

KACHEMAK BAY NATIONAL ESTUARINE RESEARCH RESERVE

Harmful Algal Bloom 2021 Progress Report

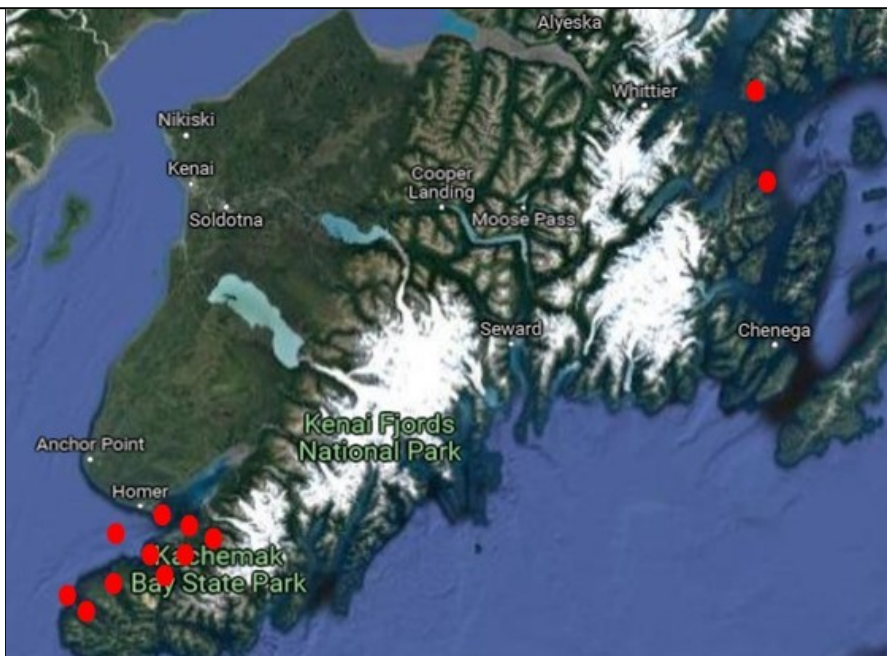
The main goal of the Harmful Algal Bloom (HAB) monitoring program is to look for groups of phytoplankton that are known to produce toxins that can result in shellfish poisoning.

Thank you to our community monitors for dipping, peering, recording and communicating this season! Your work allowed us to track HABs in Kachemak Bay and provide essential updates to state managers!

Map of KBNERR 2021 phytoplankton collection sites around Kachemak Bay and Prince William Sound.

This year we received samples from 21 locations.

Over 171 phytoplankton samples were collected by community monitors and KBNERR staff in 2021.



Kachemak Bay Research Reserve Summary of the Harmful Algal Bloom 2021 season

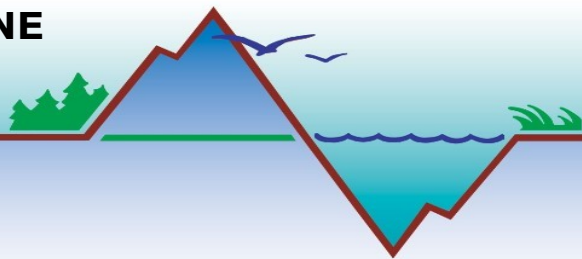
- This season in Kachemak Bay species of concern were present in samples throughout the summer, yet *Alexandrium* was seen less throughout the summer than in 2020.
- We were able to test wild shellfish for toxins once during the summer and they came back below the regulatory limit. Specifically they were razor clams from the west side of Cook Inlet beaches.
- None of the species of concern were found at bloom levels during this past season.
- KBNERR's staff increased sampling efforts to support sites where community monitors were no longer returning due to the ongoing pandemic.
- Kachemak Bay Research Reserve is not a regulatory agency. We provide our information to State of Alaska DEC and Epidemiology offices, which use their regulatory directives to post advisories.



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The chart below shows which months of 2021 we observed *Dinophysis*, *Alexandrium*, or *Pseudo-nitzschia*, the three species in Kachemak Bay that can produce toxins.

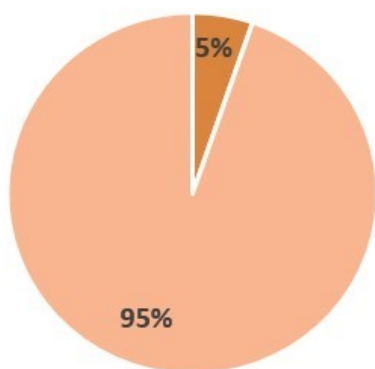
Green indicates months they were observed in a sample, grey represent no observations. Because the number of samples we receive varies from week to week this figure represents the minimum number of months these species were present in Kachemak Bay waters.

2021 Observations of Species of Concern

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
<i>Alexandrium</i>												
<i>Dinophysis</i>												
<i>Pseudo-nitzschia</i>												

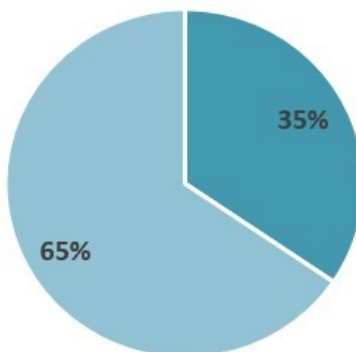
As you can see above, the species of concern were seen throughout the year during sampling efforts. This past year we did not receive samples during November or December. The species of concern that was the most prevalent in samples was *Pseudo-nitzschia*, it was also the one species of concern that we say slightly elevated throughout the year. In comparison to last year, we saw far less *Alexandrium* in our samples with them being present in only 5% compared to 13%. A reminder that just because *Alexandrium* is present in a sample, does not mean that wild shellfish in that location will be found above the regulatory limit.

