

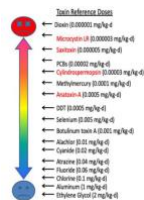
AHAB Monthly Call – October 14th, 2021

Participants: Thomas Farrugia (AOOS), Patryce McKinney (DEC), Michelle Morris (ADFG), Matt Smith (USGS), Bill Carter (USFWS), Dean Stockwell (UAF), Robb Kaler (USFWS), Chris Miller (DEC), Darcy Dugan (AOOS), Dom Hondolero (NOAA Kasitsna Bay), Jeanette Gann (NOAA Auke Bay), Caroline van Hemert (USGS), Sarah Schoen (USGS), David Verbrugge (Alaska State Public Health Lab), Lily Olmo (KANA), Kris Holderied (NOAA Kasitsna Bay), Jenny Renee (Qawalangin Tribe of Unalaska), Kathi Lefebvre (NOAA), Caroline Cummings (USFWS), Naomi Bargmann (USGS), Alex Whiting (Native Village of Kotzebue), Gay Sheffield (UAF Alaska Sea Grant), Steve Kibler (NOAA NOS), Danielle Gerik (USGS), Karen Pletnikoff (APIA), Andie Wall (KANA), Anne Garland (ARIES), Teri King (WA Sea Grant), Ajit Subramaniam (Columbia University), Katie Gavenus (Center for Alaskan Coastal Studies), Alutiiq Pride Marine Institute, Amy Holman (NOAA), Racheal Lee (Norton Sound Health Corporation), Varis Ransi (NOAA), Jackie Lindsey (COASST), Maile Branson (APMI), Annette Jarosz (APMI), Jeff Hetrick (APMI), Tim Lydon (Prince William Sound Stewardship Foundation), Don Anderson (WHOI), Teri King (WA Sea Grant), Rachel Lekanoff (APIA), Carol Brady (DEC), Bridget Ferris (AFSC).

Thomas' updates (more details on AHAB website: <https://aoot.org/alaska-hab-network/>)

HAB News

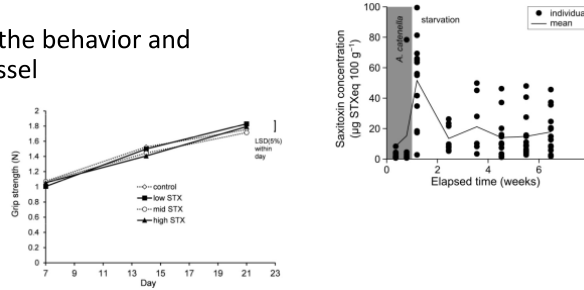
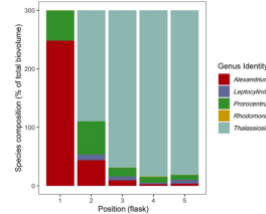
- Algae blooms investigated as potential mass seabird deaths cause
- Earth's Largest Extinction Event Saw Toxic Algal Blooms at CO2 Concentrations Observed Today
- Report: EPA needs an action plan to address HABs



Robb Kaler: <https://www.theguardian.com/environment/2021/sep/18/scientists-investigate-hundreds-of-guillemot-deaths-on-uk-coastline>

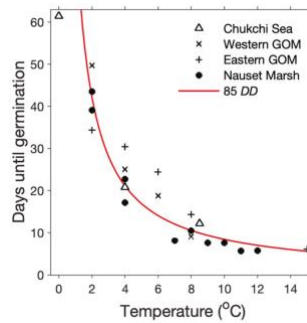
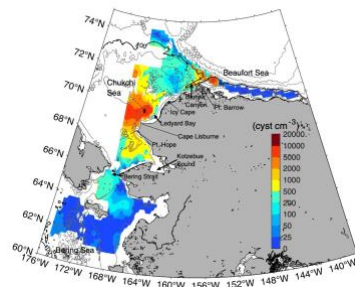
HAB Science

- Dispersal, location of bloom initiation, and nutrient conditions determine the dominance of the harmful dinoflagellate *Alexandrium catenella*
- Effects of *Alexandrium* on the behavior and physiology of the blue mussel
- Sub-Acute feeding study of saxitoxin confirms the effectiveness of current regulatory limits for PSTs



HAB Science

- Evidence for massive and recurrent toxic blooms of *Alexandrium catenella* in the Alaskan Arctic – Anderson et al.



