

## Ocean Sciences Educator's Retreat Minutes (OSER) – 13-14 September 2012

**The challenges many graduate programs in the ocean sciences are facing – resource limitations, proliferating successful diversity programs with constrained resources, integrating oceanography programs into earth and environmental science programs, and training the students to meet the challenges of tomorrow- were all discussed over the two days of OSER 2012.**

### ***1. Review of OSER 2010 Actions – Jim Yoder, Woods Hole Oceanographic Institution***

The actions resulting from OSER 2010 were:

- Formulate a white paper discussing how science is taught in the United States. (Separating out subject areas versus integrating them into one interdisciplinary program.)
- Develop generic oceanography recruitment materials and travel to “unconventional” conferences such as regional conferences that target minorities. Organize a workshop in which federal government employees, Historically Black Colleges and Universities (HBCU) professionals and others can attend to begin to build partnerships and networks of teachers, professors, and students.
- Explore methods and ways to bridge partnerships between HBCU/MIs with Majority Serving Research Institutions.
- Explore and inventory what is being done to engage families in the oceanographic community.

Jim Yoder briefed the group on the OSER 2010 actions. Woods Hole Oceanographic Institution hosted a workshop to put together messages about ocean sciences that will appeal to undergraduate STEM majors in order to get them interested in going into oceanography in graduate school. WHOI is also working on a brochure that will be printed to send to faculty working in minority serving institutions. This brochure will also be distributed at regional conferences to promote the field of ocean sciences as a potential career path, rather than one specific program or university. The brochure will be used at the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) Conference and also at the fall AGU meeting. The brochure is institutionally neutral and will promote the ocean sciences.

### ***2. Keynote Address – Mark Abbott, Oregon State University (via video conference)***

Mark Abbott gave a provocative and thought-provoking Keynote Address on the status of ocean science graduate education from an ecosystem perspective. He stated that there is a lot of pressure from administrators to graduate more PhDs, with little consideration of where they are going to get jobs. Furthermore, the students that are currently being admitted into graduate school are interested in a different education than those a generation ago; they are interested in solving very specific problems, in interdisciplinary education, and many are interested in pursuing careers outside academia. Because of these diverse interests Mark posed the question, are we properly training these students for their future careers? Additionally, the nature of the ocean sciences community is

changing. Limited budgets require faculty to work together on publications, which makes it difficult for universities to track the progress of individual investigators. Limited budgets require universities to be creative about how they educate their students, by providing distance learning opportunities and online classes. In summary, Mark proposed the following question throughout his presentation - In times of change in the ocean sciences, how are we going to adapt to best prepare our students for a different kind of education system and work force?

### 3. *Where we are: What the data tell us*

- *Historical Context – Mel Briscoe, Consortium for Ocean Leadership*  
Mel presented a meta-analysis of the past three decades of data collection. His presentation focused on general trends over the past 30 years, including the increase in enrollments of women over time, and the shift from the standard four oceanography disciplines to more interdisciplinary degrees being received. For example, women now comprise greater than 50% of the oceanography graduate population including applicants, those enrolled, and those who have been given offers. Great strides have been made in the past 30 years in increasing the number of women who attend graduate school in oceanography; however, retention of women with PhDs in the field is still low. Additionally, in the late 1980's, almost all graduate students in the field were enrolled in one of the four core disciplines with a small percentage characterizing themselves as "other". Today the "other" category comprises almost 50% of the field. Finally, the number of students graduating with PhDs has remained relatively stable, but the number of those graduating with Master's Degrees has not been stable, and seems to be increasing in recent years, raising the question that was a theme throughout this year's OSER: are we preparing these students for the careers they hope to pursue that are outside academia? Mel's presentation can be found [here](#).
- *Current Data Perspective: Graduate Students – Russ McDuff, University of Washington*  
Russ presented his analysis of the Academic Year 2011-2012 Graduate Student survey results. He concluded that less than 40% of incoming students continue into academia, yet graduate students are mainly admitted into institutions due to their intention to earn a PhD (with the exception of policy and conservation programs which are mainly MS programs). Does the academic culture reflect that 60% of students may need a different skill set? He also presented questions such as: Are faculty supportive of mentoring students that go into non-academic careers? Russ also posed the question: Are we meeting the expectations of our funders, NSF, NOAA, and NASA? What are the agencies' expectations when they fund a graduate student? Russ's presentation on the survey data analysis can be found [here](#).

