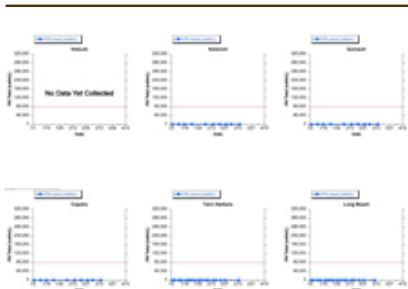


ORHAB Sample Sites



Pseudo-nitzschia Totals



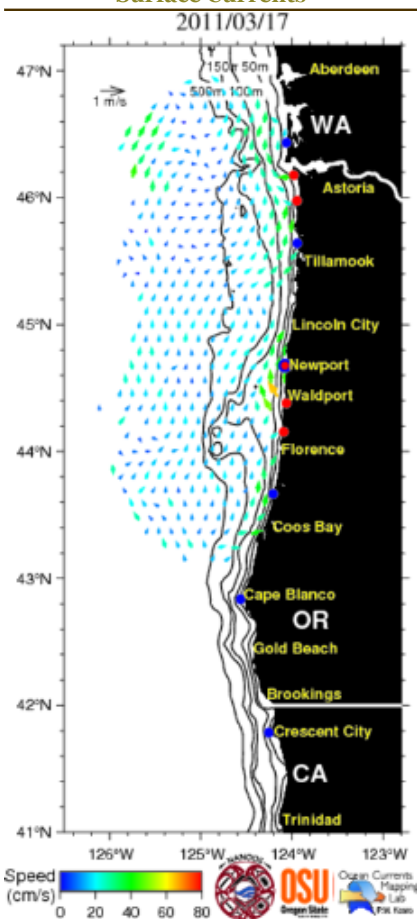
Pseudo-nitzschia Species



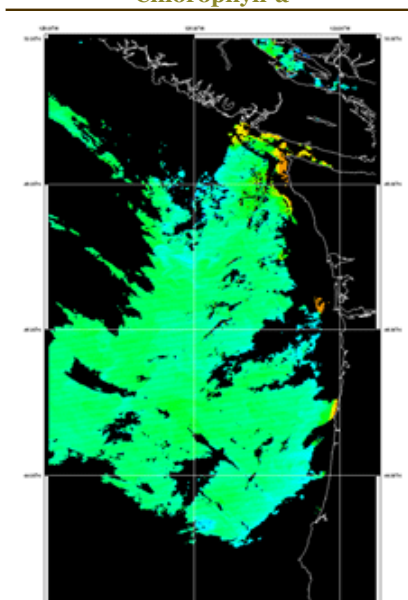
Pseudo-nitzschia (PN) totals are identified by light microscopy and grouped by PN Large and PN Small. The 50k cells/L threshold level for large PN that triggers toxin testing is indicated by a red line across the PN plots. (The trigger for toxin testing for small PN is 1 million cells/L)

Summary – No HAB species were detected in recent outer WA coast cell counts. DA levels in razor clams remain at ≤ 1 ppm and PSP levels in shellfish remain at non-detectable (NTD) or <38 $\mu\text{g}/100\text{g}$ according to WDOH. *Attheya armatus* and *Asterionellopsis socialis* are dominant in the WA outer coast surf zone. Very few other species are present in phytoplankton assemblage.

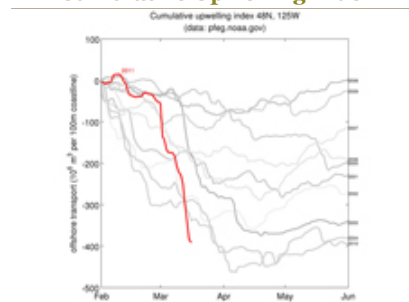
Surface Currents



Chlorophyll-a



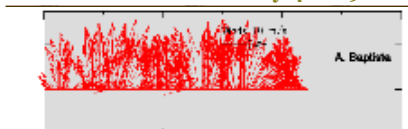
Cumulative Upwelling Index



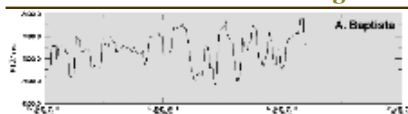
The month of March has been dominated by strong downwelling-favorable winds (northward, from the south) due to storms. Mapped surface currents and the modeled Columbia River plume are both directed northward and onshore. Satellite images from March 12 suggest that moderate levels of chlorophyll-a may be present along the coast.

Forecast – Downwelling-favorable winds are expected to continue through the weekend. Because there have been no southward upwelling-favorable winds in recent weeks, it is unlikely that phytoplankton species from the Juan de Fuca eddy region are present off the Washington coast. There is also the possibility that toxic species could be transported from a southern source off Oregon by northward currents at this time of year. Because of the number of recent storms, it is likely that any toxic blooms that might have existed off the Oregon coast would already have reached Washington – none have been observed.

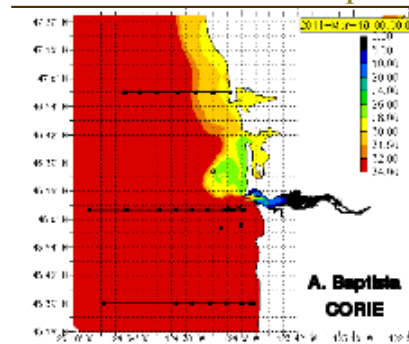
Winds - NDBC Buoy 46029



Columbia River Discharge



Columbia River Model Output



Weather Forecast - Ocean Shores

