



Pacific Northwest Harmful Algal Blooms Bulletin

Oct 27, 2025 HAB risk =



HAB risk key:

✓ = low

⚠ = medium

✗ = high

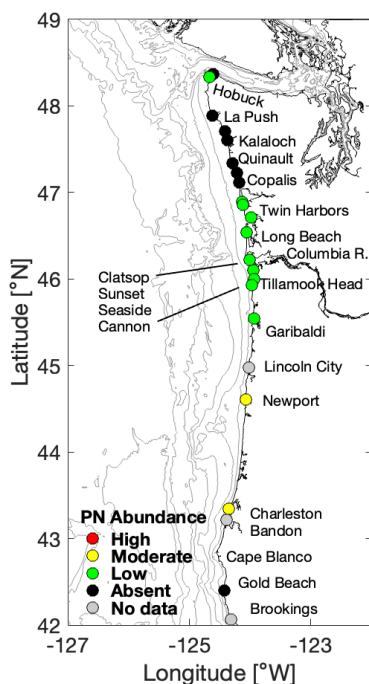
Cooperative Institute for
CLIMATE, OCEAN &
ECOSYSTEM STUDIES



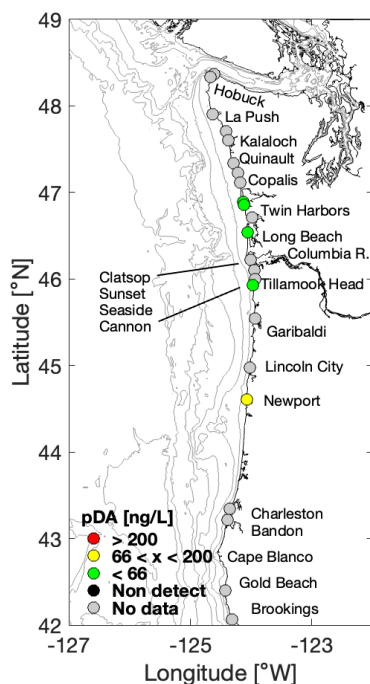
The statements, findings, conclusions, and recommendations do not necessarily reflect the views of NOAA or the Department of Commerce.

Beach Sampling

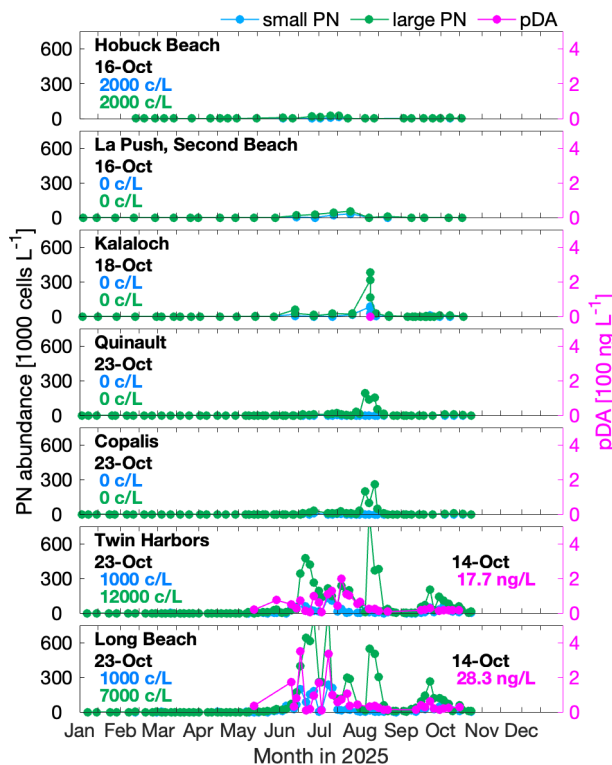
(*Pseudo-nitzschia*)



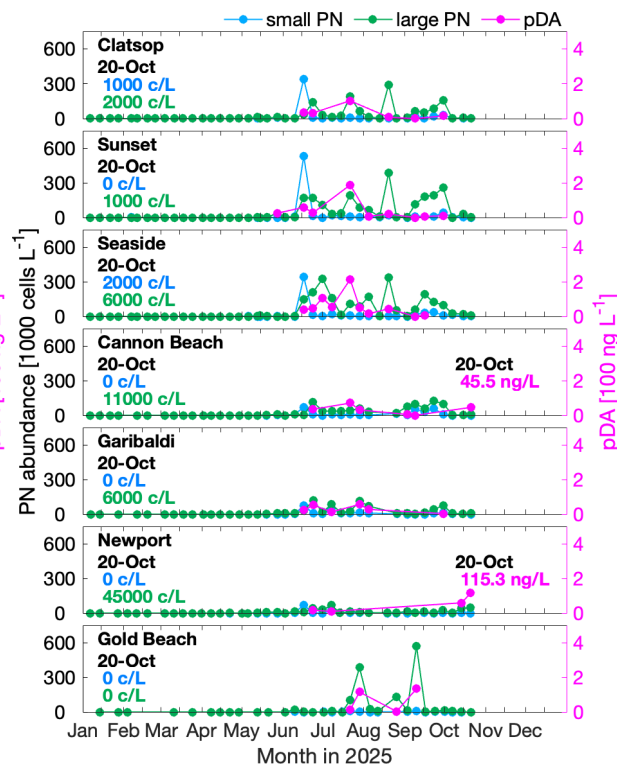
(particulate domoic acid)