AHAB work

- Revamping of the AHAB data portal
 - Anybody interested in having their data in the AHAB portal, please contact me
- Capturing all the HAB sampling and monitoring work being done
 - List of samplers and sampling locations
- New website – need pictures!
 - Also, list of current AHAB member organizations
- ICHA this week

- | | |
|---|---|
| <ul style="list-style-type: none"> • Alaska Native Tribal Health Consortium • Alaska Cooperative of St. Paul Island • Alaska Coastal Wildlife Association • Alaska Fish Watch Institute • Coast Guard Research Consortium • Cook College • Kodiak Area Native Association • Ketchikan Wildlife Association • Kenai Peninsula School District • Ketchikan Borough, Department of Wildlife Management • Kenai School Health Consortium • Gateway, State of Alaska • Kenai Wildlife Club • Bering Tribe of Alaska • Southwest Alaska School District • Buckle Up, State of Alaska • City of Unalakleet Management • University members of Uptown • Jayuya, State, AK • Alaska Coastal Research Center • Alaska Cooperative Association • Alaska Coastal Research Center • Arctic Research Center • Center for Alaska Coastal Studies • Alaska Maritime Research Institute • Alaska Native Science Center • Alaska Statewide Science • Alaska Statewide Science • Alaska Statewide Science • Alaska Statewide Science • Alaska Statewide Science • Alaska Statewide Science • Alaska Statewide Science | <ul style="list-style-type: none"> • Alaska Native Tribal Health Consortium • Alaska Cooperative of St. Paul Island • Alaska Coastal Wildlife Association • Alaska Fish Watch Institute • Coast Guard Research Consortium • Cook College • Kodiak Area Native Association • Ketchikan Wildlife Association • Kenai Peninsula School District • Ketchikan Borough, Department of Wildlife Management • Kenai School Health Consortium • Gateway, State of Alaska • Kenai Wildlife Club • Bering Tribe of Alaska • Southwest Alaska School District • Buckle Up, State of Alaska • City of Unalakleet Management • University members of Uptown • Jayuya, State, AK • Alaska Coastal Research Center • Alaska Cooperative Association • Alaska Coastal Research Center • Arctic Research Center • Center for Alaska Coastal Studies • Alaska Maritime Research Institute • Alaska Native Science Center • Alaska Statewide Science • Alaska Statewide Science • Alaska Statewide Science • Alaska Statewide Science • Alaska Statewide Science • Alaska Statewide Science • Alaska Statewide Science |
|---|---|

I've got a question. I thought I saw something go by that said AOOS had received quite a bit of money recently. Does that help you? Is there news you want to share about any of that?

Thomas Farrugia

Sometimes Molly updates us on that if she's on the call. But basically, AOOS has heard that we've gotten our five-year funding from NOAA. So we just finished a five year cycle. And now we're starting a new one. And part of that does include AHAB funding as well. So I have funding for the next few years, which is great. There's so much interest in HABs at the federal level that that I think the money coming into Alaska should be relatively secure, at least for the next couple of years, and probably further into the future as well. Thanks, I appreciate the question, because this is an important aspect that I don't often talk about.

Round Robin Updates (going by region of work)

ARCTIC

Don Anderson

Two or three things to talk about. The first is outreach: this new paper is in a high impact journal, and we spread the press release around a lot. It even went to quite a few congressional offices, the Alaskan delegations and so forth. I've just talked with another reporter this morning, and it will continue for a while and as I have said before, on this call, we are walking this delicate line between reporting something as scientists that can really look alarming but also trying to make sure people don't overreact. The bottom line is that there's a lot of cells and a lot of toxin potentially out there, we think it's going to be annually recurrent. But thus far there are no reports of people getting sick. We have measurements in the fish and such that we've looked at suggest that the risk to human health is actually reasonably low right now. Because of the things people eat – if this were in the northeast where everyone eats a lot of shellfish it's a big deal. But that's not the case in the Arctic communities as much and we actually think that the bigger risk might be to the ecosystems that everyone depends upon, that they are vulnerable as well they're already stressed and this is just an additional stressor and then that indirectly can affect human health really through food security. That's sort of the message we're trying to get off: don't panic, but it is another sign of changing times.

The other thing I wanted to mention is that tonight actually at 6:30pm Alaska time I'll be giving a talk that Gay set up with the Strait Science webinar series and it's going to go through more background about HABs because people don't necessarily know, but also go through that paper in some detail and talk about the implications and try to give that same message at the end. (http://www.nwc.uaf.edu/index.php?option=com_content&view=category&layout=blog&id=79&Itemid=286)

I guess the only other bit of news from us is that you know there was an aborted cruise that had issues because of COVID. That was going to be a DBO cruise. So we didn't get samples of the bloom water during the fall like we had hoped. There's a boat going out in November, I don't remember which one and there'll be someone on it who will be sampling for *Pseudo-nitzschia* largely, I don't think we'll be looking for *Alexandrium* at all. But we will be getting some sediment samples and therefore we'll get another system map which would be very, very

informative. So I guess that's the that's the update from here. And if you want to learn more about that paper, then tune in tonight.

