Harmful Algal Blooms

What's the issue?

Tiny, photosynthetic organisms called algae make up the basis of many marine food webs and are critical for sustaining life on this planet, producing the oxygen we breathe, and even sequestering carbon from the atmosphere.

However, under certain conditions, these algae can proliferate and produce toxins that are harmful to fish, mammals, birds, and humans. Because shellfish (clams, oysters, and mussels) feed on algae, these toxins can reach humans and result in shellfish poisoning. Harmful algal blooms (HABs) can adversely affect human and animal health, and cause significant economic impacts to coastal communities and aquaculture and lead to long-term ecosystem changes. While HABs are naturally occurring events, they are increasing in frequency, duration, and geographic scope as a result of anthropogenic disturbances including excess nutrients and extreme weather events. Even when massive algae blooms don't produce toxins, they can still harm marine ecosystems. When the blooms die, the decaying process uses up oxygen in the water and creates "dead zones" where fish and invertebrates don't have enough oxygen to breathe.

Scientists, coastal managers, and educators monitor for and forecast algae blooms in the Eastern Pacific so they can assess risk of harmful algal blooms and quickly detect and notify the public through an early warning system. Other researchers are working to understand what makes these harmful blooms more likely to occur and how we can predict future ones.

The California Ocean Observing and Northwest Association of Networked Ocean Observing Systems have established HAB alert programs and have responded to increasing impacts of HABs along the Eastern Pacific by implementing a series of new projects focusing on improving and extending observations and testing capacites for HABs and enhancing HAB forecasts to predict when and where toxic blooms occur to better inform management decisions.

To learn more:

- Monitoring Oregon's coastal harmful algae — Oregon Department of Fish & Wildlife
- The Biotoxins and Illness Prevention Program — Washington State Department of Health
- The PNW Harmful Algal Bloom Bulletin — Northwest Association of Networked Ocean Observing Systems
- The California Harmful Algal Bloom Bulletin – California Coastal Ocean Observing System
- (August, 2023) "High temperatures send Oregonians to cool water, but state warns of toxic algae blooms" — OPB
- "What is a harmful algal bloom?" — NOAA
- "Shellfish and biotoxins" — Oregon Department of Fish & Wildlife
- "Value of the Pacific Northwest Harmful Algal Bloom Forecast" — NOAA