"Science Education Asea" follows the events of scientists onboard the R/V Melville.

The SEA Times

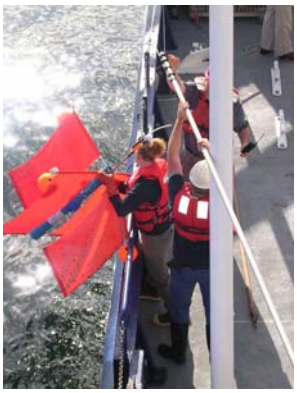
Current Location
Latitude 46' 0.01" N
Longitude -124' 0.25" W

SATURDAY, SEPTEMBER 10, 2005

Drifter Tracks Ocean Currents

BY TOM CONNELLY

10 km off Gray's Harbor, WA - A splash shatters the calm, glassy surface of the water. The R/V Melville accelerates to a steady ten knots, leaving behind a bright orange, floating object that slowly disappears into the fog.



Scientists have just thrown a "drifter" off the side of the boat, knowing they may never see this high-tech piece of equipment again. But the drifter was made to ride the wild seas on its own. By studying its path, scientists will learn more about how water moves in this region.

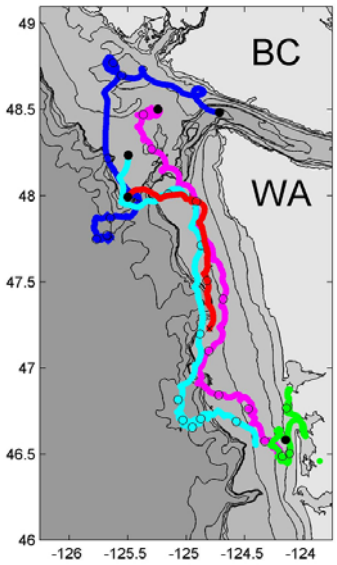
Our saltwater explorer has an important job: to drift with a large patch of Pseudo-nitzschia algae down the southern coast of Washington.

"Bleep." The small antenna on the top of the drifter relays its serial number and position to a satellite every half hour. A three foot long sealed tube below the antenna holds batteries and wires. Four sets of arms and legs hold floats and underwater sails that allow surface currents to push it in any direction.

Oceanographers on Melville receive messages from the satellite, while they continue taking samples and conducting experiments elsewhere. They mark the drifter's wobbly path on a map. The scientists who study ocean currents often send out several drifters at one time to see if a pattern appears. They compare this pattern to what they expected based on the wind, the tides and their knowledge of the region.

The drifter endures salt water, huge waves and curious wildlife, such as gulls and sunfish. Persistent summer winds drive it south until it reaches the mouth of Willapa Bay. In the mud flats of this estuary, razor clams feed on plankton brought in by a strong full moon tide. Teams on land are prepared to test for *Pseudo-nitzschia* and domoic acid. Since they monitor the beaches regularly, they will notice any changes.

Our saltwater explorer has an important job: to drift with a large patch of *Pseudo-nitzschia* algae down the southern coast of Washington. Some algae experts think that *Pseudo-nitzschia* becomes toxic at the end of its life cycle. If the drifter lands with an algal bloom on a beach, and the levels of domoic acid in the clams are high, their hypothesis may be correct.



Six hours later, the tide falls and the drifter sails back into the ocean. When and where it will land, nobody knows. ECOHAB-PNW drifters have been found and returned by lighthouse keepers, fishermen, beachcombers, and kayakers. Perhaps one day you'll come across one too!

From Surfing to Science

BY DEBORAH MCARTHUR

Tom Connolly has an interesting T-shirt collection that tells a lot about him. He wears a blue SeaLab shirt from a marine science program where he worked. A tan shirt says "Web of Life Field School" – another outdoor education program where he instructed. And Tom owns lots of cool surf shirts from his days as a surfing instructor.

The ECOHAB-PNW cruise is Tom's first assignment as a graduate student at the University of Washington. His advisor is chief scientist Dr. Barbara Hickey. "I'm looking forward to challenging the scientific part of my mind through research," he says excitedly. He also wants to get a PhD so he can teach at the college level.

"An enthusiastic teacher can change a student's life," Tom reflects. "My high school biology, physics and chemistry teachers really made science interesting and that's the turning point that brought me to graduate school today." During Tom's undergraduate education in Environmental Engineering at Stanford University, he designed wetland habitat as part of a restoration project, and enjoyed classes on fluid mechanics and renewable energy.

On the cruise, Tom works at Control Central monitoring the CTD Rosette. He also deploys and tracks the drifters. He recalls when a pod of orcas swam under the ship he was caught holding an unsupported GPS antenna. Luckily, he found a cable tie, secured the equipment, and was able to join the others watching the whales on the bow. Born and raised in Manhattan, New York and Philadelphia, Pennsylvania, Tom now lives in Seattle, Washington.

ECOHAB PNW is a 5-year multi-disciplinary project that is studying the physiology, toxicology, ecology and oceanography of toxic Pseudo-nitzschia *species off the Pacific Northwest coast. For more information, visit the ECOHAB-PNW website at: http://www.ecohabpnw.org.*

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