Kathi Lefebvre

Hi everyone. Just kind of joined in on with Don and this sort of big put out of this incredible study that he's got. And the same we were getting food web samples on that same cruise that was canceled. We will have a few food web samples from the north Bering Sea cruise that did operate. Some people have sent us samples so I don't know if Michael Opheim and Steve Payton from Seldovia are on, but we do have the herring that they sent in the freezer. But our lab is still closed for COVID. So we're kind of in a stuck phase and hopefully we'll be getting out of that in the next month or so. So we may have some more stuff to share at that time.

Alex Whiting

In August and September we did some sampling for water nutrients and vital counts and we also had a bloom that was mainly *Aphanizomenon* and some *Dolichospermum* was in there too. We got good samples of that. And we tested out a mooring that we got funded to put out next year. And we're going to place that in Kobuk Lake in the spot with the most bloom concentrations according to the satellite mapping for the last 10 years or so. So we are moving forward with some of that on the cyano stuff. And then the main interest I had today anyways was that on Monday night we had some large amounts of herring stippling in the channel. And then yesterday morning we had thousands of herring washing up on the eastern shore of Kobuk Lake, and we had some small number of herring washing up on the shore in front of Kotzebue and some of them were still undulating and we did some readings on dissolved oxygen and some other metrics yesterday and everything appeared normal on physiology front of the water. Also last December, we had thousands of hearing that died under the ice, and were coming up to the holes. We have collected glass filter samples from yesterday with 120 milliliters of water in each of those. And I also have some frozen water specimens. And then I have about 30 herring, some of which were the undulating herring that are now frozen. And so now what I need to do is find somebody that can analyze those specimens and look for any type of toxins. Because the behavior of the herring was, was either a dissolved oxygen issue or a toxin issue. We were unable to investigate them last winter, but we were able to collect samples yesterday in real time as it was occurring. So I wanted to just throw that out there with everyone on the line. If there's anyone that has any ability at all to move this forward in try to investigate what's going on with you know, these thousands of dead hearing, which isn't a good thing.

Kathi: We'd be happy to analyze some of the hearing if you have whole herring frozen. So why don't you email us, our lab is closed unfortunately, but we are able to go in one day at a time to be able to receive samples and store them and then once we open again, we can do them. If you don't have a faster option, I would be happy to receive some of those samples and just check them out for saxitoxin and domoic acid.

Alex: Okay, that would be helpful. Do we know the behavior of the toxin as far as the stability of it, you know, once they're frozen? Is it? Is it some time sensitive thing? Or is it pretty stable for some time?

Kathi: Very good question. It's quite stable when it's frozen. These toxins that we do are water soluble, though. So if they freeze and then thaw, and you lose some of the melt water, you know, then we lose toxins. So the really important part is to keep them frozen solid. So that we can analyze them, because like I said, some of the toxin can go out in the water in the melt if they're frozen and then thawed.

Alex: So I'll work with you offline about gold-streaking or some other method of getting them down or without tying them up.

Kathi: Ok, yes, we are getting samples from different places, and we can do it. And then gold streaking can keep them frozen.

Alex: So even before there was AHAB, when I was working with people and investigating cyanobacteria, and especially the toxins that are related to the cyano, which is slightly different than the saxitoxin and domoic acid, our challenge in Alaska, still remains that these toxins, especially when collected and the glass filters have to be handled carefully, especially if you're not necessarily looking for the absence/presence, but you're trying to understand levels. And I know a Thomas is aware of that. And everyone, I suppose at this point is aware that what's really what's hamstringing us especially in rural Alaska, and especially in the Arctic, is the logistics involved so we can collect pristine samples. But we can't do anything with them and then trying to do something with them remains the challenge and especially if we're going to have some useful long term monitoring program. We're working on some of those issues like as part of our proposal we got funded through the Moore foundation. You saw my work and part of that is to have like a minus 80 freezer and some liquid nitrogen capacity to ship samples and so we're trying to overcome that but of course all of that would still be easier if we had a place in Anchorage or some central location close to rural Alaska where we could take samples, freeze them, and then you know have them gold streaked down or whatever the next day and stuff and then preserved in their freezers until they can be analyzed and so that remains the weak point in the whole link of trying to understand what's going on with toxins in rural Alaska – it's the logistical concern.

Thomas: Thanks for that, Alex. I am working on getting some freezers here in Anchorage to do just that. Gay's had her hand up for a while and then I know Caroline wants to jump in and Ajit as well. Kathi did you want to follow up on anything first?

Kathi: oh just I understand that there's two issues here: one is definitely trying to get some sort of monitoring program on a regular basis, and two for the short term though, we can work it out and we can get those samples to us and we can do things for especially when you have a specific die-off that you're really wondering about. So anyway, I just wanted to tell you we are offering our services for that.

Gay: and I think before me I think Carolyn has something related so I see it in the chat so Carolyn, why don't you just go and then I'll ask my question to Alex thanks.

