Lab ID	Sample Type	Community	Sample Date	Saxitoxin (ug/100g)	Domoic Acid (ppm)
B00062	Blue mussel	Port Graham	7/23/2025	<LOD	<LOD
B00063	Goosenck barnacle	Kachemak Bay	7/25/2025	31	0.17
B00064	Razor clams - foot	Ninilchik	7/24/2025	32	0.14
B00065	Razor clam - siphon	Ninilchik	7/24/2025	<LOD	0.13
B00066	Razor clam - gut	Ninilchik	7/24/2025	<LOD	0.1
B00067	Razor clam - foot	West Cook Inlet	7/25/2025	<LOD	0.16
B00068	Razor clam - siphon	West Cook Inlet	7/25/2025	<LOD	0.1
B00069	Razor clam - gut	West Cook Inlet	7/25/2025	<LOD	0.14
B00070	Razor clam - foot	West Cook Inlet	7/25/2025	<LOD	0.13
B00071	Razor clam - siphon	West Cook Inlet	7/25/2025	<LOD	0.19
B00072	Razor clam - gut	West Cook Inlet	7/25/2025	5	0.2
B00073	Blue mussel	Seldovia	7/24/2025	8	0.16
B00074	Bidarki	Seldovia	7/24/2025	<LOD	0.12
B00075	Blue mussel	Nanwalek	4/14/2025	<LOD	<LOD
B00076	Blue mussel	Nanwalek	5/20/2025	<LOD	0.008
B00077	Blue mussel	Nanwalek	5/30/2025	<LOD	<LOD
B00078	Blue mussel	Nanwalek	6/10/2025	<LOD	0.008
B00079	Blue mussel	Nanwalek	6/25/2025	<LOD	0.11
B00080	Blue mussel	Nanwalek	7/23/2025	<LOD	<LOD
B00084	Butter clam	Seldovia	8/10/2025	49	<LOD
B00090	Razor clam	Cresent Creek	6/25/2025	<LOD	0.044
B00091	Razor clam	Ninilchik	8/8/2025	<LOD	0.009
B00092	Butterclams	Seldovia	9/6/2025	11	<LOD
B00093	Blue mussel	Nanwalek	8/8/2025	3	<LOD
B00094	Blue mussel	Nanwalek	8/21/2025	2	0.006

Analytical Report

Chugach Regional Resources Commission

Alutiiq Pride Marine Institute (APMI)

&

The Kachemak Bay National Estuary Research Reserve (KBNERR)

Project Name: Chugach Regional Ocean Monitoring Program

Phytoplankton and Harmful Algal Bloom (HAB) Toxin Report

November 2025

There were two harmful algal blooms that occurred in Kachemak Bay during the summer and fall of 2025. The CROM program can provide year-round toxin testing and conducts regular seasonal testing from April to October. CRRC, APMI, and KBNERR do not make recommendations for shellfish consumption. Alaska is a harvest at your own risk state. The CROM program works to keep record of these events, so they are well documented for the Chugach region; below is the final updated overview on the HABs from the 2025 field season in Kachemak Bay.

Pseudo-nitzschia spp. bloom and domoic acid testing (July–August 2025): During July and August 2025 there was a *Pseudo-nitszchia* bloom in Kachemak Bay, CRRC Biology staff and KBNERR coordinated samples for phytoplankton analysis and domoic acid testing. CRRC staff received phytoplankton tows from Nanwalek and Port Graham and Shellfish samples from Nanwalek, Port Graham, Seldovia, and from KBNERR (collected from Ninilchik and western Cook Inlet). Samples were sent to APMI for analysis (data sheet attached). Results showed low levels of domoic acid in several species (Figure 1). These concentrations were well below the federal regulatory limit of 20 parts per million (ppm). The highest level of domoic acid found in samples from this bloom was 0.20 ppm and was found in razor clams from western Cook Inlet. Domoic acid is often found at low levels in the ocean, and results like these help track background conditions in local shellfish populations. Samples from marine mammals and seabirds were sent to a variety of agencies (state and federal) to look for Domoic Acid. As of right now none of the results point towards Domoic Acid as being the primary cause of the various die-off and/or strandings.