Russ also mentioned his plans to move on from being the sole analyzer of OSER data within the next year. OSER staff is looking for those interested in being involved in the survey process. Hans will be assisting in analyzing the data in the

upcoming years, but if anyone else is interested in assisting him please contact Katie Horst ([khorst@oceanleadership.org](mailto:khorst@oceanleadership.org)).

- *Current Data Perspective: Faculty – Hans Vogel song, East Carolina University*  
Hans presented an analysis on the faculty data component of the survey. This is the first time the faculty data has been analyzed and presented. Hans noted that analysis was complicated because the questions and categories change each year and due to different types of responding units (schools, departments, centers, institutes, etc.) Hans' presentation on faculty in the ocean sciences can be found [here](#).
- *Complementary Survey – Mel Briscoe, Consortium for Ocean Leadership*  
Over the summer, the Consortium for Ocean Leadership surveyed ocean science graduate students, faculty, early-career employees, and employers to learn which professional skills were thought to be the most and least important for careers in academia and non-academia. The skills ranked were: research, teaching, technical writing, project management, non-technical writing, non-technical oral communications, community outreach, and how to review a proposal. The results are very preliminary and have not been made public. A draft publication can be found [here](#).

#### **4. Breakout Session 1**

Participants broke out into three parallel breakout groups and were asked to discuss the following questions:

- *DATA: What is the value of the survey? What do we want to achieve with the survey data? What are actions that will allow us to get to that objective? How do we get good data? What questions do we want the data to answer?*
- *GRADUATE STUDENT SKILLS: What are the competencies we want students to have when they graduate? What are we doing well (how do we know)? What are we NOT doing well (how do we know)? What can we offer to them that will be useful to them regardless of their career setting?*
- *TEACHING OCEANOGRAPHY: Are the four oceanography courses the wave of the future with regards to teaching? What evolution might we undertake in our curricula to prepare the student body we think we will have in 5 years (more diverse, more connected)?*

Summaries of the breakout sessions have been posted separately. They can be found [here](#).

#### **5. Successful Programs Panel**

- *Eric Riggs – Texas A&M University:* Eric spoke about Texas A&M University's program to retain Hispanic students in the Geosciences. He mentioned that many of the techniques used to bring students into the program are the same techniques used to retain them. In 2008 Texas A&M University's College of Geosciences set up a growth expansion target and hired an undergraduate recruitment director (Latino director), which Eric says has made a great difference. At TAMU, Geology and Environmental Science are popular among

Hispanics and some of these students go into the oceanography programs for a MS degree. The College of Geosciences' Hispanic representation is on par with the rest of the university. TAMU was just designated a Hispanic-serving institution. Eric also spoke about having a national presence in recruiting graduate students and using graduate students to retain undergraduates. Eric's presentation is posted [here](#).

- *Susan Lozier – Duke University*: Susan spoke about a community-wide program, called MPOWIR (Mentoring Physical Oceanography Women for Increased Retention). She pointed out that the community is investing a tremendous amount of intellectual time, and federal and university dollars, but is not capitalizing on women in the workforce. According to MPOWIR data, the biggest drop out among women is after they receive their PhD or serve in a postdoctoral position. MPOWIR has now been going on for five years and is interested in seeing how successful the program has been. In the spring of 2013, the program will be collecting data to quantify the success of the program, and compare that information to other fields that do not have a mentoring program for women in place (such as chemical oceanography). Of the established best practices for keeping women in the workforce, Susan mentioned that women need flexibility, but that they are currently hesitant to take advantage or ask for that flexibility in their workplace. Susan also noted that it is important to let young women know that they do not have to always have their 'foot on the accelerator'. They can continue their career at 50-75% at times in their life, which is better than stopping and returning to the field years later. For more information, see Susan's presentation [here](#).
- *Bill Ullman – University of Delaware*: Bill presented on his informal professional development seminar series that he hosts for graduate students at the University of Delaware. Seminar topics include: resume writing, networking, code of conduct (ethics), mentoring (how to find a mentor and be one), etc. Bill is struggling with how to define success in his program. He has many anecdotal comments that the seminar series has been helpful and has had many students come back to him with further questions once they are well-established in their career, but he continues to search for quantitative evidence that his program is successful. Bill's presentation can be found [here](#).

