

AHAB Monthly Call – February 9th, 2023

Participants: Thomas Farrugia (AOOS), Naomi Bargmann (USGS), Michelle Morris (ADFG), Juliana Cornett (NOAA), Kathy Burek Huntington (AVPS), Evie Fachon (WHOI), Kris Holderied (NCCOS), Kim Stryker (ADEC), Patrick Charapata (NOAA), Shannon Cellan (Sitka Tribe of Alaska), Andrea James (Knik Tribe), Charla Hughes (PWSSF), Dom Hondolero (NOAA), Frances Gulland (Marine Mammal Commission), Kimberlee Beckmen (ADFG), Natalie Rouse (AVPS), John Harley (UAS), Bill Carter (USFWS), Tod Leighfield (NCCOS), Patryce McKinney (ADEC), Danielle Gerik (USGS), Ajit Subramaniam (Columbia University), Sarah Schoen (USGS), Mandy Keogh (NOAA), Robb Kaler (USFWS), Julie Matweyou (AK Sea Grant), Maggie Broadwater (NCCOS), Rachel Lekanoff (Qawalangin Tribe)

Thomas' updates (more details on AHAB website: ahab.aos.org)

HAB Science

- Digestive gland in bivalves can be used as early warning system for PSTs

Identification of Monitoring Organ in Bivalves for Early Warning of Paralytic Shellfish Toxins Accumulation

MENG Deting^{1,2}, SHI Jiaoxia^{1,2}, LI Moli¹, WEI Zhongcheng¹, WANG Yangru¹, XU Yiqiang¹, LI Yubo¹, BAO Zhenmin^{1,2,3,4}, and HU Xiaoli^{1,2,3,4}*

- Warming and acidification could increase PN toxicity

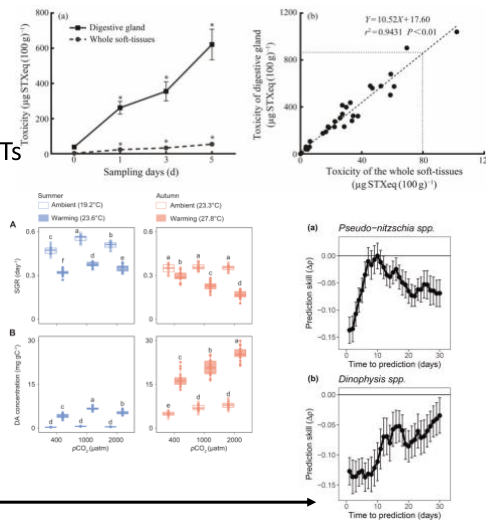
Plastic responses lead to increased neurotoxin production in the diatom *Pseudo-nitzschia* under ocean warming and acidification

Dong He^{1,2}, Guanhua Zhang¹, Geqiang Shen¹, Zhongren Wang¹, Tai Jiang¹, Ke Sun¹, Shan Fan¹, Chris Becker^{1,2}, Shouren Zhang¹, Yan Zhang¹, Xue Gong¹, Han Wang¹, Han Li¹, Huijun He¹, Youxin Li¹, Jianjun Fu¹, David A. Hutchings^{1,2}, Zhen Tan^{1,2} and Nanhua Ye^{1,2}*

- Prediction of HABs using automated cell imaging

Sub-monthly prediction of harmful algal blooms based on automated cell imaging

Vinil Agarwal^{1,2}, Jonathan Chávez-Casillas¹, Colleen B. Mowse³



HAB News and Dates

- Nome nugget article – “How will the Bering Strait Respond to HABs?”

How Will The Bering Strait Respond To Harmful Algal Blooms?

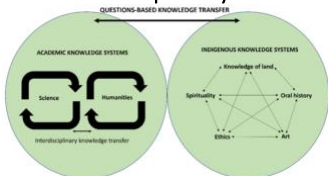
FRI, 02/03/2023 - 7:58PM admin

By Megan Gannon

Emma Pate did not grow up hearing about harmful algae in the Bering Strait region. But now she spends about 75 to 100 percent of her time at work thinking about these tiny, toxin-producing organisms that have become a new threat, with uncertain impacts, in Arctic waters.

