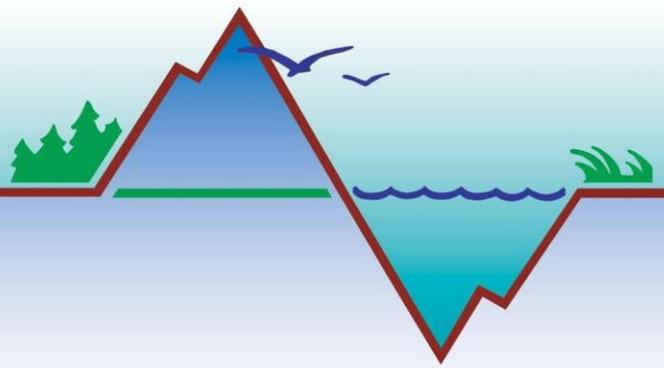


## Kachemak Bay Research Reserve Phytoplankton Update

March 8<sup>th</sup> – April 21<sup>st</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This is the first KBNERR Phytoplankton Update for 2022. We will be sharing biweekly updates until mid-May when we start to see more phytoplankton in our samples and are fully up and running with sample collection. Currently the KBNERR vessels are being serviced for the summer season ahead, once they are in the water KBNERR staff will begin regular phytoplankton monitoring in Kachemak Bay to augment samples collected by our Community Monitors.

The phytoplankton are more abundant these last few weeks in the inner and outer bay. Samples have had a variety of phytoplankton species present with *Thalassiosira* spp., a diatom, dominating a late March sample from Tutka Bay.

Mark your calendars for our annual Community Monitor Training on May 4<sup>th</sup>. We will provide a review of protocols, hand out phytoplankton kits, hear from our partners at Alaska Harmful Algal Bloom Network and Alutiiq Pride Marine Institute as well as share KBNERR sampling plans for 2022 and review what was observed in 2021. Reach out to Jasmine at [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu) or Syverine Bentz, [syverine@alaska.edu](mailto:syverine@alaska.edu) with questions. Registration link available on the Save the Date document attached to Weekly Update Email.

As always reach out with any questions.

Looking forward to connecting with you all this summer season,  
Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

### Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

#### INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
03/08/2022	Homer Harbor	2.5	36	Sparse Sample	None	Present	None
04/13/2022	Homer Harbor	-	-	Sparse Sample	None	Present	None

4/21/2022	Homer Harbor	6	31.5	Mixed Diatoms	Present	None	None
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### OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
03/31/2022	Tutka Lagoon	4.4	26.9	Mixed Diatoms	None	Present	None
03/31/2022	Tutka Bay	4.1	26.8	<i>Thalassiosira</i>	None	None	None



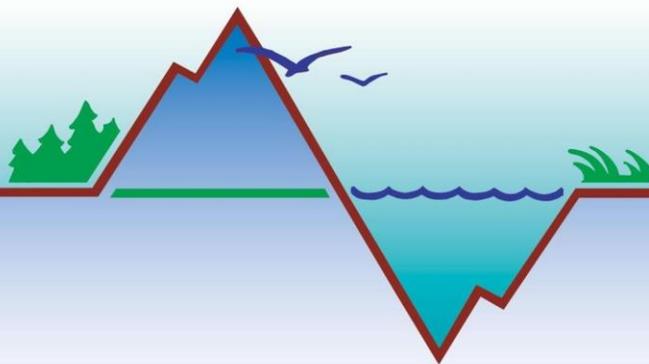
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## Kachemak Bay Research Reserve Phytoplankton Update

April 22<sup>nd</sup> – May 5<sup>th</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

Happy Cinco de Mayo! That is right May is here, Shorebirds abound and the phytoplankton are abundant in the samples this week. In Homer Harbor and Peterson Bay *Chaetoceros debilis* is at bloom levels. *Chaetoceros* sp. often form chains and each cell has long spines. These spines can be problematic for fishes when they get caught in their gills resulting in increased mucus production when the fish try to clear them. In most cases this is an irritation that fish can handle, however it becomes problematic for fishes in pens or that might otherwise be prevented from moving away from a *Chaetoceros* sp. when they are blooming.

It was great to see some of you at our annual training this week. Thank you to all our monitors who are starting to collect samples for us. The KBNERR boat is also in the water now, so we look forward to reporting on more locations soon.

As always reach out with any questions,  
Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

### Kachemak Bay Research Reserve Phytoplankton Update

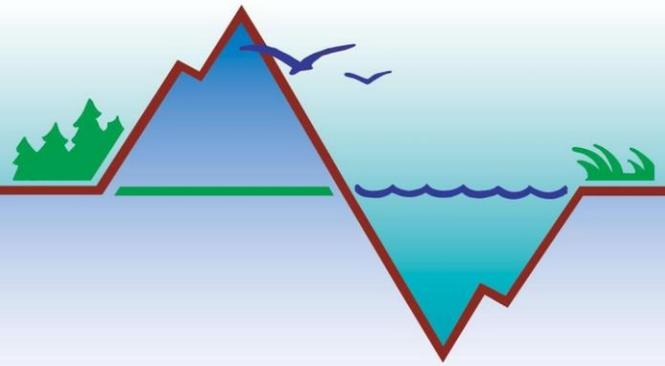
#### Qualitative Analysis Phytoplankton Data

#### INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
05/01/2022	Peterson Bay	4.5	31	<i>C. debilis</i> bloom	None	Present	None
05/04/2022	Homer Harbor	7.0	29.7	<i>C. debilis</i> bloom	None	None	None

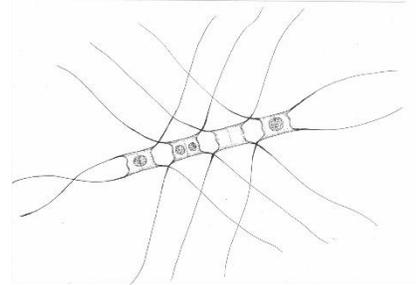


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Hello Everyone,

Over the past week the phytoplankton continue to be abundant at all locations sampled. *Chaetoceros* sp. are blooming in Halibut Cove, Eldred Passage and Homer Harbor. On the right is an illustration by Conrad Field of *C. lacinosus* one of the many species of *Chaetoceros* we see regularly in Kachemak Bay that form chains linked by the spines on each cell.



