

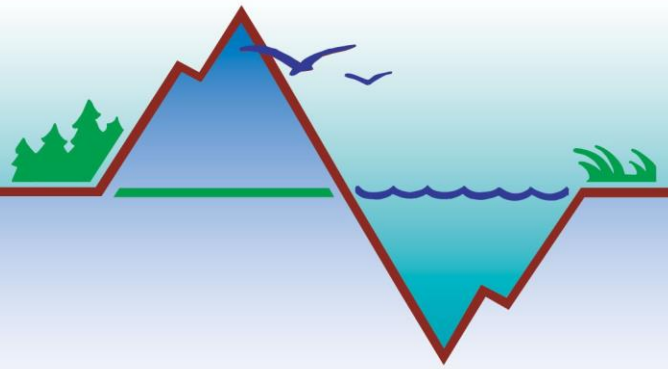
Kachemak Bay Research Reserve Phytoplankton Update

November 2020 – April 29th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

Spring is here and time to share our first phytoplankton update of 2021!

Since our last update in October of 2020 we collected regular samples from the Homer Harbor and received samples from Seldovia Harbor from our partners at Seldovia Village Tribe. Throughout the winter months Homer and Seldovia Harbors had low numbers of phytoplankton.

This year we hosted our Annual Community Monitor Training virtually via Zoom on April 29th. Monitor resources and a tutorial on phytoplankton collection can be found at

<https://accs.uaa.alaska.edu/kbnerr/community-monitoring/community-monitor-training-resources/>

If you were unable to attend and are interested in watching the recording of this year's training please email Rosie at rmmasui@alaska.edu.

Currently **all** KBNERR staff continue to work remotely. We were granted permission for KBNERR staff and community monitors to conduct phytoplankton sampling this summer in a COVID mindful way. At this time we are not able to host in person events or trainings, however UAA has announced that updated safety guidelines will be released next week which may allow for additional activities this sampling season.

The KBNERR research vessel will be launched next week, and we look forward to collecting more sample and reading the samples from our dedicated monitors!

The tables on the following page will be included in each weekly phytoplankton update. 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.

As always please email us with any questions. Email is the best method to reach KBNERR staff while we continue to work remotely.

Thank you for all you contribute to keeping our Kachemak Bay communities safe and informed.

Jasmine and Rosie

Kachemak Bay Research Reserve Phytoplankton Update
Qualitative Analysis Phytoplankton Data

INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
4/16/2021	Homer Harbor	4.1	28.1	Sparse sample	None	None	None
4/26/2021	Homer Harbor	7	28.6	<i>Thalassiosira</i>	None	None	None

*Samples received after last weekly update

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
3/11/2021	Seldovia Harbor	1.0	32	Sparse sample	None	Present	None
4/1/2021	Tutka Lagoon	3.3	31.3	Sparse sample	None	None	None
4/6/2021	Tutka Lagoon	3.3	31.6	Sparse sample	None	Present	None
4/9/2021	Tutka Lagoon	2.1	31.6	Sparse sample	None	Present	None
4/13/2021	Tutka Bay	3.4	31.8	Sparse sample	None	Present	None

*Samples received after last weekly update



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

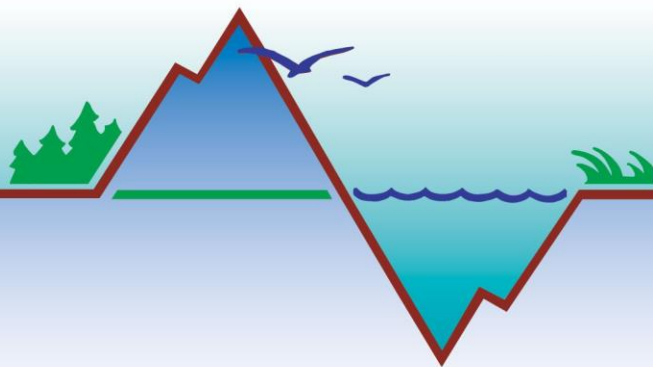
Kachemak Bay Research Reserve Phytoplankton Update

April 30th – May 13th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



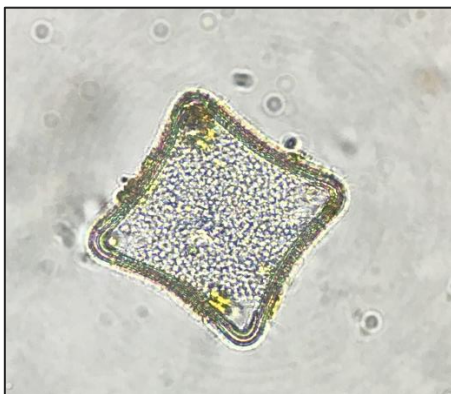
Hello Everyone,

A big thanks to all our monitors who participated in our annual monitor training at the end of April. A reminder for those of you who joined us for the training to please take the evaluation available at the link below. Your responses help us to develop future trainings!

<https://www.surveymonkey.com/r/XCRZW9P>

Phytoplankton samples from inner and outer Kachemak Bay have been sparse. Although the number of phytoplankton in the samples has been low the diversity has increased over the past two weeks.

In the sample from Seldovia Harbor from April 29th we saw several representatives of the diatom *Triceratium*. This is a diatom that we see infrequently and is very beautiful. Species of *Triceratium* that we see are generally large and they can be square, like the one below from Seldovia Harbor in April,



triangular or even star shaped.

The updated guide for **Marine Phytoplankton of South-Central Alaska** is complete. You can access the guide by reaching out to us or downloading it directly from KBNERR's website at

<https://accs.uaa.alaska.edu/wp-content/uploads/KBNERR-Phytoplankton-Guide-2021.pdf>

As always please email us with any questions. Email is the best method to reach KBNERR staff while we continue to work remotely.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

Kachemak Bay Research Reserve Phytoplankton Update
Qualitative Analysis Phytoplankton Data

INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
5/5/2021	Homer Harbor	7.7	27.2	Sparse sample	None	None	None
5/13/2021	½ mile off the Spit	5.2	-	Sparse sample	None	None	None
5/13/2021	Gull Island	5.2	-	Tintinnids	None	None	None

