**Best Practices for Preparing Workforce & Transfer Students in Two-Year Colleges for Ocean Science Careers**

**ASLO Aquatic Science Meeting 2013**

**Addressing the Challenges – Carousel Activity**

**Topic 1: What can we do - Internships and Research Experiences? (Number of dots received is in parentheses)**

* Partner with ocean-related agencies and education centers for student volunteer experiences (10)
* Education on the Culture of research (7)
* Service Learning Opportunities or Research (6)
	+ Sea turtles
	+ Diamond back terrapins (turtle)
	+ Long-term Monitoring in your class (7)
	+ Replanting sea grass, mangroves, oysters
		- Restoration projects
* Community College Undergraduate Research Initiatives (CCURI) (Finger Lakes Colleges) partnerships and internship opportunities (5)
* Local research opportunities
	+ Research framework (3)
* Trust 2-year faculty to get grant funding (3)
* Professional student development training (2)
* Non-traditional/short term internships (2)
* Establish credit based internships and research projects (1)
* Internships for re-entry students (1)
* Marine Education and Communication Science/Outreach (k-12) Internships (1)
* Local aquaria (1)
* Maritime Museum
* Post REU opportunities at nearby institutions
* Participation in web-based remote instrumentation projects
* Work study opportunities for students involving research on and off campus
* Sea education association ship based scholarships to students
* REUs/DOE
* Flexible internships (1-credit or 3-credit), close to home, or…
* Student rely on public transportation – smart cars to get to internships
* Semester at Sea/Sea Semester
* Navy – Dolphin training

**Topic 2: What can we do - Homework and Assignments? (Number of dots)**

* Excel graphing real-time data (11)
* Students interview professional ocean scientists to learn pathways are not linear (5)
* Virtual field trip (5)
* Reflection about your field experiments (4)
* Symposium in virtual world (4)
* Group research project (3)
* Look up local facilities and answer questions on location, research, events, etc. (3)
* Final exam in public aquarium (3)
* Career Exploration – webquests, scavenger hunts, guided tours (2)
* How can your major relate to ocean science? (1)
* Webquest – directed assignment to investigate ocean career websites; with Alvin too (1)
* Invite guest professionals to speak in class or virtually (1)
* Google Earth (link on presentation) (1)
* Drifting buoy data, real data in class (1)
* Presentation on oceanographic topic (1)
* ASLO Extra Credit: Tell your teacher which talks you want them to go to via the ASLO program, teacher repeats back to you
* Hurricane tracking / you are a decision maker – what would you do?
* Online tutorials, certifications (e.g. Blue Ocean Institute)
* Journal – collection of current event articles and write-up
* Exposure to higher level publications and/or summary of these publications (e.g. Science Daily)
* Internships applications/Resumes/cover letters/mock interviews
* PowerPoint: Water treatment plants, sewage treatment, etc.; make “big” research quality poster

**Topic 3 – What can we do - In our classes? (Number of dots)**

* Analyze data to an extent (introductory) make observations and propose hypotheses (12)
* Leverage real-time data (AMS/NOAA Buoys; Buoy Data – estuaries and coastal) (10)
* Incorporate MATH! Into lab and in class exercises (7)
* Public lecture (guest) – Private lecture following w class only (5)
* Career panel – 1 day in class activity (3)
* Find and apply for internships (3)
* Incorporating student creativity in classroom concepts (1)
* Try to highlight technology and new fields in content lectures (1)
* Explore campus/local field trips (if no access to beach) (1)
* Field Trip – extra credit
	+ NOAA facility or vessel
	+ Chesapeake Bay – Waterman
* NOAA One – Webinars – Marine Sanctuaries
* Use tidal data
* NOAA lessons on Monterey site
* WAVES movie: Making the Call
* Guest speaker – artist – garbage patch
* Dissect article in popular literature (Yahoo, newspaper), look at comments section
* Local samples (e.g. sediments) to educate, emphasize, and shock!
* Engaging demos in class, use students in exercises, examples

**Topic 4: What can we do - Extracurricular activities? (Number of dots)**

* International Ocean Cleanup Day / Earth Day Trash Bash (7)
* Science Café/Pub (5)
* Local samples and data – analyze at lab (5)
* Terracycle (reuse or upcycle) – And $ fundraiser (5)
* Local Park, aquarium trip, local businesses (dive stores, marina, etc), college labs (4)
* Ocean/organism monitoring (ex. Sea turtle nests, alewives) (3)
* Partnering with local organization/volunteering; Citizen science (2)
	+ Docent/volunteering at Aquariums
* ROV in a bag (2)
* Ocean Careers Fair (2)
* Alternative Spring Break (2)
* Virtual field trips (2)
* Social media – Facebook/Twitter for careers, volunteer opportunities (1)
* Marine mammal/vertebrate (and occasionally invert) autopsies/ “CSI”
* Webinars
* Clubs: scuba, sustainability, outdoor
* Using trash from a beach clean-up as visual aid in their other classes
* Encourage neighbors to recycle

**Topic 5: What do faculty need to help them succeed in improving a student’s understanding of an ocean science career? (Number of dots)**

* Professional development to learn about current trends and non-traditional occupations (13)
	+ Like 1-week short course/workshop/attending ASLO
	+ Teacher training/Intern/Job awareness (Teacher at Sea)
* Clearinghouse of internet and lab resources (7)
* Equipment budget – where do lab fees (students pay for) go? – Fairness and recapture of lab fees (6)
* Media exposure – “Big Bang” for oceans (4)
* Guest speakers (4)
* Release time to develop curricula (3)
* Assignments and/or curriculum – college level (3)
* Professional development /workshops/networking (2)
* 2-year support faculty need professional development (2)
* Apprenticeships (2)
* Connection/Support with/by Industry (1)
* Continued contact with 2YC group, ongoing sharing of resources
* Administrative support – community partnerships
* Networking with local organizations, schools (guest speakers, visits)