A quick reminder of the information that you will see included in the Phytoplankton Weekly Updates. The tables will always include the most recent samples, noting which phytoplankton were dominant in each sample and if species of concern (*Dinophysis*, *Pseudo-nitzschia*, *Alexandrium*) were present in the sample. If a species of concern were to reach abundant or blooming levels that would be included in the table.

Thank you to all of our monitors collecting samples.

As always reach out with any questions,  
 Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

Kachemak Bay Research Reserve Phytoplankton Update  
 Qualitative Analysis Phytoplankton Data

**INNER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
05/06/2022	Halibut Cove	5	28	<i>C. debilis</i> bloom	None	None	None
05/11/2022	Homer Harbor	6.9	30.1	<i>C. debilis</i> bloom	Present	Present	Present

## **OUTER BAY**

<b>DATE</b>	<b>Bay</b>	<b>Water Temp</b>	<b>Salinity</b>	<b>Dominant species</b>	<b>Dinophysis</b>	<b>Pseudo-nitzschia</b>	<b>Alexandrium</b>
5/12/2022	Eldred Passage	7.2	29.9	<i>C. debilis</i> bloom	None	Present	None
5/12/2022	Sadie Cove	6.8	28.1	Mixed Diatoms	None	Present	None

\*Samples received after last weekly update



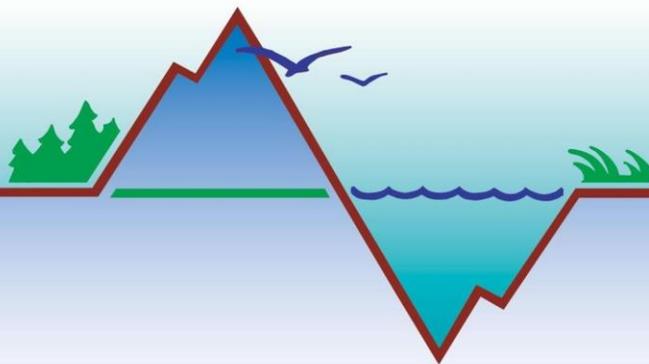
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## Kachemak Bay Research Reserve Phytoplankton Update

May 13<sup>th</sup> – May 19<sup>th</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

Phytoplankton continue to be abundant in samples collected, with *C. debilis* at bloom levels in Peterson Bay and Halibut Cove. Although, *C. debilis* is the dominant species the phytoplankton present in the samples is very diverse. We shall see what happens over the next few weeks.

Thank you to all of our monitors for collecting samples.

As always reach out with any questions,  
Jasmine

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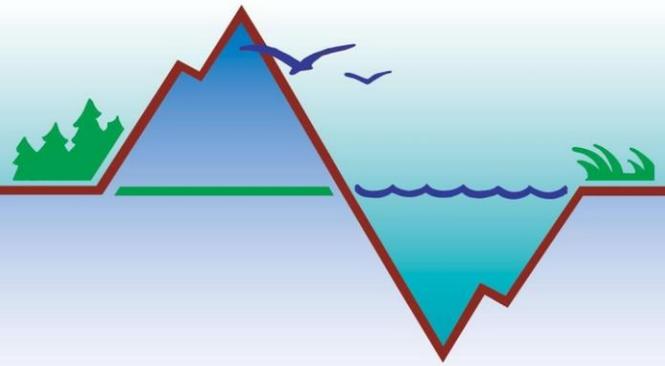
### Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

#### INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
05/11/2022	Peterson Bay	6	32	<i>C. debilis</i> . <i>Thalassiosira</i>	None	Present	None
05/14/2022	Halibut Cove	5	28	<i>Chaetoceros</i> <i>spp. bloom</i>	None	None	None
5/15/2022	Peterson Bay	6.5	31	<i>C. debilis</i> bloom	None	Present	Present



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Hello Everyone,

Early in the week phytoplankton continued to be abundant at most sample locations. It is interesting to note how quickly phytoplankton abundances can change both spatial and over time. Peterson Bay phytoplankton samples came in on two consecutive days this week and over that time the phytoplankton in Peterson went from numerous to sparse. Everyday can be different.

Many of the phytoplankton species we see in Kachemak Bay belong to a group called diatoms. Diatoms are a live cell surrounded by a housing made of silica that resembles a miniscule box, the bottom (hypotheca) fits snugly into a lid (epitheca) much like a shoebox. Diatoms can be in the surface water or dwell near the ocean floor. Adaptations like forming chains or spines can increase buoyancy which can keep diatoms in the sunlight surface waters supporting photosynthesis within the cells.

*Pseudo-nitzschia* is an example of a chain forming diatom observed in many samples this week. *Pseudo-nitzschia* is also one of the species of concern that occur in Kachemak Bay. *Pseudo-nitzschia* can produce domoic acid which can lead to amnesiac shellfish poisoning if toxic wild shellfish are consumed. None of the samples this week had abundant levels of *Pseudo-nitzschia*, we will continue to monitor samples each week for changes in abundances of this species of concern.

Commercial shellfish are regulated by DEC and considered safe for consumption.

Thank you to all our monitors for collecting samples.

As always reach out with any questions,  
 Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

Kachemak Bay Research Reserve Phytoplankton Update  
 Qualitative Analysis Phytoplankton Data

**INNER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
5/20/2022	Bear Cove	8	29.9	<i>C. debilis</i>	Present	Present	None

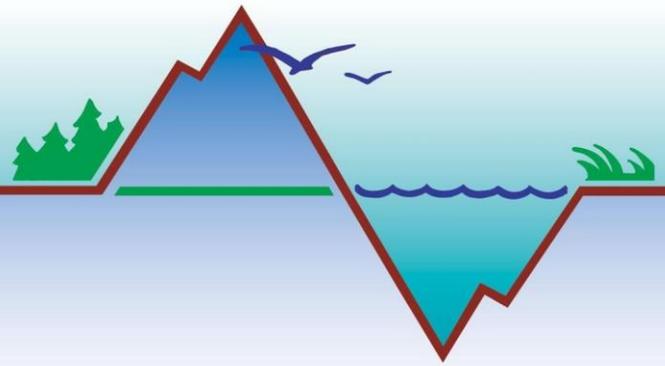
5/20/2022	Aurora Lagoon	7.2	30.8	Mixed diatoms	None	Present	None
5/20/2022	Peterson Bay	8.4	31	<i>Chaetoceros</i> spp	None	Present	None
5/20/2022	China Poot	7.3	29.8	Mixed diatoms	None	Present	None
5/21/2022	Peterson Bay	7.8	30	Sparse Sample	None	Present	None
5/21/2022	Halibut Cove	7	32	<i>Chaetoceros</i> spp bloom	None	None	None
5/24/2022	Homer Harbor	5.8	31.5	Sparse Sample	None	Present	None

### OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
5/21/2022	Hesketh Island	-	-	<i>C. debilis</i> bloom	None	Present	None



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Hello Everyone,

This week phytoplankton in Homer Harbor and Peterson Bay were diverse and sparse. This is in contrast the phytoplankton blooming at all outer bay sites sampled this week. All outer bay sites this week had abundant phytoplankton with *C. debilis* as the dominant species at all sites.