Alexandrium spp. bloom and saxitoxin testing (September 2025): In the first week of September 2025, KBNERR staff detected elevated levels of *Alexandrium* in samples from Gull Island in Kachemak Bay. KBNERR helped CRRC staff coordinate samples to the Alaska Department of Environmental Conservation for saxitoxin (paralytic shellfish poison (PSP)) testing; KBNERR coordinated samples from Port Graham, Seldovia, and various locations throughout Kachemak Bay. ***Testing from the Results show that blue mussels in Kachemak Bay were holding PSP above the regulatory limit. Samples above the regulatory limit were from Halibut Cove, Peterson Bay, Yukon Island and the Homer Harbor***. Butter clams from Yukon Island were above the regulatory limit, however, tanner crabs were below the limit. Samples collected in Kachemak Bay communities between April and September 2025 that were sent to APMI for processing did not result in any saxitoxin concentrations above the federal regulatory limit of 80 µg/100g (Figure 2). The highest levels of toxins found from community submitted samples during this bloom were from Seldovia butter clams and were 49 ug/100g.

Response and continued efforts: Both bloom events highlight the value of community and partner coordination in monitoring phytoplankton and toxin levels. CRRC and KBNERR will continue to monitor and share public updates and safety information with coastal communities. Ongoing testing will help improve understanding of seasonal changes and toxin risk in the region.

Following these events, CRRC staff consulted with the Tribal governments of Nanwalek and Port Graham to review the response process and identify ways to strengthen coordination and communication during future bloom events. Continued testing of shellfish and water samples will support early detection and response planning for upcoming seasons.

Acknowledgements: CRRC recognizes Tribal Governments and community members of Nanwalek, Port Graham, and Seldovia for participating in samplings, coordination, and communications during this event. We also acknowledge KBNERR and the Alaska Harmful Algal Bloom Network for supporting

additional testing and coordination during these Blooms. Working as a community made monitoring in Kachemak Bay possible.

HAB and HAB Toxin General Info

HABs and HAB Toxins: Phytoplankton are microscopic, plant-like organisms that form the base of marine food webs. At times, some species grow in very large numbers, creating what is called a "bloom." A few bloom-forming species, such as *Alexandrium* and *Pseudo-nitzschia*, can produce biotoxins. These toxins may build up in shellfish and other marine life, which is why the CROM program tracks their presence. The phytoplankton *Alexandrium* can produce saxitoxin, which causes paralytic shellfish poisoning; and *Pseudo-nitzschia* can produce domoic acid which causes amnesia shellfish poisoning.

Paralytic Shellfish Poisoning (PSP)

- **Cause:** Toxin called **saxitoxin**, often from the phytoplankton **Alexandrium**.
- **How it gets to people:** Toxin can build up in shellfish (e.g., mussels, clams). The water may look normal. **Cooking/freezing does not remove the toxin.**
- **Timing & symptoms:** Usually start within minutes to a few hours after eating. Tingling or numbness around lips and fingers, headache, dizziness, nausea/vomiting; severe cases can affect breathing.

Amnesic Shellfish Poisoning (ASP)

- **Cause:** Toxin called **domoic acid**, often from the phytoplankton **Pseudo-nitzschia.**
- **How it gets to people:** Builds up in shellfish and some other seafood. **Cooking/freezing does not remove the toxin.**
- **Timing & symptoms:** Can start within hours or a day. Nausea, vomiting, diarrhea, headache; in some cases, confusion or short-term memory problems.

Federal regulatory limit: This is the amount of toxins allowable in commercially sold shellfish. This limit is decided by the U.S. Federal government.

- **PSP:** 80 micrograms per 100 grams of shellfish (80µg/100 g)
- **ASP:** 20 parts per million (ppm) (or 2000 µg/100g)

Different species of shellfish hold toxins for different lengths of time, with blue mussels potentially filtering out toxins within weeks but butter clams holding these toxins for up to two years.

