

# Harmful Alaskan Algal Species

## *Alexandrium* spp.

- **TOXIC.** *Alexandrium* species can produce saxitoxins that accumulate in shellfish. These toxins cause Paralytic Shellfish Poisoning and cannot be neutralized by freezing or cooking.
- *Alexandrium* causes commercial shellfishery closures almost every year. Recreational shellfish harvesters are also sickened every year.
- *Alexandrium* has a cyst phase that allows cells to remain dormant for long periods of time (even years!). Cysts are also toxic and can contaminate shellfish.
- Some *Alexandrium* species can create a reddish tinge in the water, hence the name “red tide”. Many blooms are not visible, however.
- Blooms of *Alexandrium* do not have consistent triggers, but they tend to be most common in mid-summer, after large rain events, or after a cyst bed has been disturbed.

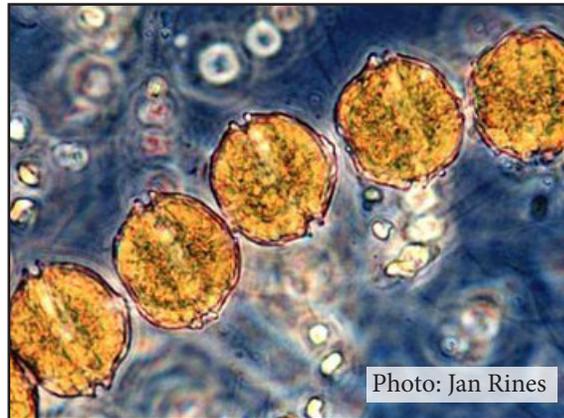


Photo: Jan Rines

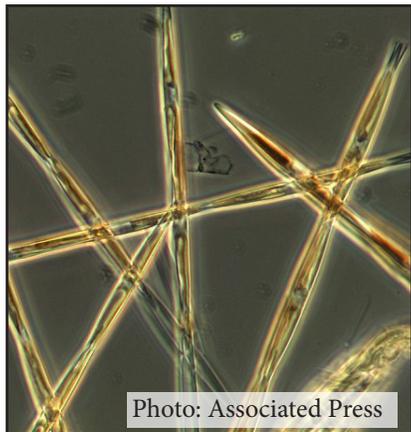


Photo: Associated Press

## *Pseudo-nitzschia* spp.

- **TOXIC.** *Pseudo-nitzschia* species can release domoic acid. Like saxitoxins, domoic acid accumulates in shellfish and cannot be neutralized by freezing or cooking. Domoic acid can lead to Amnesic Shellfish Poisoning.
- In July 2015, a *Pseudo-nitzschia* bloom stretched from southern California into Southeast Alaska. The southern portion of this bloom produced enough domoic acid to shut down shellfisheries along the coast and to sicken hundreds of sea lions.
- **Colorless!** Blooms of *Pseudo-nitzschia* are not visible without a microscope.
- *Pseudo-nitzschia* is one of the earliest harmful algal species to bloom in Southeast Alaska. In 2015, the bloom season stretched from May to September.

## *Dinophysis* spp.

- **TOXIC, but non-fatal.** *Dinophysis* species can produce okadaic acid, which can accumulate in shellfish and cause severe gastrointestinal distress, or Diarrhetic Shellfish Poisoning. These toxins also cannot be neutralized by cooking or freezing.
- While okadaic acid exposure is not fatal, evidence from Europe suggests that it could promote tumor growth.
- *Dinophysis* blooms in warm conditions with stable salinity.

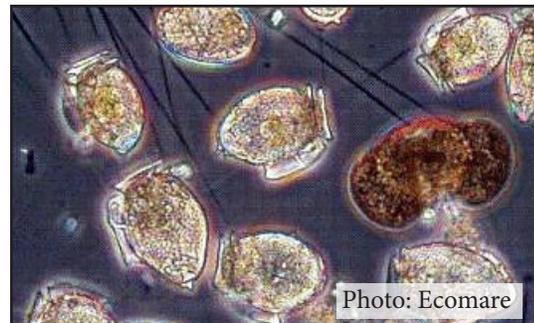


Photo: Ecomare

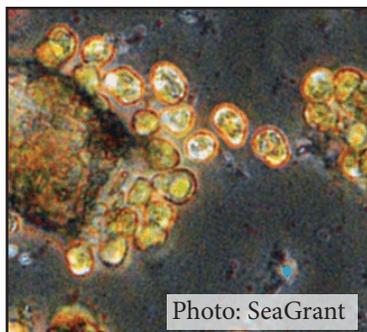


Photo: SeaGrant

## *Heterosigma akashiwo*

- NOT TOXIC to humans. *Heterosigma* can be toxic to fish, however, and has caused millions of dollars in damage to farmed fish in Puget Sound over the past few years. It has also been documented to kill wild salmon and crustaceans.
- *Heterosigma akashiwo*'s mechanism to fish and crustaceans is unknown. It could be producing an unstable neurotoxin, acting in concert with an unknown virus, or be producing radical oxides.
- Blooms are most likely when the water is warm and slightly brackish, as after a large summer rainstorm.

More questions? Find out more about harmful algal blooms, shellfish toxins, and available shellfish tests by contacting the Sitka Tribe's Environmental Lab. Phone: 907-966-9650. Email: seator@sitkatriben-sn.gov.