Pate is the training coordinator and environmental planner in the Office of Environmental Health at Norton Sound Health Corporation. Working with tribes across the region and Alaska Sea Grant, she is trying to establish a sustainable new monitoring program to keep track of harmful algae that may be multiplying rapidly in the seawater where communities conduct subsistence activities.

- Need for interdisciplinary solutions in HABs



- Harmful Algae Event Database
 - Contributions ASAP

942 results for UNITED STATES

EVENT NAME	SYNOPSIS	YEAR	LOCATION (STATE, COUNTRY)
US-09-013	ASP	1989	Sancti Spiritus (California, United States)
US-09-016	PSP	1989	Nevers Estuary (Oregon and Southern, WA (Cape Cod, United States))
US-09-015	ASP	1989	Beaune and Coastal area of Brittany (Brittany, United States)
US-09-014	ASP	1989	San Bartolome beach near Orizaba (Washington, United States)
US-09-013	ASP	1989	Beauneville (France, United States)
US-09-012		1989	New York Bight Region (Central New Jersey, United States)
US-09-011		1989	Coastal waters of Massachusetts (Coast of Massachusetts, United States)
US-09-010		1989	ca. 1 mile N of west tip of Horn Island (Gulf of Mexico, Florida, United States)
US-09-009		1989	ca. 1 mile N of west tip of Horn Island (Gulf of Mexico, Florida, United States)

Alaska HAB Updates

- Alaska Marine Science Symposium
 - LOTS of fantastic talks and posters about HABs
 - Friday HAB discussion: how do we increase HABs monitoring and communications
- Spring AHAB workshop – community monitoring needs
 - 3 days week of March 27 at the Captain Cook
 - In person in Anchorage (travel support available) + video call-in option
- Other conferences/meetings:
 - Alaska Forum on the Environment (Feb 6-10)
 - One Future One Health (Feb 28 – 3 Mar)
 - Alaska Tribal Conference on Environmental Management (Mar 21-24)
 - Arctic Encounter Symposium (Mar 29-31)

Round Robin Updates (going by region of work)

SOUTHEAST

Shannon Cellan

Nothing too pressing right now we're just still collecting some data. We'll be doing some posters at the One Health One Future conference about some of MERHAB work we're doing.

John Harley

I have been working with some folks at NOAA down here at AFSC. Jordan Haller Smith, who I'm sure a lot of you know, and Cody Pinger who's a chemist at AFSC we've been working on getting that ELISA assay up and running for PSP toxins. So there's a paper that came out a little while ago in Toxins, where they developed an ELISA based assay for quantification of PSP toxins, kind of just in a management setting. So we sub-sampled some butter clams from our project this summer and we're gonna run them on that RBA assay that Shannon is running over at STAERL and then as well as the ELISA assay at NOAA, so it'll be interesting to see how well those two values correlate.

Here's the paper: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6891710/>

Naomi: Is that not the Abraxis Eliza kit John?

John: I believe it's slightly different. There's some conjugation steps that I think were not in that original Abraxis kit. Wayne Litaker was on that paper, and some other from Beaufort. But yeah, to be honest, I'm not as familiar with the assay itself. I've mostly just been providing the samples that we know have PSP toxins in them.

Julie: That was the ELISA that was put out as a result of our NPRB study, and that ELISA was put out by SeaTox. And as John said, there's a digestion step included in that ELISA. So I'm really excited to see that. Cody contacted Steve and I and I knew that they were using it. So that's the same ELISA that we're trying to get up and going here in Kodiak, but yeah, let's just see the results with it.

Juliana Cornett

Yeah, I've been working on running those ELISAs that John just mentioned. So hopefully, we'll have those results in the next couple of weeks or so. And then aside from that, we've just been doing the farm sampling about once a month right now, and just really low phytoplankton biomass overall. So nothing too exciting on that front.

Michelle Morris

I am getting a flood of Aquatic Resource Permit applications for spring and summer, which is great. I know the spring low tides creep up on people fast. And so if you think you're gonna possibly collect anything at all for, you know, recreational shellfish testing, or anything like that, give me a shout really quick. Or I know people look at the forage fish species as well, or the herring and things they want to sample. I will also be at the mariculture conference here in Juneau next week.