Caroline: Oh yeah, I don't need to take much time I was just gonna say that we're also happy to help on the Anchorage end. The USGS Alaska Science Center can receive samples we can analyze them. If Kathi has capability that's great, if not we are up and running (not in the office but people are working in the lab). We should just stay in communication as a group and happy to help when we can and we can receive by gold-streak or otherwise.

Sarah: we have an empty chest freezer (-20) in Anchorage that could store samples

Kathi: Yeah, that's probably even better Caroline. So you are able to do fish and stuff?

Caroline: Yeah, we are.

Gay: Okay, so quick question for Alex. So thank you for the information on the herring that sounds kind of creepy. Are you seeing anything with seals or birds? And that's one question. So any other animals besides that herring? And two, how is the harvest going up there? This is just a question because we're looking like we're a little slow in the seal department right now. And I'm wondering if you guys were having a normal season.

Alex: That's one of the interesting things about the herring in particular because we know that there is some great amount of biomass of things like starry flounder and saffron cod which are in the same general vicinity of the herring but of course, at a different trophic level and also the herring are more mobile. The other fish species that are co located in the general vicinity of the hearing are mostly benthic oriented and so that also is a point of interest. Both the trophic and also the position in the water column. Both in the die off last December under the ice which was some thousands, and the large amount of herring that we see dying off now, it's noteworthy that there isn't rainbow smelt and cisco and starry flounder and saffron cod and these other species which are around in large numbers in the same vicinity. And then the spotted seals were numerous in the channel yesterday during this die off here. The hunting - now like it's 21 degrees so the water I sampled yesterday is sort of no longer water anymore. So the timing was good on that because it's 21 degrees this morning. And then the water temperature yesterday was you know, around zero, so I was lucky to be able to sample and so the seal hunting hasn't really begun but belugas and seals have been normally present. The interesting thing was that we had 100 or more flocks of seagulls in feeding mode in both the Kotzebue lagoon and in front of town for the week prior to this event and it was suspected they were targeting hearing. They for sure were excited about some fish in those systems but we didn't see a lot of seagulls feeding and we didn't see on feeding on these washed up herring, we saw ravens feeding on the washed up herring and whether that's a thing or not, I don't know but it is an observation. Yesterday during this event there was some probably hundreds of spotted seals in the channel in the same vicinity of this die off so they're likely targeting these fish too. But the good thing is that we can we can at least find out some information from the

people in the group here that are willing to look at that. Of course we know that there is potential for other toxins besides saxitoxin and domoic acid. But that's where being able to process these glass filters, which I haven't totally given up on yet. And we still working with my partner Ajit at Colombia, we still may be able to get some of those glass filters process.

Ajit Subramaniam

Thanks! I'm a microbial oceanographer here at Lamont-Doherty Earth Observatory at Columbia University. And I've been working with Alex on what we started off as a primarily cyanobacteria question, which is, where are the blooms happening? Why and what are the consequences and trying to get something going on that and we are sort of slowly making inroads into it, but we haven't yet fully gotten up to that. But in the meantime, what we hopefully will have are when we get going with what we will have we will be microscope counts of just about every larger phytoplankton there is because Alex will be filtering down a couple of liters that we'll then look at through a microscope to identify the larger phytoplankton species. My question and the reason I raised my hand is because I had a question to potentially Kathi and maybe Caroline or anybody who knows more than me, which is: how best to sample for this because when Alex called me yesterday and we talked about it, the idea was just let's filter down some water so we catch it if it is a phytoplankton based thing on a filter, but then also save the filtrate because of my concerns about it being a water soluble toxin I do not know what kind of detection levels are there and therefore whether that makes sense but in the end you also have the fish tissue with which I guess you can catch the bio accumulator concentrations. So I think I want to have a good sense of how to deal with this going forward.

Kathi: I can just give a quick start that. It sounds like you're saying you want to maybe also look at cells to identify what's there. So I think maybe we might not have time to talk about it fully here we should catch up offline but there are other good experts on that like Don Anderson would be a great person to start with to talk about for identifying various phytoplankton. For the toxin part, and I think it's the same with Caroline, we can just do frozen samples. Frozen whole samples are fantastic for the domoic acid and the saxitoxin. For the other toxins we'll have to investigate that a little bit more to see how they're analyzed. If you filter the cells and then we can analyze filters as well for toxin and that would be the toxin that's in whatever cells are there. And then any other thing in the filtrate would be dissolved toxins that that might be released and that's typically has been less important for actual health in terms of getting to the places to hurt animals and things. But saving some filtrate is not a bad idea. And that can also be frozen at least in the case of the toxins I'm working with. So we'll follow up for sure and get the right people to talk on the phytoplankton part.

