

2023 SoundToxins Year End Summary

SoundToxins Program:

The SoundToxins program was started by NOAA and is managed by Washington Sea Grant and the Washington State Department of Health. The Port Townsend Marine Science Center is one of 30 partners that test seawater from around Puget Sound. PTMSC has been participating in the program since 2008.

Every week, PTMSC volunteers head out to four sites on the Olympic Peninsula: Port Townsend Bay, Fort Worden State Park, Mystery Bay, and Discovery Bay. Their goal is to identify which species of plankton are present in the water that week. In particular, volunteers monitor for seven species of concern - looking closely for those phytoplankton that can produce toxins harmful to humans, causing paralytic and diarrhetic shellfish poisoning.

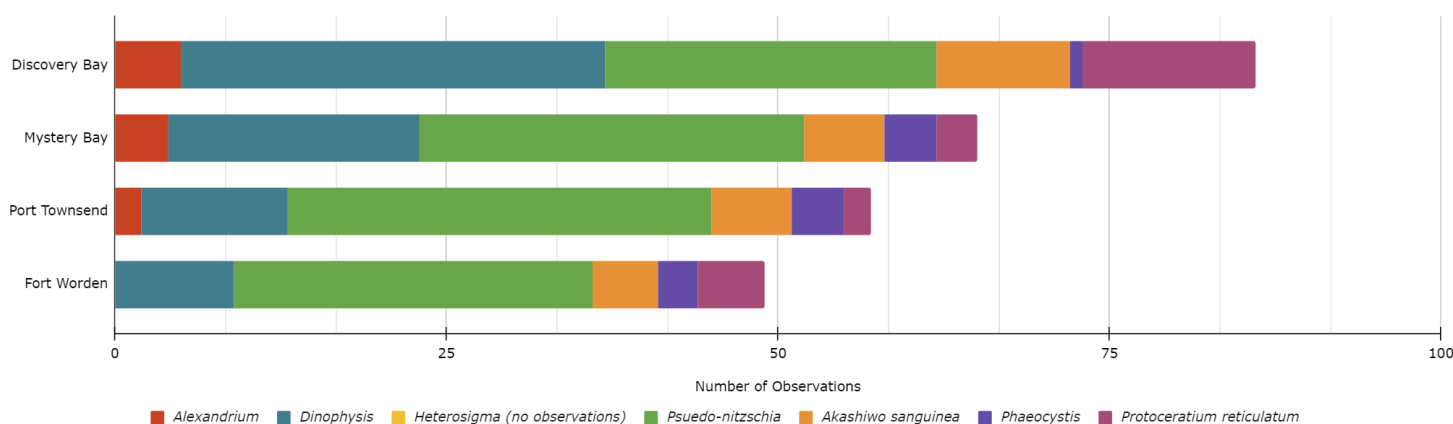
If these harmful phytoplankton are observed, they are reported to SoundToxins, who in turn alerts the Washington State Department of Health so shellfish harvesting can be paused in that area, protecting human health and reducing economic loss. The data volunteers collect on species presence, water temperature, salinity, and other metrics is entered into an online database that can be accessed by state health officials. For more information, visit <https://soundtoxins.org/>.

2023 SoundToxins Highlights:

Over the course of 2023, the dedicated crew of PTMSC SoundToxins volunteers spent at least 642 hours collecting, identifying, and cataloging plankton. That's almost 27 full days! The team includes: *Dennis Cartwright (Lead Volunteer), Pam Bauer, Brad and Lee Bebout, Jassen Bowman, John Conley, Dan and Soozie Darrow, Joanmarie Eggert, Jackie Gardner and Gary Elmer, Jo Ferrero, Frank Handler, Keith Knol, Mike and Kathy Nyby, Katherine Reed, Melody and Rich Stewart, and Kathleen Woods-Smith*

