

New technology tested to aid forecasts of harmful algal blooms

On 25 September 2018, an autonomous surface/underwater vehicle called the Submaran S10, will be deployed on a test mission to sample seawater for harmful algal bloom (HAB) cells and toxins off the Washington coast. The Submaran is the first wind and solar-powered vessel built for extended surface and sub-surface exploration. The Submaran can sample under weather conditions that are too extreme for small boats, allowing for increased capacity to sample the Juan de Fuca Eddy, one of the known initiation sites for HABs off the Washington coast. The effort is contributing to the development of a NOAA Pacific Northwest HAB Bulletin, a forecast system that supports the management of shellfisheries, clamming beaches, and human health.

“The capability of the Submaran would greatly assist the HAB forecasting toolkit,” said Jan Newton, Director of the Northwest Association of Networked Ocean Observing Systems, NANOOS. “It has a ship’s flexibility to collect samples from any identified location of interest with a robot’s ability to operate in a wide array of environmental and physical conditions.”

The Submaran will be launched for two 1-2 day pilot missions where it will collect water samples and then deliver them to the Makah Tribe Water Quality Lab for analysis. Sampling water from otherwise difficult to reach areas known to be points of origin for HAB organisms (often called hotspots) can show early signs of a developing bloom and will enhance the PNW HAB Bulletin’s forecasting ability.

Data for the Bulletin are already collected by ships in offshore HAB hotspots in the Juan de Fuca Eddy and Heceta Bank, at beaches in Washington and Oregon, and from coastal moorings by state, tribal and federal partners. Additional information on HAB species and toxins is collected by the Environmental Sample Processor (ESP), a robotic instrument that is housed on a NANOOS-supported buoy located just south of the eddy. Computer models provide information about the location and intensity of the Columbia River plume, which can act as a barrier or facilitator for HAB transport to beaches. If the Submaran’s pioneering missions are successful, analyses of the samples it collects will be added to these information sources and shared via the Bulletin.

The Bulletin is distributed to state and tribal coastal managers, helping them safeguard human health from HAB toxins by opening harvests at beaches selectively and collecting additional shellfish samples (Dungeness crab, clams, and mussels) for testing when needed.

More on NOAA’s forecasting efforts for Pacific Northwest HABs can be found here: <https://coastalscience.noaa.gov/project/early-warning-pseudo-nitzschia-harmful-algal-blooms-pacific-northwest/>

Funding for this Submaran deployment was provided by NOAA’s Integrated Ocean Observing System program via the Northwest Association of Networked Ocean Observing Systems (NANOOS) - http://www.nanoos.org/products/real-time_habs/home.php.

This work is a collaboration of NOAA's Northwest Fisheries Science Center, University of Washington Applied Physics Lab (APL), NANOOS, the Makah Tribe, the Olympic Region HAB (ORHAB) partnership and OceanAero.

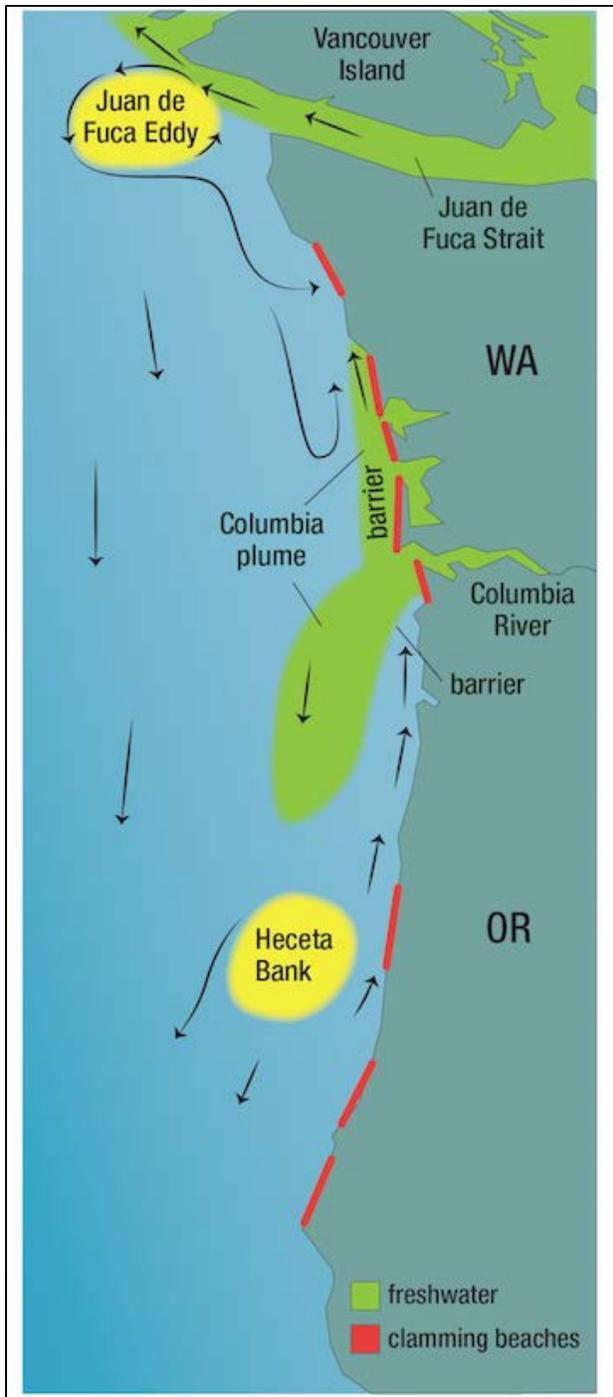
Contacts: Jan Newton (NANOOS) jnewton@uw.edu
Vera Trainer (NOAA NWFSC) vera.l.trainer@noaa.gov



Razor clamming can bring thousands of diggers to Pacific Northwest coastal beaches. The first public dig in fall 2018 will start on Oct 11. (Vera Trainer, NOAA Northwest Fisheries Science Center)



The Submaran (Neil Trenaman, Ocean Aero)



From the Pacific Northwest HAB Forecasting placemat (cartoon courtesy Barbara Hickey, University of Washington).