

Pacific Northwest Harmful Algal Blooms Bulletin

Aug 18, 2025 HAB risk =

HAB risk key:

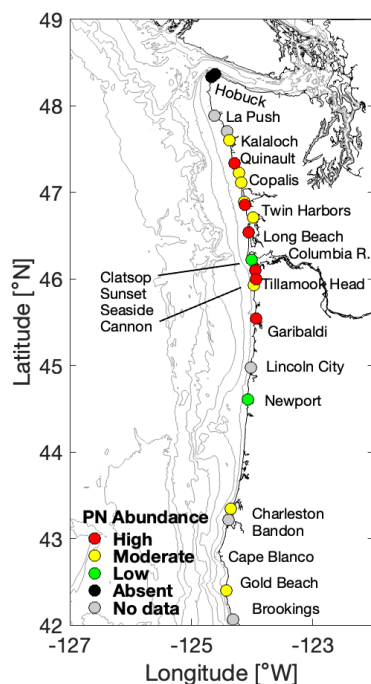
- = low
- = medium
- = high



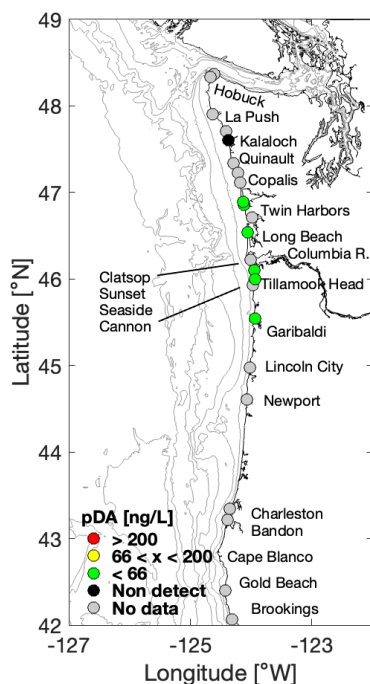
The statements, findings, conclusions, and recommendations do not necessarily reflect the views of NOAA or the Department of Commerce.

Beach Sampling

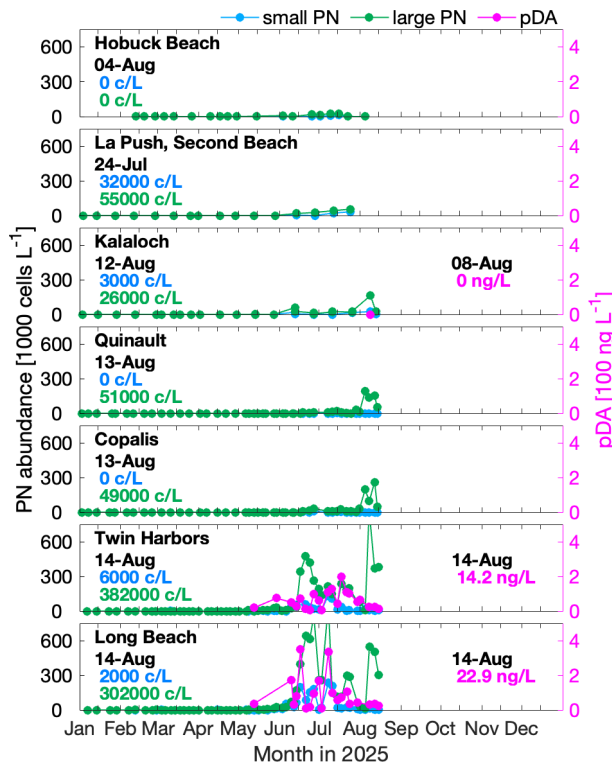
(*Pseudo-nitzschia*)



