



Pacific Northwest Harmful Algal Blooms Bulletin

Sep 24, 2026 HAB risk =

HAB risk key:

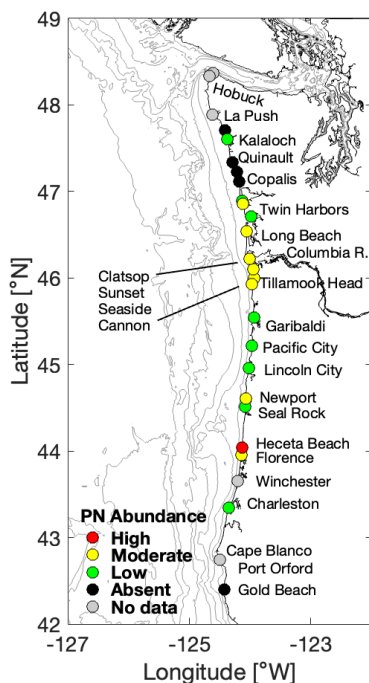
- = low
- = medium
- = high



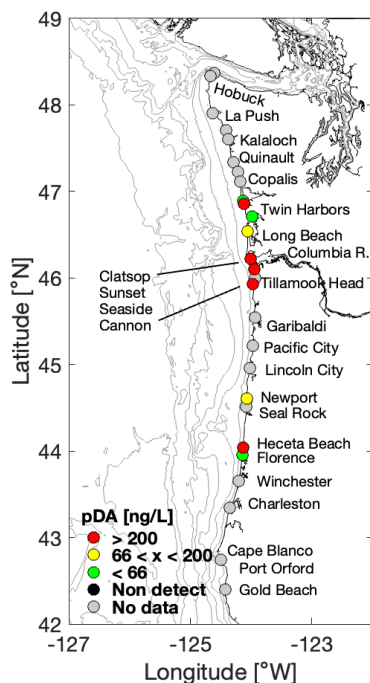
The statements, findings, conclusions, and recommendations do not necessarily reflect the views of NOAA or the Department of Commerce.

Beach Sampling

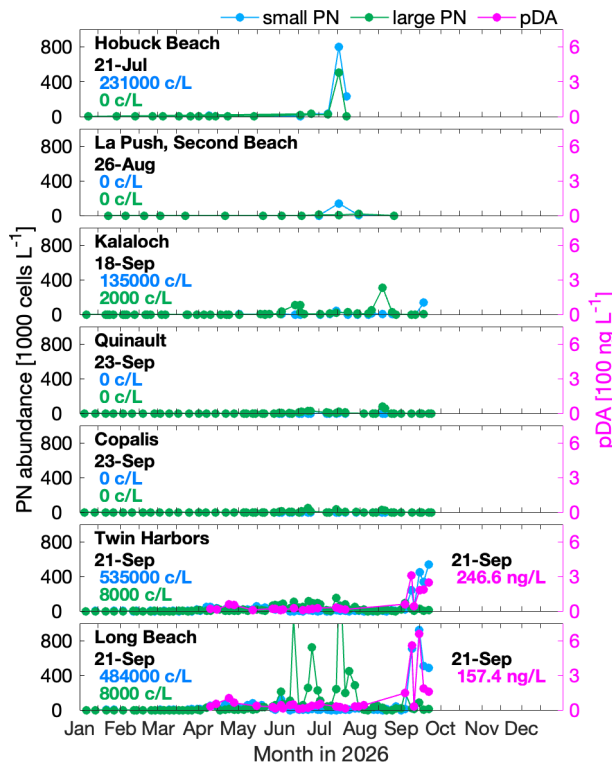
(*Pseudo-nitzschia*)



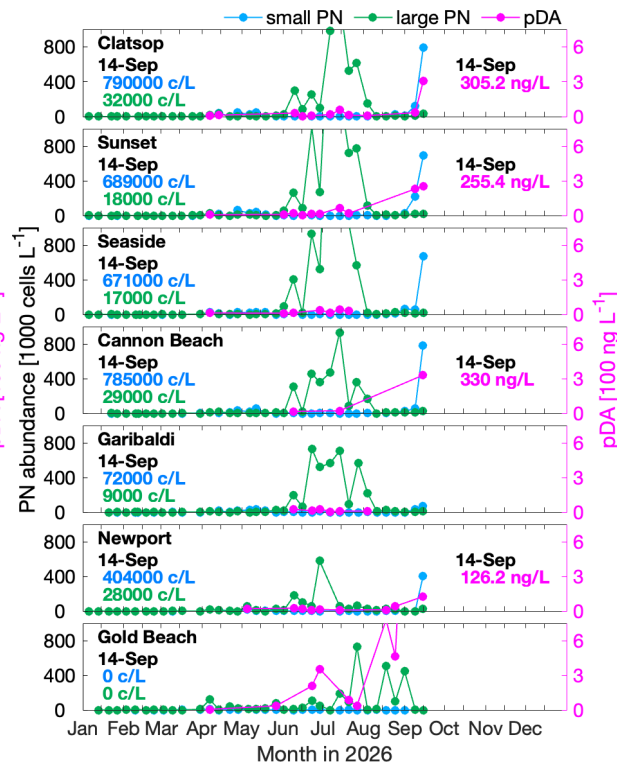
(particulate domoic acid)