Teri King: I'll post a link of how we preserve samples in Puget Sound with our monitoring network - <https://wsg.washington.edu/wordpress/wp-content/uploads/Sound-Toxins-Manual-2016.pdf>. It discusses filters, filtrate, etc.

Anne Garland

Nearshore water samples in Utqiagvik still negative for toxic species. We're in discussion with Don about nutrient types and levels in water column, surface, and seafloor. We are considering

using nutrient test kits for samples to compare with offshore. Nutrients not reported in WHOI paper and Don shared another group took nutrients data so don't have it analyzed yet. Want to begin baseline as more shipping waste, rain runoff, thaw, glacial melt, etc. increase. Still seeking a local lead for advisory group about outreach and education.

NORTHERN BERING SEA

Gay Sheffield

Hi, thanks. I put the link for Don's talk in the chat box. This science series is for, you know, it's to disseminate information out to the region. There's a lot of interest in this particular topic, of course, but it's going to be interesting how many people actually show. The North Slope borough has distributed this as well, trying to get the tribes and coastal communities that are right there in Ledyard Bay and along the western coast to participate as well. And know that if all of you join, you're welcome. But know that when I moderate, I'm going to be picking the people who are from this region or from the north on the coast, working their way up north, over people who have a zoom connection or maybe from an urban based center. So not meaning to ignore, but if we have a lot of interest, and we have a lot of questions, know that I'll probably put rural Alaska First. So but usually that's not a problem. I'm just interested because this was very widely distributed. So we'll see what happens tonight.

We are still sampling seawater here for the ECOHAB project. It's really interesting Alex to hear that you've already started to get slushy and cold. We were a week ago at six degrees. 6.1 degrees C in the surf here, so we're still warm. We'll get be doing another sample tomorrow. And we'll see if it is still warm. Thank you.

Emma Pate

I'm still doing sampling from a lagoon 20 miles out of town once a week, and we're starting to have ice forming in that lagoon. So I'm not too sure how long I'll be doing that. And then the offshore samplings out in the ocean, that has been very difficult to do. But we've got some collections. But those south gales that created waves that don't allow us to go out on the ocean in the size of boat we're using. I had the environmental coordinators from Wales, and Shishmaref come in for training with me last week. It was more of a grants management training but I was able to fit in some program training, so I added in the phytoplankton training manual we have, put them on a field trip showed them how I do the horizontal tow and how we do the vertical tow. Brought them back to our lab to do some microscopy practice and then have them do some slides and videos from some of the samples I collected over time. Eventually, other people will travel in. I'm looking forward to connecting with St. Lawrence Island communities, which is Gamble and Savoonga. As they come in to Nome, that's great. If not, I will most likely travel out to them. And that's about it for my update.

ALEUTIAN AND PRIBILOF ISLANDS

Jenny Renee

We don't have any big updates on sampling right now. We're having some shipping difficulties here with Ace but they will be resolved soon, hopefully, and we'll have those muscle samples shipped out. But the only kind of new thing is that I just joined the Qawalnagin tribe as the

fisheries and outreach coordinator. So I will be joining on these monthly meetings now. And I'm very excited to be here.

KODIAK

Andie Wall

Kodiak phytoplankton and shellfish toxicity remain consistent with the last few months (low). We have been exploring funding opportunities to keep Kodiak's community sampling for OA and HABs going. Our team traveled out to the Native Village of Larsen Bay and shared information about the shellfish testing program to try to increase sample submission.

SOUTHCENTRAL

Kris Holderied

Maybe I'll point to Varis Ransi to update some things that they worked out with the satellite to surface temperature products. They ran into an issue, but they've got it worked out. So that's great if he wants to comment on that. But otherwise, Dom will do the sampling updates.

Varis Ransi

We were working with NOAA Coastwatch to get the sea surface temperature data down for the shellfish growers. And, and we ran into an issue because NOAA made some changes to their processing. But we got that resolved. And then we've been testing out our website, and it seems to be running fine. And we updated our uses, we met with Kim Stryker, and Alicia Bishop last week to give them an update on where we are and, and we are ready to roll out our web products. And maybe we will show it to you guys, too, to make sure that we're on the right track. This will be the first phase of the products. We're also going to use numerical models as a way to forecast the surface temperature for growers to be able to see what's coming. And then once they see this, they can be proactive and do what they need to do to keep their cages safe. I think is coming along and, and maybe I'll bring in my people that I work with as well, Bob Daniels and John Jacob, they were a part of this work. And then they spent a lot of time on getting this to work correctly, as well as Kris as well. Thank you. That's all I have.

Dom Hondolero

Oh, yeah, we did our quarterly sampling last week for Gulf watch. And we're still seeing pretty low abundances of zooplankton and phytoplankton. So we're probably seeing the end of the productivity season here for Kachemak. Other than that, I don't have any updates. We'll be processing the last of our toxin samplings, wrapping up that food web project. Then we'll be reporting those out next year. That was the outreach phase of that project.