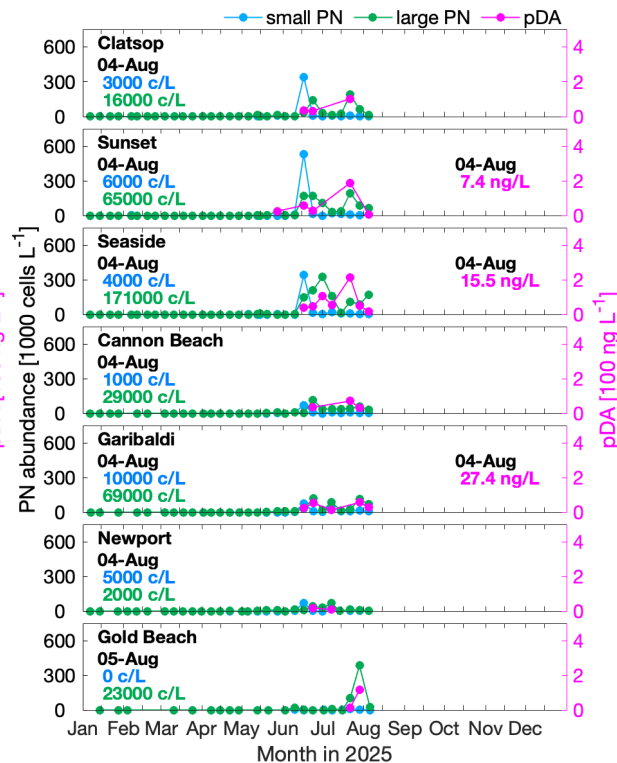
(particulate domoic acid)



WA *Pseudo-nitzschia* & Domoic Acid

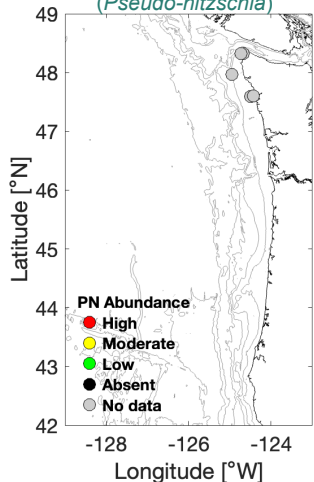


OR *Pseudo-nitzschia* & Domoic Acid

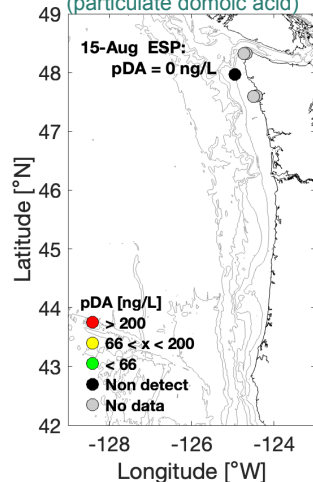


Offshore Sampling

(*Pseudo-nitzschia*)



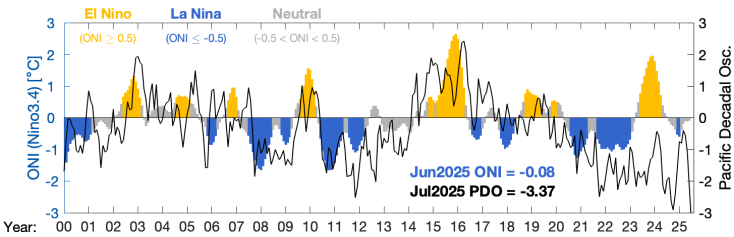
(particulate domoic acid)



Pseudo-nitzschia (PN) abundances are quantified for large and small cell morphologies using light microscopy. Threshold values: 50,000 cells/L for large PN; 1,000,000 cells/L for small PN; which trigger additional testing for seawater particulate domoic acid (pDA). Seawater pDA values >200 ng/L lead to toxin accumulation in shellfish such as razor clams. Sampling sites, colored by relative PN abundance (*high*: > threshold value for either cell morphology; *moderate*: > 1/3 threshold; *low*: < 1/3 threshold) and pDA, are shown in the upper left two panels. "No data" indicates that there were no data within the previous 15 days. Time series of PN abundance (cells per liter = c/L) and pDA at select beaches are shown in the upper right main two panels. Offshore samples (lower left) are collected and analyzed at ~2 week intervals during late summer/early fall. Additional samples are collected by a remotely operated Environmental Sample Processor (ESP) that is moored off La Push, WA, in late spring and late summer.

