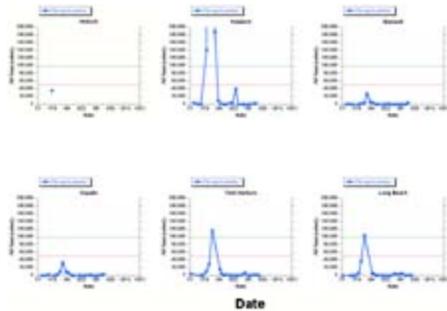


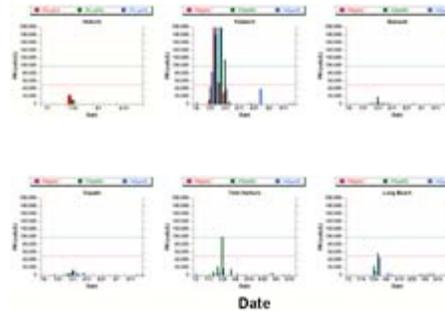
ORHAB Sample Sites



Pseudo-nitzschia Totals



Pseudo-nitzschia Species



Pseudo-nitzschia totals are subdivided into the following species groups identified by light microscopy - a/f/h (*P. australis/fraudulenta/heimii*), p/m (*P. pungens/multiseriata*), pd/d/c (*P. pseudodelicatissima/delicatissima/cuspidata*). Threshold levels of each group at which toxin testing is done are shown as a colored horizontal bar in the Pseudo-nitzschia species graph

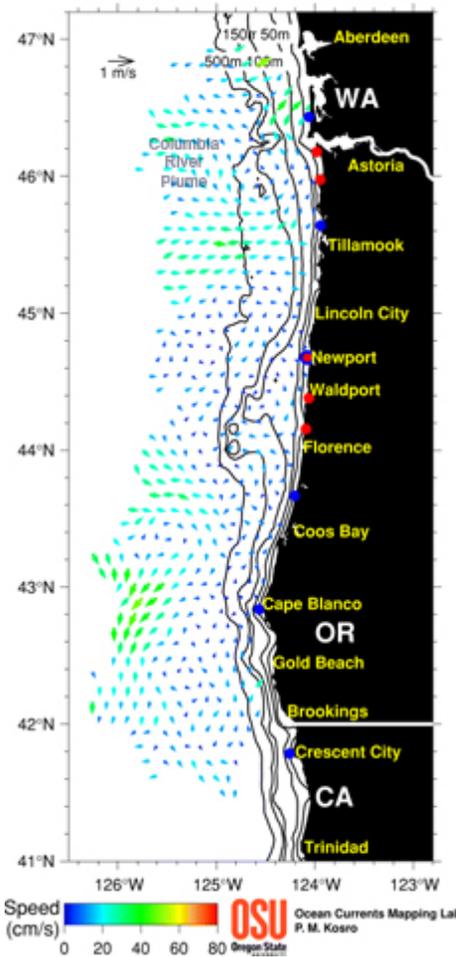
**Summary** – Pseudo-nitzschia spp. cell counts remain <5000 cells/L along the Washington coast. DA in razor clam tissue remains <1 ppm at all sample sites along the WA coast. Dinophysis spp. were spotted at Twin Harbors (4000 cells/L). Alexandrium sp. has been spotted at Twin Harbors and Long Beach since 9/19 with a high of 5000 cells/L at Twin Harbors. The Washington Department of Health reports PSP in shellfish tissue remains <38 µg/100g along the WA coast. Due to low cell counts, no further testing will be performed by ORHAB at this time.

After more than 2 weeks of sustained, upwelling-favorable (southward) wind conditions marking the first half of Sept, more recently we've seen the onset of fall with several storms of increasing magnitude. A satellite SST image obtained between the two storms (Sep 22) shows a well-developed, cold JDF eddy, but cold water is now largely absent nearshore along the WA coast. Modeled currents and SST still suggest a weak upwelling system, with a weakened upwelling jet and slightly onshore flow. Phytoplankton present in the surface waters offshore or originating from the Juan de Fuca eddy will be advected towards the coast.

**Forecast** – Moderately strong (~10-20 kt), northward winds are expected to persist until Sunday, with continued onshore transport of surface waters. Winds are forecasted to reverse briefly to upwelling-favorable conditions, however, a second (stronger) Pacific frontal system is expected early to mid next week.

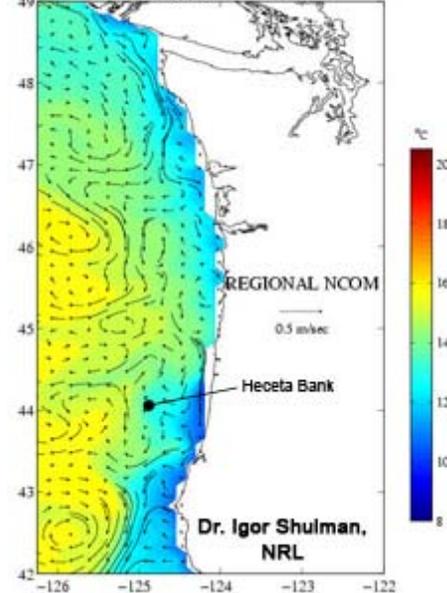
Surface Currents

2008/09/24

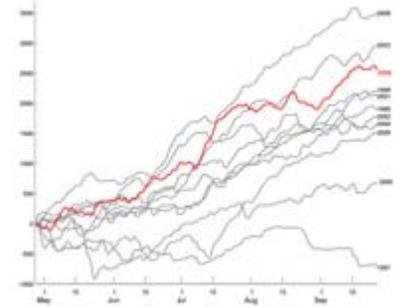


Modeled Surface Currents

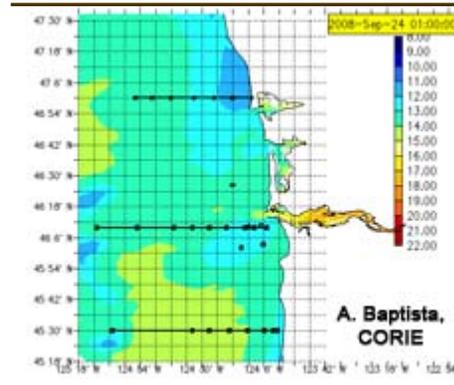
SST and Currents 21-SEP-2008 to 25-SEP-2008



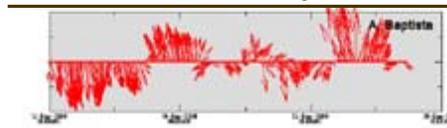
Cumulative Upwelling Index



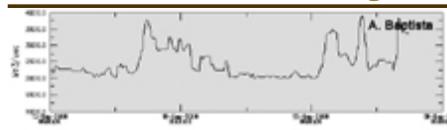
Columbia River Model Output



Winds - NDBC Buoy 46029



Columbia River Discharge



Weather Forecast - Ocean Shores