*Samples received after last weekly update

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
4/28/2021*	Tutka Bay	5.3	-	Sparse sample	Present	None	None
4/29/2021*	Seldovia Harbor	5.0	30.0	Sparse sample	None	None	Present
4/30/2021	Tutka Lagoon	5.3	-	Sparse sample	None	Present	None
5/5/2021	Tutka Lagoon	6.0	25.6	Sparse sample	None	None	None
5/7/2021	Seldovia Harbor	5.9	-	Sparse sample	None	Present	None
5/11/2021	Nanwalek Beach	-	-	Sparse sample	None	Present	None
5/11/2021	Nanwalek Lagoon	-	-	Sparse Sample	None	None	None

*Samples received after last weekly update



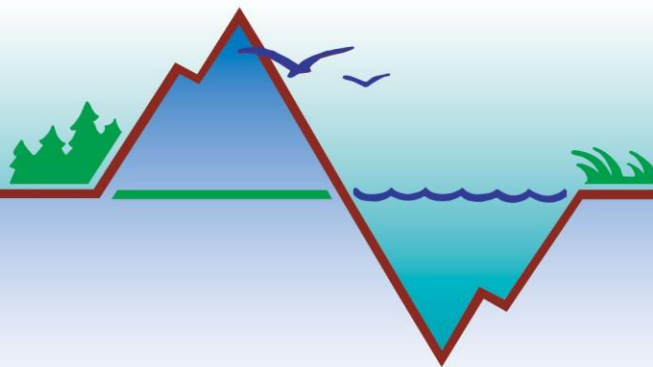
Kachemak Bay Research Reserve Phytoplankton Update

May 14th – May 27th, 2021

Harmful Algal Bloom Program

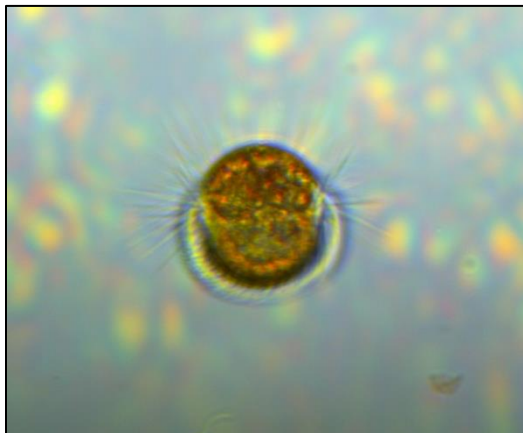
Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

Many of you may have noticed a striking red color in some areas of Kachemak Bay during the last week. KBNERR staff was able to collect phytoplankton samples over the weekend during this event and find out it was this little non-toxic marine ciliate, *Mesodinium rubrum*!



M. rubrum from Kachemak Bay 5/22/21 photo by R. Masui

This ciliate, and its food, have red pigments, so when *Mesodinium rubrum* is abundant it can give the water a red color and, again, *M. rubrum* does **not** produce toxins. A big thanks to our monitors for notifying us about where they were seeing this bloom and to our partners at NOAA for confirming the identification of *M. rubrum*.

Phytoplankton samples from inner and outer Kachemak Bay during the week of May 17th were sparse early in the week, however by the 20th phytoplankton throughout the bay became more abundant in the samples. In Sadie Cove *Chaetoceros debilis* was blooming on May 26th.

Chaetoceros species are a distinctive group of phytoplankton due to their long spines that can get caught in fish gills potentially causing problems for fishes if they are unable to swim away from a bloom of *Chaetoceros*.

Also this week we received a batch of samples from partners in Prince William Sound from their sampling efforts in April. Interestingly, one of the sample locations had abundant phytoplankton in April and the other location was sparse during the same period.

As always please email us with any questions. Email is the best method to reach KBNERR staff while we continue to work remotely.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

Kachemak Bay Research Reserve Phytoplankton Update
Qualitative Analysis Phytoplankton Data

INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
5/12/2021*	Peterson Bay	5	30	Sparse sample	Present	None	None
5/16/2021	China Poot	6	34	Sparse sample	None	None	None
5/18/2021	Homer Harbor	7.9	29.7	Sparse sample	None	None	None
5/22/2021	McNeil	7.7	-	<i>Mesodinium rubrum</i> Bloom	Present	Present	None
5/23/2021	Peterson Bay	5.5	31	Sparse Sample	None	None	None
5/25/2021	Peterson Bay	8	36	<i>Chaetoceros</i> sp.	Present	Present	None
5/26/2021	Homer Harbor	8.4	29	Sparse sample	None	None	None

*Samples received after last weekly update

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
5/13/2021*	Tutka Lagoon	7.2	29	Sparse sample	None	None	None
5/13/2021*	Seldovia	6.3	32	Sparse sample	None	Present	None
5/16/2021	Tutka Lagoon	6.9	29	Sparse Sample	None	None	None
5/18/2021	Tutka Lagoon	8.2	28.2	Sparse Sample	None	None	Present
5/20/2021	Seldovia	6.9	32	Mixed Diatoms	None	Present	Present
5/26/2021	Sadie Cove	11	-	<i>Chaetoceros debilis</i> Bloom	Present	None	None

*Samples received after last weekly update

Prince William Sound

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
4/2/2021*	Sawmill Bay	4.4	25	<i>Chaetoceros</i> sp. Bloom	None	None	None
4/3/2021*	Cannery Creek	5.9	32	Sparse sample	None	Present	None
4/9/2021*	Cannery Creek	6.9	29	Sparse Sample	None	None	None
4/9/2021*	Sawmill Bay	4.5	25	<i>Thalassiosira</i> & <i>C. debilis</i>	None	Present	Present
4/16/2021*	Sawmill Bay	4.7	21	<i>Chaetoceros</i> sp.	None	Present	Present
4/18/2021*	Cannery Creek	6	30	Sparse sample	None	Present	None

*Samples received after last weekly update



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

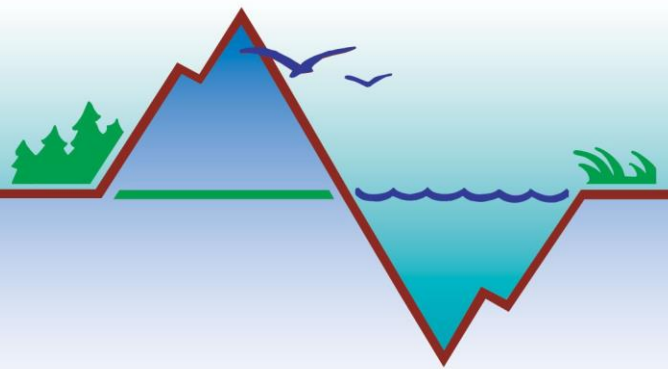
Kachemak Bay Research Reserve Phytoplankton Update

May 28th – June 3rd, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jrmaurer@alaska.edu



Hello Everyone,

This week the phytoplankton were abundant at all the locations sampled. In inner Kachemak Bay a dinoflagellate, *Heterocapsa*, was the most abundant group in Peterson Bay, while mixed *Chaetoceros* species were the dominant group in Homer Harbor. In contrast, the outer Kachemak Bay phytoplankton samples had a wide variety of diatoms present without any one group dominating the sample.