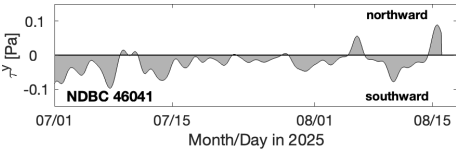
Decisions regarding shellfish harvest closures at individual beaches are made by the Washington Department of Health, the Oregon Department of Agriculture, and Coastal Treaty Tribes after measuring toxin levels in shellfish collected from each beach (WA [link](#); OR [link](#)), and not from the information presented here. However, the information presented here aids coastal managers in better understanding and predicting the onset, duration, and magnitude of toxin outbreaks as well as their impacts.

Pacific Ocean Indices



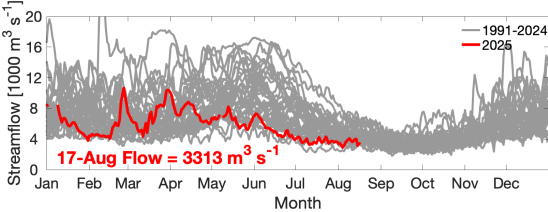
Research has shown that toxic HAB events off WA and OR tend to occur during or following periods of El Niño and/or positive phases of the PDO, when ocean temperatures are relatively warm.

North-south Wind Stress



Southward wind stress drives coastal upwelling that can lead to plankton blooms. Northward wind stress tends to push any existing offshore plankton and toxins towards beaches. In addition, summer/fall toxic blooms often occur in years with a moderate cumulative upwelling index (i.e. during years with fluctuating winds) rather than in years with sustained upwelling or downwelling winds.

Columbia River Discharge



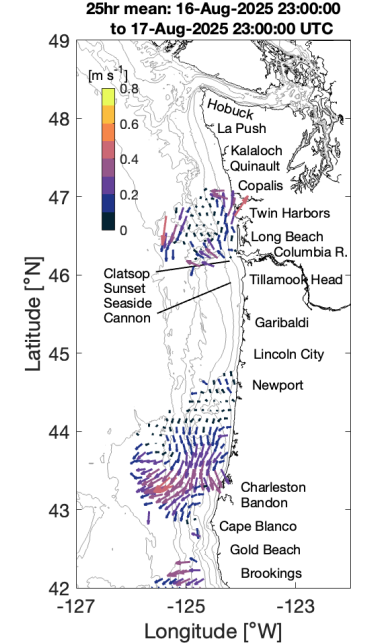
The Columbia River plume can help transport HABs and toxins from the south, northward along the WA coast. However, the plume can also serve as a protective barrier by preventing offshore toxins from reaching beaches.

Marine Weather Forecast



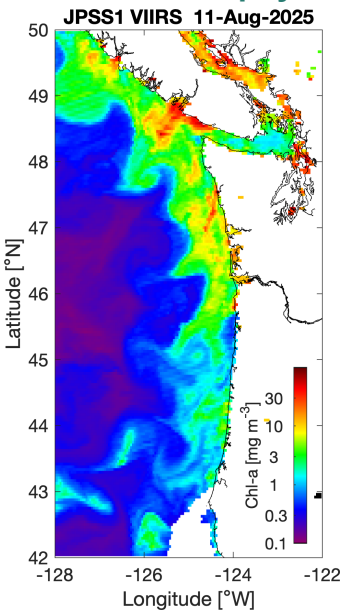
Fair weather can support plankton blooms whereas storms can concentrate any plankton and toxins on beaches.