Rosie Masui (over email)

We were able to go out to collect phytoplankton samples last week and were surprised by what we saw. There was quite a bit of diversity in our samples collected from Outer Kachemak Bay, with elevated levels of Pseudo-nitzschia in Eldred Passage. We are hoping to follow up to see if these levels continue to rise into a full bloom or if they drop off. We are wrapping up reading some of the last phytoplankton samples that have come in and will begin working on our annual reports to share with folks. Our Harmful Species program overall is going through some

changes and we will be looking at doing a Needs Assessment to adjust our scope to fit with community needs, our adjusted capacity, and the NERRs mission. I'll be reaching out to folks in the future to discuss this more.

Maile Branson

Not much to report here. About two weeks ago, we saw a pretty elevated incidence of a lot of different species of algae, specifically *Dinophysis* so that was interesting. And yesterday we received word that our harmful algal bloom monitoring program for both shellfish and phytoplankton was funded for 10 years from the Exxon Valdez Oil Spill Trustee Council.

Thomas: Congratulations! That's great.

Tim Lydon

Hi, good morning. We're done sampling for the summer. But I wanted to thank Darcy and Thomas and Rosie and Annette, and everyone else that helped us this year. We worked with communities in Prince William Sound to establish three remote testing areas. We recognized that there was a gap in data, and knowledge and so on, we were able to get a bunch of samples from all three of those sites. And one of the really neat things was we were able to engage citizen scientists and outfitter guides, tour operators, kayak tours, that kind of thing, to bring back samples, which was challenging to bring them back in a timely manner and for us to get them off to the lab. And as you'd expect, in any first year effort, there was little bumps in the road, not as many as we expected. But we did get the word out that it's a thing. And so we would like to continue again next year, and we expect to have more involvement. But we're really pleased with the level of involvement we had this year. And I'm talking on behalf of the Prince William Sound Stewardship Foundation, which is the one that pulled all that together. And an important partner was the Chugach National Forest. So thanks to everybody for helping us pull it together. And we look forward to doing that again next year. And congratulations to Alutiiq Pride for the EVOS funding. That's wonderful news. Thanks everyone.

Patryce McKinney

It's plugging away. Bruce Wright is keeping us busy. We still work off and on with Qawalangin. So yeah, just plugging away.

Carol Brady

There were 2 areas closed to harvest due PST events in commercial shellfish, specifically oysters. As a quick reminder, if an area is closed due to a PST event, the area is closed to harvest until the reopening criteria is met which includes three consecutive samples collected over a minimum of two weeks with PST results below 80 µg/100g. Alaska has diligent shellfish farmers/operators that engage the reopening criteria when a PST event occurs that closes the area to harvest to ensure no product goes to market.

Date Sample Collected	Species	PST (µg/100g)	Classified Growing Area	Status of Growing Area
09/12/21	Oysters	557	Blashke Island	Closed to harvest

09/21/21	Oysters	324	Blashke Island	Closed to harvest
09/25/21	Oysters	229	Blashke Island	Closed to harvest
09/29/21	Oysters	405	Blashke Island	Closed to harvest
10/7/21	Oysters	40	Blashke Island	Closed to harvest Reopening sample 1
10/11/21	Oysters	46	Blashke Island	Closed to harvest Reopening sample 2

The Blashke Island growing area is located in Southeast Alaska off Kashevarof Passage and southwest of Etolin Island, and there is one aquaculture site that harvests oysters.

Date Sample Collected	Species	PST ($\mu\text{g}/100\text{g}$)	Classified Growing Area	Status of Growing Area
09/27/21	Oysters	117	Betton Island East	Closed to harvest
09/30/21	Oysters	49	Betton Island East	Closed to harvest Reopening sample 1
10/04/21	Oysters	44	Betton Island East	Closed to harvest Reopening sample 2
10/11/21	Oysters	33	Betton Island East	Reopened for harvest Reopening sample 3

The Betton Island East growing area is located in Southeast Alaska near Ketchikan, and there is one aquaculture site that harvests oysters.

Chris Miller

Yeah, this is Chris and I'm the coordinator for the drinking water protection group. And I'm filling in for Cindy Christian who couldn't make it today. So she asked me to sit in for this meeting. I have been participating in the EPA HAB groups on a regular basis so she thought I'd be a good fill in for this. I guess the only update I have is that for the first time that I'm aware of that we've actually had a couple operators report some algal blooms in their drinking waters. And that was in Utqiagvik and Kotzebue. It was discovered during a sanitary survey that we do on regular basis for water systems. So we're gonna prep for next year and do some testing to see what it is. We've been reporting for years that there hasn't been any issues with drinking water. And now we've got two and in one summer. So that's pretty much all I have right now.