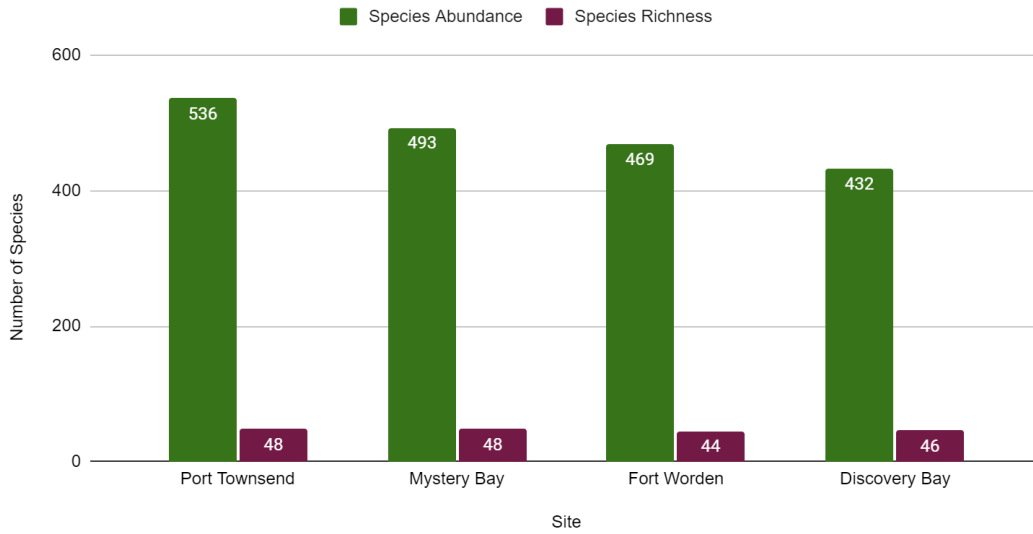
The following graphs break down some of the trends that appeared over the year:

Observations of Harmful Phytoplankton (Jan-Dec 2023)



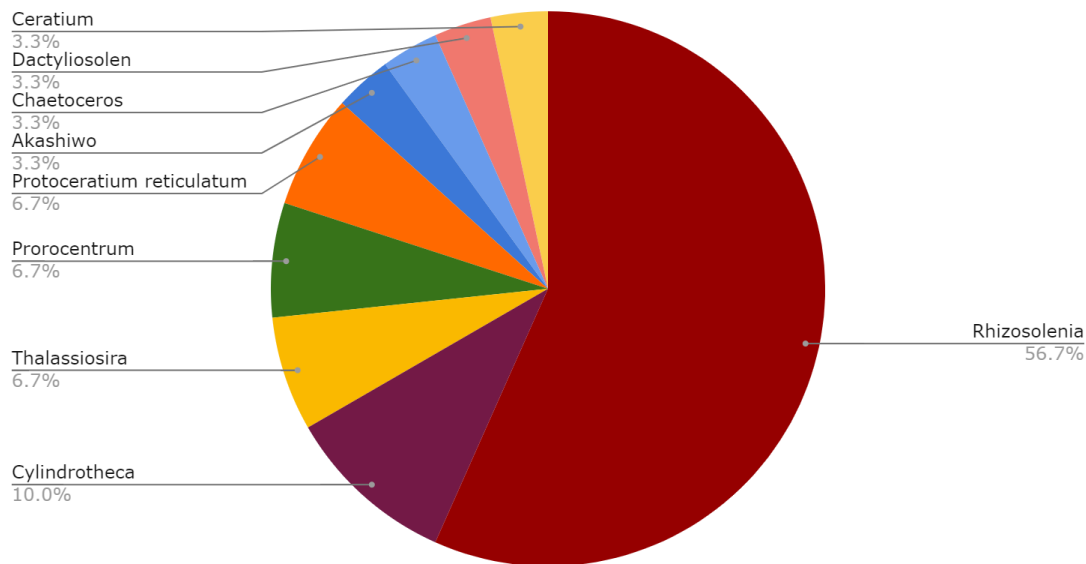
Observations of harmful phytoplankton at each sampling site over the course of 2023.

Species Abundance and Richness at Sampling Sites (Jan-Dec 2023)



*Species abundance and richness at each sampling site. Here, abundance is defined as the total number of species recorded at each site each week, totaled over the course of the year (meaning, for example, if *Thalassionema* was seen every week of the year at Port Townsend, it would be counted 52 times towards the total). Species richness here is defined as the total number of different species recorded at each site. Interestingly, in contrast to the previous graph, Discovery Bay has the lowest species abundance and richness, but the highest number of harmful phytoplankton.*

Blooms by Species Across All Sites (Jan-Dec 2023)



*Across all sites, there were 9 different species that bloomed during 2023, with *Rhizosolenia* being the most common. The highest number of blooms occurred in June.*