Ocean Surface Currents



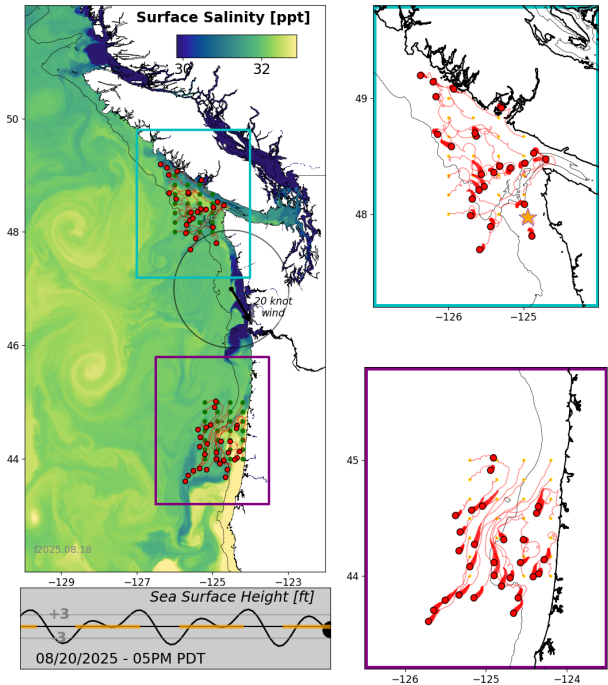
Primary currents flow north and south in winter and summer, respectively, except within ~10 km of shore, where fluctuations follow changes in wind direction.

Satellite Chlorophyll-a



Clouds often obstruct satellite views, but the extent of phytoplankton blooms can at times be seen from space. Blooms do not necessarily reflect the presence of toxins.

LiveOcean Forecast Model



Model predicted sea surface salinity with particles released near the Juan de Fuca eddy and Heceta Bank and tracked three days into the future. Red dots indicate particle end points.

Summary - Anomalous strong upwelling-favorable winds dominated early summer. Winds have generally remained upwelling-favorable since, but weakened considerably during the latter half of July. A more recent upwelling event in August resulted in enhanced chlorophyll-a concentrations along the coast, particularly off WA as captured in satellite images. These conditions were interrupted last week by a front bringing northward winds and rain. As a result, Columbia River water has been pushed shoreward and north along the coast. Large morphology *Pseudo-nitzschia* (PN) concentrations generally increased throughout the southern portion of WA last week, and were above threshold limits at many sites in OR in late July and early August (e.g., 171,000 cells/L large PN at Seaside, OR, on 4-Aug). Highest recent concentrations in WA were 163,000 cells/L large PN at Kalaloch on 8-Aug; >250,000 cells/L at Copalis and Mocrocks on 11-Aug; and >500,000 cells/L at Long Beach on 11-Aug. Despite this, particulate domoic acid (pDA) concentrations have remained low: <35 ng/L at southern WA (as of 11-Aug) and northern OR beaches (as of 04-Aug). No pDA was detected in the 8-Aug Kalaloch sample. The only recent offshore data are from the ESP mooring off northern WA, where pDA has remained undetected. Razor clam DA concentrations have remained below regulatory closure limits in WA. Highest values were from Twin Harbors on 11-Aug (6 ppm); samples from Quinalt, Mocrocks, and Copalis were all ≤2 ppm as of 11-Aug. Razor clam DA in OR had decreased to 39 ppm at Gold Beach, and to 6.6 ppm at Newport Agate Beach as of 11-Aug; no DA was detected in samples from the Sunset and Coos Bay North Jetty sites on 11-Aug.

Forecast - Large-scale conditions are currently ENSO-neutral. A weak La Niña is expected to develop late this year. The PDO is strongly negative. Northward winds continued over the weekend, but weakened substantially. Forecasts suggest the winds will turn southward (upwelling-favorable) by Wednesday, and should remain southward, though not particularly strong, for the foreseeable future. Given the recent persistently low pDA results, risk appears low. Nevertheless, since extended periods of late-season weak and northward winds have coincided with increases in pDA concentrations in prior years, we still recommend additional pDA testing if PN cell concentrations and/or PN community composition shifts warrant it.