

MATE Technical Internship Program

The Marine Advanced Technology Education (MATE) Center's technical internship program offers college and university students hands-on experiences in marine science and technology. Since the program began in 1999, MATE has placed 119 students in at-sea and shore-based internship positions. Fifty-six of those students have sailed on board UNOLS vessels.

In 2004, the MATE Center placed 18 student interns on research vessels, in laboratories, and with industry. Ten of these interns were placed on UNOLS vessels for 1-8 weeks; two interns worked on research vessels with the NOAA Fisheries Santa Cruz Laboratory and Oregon State University; and six students worked in shore-based positions ranging from the Moss Landing Marine Laboratories to the California Department of Fish and Game. Of the ten UNOLS interns, one student worked with the science party on the *R/V Alpha Helix* while the other nine worked directly with the marine technicians aboard the *Atlantis*, *Endeavor*, *New Horizon*, *Pelican*, *Seward Johnson*, *Walton Smith*, and *Weatherbird*.

Many of the students said that the cruises were the highlight of their year and felt they had gained hands-on experiences that will be invaluable to their future education and career decisions. For example, 82% of the students indicated an increased interest in marine science and technology and 91% said they had an increased confidence in working on technical problems as a result of their internships.

One hundred percent of the individuals who served as intern mentors also felt that the students had gained experiences during their internships that increased their employability, and all said they would be willing to mentor another intern. In addition, 75% of the employers who hosted interns said they would hire the intern as an entry-level employee.

This fall the MATE Center is submitting a grant proposal to UNOLS to continue funding of this very successful program. For more information about the program, including how you can get involved as an intern host, visit www.marinetech.org/careers/internships.php or contact Tami Lunsford at tlunsford@marinetech.org or (831) 646-4011.

MATE ROV Competition

The MATE Center and the Marine Technology Society's (MTS) ROV Committee partnered with the National Marine Sanctuary (NMS) Program to organize our third annual national remotely operated vehicle (ROV) competition for students. Thirty-four teams from high schools, home schools, community colleges, and universities from across the U.S. and Canada took part in the event, which took place June 25-27, 2004 at the University of California Santa Barbara (UCSB). UCSB's Marine Science Institute was the competition's on-campus host.

Teams registered to compete in either the advanced *Explorer* class or the equally challenging (but less technically complex) *Ranger* class. Both classes faced sets of tasks based on actual science and exploration missions taking place in our national marine

sanctuaries. These tasks included navigation, depth and temperature measurements, biological sampling, location and recovery of scientific equipment, identification of a shipwreck, and exploration of an unknown “mystery” reef.

Regional events

The top three teams from the following four regional events fed into the national competition’s *Ranger* class:

- ? Southern California ROV Fly-Off, organized by the Scripps Institution of Oceanography (SIO), the Birch Aquarium at SIO, and Mount Carmel High School, with support from the MTS-San Diego section and the University of California San Diego’s (UCSD) Jacobs School of Engineering. The event was held at UCSD.

- ? Texas Regional ROV Contest, organized by Alvin Community College, with support from the MTS-Houston section and held at the NASA Johnson Space Center’s Neutral Buoyancy Lab (NBL).

- ? New England Regional ROV Contest, organized by the University of Rhode Island’s (URI) Department of Ocean Engineering, supported by the MTS-New England section, URI’s Robotics Education and Research Institute, and Stellwagen Banks National Marine Sanctuary, and held at URI.

- ? Monterey Bay Regional Contest, organized by the Monterey Bay Aquarium and the MATE Center, with support from Monterey Peninsula College’s (MPC) Technology Preparation Program, Monterey Bay Aquarium Research Institute, the MTS-Monterey section, and the Monterey Bay National Marine Sanctuary. The event was held at MPC.

Explorer and Ranger – Who Won?!

The underwater mission scores in both the *Explorer* and *Ranger* class were close. In the end, it was the engineering and communication score – a combination of technical reports, engineering interviews, and poster displays – that distinguished the top winners.

Explorer

- 1st place – Carl Hayden High School (Phoenix, AZ)
- 2nd place – MIT (Cambridge, MA)
- 3rd place - Cape Fear Community College (Wilmington, NC)

Ranger

- 1st place – Cambridge Rindge & Latin School (Cambridge, MA)
- 2nd place – Avalon East School Board (Newfoundland, Canada)
- 3rd place – Team Orlando Robotics Club (Orlando, FL)

For the complete listing of awards, winners, and prizes see www.mpcfakulty.net/jill_zande/2004_rov_competition_winners.htm.

Enhancing the Experience

MSI arranged for speakers who complemented the science and technology theme and provided students with a connection between their own work and its applications in the real world. In addition, NMSP Director Dan Basta kicked off the opening ceremonies with a presentation that highlighted current sanctuary missions, and former NOAA OE Director Captain Craig McLean addressed participants during the awards ceremony. Captain McLean shared his experiences from NOAA's recent "Return to *Titanic*" mission, likening some of the stressful situations that he and the crew faced to the "challenges" that he saw a number of teams confront during the event.

Challenging Students to Develop Technology for both Sea and Space

Plans are underway for 2005. The MATE Center and the ROV Committee have teamed up with the Neutral Buoyancy Lab at NASA's Johnson Space Center to take students "from the depths of the oceans to the far reaches of outer space." *Explorer* class teams will visit Jupiter's moon "Europa" where they will establish a communications link to a remote science package, recover data probes, sample a pool of red fluid, and measure the temperature of a vent. *Ranger* class teams will be challenged to three "Olympic" events: 1) install a new "instrument module" on the Hubble space telescope; 2) cap a decommissioned oil well; and 3) repair a damaged telecommunications fiber optic cable.

Two more regional contests – the Hawaii Underwater Robot Challenge and the Florida Regional ROV Contest – will also feed into the 2005 national competition, and plans are in the works for regionals in the Great Lakes and Puget Sounds areas. Working with the NMSP and MTS, along with other interested organizations, the goal is to establish regional infrastructures and mentor networks that support regional contests across the country, allowing more students to participate in these exciting learning experiences.

For more information about the 2005 event, including how you can become involved as a competition sponsor or team mentor, visit

www.marinetech.org/rov_competition/index.php or contact Jill Zande at jzande@marinetech.org or (831) 646-3082.