As always please email us with any questions. Email is the best method to reach KBNERR staff while we continue to work remotely.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
5/30/2021	Peterson Bay	5.5	30	<i>Heterocapsa</i>	Present	None	None
6/3/2021	Homer Harbor	9.3	28.5	<i>Chaetoceros</i> spp.	Present	Present	None

*Samples received after last weekly update

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
5/27/2021	Seldovia	7.2	29	Mixed Diatoms	None	Present	None
5/28/2021*	Sadie Cove	6	-	Mixed Diatoms	Present	Present	None

*Samples received after last weekly update



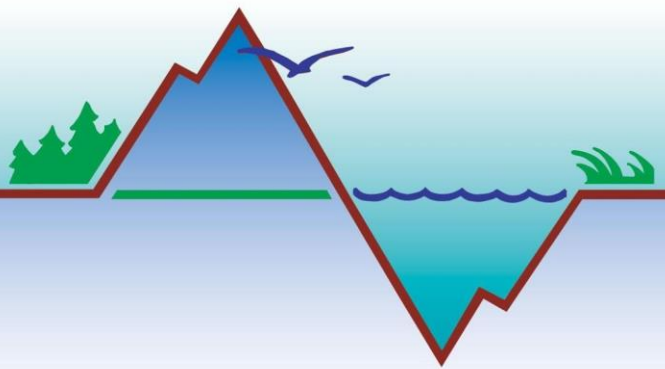
Kachemak Bay Research Reserve Phytoplankton Update

June 4th – June 10th, 2021

Harmful Algal Bloom Program

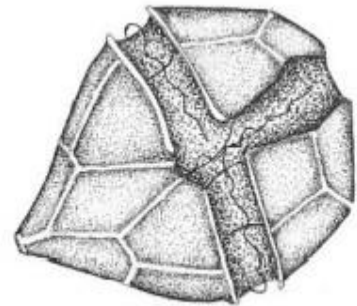
Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

Phytoplankton samples from inner and outer Kachemak Bay have been primarily sparse. We are seeing an abundant amount of *Scrippsiella spp.* in Peterson Bay. This dinoflagellate looks similar to *Alexandrium spp.*, the harmful algal bloom genus that we keep track of, except for a few differences. *Scrippsiella spp.* has a pointed epitheca and its cingulum is in alignment. Check out this great illustration done by Conrad Field for reference. For more information about the phytoplankton we are keeping track of check out our updated guide at: <https://accs.uaa.alaska.edu/wp-content/uploads/KBNER-Phytoplankton-Guide-2021.pdf>



CF

Thank you to all our monitors for collecting phytoplankton samples!
Jasmine and Rosie

Kachemak Bay Research Reserve Phytoplankton Update Qualitative Analysis Phytoplankton Data

INNER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/5/2021	Peterson Bay	6.1	30	<i>Scrippsiella</i>	None	Present	None
6/8/2021	Halibut Cove	7	30	Sparse Sample	None	None	None
6/9/2021	Homer Harbor	11	24.9	Sparse sample	None	None	None

*Samples received after last weekly update

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/1/2021 *	Nanwalek Beach	10	25	Sparse sample	None	None	None
6/4/2021	Seldovia Harbor	8.1	28	Sparse sample	None	Present	None

*Samples received after last weekly update



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

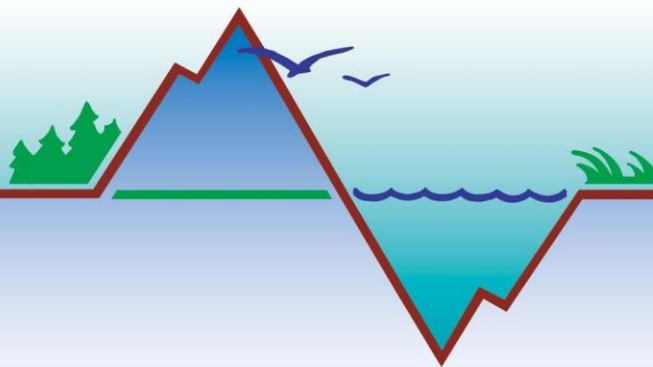
Kachemak Bay Research Reserve Phytoplankton Update

June 11th – June 17th, 2021

Harmful Algal Bloom Program

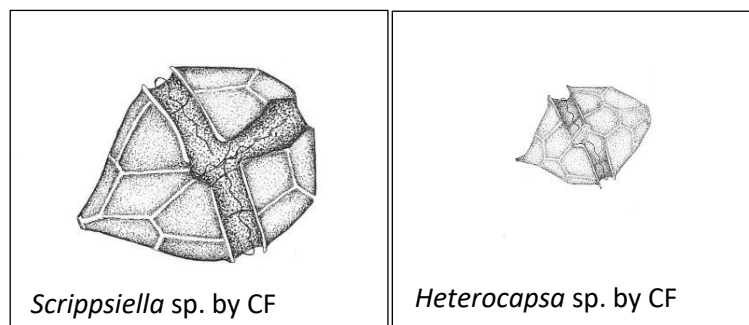
Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

Phytoplankton samples from inner and outer Kachemak Bay have more phytoplankton overall than last week. We are seeing an abundant amount of *Heterocapsa* spp. in Peterson Bay. This dinoflagellate is one of the smaller ones we see in Kachemak Bay. *Heterocapsa* is similar to *Scrippsiella* spp., which was abundant in Peterson Bay last week. These two phytoplankton can be differentiated by the asymmetrical horn and conical epitheca on *Heterocapsa* sp. as well as its small size, see illustration by Conrad Field for comparison. In outer Kachemak Bay *Chaetoceros socialis* was abundant both in Kasitsna Bay and Eldred Passage.



Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
5/29/2021	China Poot	5.5		Mixed Diatoms	None	Present	None
6/11/2021	Peterson Bay	7.2	30	<i>Heterocapsa</i>	None	Present	None
6/12/2021	China Poot	10	31	Mixed Diatoms	None	Present	None

6/15/2021	Halibut Cove	7	30	Sparse Sample	None	None	None
-----------	--------------	---	----	---------------	------	------	------

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
5/22/2021	Tutka Bay Lagoon	6.6	23.1	Sparse Sample	None	None	None
5/26/2021	Tutka Bay Lagoon	9.5	25.9	Sparse Sample	None	None	None
5/28/2021	Tutka Bay Lagoon	13.6	24.7	Sparse Sample	None	None	None
6/2/2021	Tutka Bay	6.7	29.4	Sparse Sample	None	None	None
6/4/2021	Tutka Bay	8.6	28.5	Sparse Sample	None	None	None
6/11/2021	Tutka Bay Lagoon	8.8	20.7	Sparse Sample	Present	None	None
6/16/2021	Kasitsna Bay	9.5	30.8	<i>Lauderia</i> and <i>C. socialis</i> Bloom	None	Present	None
6/16/2021	Eldred Passage	10.2	29.4	<i>Chaetoceros socialis</i>	None	Present	None



Kachemak Bay National Estuarine Research Reserve
 Alaska Center for Conservation Science
 UNIVERSITY of ALASKA ANCHORAGE

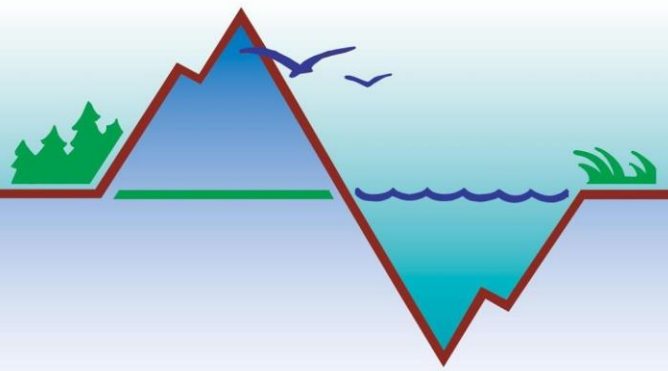
Kachemak Bay Research Reserve Phytoplankton Update

June 18th – June 24th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

This week Peterson Bay phytoplankton is again dominated by the dinoflagellate *Heterocapsa* sp.. while other inner bay sampling sites varied in phytoplankton diversity and abundance. The outer bay samples all had sparse phytoplankton this week.

Currently there is a **Harmful Algal Bloom Alert** for **Southeast, Kodiak, and the Aleutians**. The public service announcements are attached to the KBNERR Phytoplankton Weekly email for additional details. For more information on regional phytoplankton monitoring and wild shellfish toxin testing in those regions please visit the Alaska Harmful Algal Bloom Network website at <https://legacy.aos.org/alaska-hab-network/>

All commercially harvested shellfish are regulated by DEC and considered safe for consumption.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
6/20/2021	Peterson Bay	8.3	29	Heterocapsa	None	None	None
6/21/2021	Peterson Bay CACS	13	31	Heterocapsa	Present	None	None
6/22/2021	Halibut Cove	11	28	Sparse Sample	None	None	None
6/23/2021	Homer Harbor	10.9	28.6	Mixed Diatoms	None	Present	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/5/2021	Nanwalek Beach	12	30	Sparse Sample	None	None	None
6/15/2021	Nanwalek Beach	12	30	Sparse Sample	None	Present	None
6/17/2021	Sadie Cove	10	16	Sparse Sample	Present	Present	None
6/18/2021	Tutka Bay	8.2	31.1	Sparse Sample	Present	Present	None



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

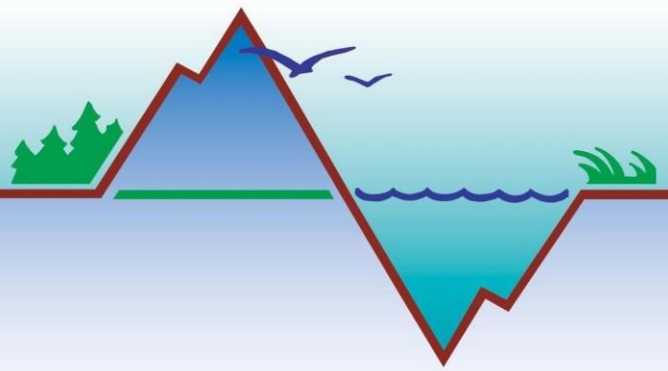
Kachemak Bay Research Reserve Phytoplankton Update

June 25th – July 1st, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

This week phytoplankton in the inner bay were sparse at all the sites sampled. We did see *Pseudo-nitzschia* and *Dinophysis* species, two species of concern, present in low abundances in almost all the inner bay samples. A group of phytoplankton is considered present if at least one cell of that group is seen in the sample. We monitor the abundances of the three species of concern with specific criteria to provide valuable information to shellfish harvesters of all types and public health officials to protect human health in our communities. KBNERR is not a regulatory agency, the statewide stance toward harvesting and consumption of wild shellfish is “Dig at your own risk”.

As a reminder *Pseudo-nitzschia* sp. produce domoic acid, this toxin acts as a neurotoxin and can lead to amnesic shellfish poisoning (ASP) in humans, birds, and marine mammals when toxic shellfish are consumed. *Dinophysis* sp. produce okadaic acid which can lead to diarrhetic shellfish poisoning (DSP) after consumption of contaminated shellfish. For more information on these species and symptoms associated with each please check out the [resources on our website](#) or see the fact sheets attached to this week’s KBNERR Weekly Phytoplankton email.

All commercially harvested shellfish are regulated by the DEC and considered safe for consumption.

The outer bay this week had abundant and blooming phytoplankton at all sites sampled except for Seldovia Harbor. Two diatoms, *Dactyliosolen* sp. and *Lauderia* sp. dominated at several outer bay locations.

As always, please reach out with any questions. We wish everyone a happy Fourth of July holiday!