If you are experiencing any of the above symptoms after eating shellfish seek medical care immediately

As we enter harvest season, if you would like subsistence use areas near your community to be monitored for saxitoxin or domoic acid, or for general questions and comments, please reach out to:

Allison Carl, CRRC/APMI Biology Lab Manager – acarl@crrcalaska.org

Michael Opheim, CRRC Tribal Fish & Wildlife Liaison - michael@crrcalaska.org

Rose Masui, KBNERR Coastal Training Program Specialist and Alaska Harmful Algal Bloom Engagement Lead - rmmasui@alaska.edu

Figures:

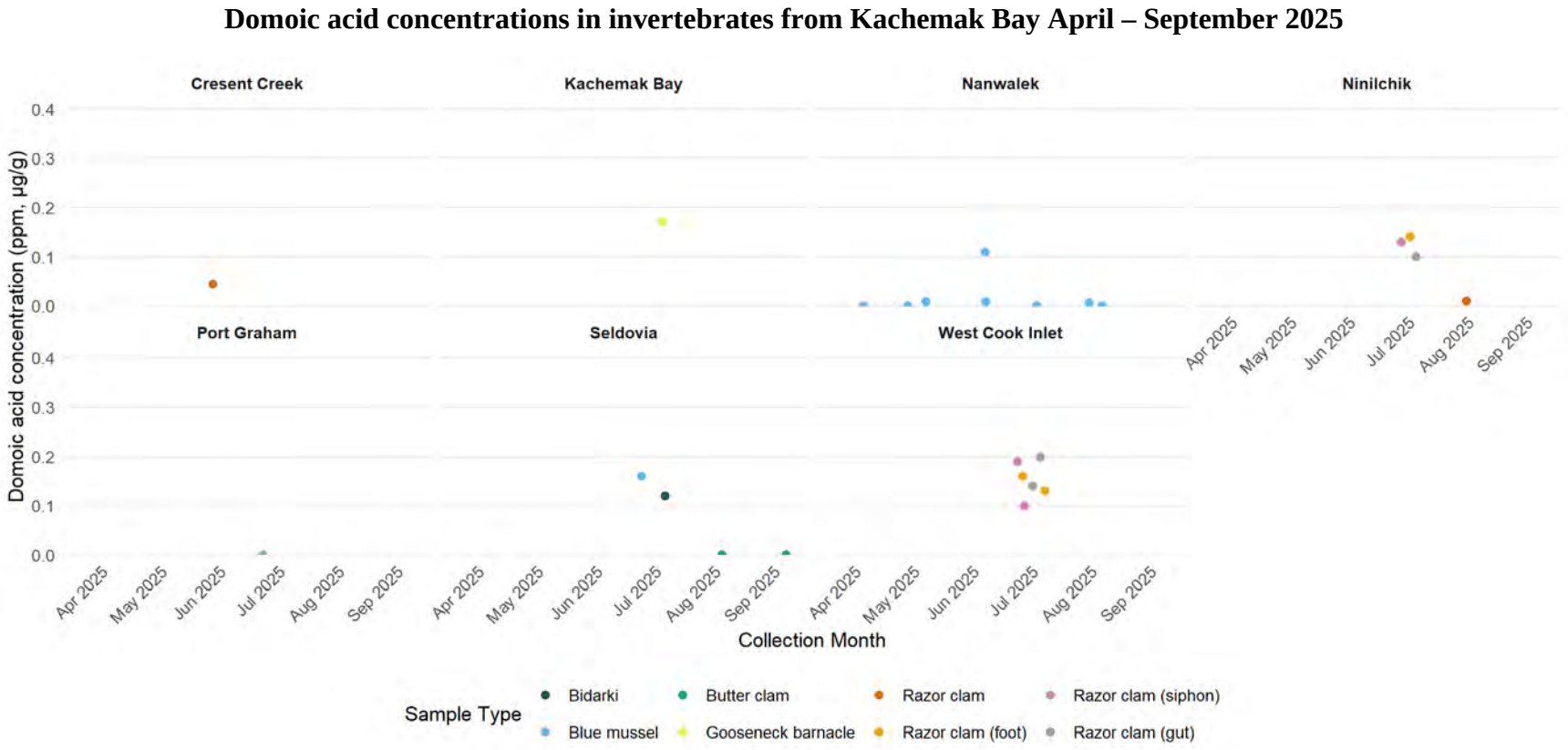

Figure 1. Domoic acid concentrations in shellfish collected by Kachemak Bay community members and KBNERR staff. The federal regulatory limit is 20ppm. All samples were below the regulatory limit. **The highest detectable level of domoic acid was 0.2 ppm which was found in a razor clam from western Cook Inlet.** Each color indicates the type of animal tested at each sample location.

