
<th>Ports</th>
<th>Ship</th>
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<tr>
<td>Boehm</td>
<td>Sarah</td>
<td>Science</td>
<td>4th, 5th, 6th</td>
<td>Community Day Charter Public School</td>
<td>Lawrence</td>
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<td>Crane</td>
<td>Yaara K</td>
<td>Science - General Chemistry, Science - IB Chemistry</td>
<td>10th - mixed 10-12th grade, 12th - mixed 11-12th grade</td>
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<td>Jefferson</td>
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<td>Marla M</td>
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<td>Renton</td>
<td>WA</td>
<td>Alaska Pollock Survey</td>
<td>06/08/13 - 06/26/13</td>
<td>Dutch Harbor, AK</td>
<td>Oscar Dyson</td>
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<tr>
<td>Culbertson</td>
<td>Britta</td>
<td>Science</td>
<td>8th</td>
<td>The Center School</td>
<td>Seattle</td>
<td>WA</td>
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<td>Cullumber</td>
<td>Sue L</td>
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<td>Scottsdale</td>
<td>AZ</td>
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<td>Susy</td>
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NOAA’s Teacher at Sea Program  December 2013  http://teacheratsea.noaa.gov
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<td>Melissa D</td>
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<td>Angela K</td>
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<td>04/29/13-05/10/13</td>
<td>Woods Hole, MA; Boston, MA</td>
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<td>08/10/13-08/25/13</td>
<td>Mayport, FL; Pascagoula, MS</td>
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<td>Haukebo</td>
<td>Sepp</td>
<td>Science; Knauss Fellow</td>
<td>Middle School</td>
<td>NM</td>
<td>Juvenile Salmon Survey</td>
<td>09/08/13-09/20/13</td>
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<td>Hubacz Jr</td>
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<td>San Diego</td>
<td>CA</td>
<td>Kona IEA</td>
<td>06/12/13-06/26/13</td>
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<td>Paul A</td>
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<td>Pontiac High School</td>
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<td>Sard</td>
<td>Katie</td>
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<td>Other - Family Programs, Other - One-on-one interpretation/interactions, Other - Museum tours, Other - Community outreach</td>
<td>Springs Preserve/Las Vegas Valley Water District</td>
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<td>Other - Youth Volunteers in 7th-10th grades, Other - General audience (includes adults and children)</td>
<td>Audubon Aquarium of the Americas</td>
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<td>Trimlett</td>
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<td>Berkeley High School</td>
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<td>Sanctuary Cruise - Applied CA Current Ecosystem Studies Cruise</td>
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<td>Greensboro</td>
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<td>Sea Scallop Survey</td>
<td>06/13/13-06/24/13</td>
<td>Lewes, DE</td>
<td>Hugh R. Sharp</td>
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1990 - 2013 Teacher at Sea Program
Snapshot

By the Numbers
- 650+ teachers sent to sea
- 7,800 days at sea
- 94,000 hours of research
- 30,000 science photos
- 1,300 educational products
- 2.3 million people reached
- 325,000 students reached
- 2,400 science blogs post
- 1,200 teacher-scientist partnerships

“This program enables educators to experience science... Increasing our understanding of science while acquiring new skills and knowledge, enables us to become better teachers.” – Heather Haberman (TAS 2011)
NOAA Teacher at Sea Program Goals

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.
• Understand the education and training paths that lead to NOAA-related careers.

Mid-term Goals (Behavior and Action)
Teachers will:
• Use NOAA data and resources in classroom activities.
• Use NOAA-related career information in classroom activities, when mentoring students and when working with colleagues.

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.
• Build a workforce for science, technology, engineering, and math careers.

Note: Goals were created using the Bennett Logic Model. External evaluation data indicates the Teacher at Sea Program is meeting its Short- and Mid-term Goals. More analysis is needed to evaluate Long-term impacts.
History & Status

A matrix program, NOAA’s Teacher at Sea Program is housed within NOAA Fisheries, receiving support from the Office of Marine and Aviation Operations and providing educational resources to all the NOAA line offices.

OMAO Years

- 1990: Established within OMAO by NOAA Corps Officer (LT Ilene Byron)
- 2003: OMAO hired program manager
- 2004 – 2007: Program in formative years

NMFS Years

- 2008: Program moved to NMFS for expansion
  - Teacher in the Lab, Teacher in the Field, and Teacher in the Air are being piloted
- 2011 - present: Program operating out of Fisheries Communications Office

Note: This timeline is subject to some change due to fiscal appropriation. Check the website regularly for updates to the schedule.
Operations

Call for Applications (October)
- Call for applications takes place from 10/1 – 10/31
- Eligible candidates include full-time Kindergarten through College teachers, as well as museum and aquaria educators
- Receive an average 200 applications per year

Selections (December – January)
- Applications reviewed by a panel of 50+ TAS alumni and NOAA employees
- Reviews follow rubric
- Number of participants determined by budget, but usually around 30
- Final selections approved by NMFS Deputy Assistant Administrator and applicants notified by March
Operations (continued)

Placement Process (February – November)

- Ship Placement – Teachers matched with cruise based on availability, research interests, and geographical preferences
- Training – Teachers must complete online training course prior to sailing
- Deliverables – Teachers must agree to a Statement of Work but prior to sailing (Standard, but can be modified)
- Travel – Program funds and arranges for participants (at least one month before cruise)
- Communication
  - With teacher (frequent)
  - With scientist (frequent)
  - With ship XO (frequent)
Partnerships

Internal
- Sponsoring NOAA Scientists and Offices
- NOAA Office of Marine and Aviation Operations
- NOAA Office of Education & Education Council
- National Marine Sanctuaries
- NOAA Corps and ships’ crew

External
- TAS Alumni
- University of St. Francis
- PolarTREC (NSF)
- Project Maury (USNA and AMS)
- Smithsonian Ocean Hall
- Cal Poly State University STEM Teacher and Researcher (STAR) Program