

# Science on the High Seas

by Bob Anderson

Learn by shipping out, you might say.

Cal Poly now has access to a 500-foot, \$200 million, ocean-going teaching ship, and Cal Poly students have made their first voyage.

The T.S. (training ship) *Golden Bear* is operated by the California Maritime Academy. But thanks to the academy's status (since 1995) as a campus of the California

State University system, the vessel promises to add an exciting new dimension to a state university education. And Cal Poly students were the first non-mariners in the system to go to sea on it.

Fifteen marine biology students and Professor Tom Richards sailed out of Vallejo last spring for a two-month Pacific cruise. After 14,000 miles at sea and stopovers at ports in Mexico, Peru, and Chile, they returned to the ship's Bay Area berth. They traveled as far south of the Equator as San Luis Obispo is north. They saw the sun rise over Easter Island and witnessed an Andean condor soaring. They set foot on the isolated islands where Alexander Selkirk, the real Robinson Crusoe, was stranded for four and a half years.

It was an experience filled with both the routine and the sublime. As part of the training ship's crew, the students had daily cleaning duty, formation on the "helo deck" at 0745, and yes, 24-hour military time along with khaki Maritime Academy uniforms for those formations. But also, in the dark of night, they watched luminous plankton glowing in the ship's wake and shimmering dolphins playing in the bow wave.

"The most amazing part [about it]," wrote junior Jenna Borberg in her journal for shortly before midnight, two days before docking in Acapulco, "is that you don't really see the dolphin, you see the bioluminescence surrounding it, and the dolphin glow[s] as it soar[s] through the water . . . [Three dolphins] traveled with us for I guess around five minutes, playing and jumping. The whole time I was in awe — my heart was beating fast, I had tears in my eyes, and a huge smile on my face. It was a magical experience."

Richards and his students were among the first to see El Niño brewing. They saw it at the top of the southeastern Pacific food chain: The few tuna they caught were starving.

In normal years, cold water brings an abundance of nutrients to the surface, where they sustain microscopic plants. Those, in turn, are eaten by tiny surface-water shrimp, then those by anchovies, then those by tuna. That all but stops during the warm upwellings of an El Niño.

"There we were," Richards said. "Right time. Right place." He said the *Golden Bear* was the first oceanographic ship to record those effects for this year's El Niño.

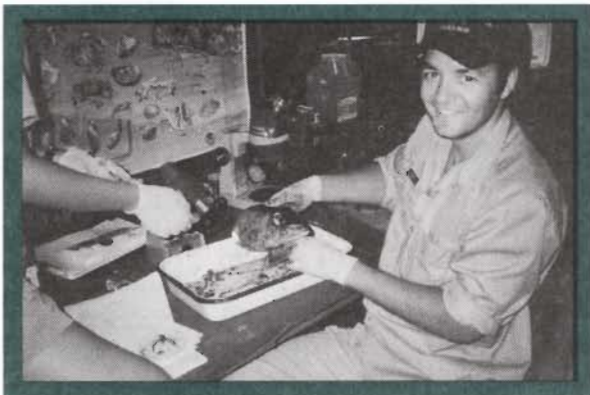


The  
**Golden  
Bear**



The Cal Poly crew plus one Academy cadet





**Let's hope it's not Charlie . . . John Powers dissects a tuna.**

"I could teach it while we were seeing it," he said. "I don't get that chance very often."

The academic focus for the *Golden Bear's* "science cadets" was the biology of plankton — the microscopic plants and animals that float on or near the ocean's surface — but lessons covered a broad spectrum, in both content and style. They heard lectures about weather, and they sailed through a force-8 gale. They heard a presentation on ocean pollution and saw garbage floating off a Mexican resort.

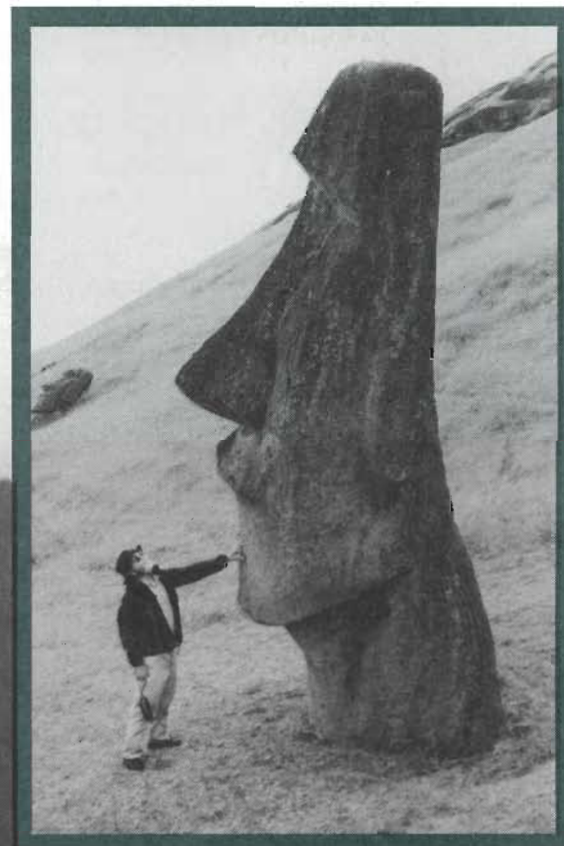
Each student was responsible for part of a researched presentation on a particular maritime topic. They also signed up for regular maritime cadet classes like navigation, shipboard emergency medical training, and diesel engine maintenance.

The California Maritime Academy acquired

the *Golden Bear* in 1995 from the U.S. Maritime Administration to replace a previous training ship. The formerly private institution has now drafted a plan to crew the ship half with its engineering cadets and half with other CSU students in ocean sciences, cultural studies, anthropology, and other disciplines.

Beginning in 1999, the opportunity could be available to as many as 120 CSU students on each of the ship's two annual cruises.

It was Cal Poly's reputation within the CSU that led the academy to invite Cal Poly to initiate the pilot program. Because of last spring's "superior" effort, Cal Poly has received the academy president's invitation to do it again this spring. The *Golden Bear* will sail to Hawaii, Australia, Japan, and Alaska with stops at islands along the way. Up to 15 Cal Poly students will be on board. **CP**



**Tom Richards on  
Easter Island**

**The *Golden Bear* in a bay  
off Robinson Crusoe Island  
in Chile's Archipelago de  
Juan Fernandez**