Thomas: Fresh water is definitely something that we focus less on. So we might need to increase our focus on that if that's the case, because drinking water contamination is definitely a concern as well, of course.

Dean: Alex Whiting, several years ago, had reported that the drinking water facility in Kotzebue normally would change their filters on a schedule that was basically set for years. Then all of a sudden, they started seeing these massive blue green blooms come down the river, and we're talking about *Nodularia*, and a couple other species of blue greens, all potentially toxin loaded. And he's been sending samples to Craig Boyer, back in New York, and they have a list of toxins that they've found. And they were at times having to change their filters every couple of days because of the amount of material coming down. All of this is in response to a warming of the tundra, melting of some of the permafrost area feeding those blue greens in the river. So I think

you should have a long conversation with Alex for sure. Because I think they could definitely use your resources.

Chris: Yeah, that sounds good. I'll bring that to the attention of Cindy. And as you know, it's not regulated in drinking water right now. But we can work with the communities to see if they're willing to voluntarily sample for that. Thanks for bringing that to my attention.

Anne: We've had a community monitor in Utqiagvik doing HAB and water samples and it includes the drinking water. And up to now we have not found anything but I can check with her to see if she picked up anything this year. I haven't heard back from her yet about that. But just to let you know, we've been doing it since 2016. And I can also ask if they had any reports. I assume you had bloom sightings but nobody took samples. Is that correct?

Chris: That's my understanding. Yep.

Anne: Okay, well, I will check her and let you know if I'm sure she's took some samples. But you know when. But we have been monitoring the drinking water. The sampler's name is Laura Thomas. She's a local community monitor in our HAB program.

Thomas: I'll try to set up a meeting with all the interested parties in freshwater HABs. And it's probably something worth talking through and coordinating between various agencies and groups and things like that. So I'll put something together and get an email thread going to continue this conversation, because that's definitely worth looking into and working on.

Patryce: I had put forward testing for microcystin and cyanobacteria as a concern to our Commissioner. So we're trying to punt it through about getting some capability to do that. But it's still at the really infantile stages, so but the more people that will collaborate with Chris and can get that level of interest up, the better chances we have with the push. So anyway, just throwing it out there.

Alex: I hadn't heard about the Kotzebue bloom, although we had offered to work with the city in the past. And so it's of interest to me if there's DEC or others that have been monitoring. But we do have capabilities to do some of that monitoring. So I guess my point is, what we need to do, I suppose is uses form to spring off and have a coordinated conversation between all these parties like he just suggested and I guess I'm saying is that I have some useful background I we have the ability to advocate like was just mentioned that might be helpful. And we also have interest in participating in some effort going forward.

Dean: You might want to bring in Mike Brubaker from the LEO group because he's reported in the past on various small blue green algae blooms in freshwater parts of the area around anchorage and in southeast. So I think the broader you reach, the more information you'll get.

Naomi Bargmann

I work with the seabird forage fish ecology program at USGS and I've been running the kittiwake and a couple gull samples from Middleton, from that die-off. I ran 27 feces samples and a handful of GI tracts and I have not gotten any hits from any of those samples. They've all been below the detection limit. I have started to process livers and muscles, so hopefully I'll have those results in the near future.

Dean: any updates on the botulism reports for the same birds?

Naomi: We still only have results from two birds that the National Wildlife Health Center has received. I haven't seen any results for more birds come across and I just talked to Sarah this morning and she hasn't either. Unfortunately, because it does seem that the die off is leaning more towards that cause.

Robb: We did send an additional round of carcasses. Seven birds were adequate for botulism testing and the National Wildlife Health Center is going to run three of those and so just kind of following up why not running all seven, but at least there's three and that was one Kittiwake adult one Kittiwake chick and then one glaucous winged gull. Happy to share more with the with this group and everyone once we get those results.

Sarah Schoen

I'll just mention that we're still going to test some of the Middleton kill kittiwake and gull body tissues themselves, like Naomi was saying we're going to look at the livers and muscle tissue and some more GI tracts. Bob Ducek at the National Wildlife Health Center had found with their mallard dosing study, and then we found with some of the wild birds that we've sampled kittiwakes and murrelets that sometimes you don't see saxitoxin in feces, but you can see some levels in the tissue themselves. So that might be we still don't know if that's just acute levels are detected in the feces but maybe a more sub-acute sub-lethal level could build up in the tissues themselves. But we're going to test a few more tissues but it doesn't look like saxitoxin is involved in that Middleton die off. And we also have some samples Naomi's going to run from Dutch Harbor. She's working up the muscles and the forage samples that we collected and then we're going to do a bunch of necropsies to look at horned puffin, glaucous winged gull, and black legged kittiwake tissues from June 2021. So we'll have those results in a couple of months probably.