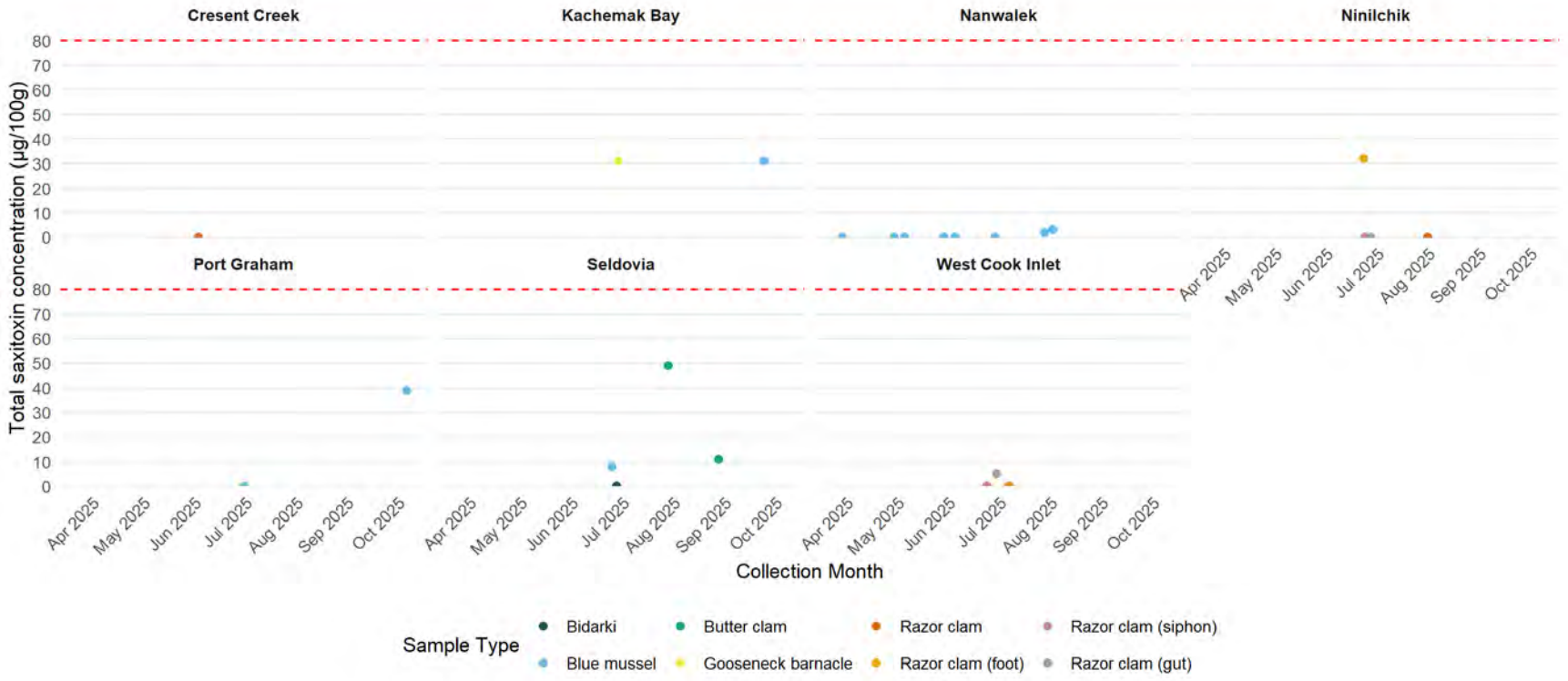

Figure 2. Total Saxitoxin concentrations in shellfish collected by Kachemak Bay community members and KBNERR staff. The federal regulatory limit is 80ug/100g. All analyzed at APMI were below the regulatory limit as shown by dashed red line. **The highest detecable level of saxitoxin during this bloom was 49 ug/100g which was found in butter clams from Seldovia. Port Graham also has a sample from October that reached 39 ug/100g.** Each color indicates the type of animal tested at each sample location.

