



# Pacific Northwest Harmful Algal Blooms Bulletin

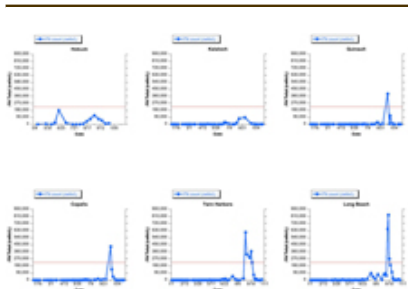
October 28, 2011



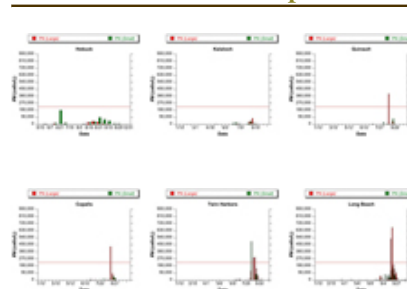
## ORHAB Sample Sites



## Pseudo-nitzschia Totals



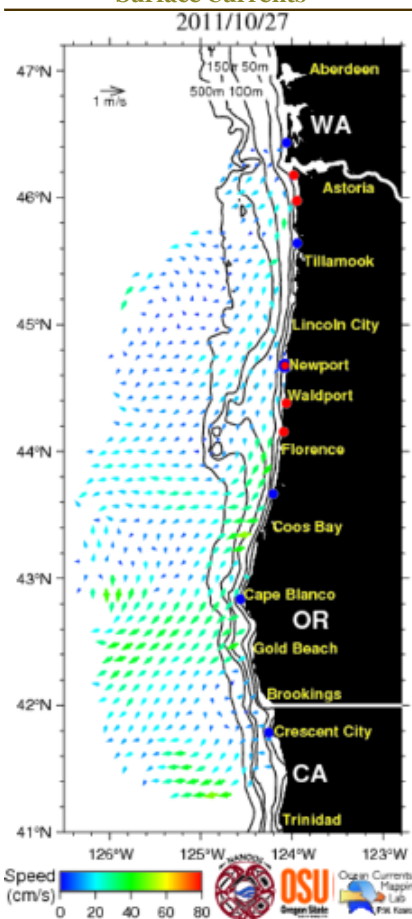
## Pseudo-nitzschia Species



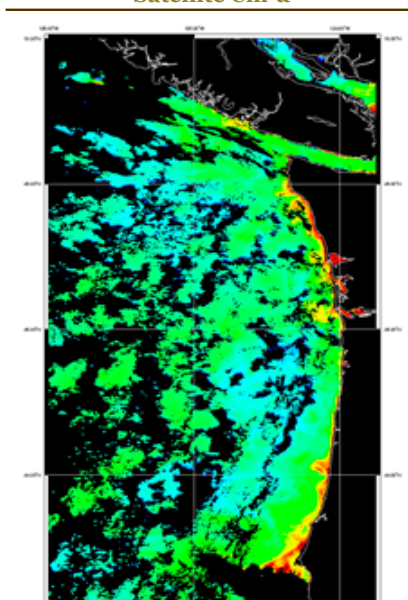
*Pseudo-nitzschia* (PN) totals are identified by light microscopy and grouped by PN Large and PN Small. The 50k cells/L threshold level for large PN that triggers toxin testing is indicated by a red line across the PN plots. (The trigger for toxin testing for small PN is 1 million cells/L).

**Summary** – *Pseudo-nitzschia* spp. cell counts remain extremely low in recent samples taken along WA outer coast. The highest cell counts in the most recent samples were found at Twin Harbors on 10/24 at 5000 cells/L of the small cell type. No other HAB species were observed in recent samples. DA levels in razor clams are ≤1 ppm along the outer WA coast. PST levels in shellfish remain ntd or <38 at all sites along the WA coast but remain elevated in razor clams at Twin Harbors at 49µg/100g on 10/20, according to the WDOH. A very dense nearly bloom *Attheya armatus* exists from Long Beach to Kalaloch Beach.

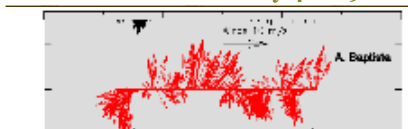
## Surface Currents



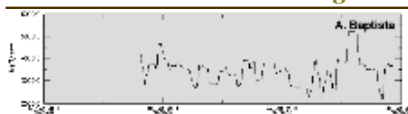
## Satellite Chl-a



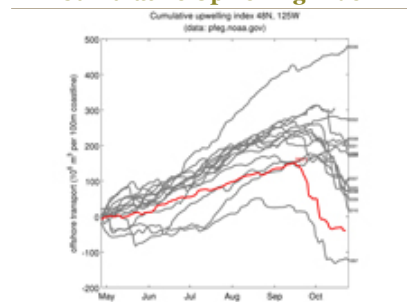
## Winds - NDBC Buoy 46029



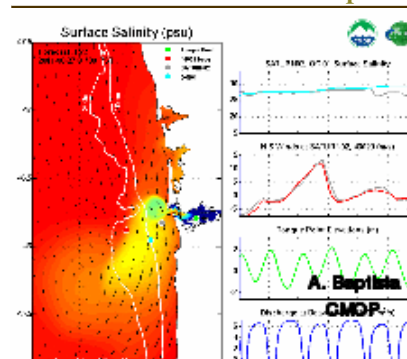
## Columbia River Discharge



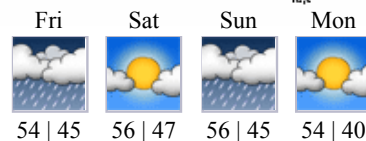
## Cumulative Upwelling Index



## Columbia River Model Output



## Weather Forecast - Ocean Shores



Although the fall season has started and winds have been primarily downwelling favorable since mid-September, there have been periods of upwelling favorable winds along the coast during the past week. Satellite derived chlorophyll-a does not indicate high concentrations near the Juan de Fuca eddy. Satellite sea surface temperature does not show a cool ribbon near the coast - high chlorophyll-a concentrations there may be a surf zone bloom or an artifact of sediment.

**Forecast** – Winds are forecast to blow from the south Friday-Saturday, with westerlies Friday night as a front moves through. On Sunday, winds are forecast to blow from the southeast. Although conditions are favorable for onshore transport, no HAB species are expected to be in the area.