*Pseudo-nitzschia* spp. were present in all the sample collected this week. In Kasitsna Bay *Pseudo-nitzschia* spp. cell count reached abundant level. The additional attachments to the weekly email this week are *Pseudo-nitzschia* fact sheets from NOAA and SEATOR for additional details on these phytoplankton and the harmful toxins they can produce.

Commercial shellfish are regulated by DEC and considered safe for consumption.

Thank you to all our monitors for collecting samples.

As always reach out with any questions,  
Jasmine

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**Kachemak Bay Research Reserve Phytoplankton Update**  
**Qualitative Analysis Phytoplankton Data**

**INNER BAY**

<b>DATE</b>	<b>Bay</b>	<b>Water Temp</b>	<b>Salinity</b>	<b>Dominant species</b>	<b>Dinophysis</b>	<b>Pseudo-nitzschia</b>	<b>Alexandrium</b>
5/29/2022	Peterson Bay	8.9	31	Sparse Sample	None	Present	None
6/1/2022	Homer Harbor	10	29.2	Sparse Sample	None	Present	None

## OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
5/28/2022	Hesketh Island	8	32	<i>C. debilis</i> bloom	None	Present	None
5/29/2022	Hesketh Island	-	32	<i>C. debilis</i> Bloom	None	Present	Present
5/30/22	Eldred Passage	7.5	29.8	<i>C. debilis</i> Bloom	None	Present	None
5/30/22	Seldovia Harbor	7.6	29.3	<i>C. debilis</i> and <i>Thalassiosira</i> bloom	None	Present	Present
5/30/22	Kasitsna Bay	7.5	30.1	<i>C. debilis</i> bloom	None	Abundant	Present
6/1/22	Sadie Cove	11.4	28.9	<i>C. debilis</i> Bloom	Present	Present	None



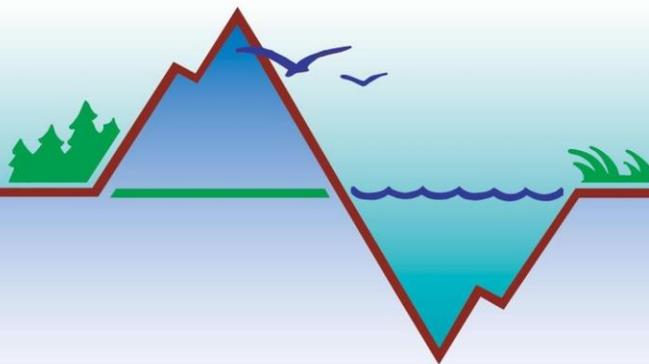
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## Kachemak Bay Research Reserve Phytoplankton Update

June 3<sup>rd</sup> – June 9<sup>th</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This week inner bay sites that were sampled had sparse phytoplankton and a decrease in diversity from last week. Outer bay sites all had numerous phytoplankton with *Chaetoceros* spp. at bloom levels at Hesketh, Sadie and Kasitsna Bay. Interestingly, since 2014 *Chaetoceros* spp. have dominated outer bay phytoplankton samples every year at this time except for 2015 and 2021.

Thank you to all our monitors for collecting samples.

As always reach out with any questions,

Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

### Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

#### INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
5/28/2022	Halibut Cove	10	30	<i>Chaetoceros</i> spp. bloom	None	None	None
6/4/2022	Halibut Cove	13	30	Sparse Sample	None	None	None
6/5/2022	Peterson Bay	9.4	30	Sparse Sample	Present	Present	None
6/9/2022	Homer Harbor	12.2	29	Sparse Sample	None	Present	None

## OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/4/2022	Hesketh Island	14	-	<i>Chaetoceros</i> spp. bloom	None	Present	None
6/9/2022	Eldred Passage	13	25	Mixed Diatoms	None	Present	None
6/9/2022	Sadie Cove	13.8	25.2	<i>Chaetoceros</i> spp. bloom	None	Present	None
6/9/2022	Jakolof	11.6	28.6	Mixed Diatoms	None	Present	Present
6/9/2022	Kasitsna Bay	10.3	28.2	<i>Chaetoceros</i> spp. bloom	None	Present	Present



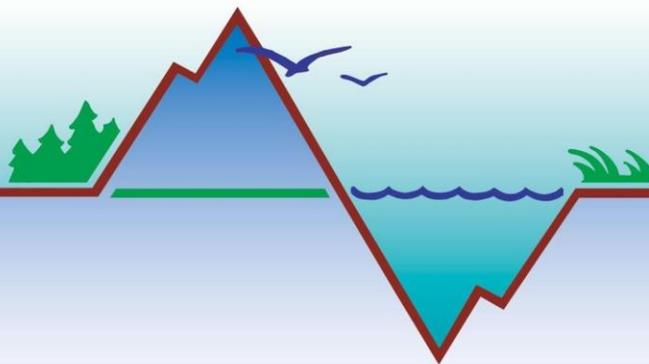
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## Kachemak Bay Research Reserve Phytoplankton Update

June 10<sup>th</sup> – June 16<sup>th</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

Homer Harbor continues to have sparse phytoplankton in contrast to other inner bay sites sampled this week. Outer bay sites all had numerous phytoplankton clinging to the phytoplankton net when collected. Under the microscope a diverse assemblage of phytoplankton was present at outer bay sites with *Chaetoceros* spp. being the most dominant at Hesketh Island, Sadie Cove powerline and Eldred. This week there was also a greater number of Appendicularians, a zooplankton that makes mucus houses and is an important prey item for salmon as well as part of the global carbon cycle, in the samples. Monterey Bay Aquarium has a [great informative video](#) if you want to learn more about this unique zooplankton, the Appendicularians observed in phytoplankton samples is a different species than shown in the MBARI video.