WA *Pseudo-nitzschia* & Domoic Acid

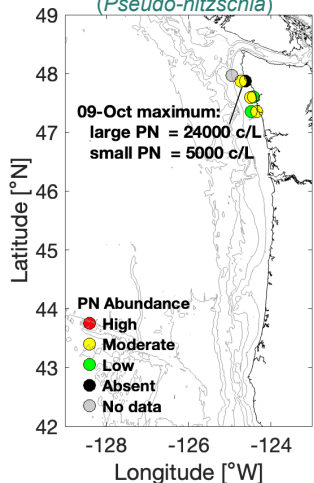


OR *Pseudo-nitzschia* & Domoic Acid

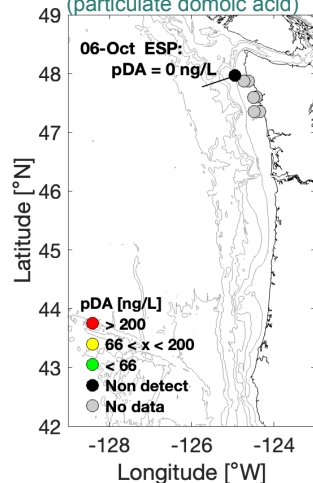


Offshore Sampling

(*Pseudo-nitzschia*)



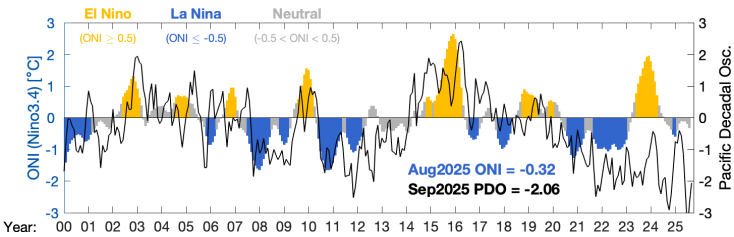
(particulate domoic acid)



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.

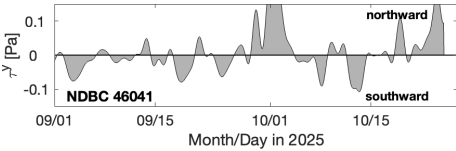
Decisions regarding shellfish harvest closures at individual beaches are made by the Washington Department of Health, the Oregon Department of Agriculture, and Coastal Treaty Tribes after measuring toxin levels in shellfish collected from each beach (WA [link](#); OR [link](#)), and not from the information 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



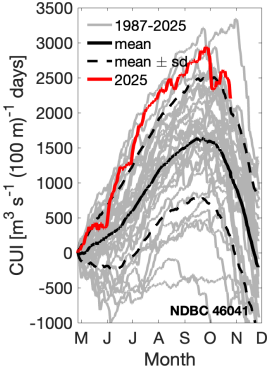
Research has shown that toxic HAB events off WA and OR tend to occur during or following periods of El Niño and/or positive phases of the PDO, when ocean temperatures are relatively warm.

North-south Wind Stress

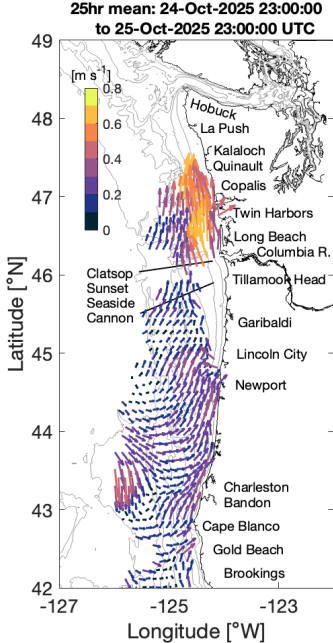


Southward wind stress drives coastal upwelling that can lead to plankton blooms. Northward wind stress tends to push any existing offshore plankton and toxins towards beaches. In addition, summer/fall toxic blooms often occur in years with a moderate cumulative upwelling index (i.e. during years with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