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
6/20/2021	China Poot	8	33	Mixed Diatoms	Present	Present	None
6/25/2021	China Poot	7.5	-	Sparse Sample	Present	Present	None
6/29/2021	Halibut Cove	11	28	Sparse Sample	None	None	None
6/29/2021	Homer Harbor	10.6	27.7	Sparse Sample	Present	Present	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/29/2021	Sadie Cove	12	-	Mixed Diatoms	None	Present	Present
6/30/2021	Seldovia	9.6	27.5	Sparse Sample	None	Present	None
6/30/2021	Kasitsna	9.4	29.8	<i>Dactyliosolen</i> sp. and <i>Lauderia</i> sp	None	Present	None
6/30/2021	Jakolof	10.3	30.1	Mixed Diatoms	None	Present	None
6/30/2021	Tutka Bay	12	-	<i>Dactyliosolen</i> sp. Bloom	None	Present	None
6/30/2021	Sadie Entrance	10.9	30.4	<i>Dactyliosolen</i> sp. Bloom	None	Abundant	None
6/30/2021	Eldred Passage	10.2	30.2	Mixed Diatoms	None	Present	None



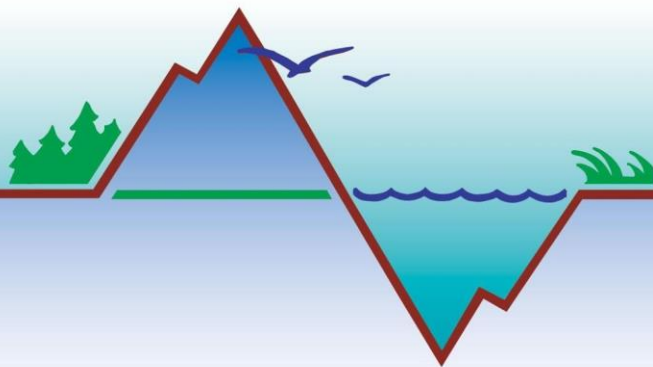
Kachemak Bay Research Reserve Phytoplankton Update

July 2nd – July 8th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

This was a short week with the Fourth of July Holiday and relatively few phytoplankton samples to report out on this week. Phytoplankton are abundant this week in the samples from most of the inner bay sites collected this week.

The Alaska Harmful Bloom Network ([AHAB](#)) [2020 HAB Summary by region](#) is complete and available on the AHAB website. You will also find the 2019 HAB Summary by region there.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
7/3/2021	China Poot	9	32	Mixed Diatoms	None	None	None
7/4/2021	Peterson Bay	9.4	29	Heterocapsa sp.	None	None	None
7/6/2021	Halibut Cove	11	28	Sparse Sample	None	Present	None
7/7/2021	Homer Harbor	11.1	28.5	Mixed Diatoms	None	Present	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
6/30/2021	Sadie Cove	13.5	-	Mixed Diatoms	Present	Present	Present



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

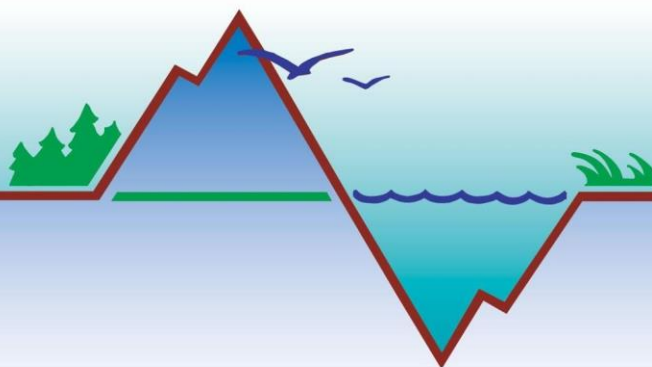
Kachemak Bay Research Reserve Phytoplankton Update

July 9th – July 15th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jrmaurer@alaska.edu



Hello Everyone,

We have relatively few samples to report out on this week. However, each of the three locations sampled had abundant phytoplankton with *Chaetoceros* sp. dominating the inner bay sites.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
7/6/2021	Halibut Cove	11	27	<i>Chaetoceros</i> Bloom	None	None	None
7/14/2021	Homer Harbor	9.9	27.5	<i>Chaetoceros</i> sp.	None	Present	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
7/8/2021	Sadie Cove	13.5	31	Mixed Diatoms	Present	Present	None



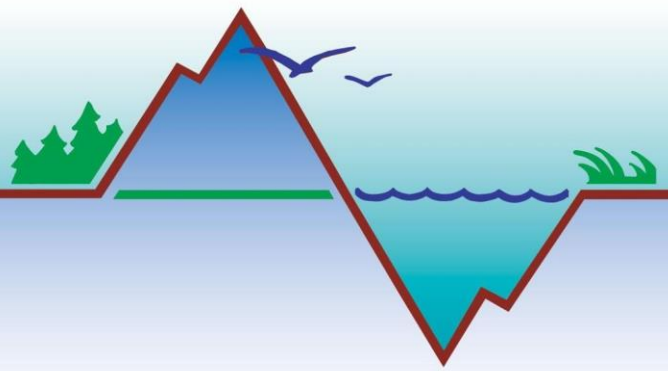
Kachemak Bay Research Reserve Phytoplankton Update

July 16th – July 22nd, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jrmaurer@alaska.edu



Hello Everyone,

This week we saw a variety of phytoplankton species present in samples from the inner and outer bay with different groups dominating in different sub-bays. Halibut Cove phytoplankton was dominated by two different phytoplankton blooms, *Chaetoceros* sp. and *Rhizosolenia* sp.. The only other years *Rhizosolenia* sp. was the dominant phytoplankton in inner Kachemak Bay during July were 2014 and 2016.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
6/29/2021	Peterson	12	30	Sparse Sample	None	Present	None
7/11/2021	China Poot	8.5	34	Sparse Sample	None	Present	None
7/17/2021	Peterson	-	-	Sparse Sample	None	None	None
7/18/2021	China Poot	11	20	Mixed Diatoms	None	Present	None
7/20/2021	Halibut Cove	11	28	<i>Chaetoceros</i> & <i>Rhizosolenia</i> Bloom	None	None	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
7/14/2021	Sadie Cove	14	-	<i>Dactyliosolen</i> Bloom	Present	Present	Present
7/16/2021	Sadie Cove	14	31	<i>Chaetoceros</i> spp.	None	None	None



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

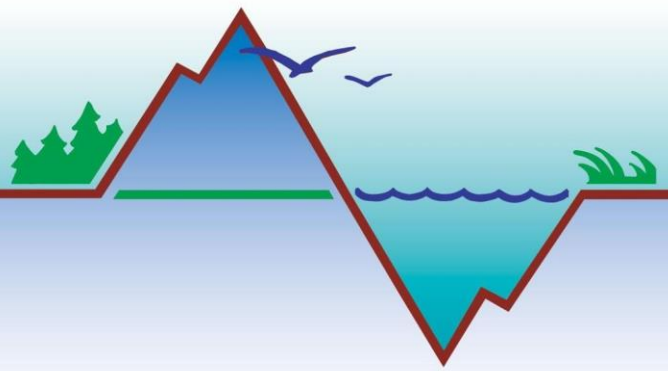
Kachemak Bay Research Reserve Phytoplankton Update