## 6. Breakout Session 2

Participants broke into three parallel breakout groups to discuss the following questions:

- *PROFESSIONAL DEVELOPMENT NEEDS*: What do you feel are the professional development needs of upper-level undergraduates, terminal Master's students, PhD students, and post-docs? Are the needs different with each of these levels? With and without academic aspirations? How can we better train students to meet these needs? What is the best method?
- *MENTORING*: Is there any value to a mentoring program, designed and implemented by the oceanographic community which collectively addresses issues of retention, career choice, and diversity? If so, taking MPOWIR as an example,

*how would you expand the program-include men, include women from other field of study, extend the size of the program with the focused still on women in physical oceanography?*

- *INCREASING RETENTION: How do we build community on campus and in the departments that increases retention and engagement for all students? How can the TAMU program be expanded to successfully retain students of all backgrounds?*

The summary of the breakout discussion is posted separately, and can be found [here](#).

**7. Working Groups Developed – Working groups were developed as a result of the conversations that occurred throughout the day regarding improving the OSER survey and planning for OSER 2014. Additional working group members are welcome; if you are interested please contact Katie Horst at [khorst@oceanleadership.org](mailto:khorst@oceanleadership.org).**

1. OSER Graduate and Faculty Survey - This working group focuses on improving the survey by thinking about the future design of the survey and further researching similar surveys (NSF, AGI, etc.) to reduce redundant questions.

Members: Russ McDuff – UW\*

Hans Vogel song - ECU

Linda Schaffner - VIMS

Eric Riggs- TAMU

\*Russ McDuff, along with Allison Miller will also work on contacting institutions that are missing one-two years of survey data in order to try and complete the current survey data.

2. Complementary/Community Survey Improvement - This working group will work to improve the community survey, as this was an initial, preliminary effort. The working group will more deliberately consider who should receive and complete the survey and investigate if the choices of professional skills needed are reflective of what should be asked.

Members: Mel Briscoe – Ocean Leadership

Susan Lozier – Duke University

Josh Mode - CARIS

3. OSER 2014 – This working group will plan the 2014 OSER meeting, to be held at the campus of Savannah State University.

Members: Matt Gilligan – SSU

Sue Ebanks - SSU

Jim Yoder - WHOI

Jim Sanders – Skidaway Institute of Oceanography

With assistance from Katie Horst – Consortium for Ocean Leadership

## 8. Miscellaneous Discussion

- The group discussed the possibility of creating a professional ocean science post-doctoral program aimed at providing PhDs with opportunities to gain professional work experience outside academia, and also outside marine policy (so as not to duplicate other existing programs such as the Knauss Marine Policy Fellowship).
- A best practices handbook for ocean education and mentoring could be useful to develop. [The Institute for Broadening Participation](#) has a handbook that is 100 pages long. Perhaps a similar hand book that is more concise could be useful for communicating these best practices.
- Development of a student oceanography organization was broached, as opposed to students joining already existing professional organizations. Concerns regarding who would lead such a group and what happens when students graduate were raised. Similarly, a “Student Sunday” program was discussed in Breakout Session 2, which could be held prior to large ocean science conferences, to give students a chance to network and attend professional development workshops.

## Meeting Attendees

Allison Miller	Consortium for Ocean Leadership
Anne McElroy	Stony Brook University
Audrey Trotman	NOAA
Barbara Wallace	BOEM
Bill Ullman	University of Delaware
Brian Taylor	University of Hawaii
David Naar	University of South Florida
David Smith	University of Rhode Island
Dennis Hanisak	Harbor Branch Oceanographic Institute
Don Boesch	University of Maryland
Eric Riggs	Texas A&M University
Hans Vogel song	East Carolina University
Jane Teranes	Scripps Institution of Oceanography, UCSD
Jill Karsten <i>via phone</i>	NSF
Jim Sanders	Skidaway Institute of Oceanography
Jim Yoder	Woods Hole Oceanographic Institution
Josh Mode	CARIS, Inc.
Katie Horst	Consortium for Ocean Leadership
Linda Schaffner	Virginia Institute of Marine Science
Louis Goodman	University of Massachusetts Dartmouth
Mark Abbott ( <i>via video conferencing</i> )	Oregon State University
Marlene Kaplan	NOAA
Matt Gilligan <i>via phone</i>	Savannah State University
Megan Davis	Harbor Branch Oceanographic Institution
Mel Briscoe	Consortium for Ocean Leadership

Mike Roman	University of Maryland
Ming-Ying Wie	NASA
Rob Wheatcroft	Oregon State University
Russ McDuff	University of Washington
Russell Hill	University of Maryland
Stephen Skrabal	University of North Carolina Wilmington
Steve Ackleson	Consortium for Ocean Leadership
Sue Ebanks <i>via phone</i>	Savannah State University
Susan Lozier	Duke University
Theresa Schwerin ( <i>via phone</i> )	NASA Earth Science Education and Public Outreach Forum