Marine Biotoxin Report

Southeast Alaska Tribal Ocean Research
Sitka Tribe of Alaska Environmental Research Laboratory
(907) 966-9650 - seator@sitkatribe-nsn.gov - www.seator.org/data

Paralytic Shellfish Toxins (PSTs)

June 18, 2025

STAERL ID	Date Collected	Location	Sample Site	Species	*PST Result (µg/100 g)	Sample Type	Collector
250400	5/15/2025	Seward	Tatitlek	Blue Mussel	**475**	whole	Allison Carl
250401	5/15/2025	Seward	Tatitlek	Butter Clam	**411**	whole	Allison Carl
250402	5/15/2025	Seward	Tatitlek	Littleneck Clam	21	whole	Allison Carl

***PST results in red indicate values above FDA Action Level: 80 µg/100 g, NTD: No Toxins Detected, PSTs cause Paralytic Shellfish Poisoning (PSP)

The Southeast Alaska Tribal Ocean Research (SEATOR) network is comprised of 17 tribes in the Gulf of Alaska. SEATOR partners collect phytoplankton and shellfish samples from local beaches to track harmful algal blooms and marine biotoxin risk in their communities. Phytoplankton samples are analyzed by tribal environmental staff and shellfish samples are analyzed by the Sitka Tribe of Alaska Environmental Research Lab. These data can be found at seator.org/data. There is always risk when consuming wild shellfish. Toxins cannot be cooked, cleaned, or frozen out of shellfish. Toxins can vary between regions, beaches, and shellfish species.

Public Service Announcement

May 2025

Paralytic Shellfish Toxin Advisory

The following advisories are for Chugach Regional Resources Commission (CRRC) sites with shellfish that have Paralytic Shellfish Toxins (PST) levels above the FDA regulatory limit of 80 µg/100 g. In high concentrations, PSTs cause Paralytic Shellfish Poisoning (PSP). Consuming wild shellfish from these sites may result in an increased risk of PSP.

New Advisories

CRRC sites with shellfish PST levels above the regulatory limit. CRRC is not a regulatory agency and the consumption of wild shellfish in Alaska is up to consumer discretion.

Community	Beach	Species Affected	Date Collected
Tatitlek		Butter clam	May 15, 2025
Tatitlek		Blue mussels	May 15, 2025

PSP Information

PSP is caused by an increase in concentration of a PST producing marine algae triggered by warm temperatures and currents. PSP symptoms include tingling in the lips and fingertips, numbing of the arms and legs, nausea, difficulty breathing, and even death. Anyone with these symptoms should seek immediate medical care or call 9-1-1. To report PSP cases, contact the Alaska Department of Health and Social Services, Section of Epidemiology at (907) 269-8000, or (800) 478-0084 after hours.

CRRC Information

CRRC is a Tribal organization within the meaning of the Indian Self Determination and Education Assistance Act of 1991, and an Alaska Native Organization (ANO) as defined in federal policies. We are authorized by our seven member Tribes in Alaska's Chugach region to provide essential governmental services to Tribal citizens. We provide support for natural resource management, subsistence activities, climate change adaptation and

DISCLAIMER: There is always risk when consuming wild shellfish. Toxins cannot be cooked, cleaned, or frozen out of shellfish. Toxins can vary between regions, beaches, and shellfish species. Clean crab thoroughly and discard the gut contents since crab viscera and guts (butter) can contain high levels of toxins. Commercially available shellfish have been tested for PSTs and are considered safe for consumption.

environmental concerns, food security, and access to healthy traditional foods and clean water.

How to Get Shellfish Tested

If you are interested in getting harvested shellfish tested or have any questions about paralytic shellfish poisoning, please contact Allison Carl at acarl@crrcalaska.org or Annette Jarosz at annette@alutiiqprideak.org.

DISCLAIMER: There is always risk when consuming wild shellfish. Toxins cannot be cooked, cleaned, or frozen out of shellfish. Toxins can vary between regions, beaches, and shellfish species. Clean crab thoroughly and discard the gut contents since crab viscera and guts (butter) can contain high levels of toxins. Commercially available shellfish have been tested for PSTs and are considered safe for consumption.