MLTs sail on the high seas and explore the ocean’s treasures

By Allison Long, Associate Editor

What do you get when you cross a medical laboratory technologist with a submarine? A whole new perspective on clinical laboratory science. The seas abound with more than aquatic life; they offer new avenues of exploration for the practicing or aspiring MLT. For the medical technologist, exposure to an experience with the ocean — a voyage, an underwater dive, or a cruise — can mean much more than a change of scenery. It could be the doorway to a viable career, some volunteer adventures, or some continuing education options.

Technician Jane Boone has taken her talents to the sea. She spent 11 days on board the Atlantis in the Sea of Cortez as part of the Extreme 2000 research project, funded by Sea Grant, the National Science Foundation, the University of Delaware, and public-radio station WHYY. Boone is science laboratory preparator at Portland State University and has a bachelor of science in medical technology. She assisted the university’s Dr. Anna-Louise Reysenbach by preparing samples taken from the sulfide chimney of a hydrothermal vent.

On a typical day at sea, Boone would start the morning watching the launch of the submersible, Alvin. She would then work on samples until the sub resurfaced at 5 p.m., when she received a new batch of samples to process. “Getting the sub out of the water is quite a sight,” says Boone. She was equally awed at the sight of grey whales and sea turtles.

Her advice to anyone considering trying ocean research, “Go! It is a great experience. The work is incredibly interesting. You might get a chance to see new ocean creatures that have never been seen before.”

Researchers have discovered that a bacteria living inside a small byrozoan marine animal, (an invertebrate that reproduces by budding), may be a valuable source for a new family of cancer-fighting drugs called byrostatins. Other scientists are developing compounds from mangrove tunicates, or sea squirts, that show great potential as an anti-tumor treatment. The Sea Grant program has also funded research into the anti-cancer and anti-fungal properties of microbes found within the South Pacific’s coral reef sponge.

Volunteer for adventure

Another alternative education option is to volunteer for one of the numerous organizations that employ ocean-going vessels to deliver much needed medical services around the globe, such as Project HOPE. Using U.S. Navy medical ships, civilian and naval medical staff work side by side to provide humanitarian assistance worldwide.

Similarly, faith-based Mercy Ships delivers donated medical equipment, supplies, and services. Additionally, the group provides ongoing community-revitalization assistance in water sanitation, engineering, construction, and education, among other areas.

Lab Manager Colleen Conley has been with Mercy Ships for 11 years. At first, she volunteered for just three months and washed dishes in the galley. But she returned the next year and put her lab skills to work on the Anastasis based in Ghana. On board is a full-service lab “similar to a small hospital lab,” says Conley. Here, the lab staff operates microbiology, chemistry, immunooassays, serological testing, hematology, coagulation, and full-service blood banking, using the crew as donors. While training as a generalist is preferred at Mercy Ships, on-the-job training is common; and all skill levels and vocations are welcome. Opportunities to help and learn are always available.

Typically, when the Anastasis docks at a given port, 2,000 to 3,000 people show up for screenings. The only criteria to receive treatment is to have a condition that can be helped or improved. Conley describes one memorable experience when a 12-year-old...
old girl came to Mercy Ships with a large tumor on her face and neck that was literally suffocating her. She was brought directly to the ship’s lab where her CBC level was found to be 2.8. The ship’s healthcare team immediately administered transfusions and prepared the girl for surgery. With their help, she was free to breathe again.

“IT was a great thing to be involved in saving a life in that way with my lab skills,” says Conley. “You learn you really can be resourceful and learn a lot about every area of the lab.” Conley has no plans to leave Mercy Ships any time soon. In fact, she’s getting ready for the launch of their new ship, the Africa Mercy, in early 2007, which will travel to Freetown, Sierra Leone. “The new ship will need three full-time techs,” Conley notes. “An American company has contributed a huge amount of equipment and supplies,” she says, “so I am going to help install the equipment and train the new guy who will be coming in.”

On the high seas

Some folks are not able to shift into full-time employment in or on the sea. One innovative approach to enjoy the experience in a limited fashion is to sign up for continuing education (CE) cruise seminars. These classes offer a relaxed, yet stimulating learning environment.

University Learning Systems (ULS) programs include visits to exotic venues under the umbrella of the company’s ongoing “CE/CME at Sea” program. The Caribbean Princess will set sail on March 18, 2007, from Fort Lauderdale, FL, hosting the Eastern Caribbean Cruise and Seminar on board. The cruise will follow an itinerary that includes ports-of-call in the Antilles, the Virgin Islands, and the Bahamas. The ship holds 3,100 passengers and offers a variety of amenities, such as four swimming pools, two specialty restaurants, a spa, a gym, a golf putting green, a 24-hour Internet café, and an observation deck suspended 150 feet above the water.

The learning theme of this cruise is “Focus on the Brain: The Final Frontier” with up to 15 credit hours available. These particular courses are specifically targeted at pharmacists; however, CE credits may be available to other health professionals, and ULS is usually able to submit its programs to other state-licensing boards. Contact ULS at 800-940-5860 for more information.

CruiseMeetings is another CE alternative that employs the use of luxury liners. Continuing Education Inc., its parent company, will assist with accreditation needs upon request and also provide services for meeting management, planning and agendas, marketing, sponsors and exhibits, and travel arrangements.
“Infectious Disease” is the theme of an upcoming cruise seminar on October 7. A range of course topics are offered including emerging infections, MRSA infections, and bioterrorism, to name a few. Participants will board Holland America’s ms Oosterdam in San Diego and travel to various Mexican ports. Courses are held while the ship is at sea so that registrants have time to enjoy the sights in Cabo San Lucas, Mazatlan, and Puerto Vallarta.

This is only one of many continuing education seminars offered by numerous cruise-line companies, and there are many courses and destinations from which to choose. CruiseMeetings’ Hawaii cruise conference in September will explore legal issues in medicine, while a November cruise to the Caribbean will cover women’s health. Go to www.cruisemeetings.com, or call 800-926-3775 for more information.

More fish in the sea

New discoveries in technology are allowing scientists to explore more about the vast diversity of life that lies beneath the ocean’s waves. These new innovations will shape future directions in biology and biotechnology, as well as change the life of the lab technician. Whether it is earning continuing education credits in biology and biotechnology, as well as change the life of the lab technician. Whether it is earning continuing education credits in an interesting and conducive learning environment, exploring the depths of the ocean, or crossing the globe to deliver humanitarian aid, there are plenty of career-enhancing fish in the sea for a lab technician.

Editor’s Note: The following companies, among others, have provided equipment and supplies to Mercy Ships: Abbott Laboratories, Beckman Coulter, Dade Behring, Johnson & Johnson, and US Filter.

Past and present marine research projects with medical applications

- The limulas ameboycyte lysate assay, developed from the blood of the horseshoe crab, is now widely used to detect endotoxins in medical devices; sponsored by FDA’s Center for Biologics Evaluation and Research.
- Osteoporosis treatment derived from salmon is FDA-approved and marketed as Miacalcin.
- The use of hydroxyapatite from coral as a bone implant aid is FDA-approved and marketed as Pro Osteon Implant 500.
- Cryptophycins found in blue-green algae show promise in fighting prostate and breast cancer; sponsored by the National Sea Grant program at the University of Hawaii.
- Anti-tumor properties have been discovered in single-celled plankton called dinoflagellates; sponsored by the National Sea Grant program at the University of Rhode Island.
- Extractions of pseudopterosins from the Caribbean sea whip have anti-inflammatory qualities that may help treat arthritis and asthma; sponsored by the National Sea Grant program at the University of California’s Santa Barbara and San Diego campuses.