WA *Pseudo-nitzschia* & Domoic Acid

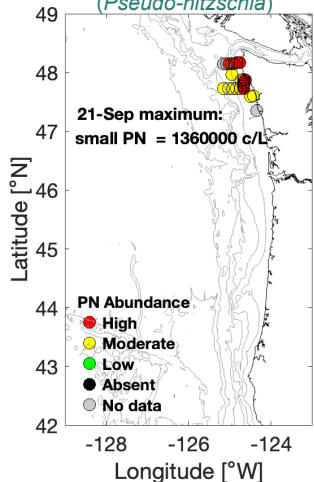


OR *Pseudo-nitzschia* & Domoic Acid

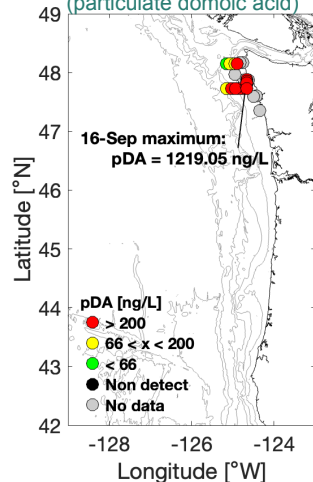


Offshore Sampling

(*Pseudo-nitzschia*)



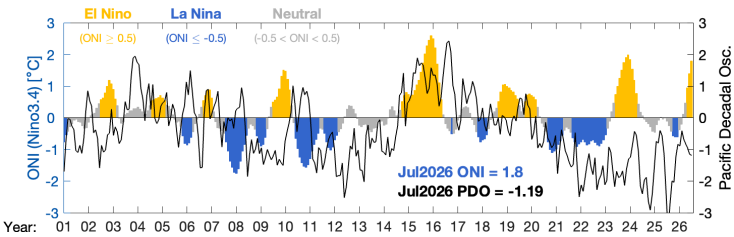
(particulate domoic acid)



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.

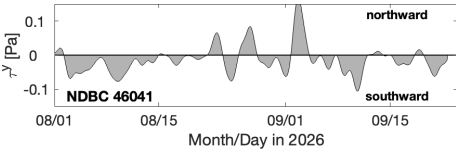
Decisions regarding shellfish harvest closures at individual beaches are made by the Washington Department of Health, the Oregon Department of Agriculture, and Coastal Treaty Tribes after measuring toxin levels in shellfish collected from each beach (WA [link](#); OR [link](#)), and not from the information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



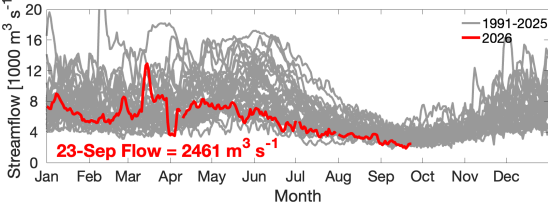
Research has shown that toxic HAB events off WA and OR tend to occur during or following periods of El Niño and/or positive phases of the PDO, when ocean temperatures are relatively warm.

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 cummulative upwelling index (i.e. during years with fluctuating winds) rather than in years with sustained upwelling or downwelling winds.

Columbia River Discharge



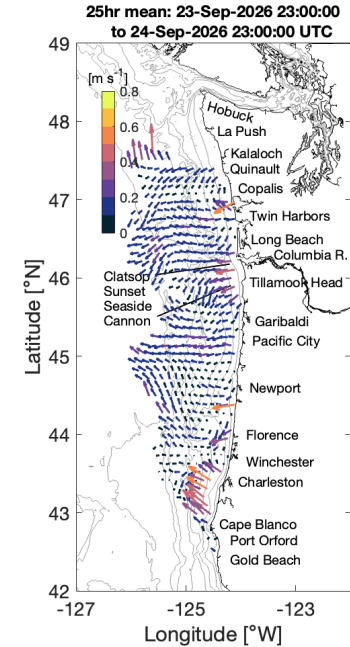
The Columbia River plume can help transport HABs and toxins from the south, northward along the WA coast. However, the plume can also serve as a protective barrier by preventing offshore toxins from reaching beaches.