Thank you to all our monitors for collecting samples.

As always reach out with any questions,

Jasmine

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## Kachemak Bay Research Reserve Phytoplankton Update

### Qualitative Analysis Phytoplankton Data

#### INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/11/2022	Peterson Bay	10	30	<i>Chaetoceros</i> spp.	None	Present	None
6/16/2022	China Poot	9.6	28	Mixed Diatoms	Present	Present	None
6/16/2022	Homer Harbor	11.5	28.2	Sparse Sample	Present	Present	None

## OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/4/2022	Seldovia Harbor	12	30	Mixed Diatoms	None	Present	None
6/11/2022	Hesketh	13	30	<i>Chaetoceros</i> spp.	Present	Present	None
6/16/2022	Eldred	8.2	30	<i>Chaetoceros</i> spp. bloom	Present	Present	Present
6/16/2022	Sadie Cove	11.1	28.8	<i>Chaetoceros</i> spp.	None	Present	Present
6/16/2022	Kasitsna Bay	8.5	29.5	Mixed Diatoms	None	Present	None



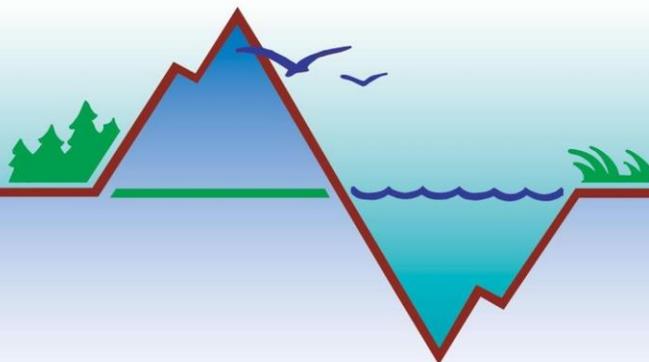
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## Kachemak Bay Research Reserve Phytoplankton Update

June 17<sup>th</sup> – June 23<sup>rd</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This week we are sharing recent PSP Alerts from partners at Knik Tribe and Qawalangin Tribe of Unalaska. Both have detected PSP levels above the regulatory limit through their wild shellfish toxin testing programs. Qawalangin Tribe staff do weekly collection of wild blue mussel tissue and send them to Anchorage for testing. Wild blue mussels collected on June 14, 2022, had PSP toxin levels above the regulatory limit. Follow the link to see the [Qawalangin Tribe's latest results posted](#) on their website. Knik Tribe issued a PSP alert on June 17 as both wild razor clams and wild butter clams collected at Chignik Lagoon on June 16, 2022, tested well above the regulatory limit. Chignik Lagoon is located on the Alaska Peninsula.

In Kachemak Bay this week *Chaetoceros* spp. were blooming at most of the inner bay sites sampled. From outer bay the Seldovia Harbor had sparse phytoplankton this week.

Commercial shellfish are regulated by DEC and considered safe for consumption.

Thank you to all our monitors for collecting samples.

As always reach out with any questions,  
Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

### Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

#### **INNER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/18/2022	Halibut Cove West	11	29	No Dominant	None	None	None
6/23/2022	Halibut Cove Outer	13	26.8	<i>Chaetoceros</i> spp. bloom	None	Present	Present

6/23/2022	Aurora Lagoon	14	25.3	<i>Chaetoceros</i> spp. bloom	Present	None	None
6/23/2022	Bear Cove	14.2	25.6	<i>Chaetoceros</i> spp. bloom	Present	None	Present

### OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/20/2022	Seldovia Harbor	9.2	28.4	Sparse Sample	None	Present	None



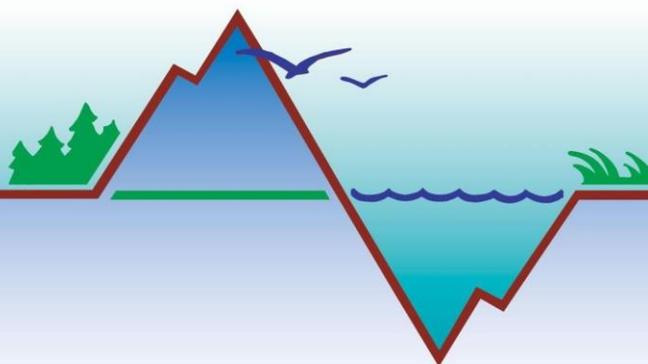
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## Kachemak Bay Research Reserve Phytoplankton Update

June 24<sup>th</sup> – June 30<sup>th</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

There are only a couple of samples to report on this week, one from Homer Harbor and one from Sadie Cove, at both locations *Chaetoceros* spp. were the dominant phytoplankton present.

Thank you to all our monitors for collecting samples.

As always reach out with any questions,

Jasmine

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### Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

#### INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/30/2022	Homer Harbor	-	-	<i>Chaetoceros</i> spp.	Present	Present	None

#### OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/2/2022	Tutka Bay Lagoon	-	-	Sparse Sample	None	None	None
6/9/2022	Tutka Bay Lagoon	11.9	19.7	Sparse Sample	None	None	None
6/26/2022	Sadie Cove Middle	14	31	<i>Chaetoceros</i> spp. bloom	Present	None	Present

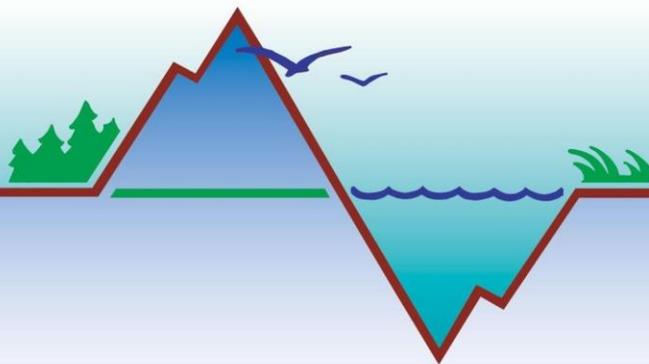


# Kachemak Bay Research Reserve Phytoplankton Update

July 1<sup>st</sup> – July 7<sup>th</sup>, 2022

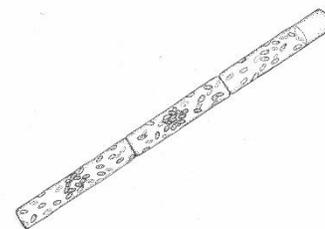
Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This week sites from inner Kachemak Bay have sparse phytoplankton in contrast to outer bay sites which have greater numbers of phytoplankton present. In Eldred Passage phytoplankton is dominated by a diatom called *Leptocylindrus* spp., shown to the right. *Leptocylindrus* spp. are rectangular with many small chloroplasts in each cell and form long chains.