July 23rd – July 29th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jrmaurer@alaska.edu



Hello Everyone,

This week we continued to see a variety of phytoplankton species present in samples from the inner and outer bay. *Dactyliosolen* sp. dominated several sites in outer Kachemak Bay and *Chaetoceros* spp. were blooming in Halibut Cove. *Chaetoceros* spp. have spines that can clog gills in fishes. This can be problematic for fishes held in net pens when they are unable to swim away from a bloom, however *Chaetoceros* spp. do not produce any toxins.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
7/22/2021	China Poot	10	31	Mixed Diatoms	None	Present	None
7/27/2021	Halibut Cove	8	26	<i>Chaetoceros</i> sp. bloom	None	None	None
7/28/2021	Homer Harbor	12.4	27.5	Sparse Sample	None	Present	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
------	-----	------------	----------	------------------	------------	------------------	-------------

7/22/2021	Seldovia Harbor	10	34	<i>Dactyliosolen</i> sp.	None	Present	None
7/28/2021	Jakolof	10.8	30.6	Mixed Diatoms	Present	Present	None
7/28/2021	Kasitsna	10.9	30.3	Mixed Diatoms	None	None	None
7/28/2021	Tutka Bay	12.1	25.6	<i>Dactyliosolen</i> sp. Bloom	Present	Present	None



Kachemak Bay National Estuarine Research Reserve
 Alaska Center for Conservation Science
 UNIVERSITY of ALASKA ANCHORAGE

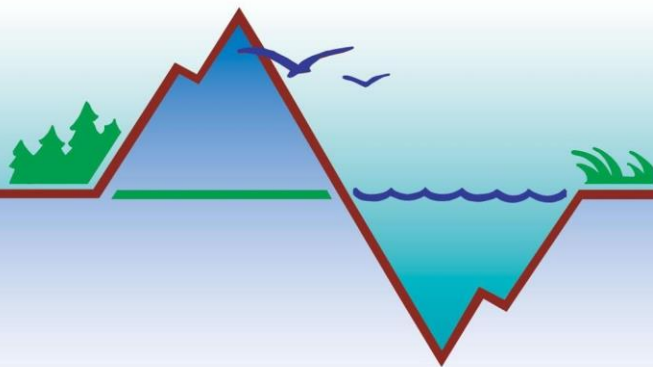
Kachemak Bay Research Reserve Phytoplankton Update

July 30th – August 5th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

Happy August everyone! This week outer Kachemak Bay sites have an abundance of phytoplankton present with bloom levels in Seldovia and Eldred passage. In inner Kachemak Bay Halibut Cove had sparse phytoplankton after experiencing bloom levels of *Chaetoceros* sp. last week.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
8/3/2021	Halibut Cove	14	27	Sparse Sample	None	None	None
8/4/2021	Homer Harbor	13.6	27.2	Mixed Diatoms	None	Present	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
7/30/2021	Seldovia Harbor	10	34	<i>Dactyliosolen</i> sp. bloom	None	None	None
8/4/2021	Eldred Passage	-	-	<i>Leptocylindrus</i> bloom	None	None	None
8/4/2021	Sadie Cove	10.9	30.3	<i>Chaetoceros</i> sp.	None	Present	None
8/5/2021	Seldovia	11	34	<i>Leptocylindrus</i> and <i>Dactyliosolen</i>	None	None	Present



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

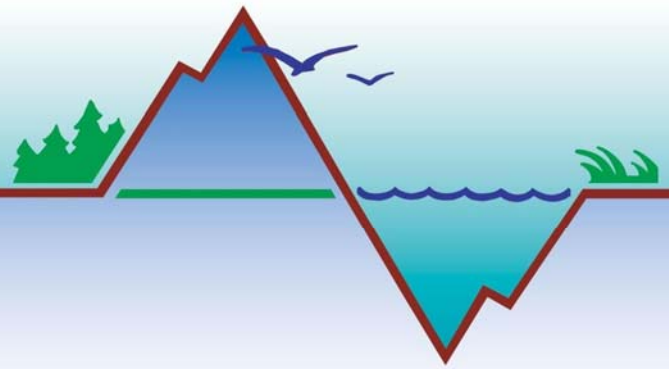
Kachemak Bay Research Reserve Phytoplankton Update

August 6th – August 12th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

This week there was sparse phytoplankton at the locations sampled, Seldovia, Peterson Bay, and Homer Harbor. Sparse phytoplankton in mid-August in past years is not unusual and has been followed by weeks of more abundant phytoplankton before winter sets in. We shall see what this year brings.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
8/7/2021	Peterson Bay	11.7	30	Sparse Sample	Present	Present	None
8/12/2021	Homer Harbor	12.8	26.4	Sparse Sample	Present	Present	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
8/6/2021	Seldovia Harbor	11.7	32	<i>Leptocylindrus</i>	None	Present	Present
8/12/2021	Seldovia Harbor	10.6	33	Sparse Sample	None	None	None



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

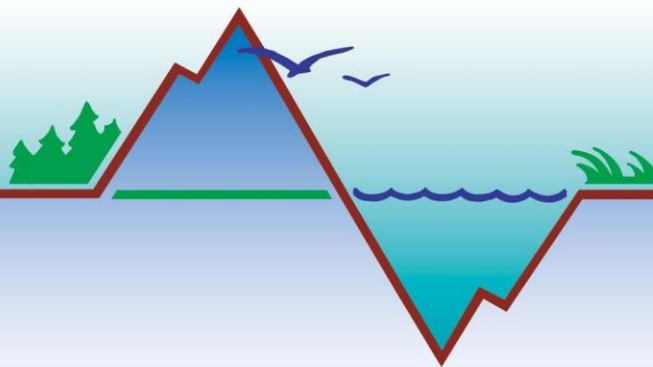
Kachemak Bay Research Reserve Phytoplankton Update

August 13th – August 19th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jrmaurer@alaska.edu