Marine Weather Forecast



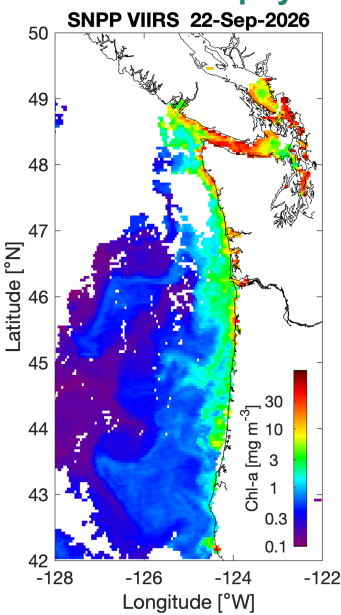
Fair weather can support plankton blooms whereas storms can concentrate any plankton and toxins on beaches.

Ocean Surface Currents



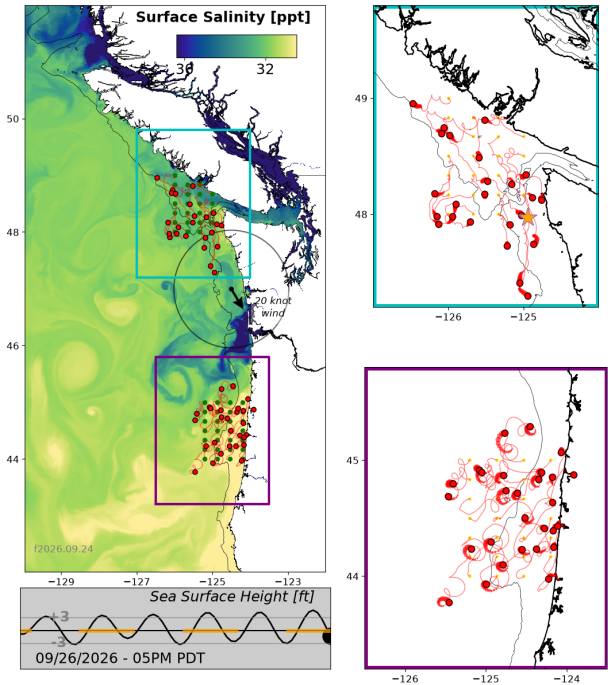
Primary currents flow north and south in winter and summer, respectively, except within ~10 km of shore, where fluctuations follow changes in wind direction.

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 - Persistent upwelling conditions dominated early summer. In mid-August, upwelling winds relaxed and then became intermittent in nature. More recently, along-shelf winds have been weak. Both coastal HF radar and the LiveOcean model indicate that surface ocean currents are also weak, likely a result of the weak winds. Satellite images suggest that chlorophyll-a concentrations are moderate all along the coast. *Pseudo-nitzschia* (PN) cell concentrations have generally been high this summer throughout WA and OR. Large morphology PN were prevalent at most beaches in July, the exception being at northern WA beaches where high concentrations of small size PN were observed at that time. In early September, the PN community transitioned to primarily small size cells at southern WA and northern OR beaches; large PN remain prominent in southern OR. Seawater particulate domoic acid (pDA) concentrations increased considerably with the transition to small-size PN cells. Highest values were >650 ng/L at Long Beach, WA on 14-Sep, but values >200 ng/L have been observed throughout southern WA and northern OR. The large PN at southern OR beaches also appear toxigenic; pDA >2,000 ng/L was observed at Gold Beach, OR, on 31-Aug. Scientists aboard the NOAA Ship *Bell M. Shimada* reported warm water and chains of large PN out to 25 nm off Newport, OR, from 18-22 Sep. Samples collected offshore of La Push, WA, via Lightfish ASV and a ship contained extremely high concentrations of primarily clumping, stressed, small PN (>1,000,000 cells/L) and pDA (>1,000 ng/L) within 5 nm of shore. Razor clam DA began increasing at beaches north of southern OR in Sep. Highest values in WA were at Long Beach on 11-Sep (5 ppm). In OR, DA increased to 10 ppm at Sunset Beach, to 9 ppm at Sparrow Park and to 280 ng/L at Gold Beach, as of 14-Sep.

Forecast - A strong El Niño is currently developing and is predicted to strengthen through the end of the year. The PDO remains negative. After a brief storm on Thursday, upwelling-favorable winds will strengthen Friday. Winds will then weaken over the weekend, ahead of another small storm on Monday with northward winds. After that, continued wind fluctuations are expected as fall storms become more frequent. The very high pDA concentrations found off La Push, WA, and at numerous other beaches, coupled with the fact that the expected wind fluctuations can push toxins shoreward, suggest that risk is currently very high.