Leptocylindrus by Conrad Field

Thank you to all our monitors for collecting samples.

As always reach out with any questions,

Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

## Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

### INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/25/2022	Halibut Cove	13	-	Sparse Sample	None	None	Present
7/2/2022	Halibut Cove	15	25	Sparse Sample	None	None	None
7/3/2022	Peterson Bay	13.3	30	Sparse Sample	None	Present	None
7/5/2022	China Poot	8	-	Sparse Sample	Present	Present	None
7/7/2022	Homer Harbor	7.7	31.4	Sparse Sample	None	None	None

## OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
7/5/2022	Eldred	8	30.9	<i>Leptocylindrus</i> spp.	None	None	None
7/5/2022	Sadie Cove	8	30	Mixed Diatoms	None	Present	None
7/5/2022	Jakolof	8	-	<i>Chaetoceros</i> spp.	Present	Present	None
7/5/202	Kasitsna Bay	8	-	<i>Chaetoceros</i> spp.	None	Present	Present



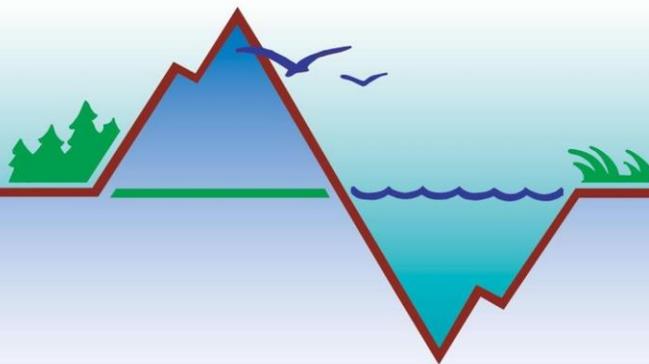
Kachemak Bay National Estuarine Research Reserve  
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## Kachemak Bay Research Reserve Phytoplankton Update

July 8<sup>th</sup> – July 14<sup>th</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This week most of the sites sampled within inner Kachemak Bay have sparse phytoplankton. Sites sampled from outer Kachemak Bay continue to have abundant phytoplankton comprised of a variety of species, with Jakolof Bay phytoplankton community dominated by *Chaetoceros* spp. this week. Kachemak Bay water temperatures have been within the range supportive of harmful algal blooms recently. Although water temperature is one of several factors that contribute to phytoplankton growth, warmer water temperatures have been shown to be supportive of growth of the species of concern. This is one reason to record water temperature whenever possible when collecting phytoplankton samples. Weekly phytoplankton samples and updates will continue throughout the summer months to monitor for HABs within Kachemak Bay. Wild shellfish harvest is “Dig at your own risk” in the state of Alaska, there is no statewide wild shellfish toxin testing program and KBNERR is not a regulatory agency.

Commercially harvested shellfish is regulated by DEC and considered safe for consumption.

Thank you to all our monitors for collecting samples.

As always reach out with any questions,

Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

### Kachemak Bay Research Reserve Phytoplankton Update

#### Qualitative Analysis Phytoplankton Data

#### INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
7/9/2022	Halibut Cove	12	25	Sparse Sample	None	None	None
7/12/2022	Homer Harbor	11	-	Sparse Sample	Present	None	None
7/12/2022	China Poot	11	-	Mixed Diatoms	None	None	None

## OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
7/12/2022	Eldred	8	-	Mixed Diatoms	Present	Present	None
7/12/2022	Sadie Cove	11	-	Mixed Diatoms	None	Present	None
7/12/2022	Jakolof	9	-	<i>Chaetoceros</i> spp. bloom	Present	Present	None



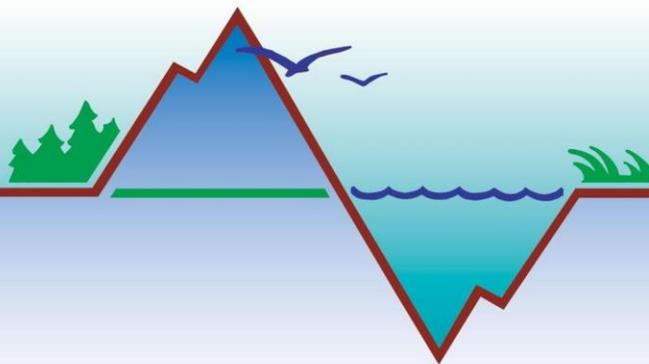
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## Kachemak Bay Research Reserve Phytoplankton Update

July 15<sup>th</sup> – July 21<sup>st</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This week we have three samples from inner Kachemak Bay all with sparse phytoplankton. Last summer we saw a similar low abundance of phytoplankton during the third week of July at inner bay sites. Prior to 2021 the only other year of KBNERR phytoplankton sampling when inner bay sites had sparse phytoplankton during this week of the year was in 2015. Over the past five years we have seen sparse phytoplankton during the last week of July at inner bay sites, so we shall see what the phytoplankton do next week in the inner bay.

Hopefully weather and scheduling will allow us to collect in the outer bay next week.

Thank you to all our monitors for collecting samples.