Alexandrium



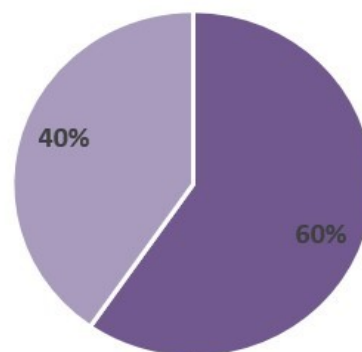
■ Present ■ Absent

Dinophysis



■ Present ■ Absent

Pseudo-nitzschia



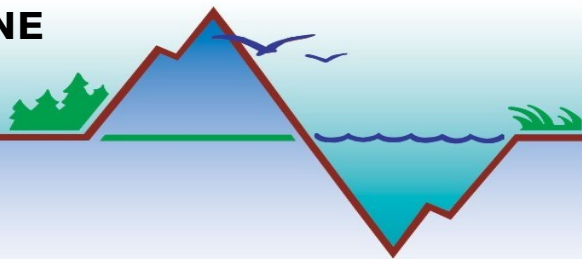
■ Present ■ Absent



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Training & Education Activities

As we continue to work partially remotely at the Reserve we have strived to maintain our community engagement and outreach efforts. Last year we were able to lead training events with the Alaska Harmful Algal Bloom Network and Kodiak Area Native Association at the Alaska Tribal Conference on Environmental Management. There were 35 participants from across the state that participated in the 3 hour training. Our program has continued our education efforts working with the Reserve's education team to deliver programs to students through the Alaska Native Science & Engineering Program. Lastly, we were happy to continue to join Semester by the Bay students for a lab in the Harbor. This photos shows students looking at phytoplankton samples they collected.

Colored Water in Kachemak Bay: A Harmful Algal Bloom?

In late May community members and partners observed a natural event that changed the color of the water in Kachemak Bay. Research Reserve staff were able to get out to collect samples to find out what it was. It turned out to be a marine ciliate, *Mesodinium rubrum*. This ciliate, and its food, have red pigments which turn the water red AND are not toxic. We are grateful to our Community Monitors for keeping us in the loop about this bloom and our partners at NOAA for helping us to confirm what it was. Although the color change in the water can be alarming, red tides in Alaska are typically not associated with a toxic event for humans. Although this red tide event was not toxic, some red tides can be toxic to shellfish even if it is not transferring toxins to humans through consumption.



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Concerned about Shellfish Poisoning?

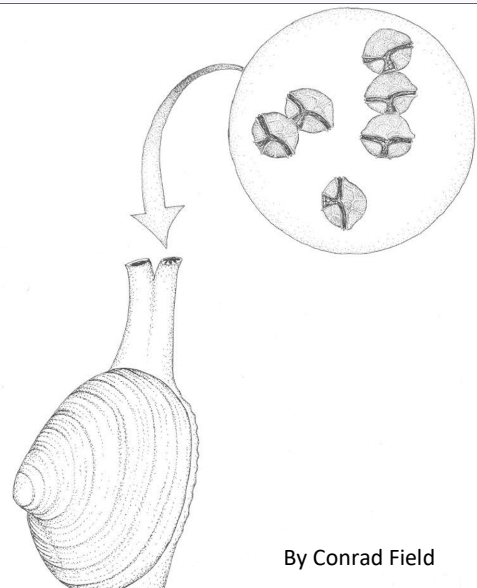
Know the Symptoms!

As we saw this summer, Shellfish Poisoning is still a real threat in the state of Alaska. Toxins associated with the various types of shellfish poisoning are not destroyed by cooking or freezing. Familiarize yourself with the symptoms and your resources if you plan on harvesting wild shellfish. Some of the symptoms can include:

Tingling of your lips and tongue, tingling of fingers and toes, loss of muscle control in arms and legs, difficulty breathing, nausea, vomiting, and death.

For more information about human health and shellfish poisoning check out the resources through Alaska Department of Health and Social Services at:

<http://dhss.alaska.gov/dph/Epi/id/Pages/dod/psp/default.aspx>



By Conrad Field

KBNERR **WILD** Shellfish Toxin Testing Program

At KBNERR discrete funds have been designated to test wild shellfish collected by staff and our partners. In the past our wild shellfish testing occurs on a bi-weekly basis during the summer months. Once collected, shellfish are shucked and the meat is frozen. There must be at least 130 grams of shellfish meat to run a toxin test. The frozen sample is mailed out to DEC in Anchorage and then will be included in our weekly update. We will be continuing to sample wild shellfish opportunistically this upcoming season and are happy to help coordinate getting samples to DEC. Please reach out if you have wild shellfish that you would like to have tested. Typically testing takes a few days.

****Commercial product is tested before going to market by Alaska DEC. ****

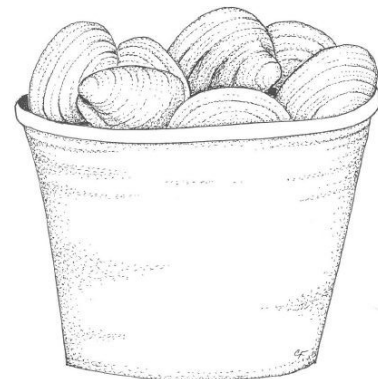
Key Terms

Elevated: this term is used to track the trend when toxins are present and increasing from one sample to the next but still within the range considered safe for consumption

Toxic or Above Regulatory Limits: toxin levels have accumulated to a level the DEC has determined to be above the threshold considered safe for human consumption.

For more information visit Alaska Department of Epidemiology webpage at:

<http://dhss.alaska.gov/dph/Epi/id/Pages/dod/psp/default.aspx>



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