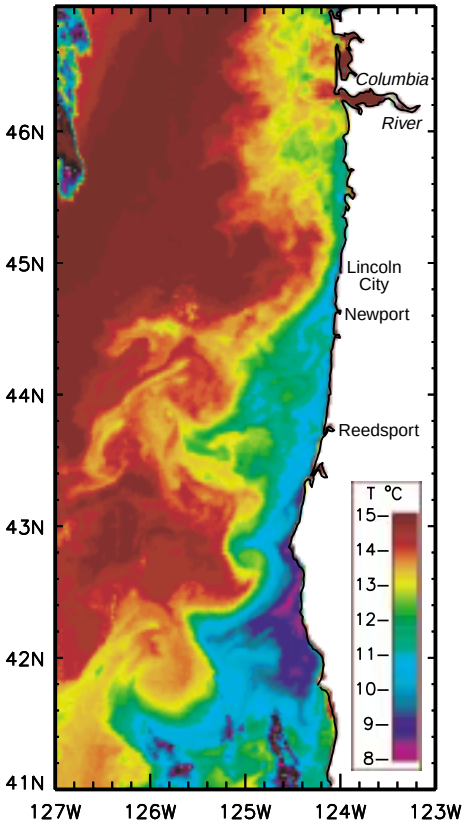
Introducing Research
in the
College of Oceanic & Atmospheric Sciences

OREGON STATE UNIVERSITY

Coastal Ocean Advances in Shelf Transport (COAST)

Ocean currents, temperature and biological productivity change with the seasons off the Oregon coast. Strong alongshore winds, to the south in summer and generally to the north in winter, create ocean currents. The strong summertime southward wind drives a swift ocean flow to the south, sometimes approaching 2 knots. These same winds cause cold, nutrient-rich subsurface water to upwell near the coast. The cold water leads to chilly days and occasional fog at the coast, but the nutrient-rich water combined with sunlight creates phytoplankton blooms in Oregon's coastal waters. A rich ocean food chain, zooplankton and fish, results from the coastal upwelling. Much is known about the north-south currents which carry material along the coast, but far less is known about the transport of waters across the continental shelf. Off the Oregon coast, wind and the topography of the ocean floor influence the east-west cross-shelf currents. Understanding and being able to predict wind-driven ocean currents and their influence on the chemistry and biology of the coastal ocean has major implications for assessing ocean ecosystem health, pollutant transport, and shipping and navigation.

A 5-year, National Science Foundation-sponsored project, **Coastal Ocean Advances in Shelf Transport (COAST)** is taking place off the Oregon coast during 2000–2004. The Oregon State University-led research team includes 19 principal investigators and over 40 other scientists, postdocs, research assistants, marine technicians and students. OSU researchers are working with colleagues from the University of North Carolina, Lamont-Doherty Earth Observatory and the Woods Hole Oceanographic Institution. During the intensive field efforts in summer 2001 and winter 2003, scientists will use two major research vessels, OSU's *R/V Wecoma* and the University of Washington's *R/V Thomas G. Thompson*, a twin-engine aircraft, and OSU's coastal vessel *R/V Elakha* to study the ocean off Oregon from Lincoln City to Reedsport. Measurements of water temperature, salinity, velocity, turbulence, phyto- and zooplankton content, and wind velocity will be made using state-of-the-art instruments. Complementing the ship- and aircraft-based work are six oceanographic moorings, strings of instruments between a surface float and an anchor placed in water depths of 50 to 130 meters. A land-based coastal radar system installed from Lincoln City to Florence measures ocean surface currents once per hour around the clock. Computer models of the atmosphere, ocean circulation and ocean ecosystem are being used to tie all the measurements together and to predict the effect of winds and currents on coastal ocean productivity.

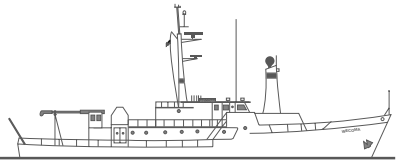


Sea surface temperature as measured by satellite on August 13, 1995.


The towed, undulating vehicle SeaSoar being recovered off the central Oregon coast.

For further information visit the COAST web site:
http://damp.coas.oregonstate.edu/coast
or contact Prof. Jack Barth at COAS
barth@coas.oregonstate.edu

*Funding for **COAST** is provided by the National Science Foundation Coastal Ocean Processes (**CoOP**) program.*



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