Cumulative Wind Stress

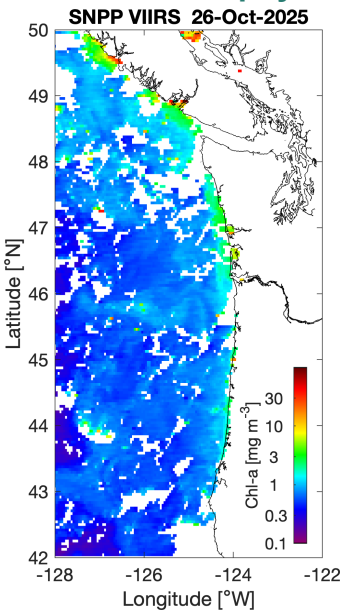


Ocean Surface Currents



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

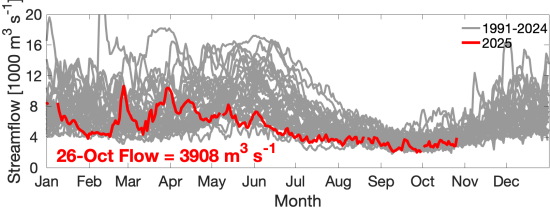
Satellite Chlorophyll-a



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.

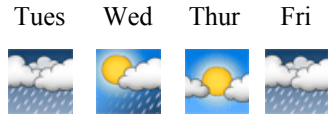
Summary - Strong upwelling-favorable wind events manifested into mid-October, and provided a number of relatively clear satellite images. Chlorophyll-a concentrations waxed and waned during this period, but were highest nearshore from central OR to northern WA. More recent images show a similar spatial pattern but with lower values overall. Storms, with strong northward winds and high seas, have now returned in earnest, signaling the transition to a fall/winter ocean state. Mid-shelf bottom temperature is currently >9 °C, common for fall/winter. *Pseudo-nitzschia* (PN) cell concentrations have decreased since early October. Highest recent values in WA were ≤12,000 cells/L at all sites as of 23-Oct. PN concentrations in OR were similar on 20-Oct, except for Newport, where 45,000 cells/L large PN were reported. *P. cf. australis* cells were notably documented at both central OR and southern WA beaches last week. The only available offshore samples were collected at WA OCNMS mooring sites on 9-Oct, where PN concentrations were similarly low (<25,000 cells/L large PN). The ESP mooring detected no particulate domoic acid (pDA) in its final sample of the season on 6-Oct. Seawater pDA concentrations remained low (<30 ng/L) in mid-Oct at southern WA beaches. A sample from Cannon Beach, OR, contained ~46 ng/L pDA on 20-Oct, while a Newport, OR, sample contained ~115 ng/L on that same date, coincident with the *P. cf. australis* cells. Razor clam DA remains low. Highest values in WA were 3 ppm at Twin Harbors and Long Beach as of 22-Oct. In OR, razor clams from Gold Beach were still above regulatory limits (63 ppm) as of 10-Oct, whereas samples from central and northern OR beaches were lower (8.5 ppm DA at Newport Agate Beach as of 10-Oct). Razor clams from Coos Bay North Jetty had notably doubled in DA from 6 ppm on 10-Oct to 13 ppm on 24-Oct.

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

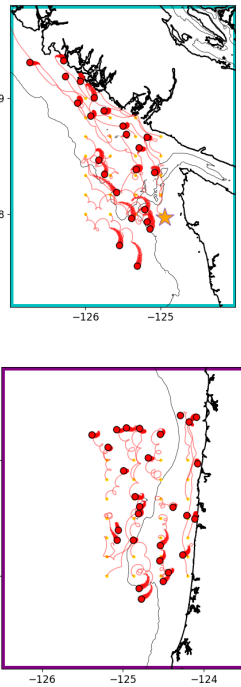
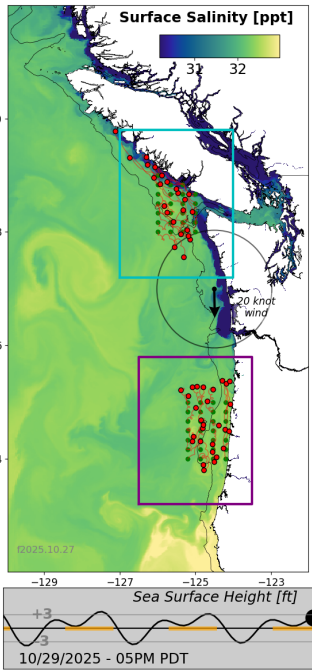


Tues - S wind, 25 kt
Wed - N wind, 10 kt
Thur - NE wind, 10 kt
Fri - S wind, 25 kt

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

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.

LiveOcean Forecast Model



Forecast - Weak La Niña conditions currently exist and are expected to continue through winter. The PDO remains strongly negative. Winds will fluctuate this week, with strong northward winds returning Friday; additional storms are forecast after. Similar conditions preceded the arrival of *P. australis*-like cells at OR and southern WA beaches last week. Given this, and the recent increases in razor clam DA at Coos Bay, OR, risk appears moderate. Continued caution and even additional sample collections are advised. This is especially so in OR since any active southern DA sources would have greater impacts there.