Hello Everyone,

This week we saw a variety of phytoplankton throughout Kachemak Bay at most sampling sites. Homer Harbor and China Poot are the two exceptions both having sparse phytoplankton this week. In outer Kachemak Bay diatoms were dominant at most sites.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
8/15/2021	Peterson Bay	11.6	30	<i>Skeletonema</i>	None	Present	None
8/17/2021	Halibut Cove	12	28	<i>Chaetoceros</i> spp.	None	None	None
8/18/2021	Homer Harbor	12.4	25.4	Sparse Sample	Present	Present	None
8/18/2021	China Poot	9.9	30.8	Sparse Sample	Present	Present	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
8/18/2021	Kasitsna Bay	11.3	30.4	<i>Dictyocha</i> spp.	Present	Present	None

8/18/2021	Jakolof Bay	10.9	30.5	<i>Leptocylindrus</i> sp.	Present	Present	None
8/18/2021	Sadie Cove	11.5	28.6	<i>Skeletonema</i> bloom	None	Present	None
8/18/2021	Eldred Passage	11.2	29.1	<i>Skeletonema</i> sp	None	Present	None



Kachemak Bay National Estuarine Research Reserve
 Alaska Center for Conservation Science
 UNIVERSITY of ALASKA ANCHORAGE

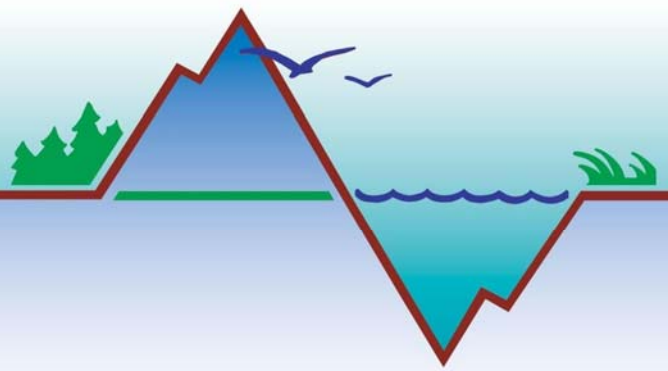
Kachemak Bay Research Reserve Phytoplankton Update

August 20th – August 26th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

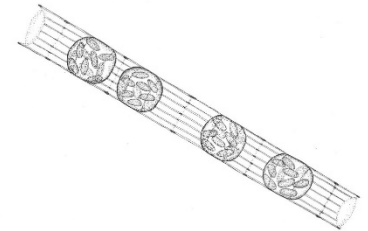
Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

This week we saw the diatom *Skeletonema* sp. blooming in Homer Harbor and Peterson Bay. *Skeletonema* sp. are found worldwide and often present in Kachemak bay, cells are connected to adjoining cells by “knuckles” on threads extending between the cells. *Skeletonema* sp. are considered a good food source for oysters and zooplankton.

Samples also arrived from two Cook Inlet sites from earlier this month, both locations had sparse phytoplankton on the date sampled.



Skeletonema illustration by Conrad Field

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
8/22/2021	Peterson Bay	12.8	30	<i>Skeletonema</i> Bloom	None	Present	None
8/24/2021	Peterson Bay CACS	11	30	<i>Skeletonema</i> Bloom	None	Present	None
8/26/2021	Homer Harbor	11.3	28	<i>Skeletonema</i> Bloom	Present	Present	None

COOK INLET

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
8/4/2021	Kirshner Falls	13.15	25	Sparse Sample	None	None	None
8/4/2021	Bruin Bay	14	29	Sparse Sample	None	None	None



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

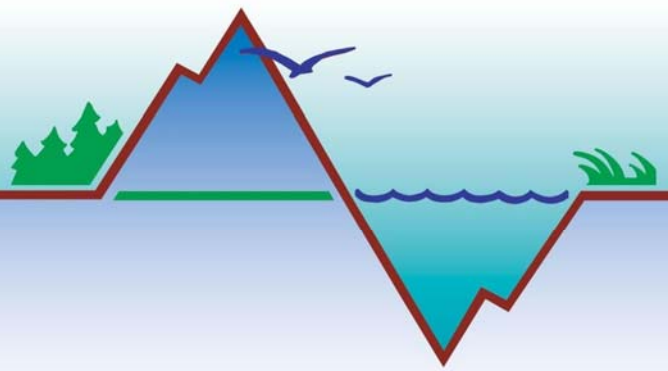
Kachemak Bay Research Reserve Phytoplankton Update

August 27th – September 2nd, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jrmaurer@alaska.edu



Hello Everyone,

This week in the Homer Harbor *Skeletonema* sp. is still at bloom level. Other inner bay sites, China Poot and Halibut Cove, *Skeletonema* sp. are the most dominant phytoplankton this week although not blooming at those locations. Weekly phytoplankton updates will continue through September.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
8/8/2021	China Poot	11	30	Sparse Sample	Present	None	None
8/11/2021	China Poot	10	33	Sparse Sample	Present	None	None
8/22/2021	China Poot	10	34	Sparse Sample	Present	Present	None
8/25/2021	China Poot	9.5	32	<i>Skeletonema</i>	Present	Present	None
8/29/2021	China Poot	11	30	<i>Skeletonema</i>	None	Present	None
8/31/2021	Halibut Cove	12	28	<i>Skeletonema</i> Bloom	None	Present	None
9/1/2021	Homer Harbor	12.3	25.5	<i>Skeletonema</i> Bloom	Present	Present	None



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

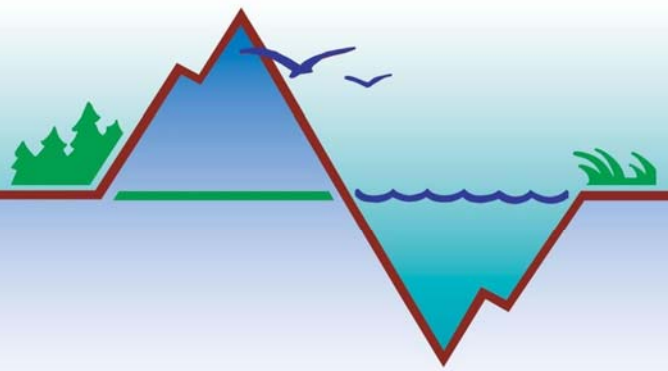
Kachemak Bay Research Reserve Phytoplankton Update

September 3rd – September 9th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jrmaurer@alaska.edu



Hello Everyone,

This week inner bay phytoplankton samples are sparse. This sparsity of phytoplankton in early September at inner Kachemak Bay sites has been consistently observed since 2018. Late September phytoplankton abundance and species composition has been less consistent during the same time. We shall see what the phytoplankton do this year and will keep you all informed with Weekly Updates through the end of September.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples!