As always reach out with any questions,

Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

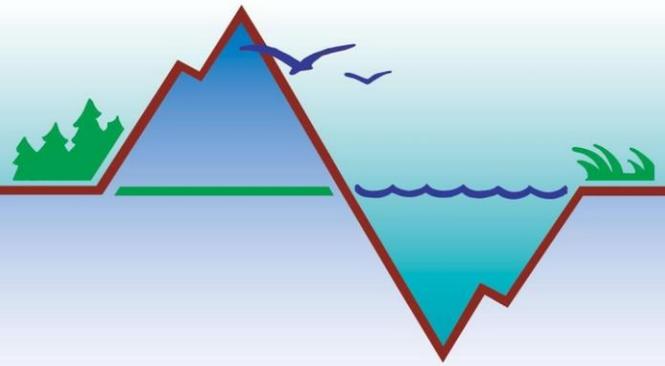
### Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

#### INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
7/16/2022	Peterson Bay	12.8	30	Sparse Sample	Present	None	None
7/21/2022	Homer Harbor	10.5	30	Sparse Sample	Present	None	None
7/21/2022	China Poot	11.3	24.7	Sparse Sample	Present	None	None

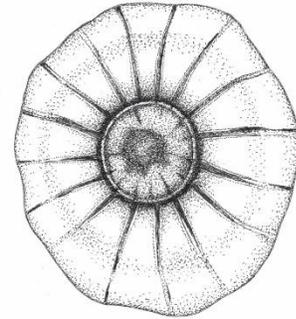


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Hello Everyone,

This week we are seeing an increase in the variety of dinoflagellates in the water at all sites sampled. At the outer bay sites there was plentiful phytoplankton although most sites did not have a single group dominant. Several samples had a diatom called *Planktoniella* present, see illustration by Conrad Field. This diatom has a dark center and transparent outer ring making it look similar to a jellyfish. They are striking and fun to see in the samples.



Thank you to all our monitors for collecting samples.  
 As always reach out with any questions,  
 Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

**Kachemak Bay Research Reserve Phytoplankton Update**  
**Qualitative Analysis Phytoplankton Data**

**INNER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
7/24/2022	Peterson Bay	12.8	30	Sparse Sample	Present	None	None

**OUTER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
7/20/2022	Sadie Cove	9	-	Chaetoceros spp.	Present	None	None
7/22/2022	Sadie Cove	8	-	Chaetoceros spp.	Present	Present	None
7/27/2022	Tutka Bay	8	-	Chaetoceros spp.	Present	Present	None

7/27/2022	Eldred Passage	10	-	Mixed Diatoms	None	Present	None
7/27/2022	Jakolof Bay	10	-	Mixed Diatoms	None	Present	None
7/27/2022	Kasitsna Bay	10	-	Mixed Diatoms	Present	Present	None



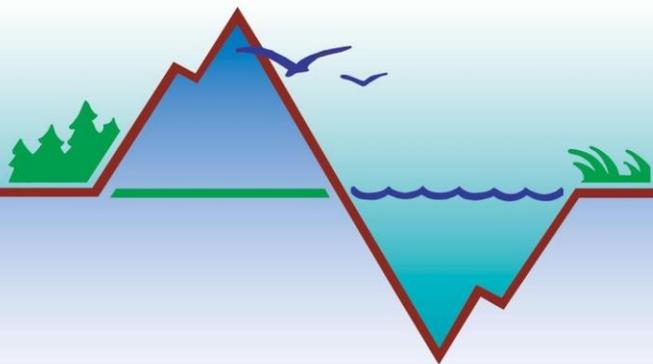
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## Kachemak Bay Research Reserve Phytoplankton Update

July 29<sup>th</sup> – August 4<sup>th</sup>, 2022

Harmful Algal Bloom Program

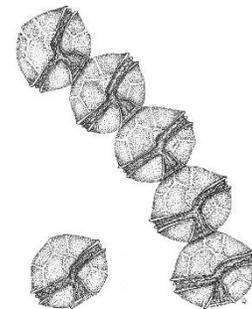
Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This week we see dinoflagellates as the dominant phytoplankton group in samples from the inner and outer bay. This is a shift that often occurs in late summer/early fall in Kachemak Bay. You can notice that *Alexandrium* sp. are present in the sample from China Poot.

*Alexandrium* sp. produce toxins that cause Paralytic Shellfish Poisoning (PSP) when those toxins accumulate in shellfish that are then consumed by humans. Shellfish species accumulate toxins at species specific rates, accumulation of toxins is also influenced by the number of *Alexandrium* cells present in the system. Once accumulated it can take weeks to years for a shellfish to flush the toxins from their tissues.



*Alexandrium* sp. by Conrad Field

Recreational shellfish harvest in Alaska is “**Dig at your own risk.**” There are no beaches that are monitored or regulated by the state for wild shellfish harvest. KBNERR is not a regulatory agency.

Commercial shellfish is regulated by DEC and considered safe for consumption.

Thank you to all our monitors for collecting samples. Have a safe and fun weekend.

As always reach out with any questions,

Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

Kachemak Bay Research Reserve Phytoplankton Update  
Qualitative Analysis Phytoplankton Data

**INNER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
7/31/2022	Peterson Bay	12.2	30	Mixed Dinoflagellate	Present	None	None
7/31/2022	Halibut Cove	12	-	Sparse Sample	None	None	None
8/2/2022	Homer Harbor	12	-	Sparse Sample	None	None	None
8/3/2022	China Poot	12.4		<i>Scrippsiella</i>	Present	None	Present

**OUTER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
8/3/2022	Sadie Cove	13.3	29.5	<i>Chaetoceros</i> spp.	Present	Present	None
8/3/2022	Eldred	12.6	29.3	Mixed Dinoflagellate	Present	None	None



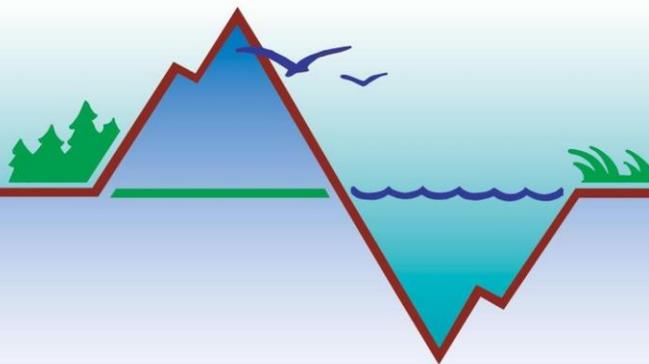
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## Kachemak Bay Research Reserve Phytoplankton Update

August 5<sup>th</sup> – August 18<sup>th</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

Phytoplankton are mostly sparse at sites sampled the past two weeks, except for Sadia Cove and Eldred Passage on August 9<sup>th</sup> when *Chaetoceros* spp. were dominant in those locations. The number of species present in each sample is also currently lower than earlier in the summer.

Thank you to all our monitors for collecting samples.

