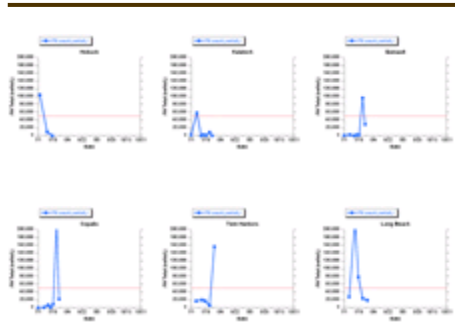


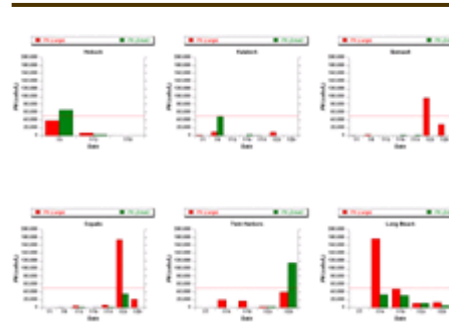
ORHAB Sample Sites



Pseudo-nitzschia Totals



Pseudo-nitzschia Species



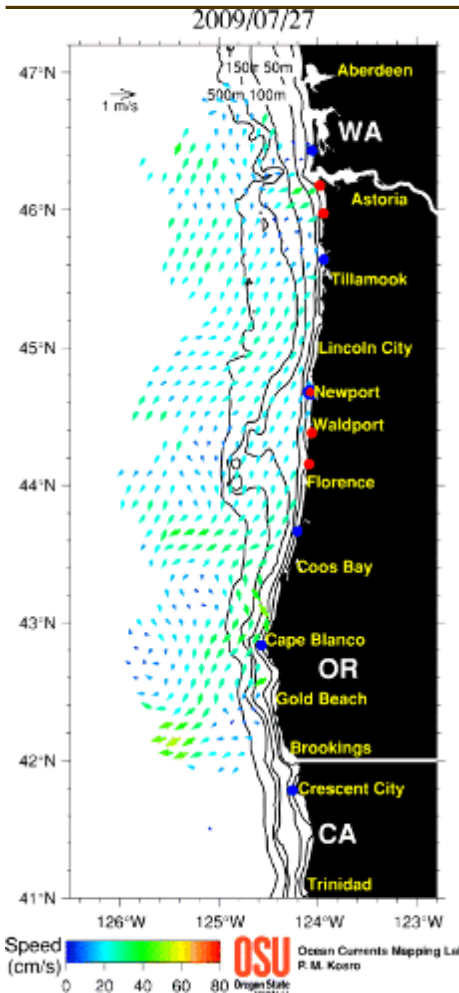
*Pseudo-nitzschia* (PN) totals are identified by light microscopy and grouped by PN Large and PN Small. The 50k cells/L threshold level for large PN that triggers toxin testing is indicated by a red line across the PN plots. (The trigger for toxin testing for small PN is 1 million cells/L)

**Summary** – *Pseudo-nitzschia* spp. cell counts are below the action level for all cell types along Washington's central coast. The highest level was found at Twin Harbors on 7/29 (156,000 cells/L). Toxin testing (ELISA) for the detection of particulate domoic acid (DA) in seawater revealed only very low levels from Long Beach north to MocRocks Beach. Quinault Beach was slightly elevated at 438 ng/L. Toxin testing in razor clams showed: Long Beach, 1.5 ppm (7/23), Copalis, 1.6 ppm (7/25), MocRocks, 1.6 ppm (7/25) and Quinault Res., 0.8 ppm (7/26). The current DA action level for shellfish closures is 20 ppm.

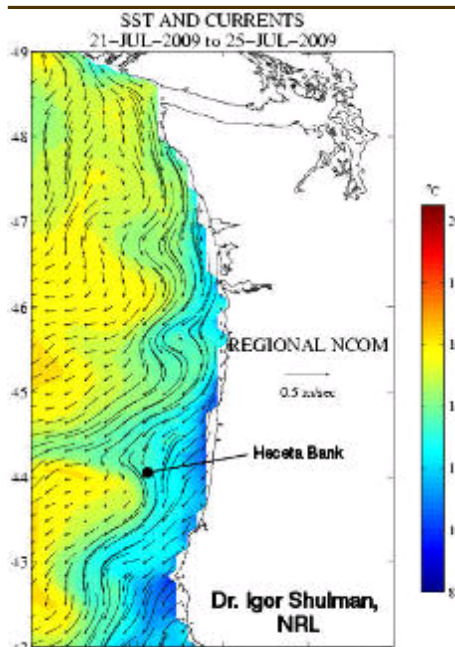
Upwelling favorable (southward) winds have prevailed since May, as shown by the increasing 2009 cumulative upwelling index. Winds in the past two weeks have been persistently upwelling favorable. Surface currents measured off the Oregon coast are southward and offshore, consistent with coastal upwelling. Model output shows the Columbia River plume directed southwestward and offshore, not influencing the Washington coast. In periods of persistent upwelling favorable winds and southward currents, the Juan de Fuca eddy is less retentive on its southern edge and phytoplankton from the eddy are generally advected southward over the mid to outer Washington shelf.

**Forecast** – A weak low pressure system is expected to move onshore, resulting in northward ~5-15 kt winds Thursday and Friday. Due to the weakness and short duration of the forecasted northward winds, the potential risk that toxic PN will be advected from offshore waters to the coast is low. Upwelling favorable winds are expected to resume Saturday and Sunday, keeping the probability low over the next several days.

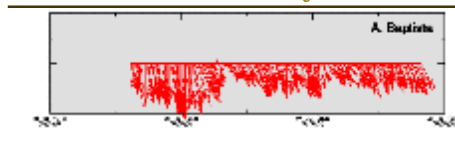
Surface Currents



Modeled Surface Currents



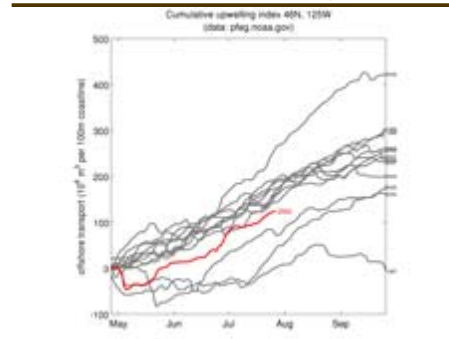
Winds - NDBC Buoy 46029



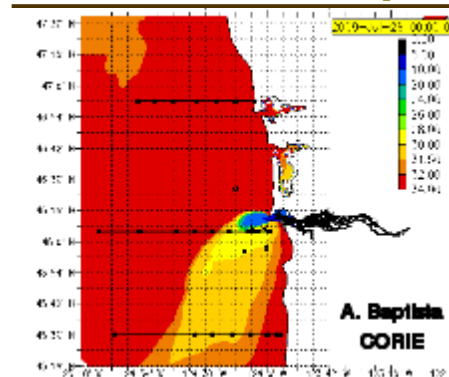
Columbia River Discharge



Cumulative Upwelling Index



Columbia River Model Output



Weather Forecast - Ocean Shores