Jasmine and Rosie

**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
9/7/2021	Peterson Bay	12	29	Sparse Sample	Present	None	None
9/7/2021	Homer Harbor	11.6	27.6	Sparse Sample	Present	None	None
9/8/2021	Halibut Cove	12	28	Sparse Sample	None	None	None



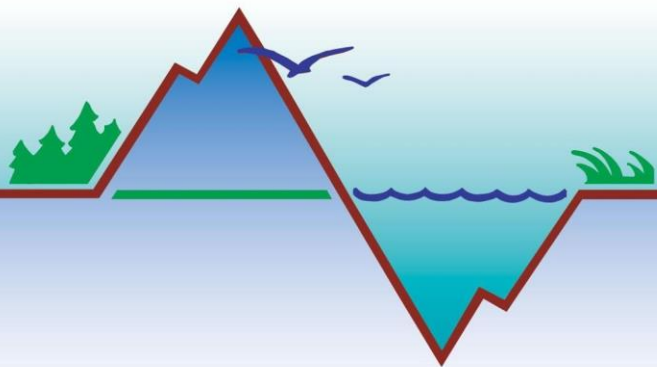
Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE

**Kachemak Bay Research Reserve Phytoplankton Update
September 10th – September 16th, 2021**

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

This week Homer Harbor has sparse phytoplankton and is the only phytoplankton sample we have to report on. With the change in weather and season we anticipate few samples will be collected in the remaining weeks of September, therefore we shall switch to biweekly updates. The next KBNERR phytoplankton update will be sent on September 30th.

This winter we look forward to connecting with our monitors and partners after a busy summer for everyone. KBNERR's Harmful Algal Bloom Annual Report will be shared in December.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples during this especially busy summer!
Jasmine and Rosie

**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
9/16/2021	Homer Harbor	10.9	28.1	Sparse Sample	Present	Present	None



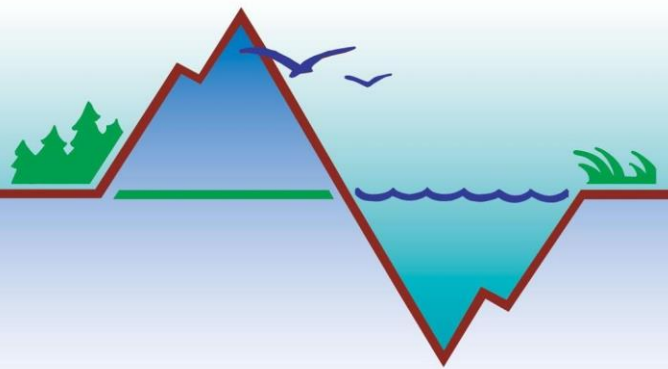
**Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science**
UNIVERSITY of ALASKA ANCHORAGE

Kachemak Bay Research Reserve Phytoplankton Update
September 17^h – September 30th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

Fall is here, the trees have on their golden cloaks and frosting mornings are becoming common throughout the bay. We are also nearing the end of the season for KBNERR Weekly Phytoplankton Updates as temperatures drop and days become shorter. For this week we can share that we saw a variety of diatoms in Homer Harbor and last week phytoplankton in Seldovia Harbor were sparse.

As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples during this especially busy summer!
Jasmine and Rosie

**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
9/30/2021	Homer Harbor	7.9	26.6	Mixed Diatoms	None	Present	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
9/4/2021	Seldovia Harbor	11.6	29	<i>Leptocylindrus</i> spp.	Present	None	None
9/16/2021	Seldovia Harbor	10.3	29	Sparse Sample	Present	None	None



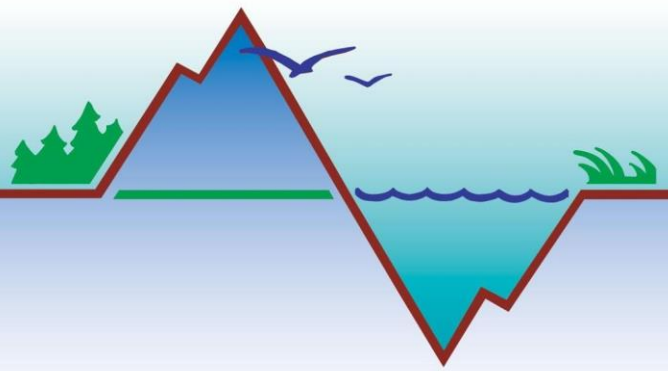
Kachemak Bay Research Reserve Phytoplankton Update

October 1st – October 7th, 2021

Harmful Algal Bloom Program

Rosie Masui 907-235-1598 rmmasui@alaska.edu

Jasmine Maurer 907-235-4799 jmaurer@alaska.edu



Hello Everyone,

This will be the last KBNERR Phytoplankton Update for 2021. This week we saw an increase in abundance of *Pseudo-nitzschia* at two sample locations, Eldred passage and Peterson Bay. *Pseudo-nitzschia* sp. can produce domoic acid and cause amnesiac shellfish poisoning when toxic shellfish are consumed. Cell counts for all three species of concern are used to determine abundance classification. It is not unusual for *Pseudo-nitzschia* to reach these density levels in Kachemak Bay during the sampling season. To date in Alaska there are no reported cases of amnesiac shellfish poisoning in humans.

Commercially harvested shellfish are monitored by DEC and considered safe for consumption.

We will share our Phytoplankton Annual Report via email in December. As always, please reach out with any questions.

Thank you to all our monitors for collecting phytoplankton samples this especially summer!
Jasmine and Rosie

**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
10/02/2021	Peterson Bay	8	36	<i>Pseudo-nitzschia</i>	Present	Abundant	None
10/07/2021	Homer Harbor	-	-	Mixed Diatoms	Present	Present	None

OUTER BAY

DATE	Bay	Water Temp	Salinity	Dominant species	Dinophysis	Pseudo-nitzschia	Alexandrium
10/05/2021	Eldred Passage	9	29.7	<i>Pseudo-nitzschia</i>	Present	Abundant	Present
10/05/2021	Kasitsna Bay	8.9	29.9	Mixed Diatoms	Present	Present	None



Kachemak Bay National Estuarine Research Reserve
Alaska Center for Conservation Science
UNIVERSITY of ALASKA ANCHORAGE