As always reach out with any questions,  
Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

### Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

#### **INNER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
8/5/2022	Peterson Bay	11.5	26	Sparse Sample	None	None	None
8/7/2022	Peterson Bay	12.2	30	Sparse Sample	Present	Present	None
8/9/2022	China Poot	10.7	29.7	Mixed Dino. And Diatom	Present	Present	None
8/16/2022	China Poot	10	24	Sparse Sample	None	None	None
8/16/2022	Homer Harbor	12	30	Sparse Sample	Present	None	None

## OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
8/5/2022	Seldovia Harbor	-	-	Sparse Sample	None	None	None
8/9/2022	Sadie Cove Middle	11	27.8	<i>Chaetoceros</i> spp.	Present	None	None
8/9/2022	Eldred Passage	11.4	28.3	<i>Chaetoceros</i> spp.	Present	None	None
8/14/2022	Hesketh Island	-	-	Sparse Sample	Present	None	None
8/16/2022	Tutka Middle	12	29	Sparse Sample	Present	None	None
8/16/2022	Sadie Cove	10	31	Sparse Sample	None	None	None
8/16/2022	Eldred	10	29	Sparse Sample	None	None	None



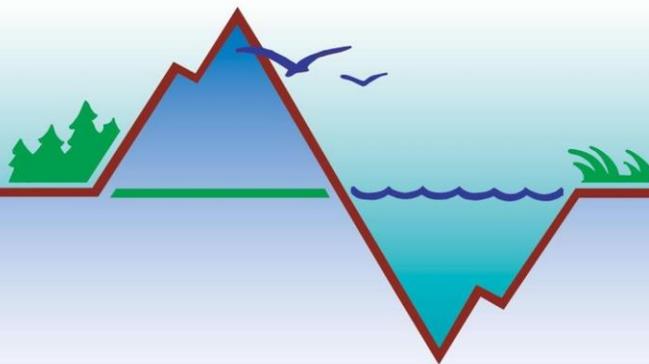
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## Kachemak Bay Research Reserve Phytoplankton Update

August 19<sup>th</sup> – August 25<sup>th</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This week community monitors and keen observers are noticing an abundance of zooplankton in Kachemak Bay, many Pteropods that are large enough to see without magnification. Many zooplankton eat phytoplankton and the increase in their numbers is probably contributing to the decrease in phytoplankton as they are gobbled up. Pteropods are sometimes referred to as sea butterflies, there are many species, for a closer look at these important and beautiful animals check out this short [YouTube video](#).

Thank you to all our monitors for collecting samples.

As always reach out with any questions,  
Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

### Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

#### OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
8/9/2022	Seldovia Harbor	9.4	35.1	<i>Pleurosigma</i>	None	Present	None
8/21/2022	Sadie Cove	8.5	36	<i>Coscinodiscus</i>	Present	None	None
8/25/2022	Seldovia Harbor	-	-	Sparse Sample	Present	Present	None



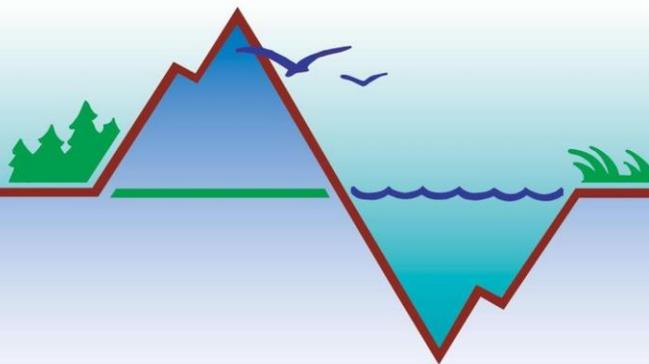
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## Kachemak Bay Research Reserve Phytoplankton Update

August 26<sup>th</sup> – September 8<sup>th</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This week phytoplankton numbers are sparse at most site sampled, Peterson Bay being the exception this week. Zooplankton continue to be visible in phytoplankton samples and around the bay and Homer Harbor. KBNERR Weekly Phytoplankton Updates will continue through September. In October Updates will be shared bi-weekly.

Thank you to all our monitors for collecting samples and sharing your observations from around the bay.

As always reach out with any questions,

Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update.

### Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

#### INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
8/26/2022	Peterson Bay	-	-	Mixed Diatoms	Present	None	None

#### OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/23/2022	Seldovia Harbor	13.4	32.1	Mixed Diatoms	None	Present	None
7/21/2022	Seldovia Harbor	10.4	-	Sparse Sample	None	None	None
7/29/2022	Seldovia Harbor	11.6	32.5	Sparse Sample	None	None	None

8/15/2022	Seldovia Harbor	-	-	Sparse Sample	Present	None	None
8/29/2022	Hesketh	-	30	Sparse Sample	Present	None	None
8/30/2022	Tutka Bay Mid	15	22	Sparse Sample	None	None	None
8/30/2022	Sadie Middle	15	29	Sparse Sample	None	None	None
8/30/2022	Eldred	13	30	Sparse Sample	Present	None	None

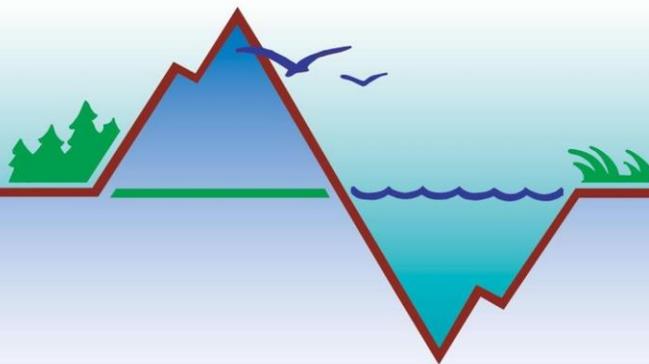


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**Kachemak Bay Research Reserve Phytoplankton Update**  
**September 2<sup>nd</sup> – September 8<sup>th</sup>, 2022**

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This week phytoplankton at all the sites sampled in the inner bay are sparse. KBNERR Weekly Phytoplankton Updates will continue through September. In October Updates will be shared bi-weekly.

Thank you to all our monitors for collecting samples and sharing your observations from around the bay.