Matt Smith

So we ran tissues from kittiwakes that were sent to us this summer right after the death occurred and didn't find any saxitoxin or domoic acid in any of the tissues. And those results should have been disseminated by the wildlife health center. And I sent them out to Robb Kaler back in July, so nothing that has been coming up there. And that was in liver, muscle, GI tract, all body tissues received. I'll be getting a few more carcasses from that event next week from the National Health Center, they're going to send that most of the die off bird tissues that they collected throughout the rest of the year. And we'll start running those as soon as we get them. And otherwise, we're working on our capture project with the Sea Life center. They were able to hatch a total of 30 murrelets from the eggs collected, and they're from everything I've heard

they're growing well and are moving out to their outdoor enclosures here soon, so that project should be taking off here this winter.

Robb Kaler

Gay and I are coordinating getting additional carcasses sent from Nome, the Bering Strait region, so many thanks to Gay. Once she has a pause of course, she'll go and coordinate picking up fresh carcasses, freezing them and then shipping them with all the appropriate information – it's quite a task. But in future years, hopefully we don't have to coordinate as well but always looking for opportunities to get seabird carcasses for all of these types of tests. I didn't do very well this year, to be honest. Of course Unalaska has challenges with shipping as we heard from Ace but we're still hoping to get some carcasses. Bethel had a round of shearwaters that we would like to test but there's only one or two from there. So anyways, this is a great network and hopefully we don't have to coordinate so much in 2022. But in case we do, we're always willing to accept carcasses and submit them to the National Wildlife Health Center but also support the USGS Alaska science Center's efforts.

Darcy Dugan

Just a quick note that the Alaska Ocean Acidification Network just released a new podcast on carbon policy. It's called "Our Future Ocean: What can carbon policy do for the oceans and our fisheries". And this was in response to interest from the Alaska seafood industry who wanted to know more about what they could do, and how to track the policy discussion, for ways to address the root cause of these issues. So it's more informational than advocacy oriented, it goes through the nuts and bolts, what the terms mean, and how some of the platforms work. And the first two episodes include ocean acidification and HABs, and warming, and Kris Holderied, a star member of AHAB, is featured on the podcast. So it connects those issues to emissions. And then episodes three through five are about more the nuts and bolts about how carbon policy works and what's been tried elsewhere. And then episode six focuses on renewable energy and Alaska with a focus on Kodiak. So I'm going to put the web link in the chat. Thank you, for all of you who have already helped circulate this, but we're trying to get it to as many Alaska coastal communities as possible.

Dave Verbrugge

I'm at the state public health lab, with the Department of Health. I've been kind of in the background of marine toxins for the state for a while. When we had our clinical event, I coordinated moving clinical urine samples down to CDC. Of course, the recent paper on the increase in bloom and cysts in the Arctic Ocean piqued my interest. Unrelated to that CDC itself is still looking at improving the clinical methods for marine toxins and freshwater toxins. So there are several states that are doing freshwater toxin work, as well, and clinical samples. So maybe in the near future we might be able to do that testing here in state should the need arise.

SOUTHEAST

Michelle Morris

Not a whole lot going on here. Other than the commercial dive fisheries started sampling geoduck for their fisheries, and then people starting to get geared up for next season already. So if you guys are planning on doing anything in 2022, you can apply at any time.

Jeanette Gann

Nothing significant to report from Juneau. My summer local sampling has ended with no significant blooms seen in the Auke Bay area. Also, the IFCB went out with Lisa Eisner in the Bering Sea but unfortunately that cruise was stopped short and we only got about 10 hours of sampling completed. We're still waiting for the data and working to figure out the post-processing routine. Will update once we get that under way.

Dorothy Smith

Hi, I'm Dorothy Smith, I work for the organized Village of Kasaan, here in southeast Alaska. I'm new to the program, I'm the water quality and waste management specialist here. And I'm just building capacity and learning all that I can to help this community out.

STATEWIDE

Bridget Ferris

Yeah, I just wanted to say thank you to I think everyone on this call, everyone who has been contributing through Thomas to our Ecosystem Status Report, both your monitoring and research information. We're still in the works now pulling together those reports both for the Gulf of Alaska, Aleutian Islands and Bering Sea. And so just again, thanks, they'll be completed in November and presented to the North Pacific Fisheries Management Council at their meeting that's open to the public at the beginning of December. So these are really welcome information that a lot of people like to hear in the context of the broader ecosystem and in the fisheries world. So thanks again for all your continued work.

Jackie Lindsey

I never get a chance to actually join these calls as they're happening live. And I've been reading along everyone's notes for the past year. So I just wanted to say thank you. I don't have any additions here today on the HAB front that Robb hasn't already covered. Thanks a lot for having me.

NEXT AHAB MONTHLY CALL WILL BE: THURSDAY November 11TH, 2021 AT 9:30AM AK