As always reach out with any questions,  
Jasmine

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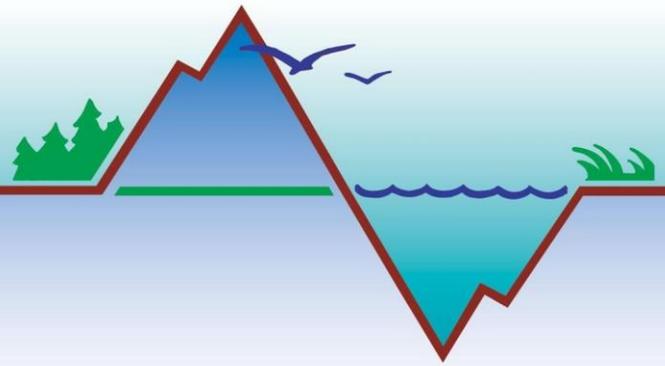
**Kachemak Bay Research Reserve Phytoplankton Update**  
**Qualitative Analysis Phytoplankton Data**

**INNER BAY**

<b>DATE</b>	<b>Bay</b>	<b>Water Temp</b>	<b>Salinity</b>	<b>Dominant species</b>	<b>Dinophysis</b>	<b>Pseudo-nitzschia</b>	<b>Alexandrium</b>
9/6/2022	Halibut Cove	12	25	Sparse Sample	Present	None	None
9/6/2022	Homer Harbor	14	31	Sparse Sample	None	None	None
9/6/2022	Peterson Bay	12	29	Sparse Sample	None	Present	None
9/6/2022	China Poot	13	20	Sparse Sample	None	None	None
9/6/2022	Gull Island	13	29	Sparse Sample	None	None	None



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Hello Everyone,

This week phytoplankton at all the sites sampled are sparse. KBNERR Weekly Phytoplankton Updates will continue through September. In October Updates will be shared bi-weekly.

Thank you to all our monitors for collecting samples and sharing your observations from around the bay.

As always reach out with any questions,  
 Jasmine

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Kachemak Bay Research Reserve Phytoplankton Update  
 Qualitative Analysis Phytoplankton Data

**INNER BAY**

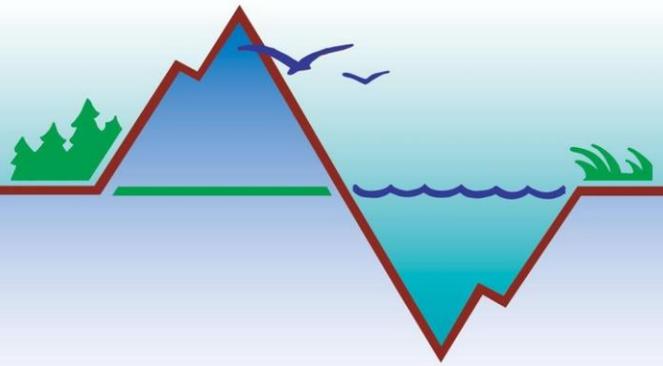
DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
9/14/2022	Homer Harbor	12	28	Sparse Sample	Present	None	None
9/14/2022	Peterson Bay	11	29	Sparse Sample	None	None	None
9/14/2022	China Poot	10.5	30	Sparse Sample	None	None	None

**OUTER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
9/8/2022	Seldovia Harbor	12	33	Sparse Sample	Present	None	None
9/15/2022	Seldovia Harbor	9.9	32	Sparse Sample	None	None	None



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Hello Everyone,

It is fall, the leaves have changed color and there is a crispness to the air. The winds this week, again, preventing us from collecting very many phytoplankton samples. This week in the Homer Harbor phytoplankton is sparse. Should the weather cooperate with our boat schedule we will get out next week and collect more phytoplankton samples to see what is going on with the phytoplankton this fall. After next week updates will be bi-weekly through October.

Thank you to all our monitors for collecting phytoplankton samples this season!  
Jasmine

\*\*Due to weather delays, shipping distances and times, the processing of some samples may happen after the weekly update is shared. The results from these samples will be included in subsequent updates, which is why not all sample dates in the tables below fall within the date range of the current Weekly Update

Kachemak Bay Research Reserve Phytoplankton Update  
Qualitative Analysis Phytoplankton Data

**INNER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
9/22/2022	Homer Harbor	9	30	Sparse Sample	None	None	None

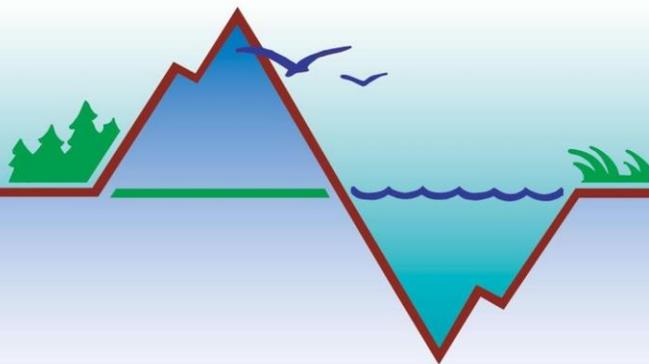


## Kachemak Bay Research Reserve Phytoplankton Update

October 1<sup>st</sup> – October 13<sup>th</sup>, 2022

Harmful Algal Bloom Program

Jasmine Maurer 907-235-4799 [jmaurer@alaska.edu](mailto:jmaurer@alaska.edu)



Hello Everyone,

This week Homer Harbor has mixed dinoflagellates dominating the phytoplankton. In 2013, 2015 and 2018 dinoflagellates were also the dominant group of phytoplankton in October in the inner bay. This differs from Seldovia Harbor that continues to have sparse phytoplankton.

This is the last Weekly Update for 2022. We will continue to collect samples from Homer Harbor throughout the fall and winter and accept samples from monitors that are interested in continuing to collect as well. KBNERR Weekly Phytoplankton Updates will start again in April 2023. The Annual KBNERR Phytoplankton Report will be shared in December.

Thank you to all our monitors for collecting phytoplankton samples this season!

Jasmine

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### Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

#### **INNER BAY**

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
10/5/2022	Homer Harbor	8	27	Sparse Sample	None	Present	None
10/12/2022	Homer Harbor	-	26	Mixed Dinoflagellate	Present	Present	None

## **OUTER BAY**

<b>DATE</b>	<b>Bay</b>	<b>Water Temp</b>	<b>Salinity</b>	<b>Dominant species</b>	<b>Dinophysis</b>	<b>Pseudo-nitzschia</b>	<b>Alexandrium</b>
9/30/2022	Seldovia Harbor	9.6	30	Sparse Sample	Present	None	None
10/6/2022	Seldovia Harbor	9.9	32	Sparse Sample	None	None	None
10/13/2022	Seldovia Harbor	8.4	30	Sparse Sample	None	None	None



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