Mandy Keogh

No updates, but I am the person who responds when somebody calls the Marine Mammal Stranding hotline. If you are seeing dead marine mammals, anywhere in Alaska, we have a 24 hour hotline that you should call and we could coordinate that, or collect samples, but we want a report of any dead marine mammals. But that would be the best way to report any dead marine mammals that you might come across while you're out in the field.

SOUTHCENTRAL

Patryce McKinney

We're business as usual here also next week, so I'll see many of you there.

Naomi Bargmann

Nothing really too exciting. I used up the last of our DA kits that on-site technology, and it did not go well. So I think we're going to switch to the new kits that Abraxis put out. They're a lot more sensitive than the on-site ones. So I'm looking forward to diving into those and seeing what that can get us. But other than that, I don't have any major updates. The on-site tests are less complicated but their limit of detection is 170 parts per trillion, whereas the new kits are more complicated, but not as complicated as the Bioscience kits. And their limit of detection is around 6.5 or less parts per trillion. I mean, very, very low. The human limit is like 20 million parts per trillion or something like that. They're very sensitive kits.

Andrea James

I don't have any updates. I was just mostly listening in. But yeah, also attending AFE. But we have had a lot of people interested in sending us samples. So that's pretty exciting. But other than that, no updates.

Natalie Rouse

We have a short update. Our marine mammal results are hot off the press. We sent 19 samples in from 2022 and five that were stragglers from 2021. Everything was negative, mostly stuff from South Central. We had a couple of stragglers from the west. And actually, that was our only super low positive for domoic acid, a gray whale from the Nome area, so nothing too

exciting, but that's good for the creatures. We're going to do another little surveillance screen for okadaic acid from 2021 and 2022. So hopefully we'll have results for those in a couple of months. And then I always want to just remind folks that we would love to get more carcasses from the Aleutians and the West coast, we're a little data deficient on marine mammals from there. So if you see anything, any carcasses out there, please get in touch, we've got funding to help get them our way and get some samples so appreciate that, thanks.

avps.natalie.rouse@gmail.com

Robb Kaler

Just one thing to note: Julian Fisher, he's with our waterfowl program for migratory bird, he was invited to join Steve Heimle on KYUK Bethel radio next Monday. And then there was some interest that after he was speaking with the editor coordinator about citizen science and then Harmful Algal Blooms. So it's about a 17 minute exchange with Steve and should be a good opportunity to talk about those things. And yeah, that's about it. Thanks for leading.

Kris Holderied

No big updates here. It was great to connect with everyone at AMSS, really appreciate the workshop. And I think we had over 50 people in it. That was really a good discussion. I'm having a side chat right now with Evie on the Pseudo-nitzschia questions. You know, when do those DA levels change? So really appreciate what you shared, because we were talking about that a fair bit at the end of the end of the workshop. And then I introduced I think a couple people too, but just a flag a name, Tim Wynne is from our DC office. And he was able to make AMSS. And I think it was in for part of the HAB workshop as well at the beginning. He is a satellite oceanographer, like Varys is and so looking forward to working with him more up here now, too.

Ajit: I was very curious to know if this is basically extending the CyAN stuff or is mostly the Alexandrium remote sensing?

Kris: No, he's part of the HAB forecasting group. So with Katie Boyd, and Steve Kibler, and that, and so looking in the Gulf right now, at how do you kind of put together the pieces for risk assessment and things like that, but he is just kind of just starting on that he did a poster on the high resolution temperature, climatology that he did. And he's going to be looking at chlorophyll, trying to get some of the near coastal algorithms, a little bit better done distinguishing between sediment and chlorophyll.

Dom Hondolero

We are going to be going out later this month, hopefully, if the weather breaks for quarterly sampling. But yeah, we don't really have any updates. Yeah, not a whole lot in the water right now. We'll see if the February weather cooperates well enough for us to get to the outside transects here.

KODIAK

Julie Matweyou

I really don't have much to share. I was really great to see everybody up in Anchorage. And looking forward to the March workshop. I was able to get on the water last week to get some more sediment for the Beaufort lab to continue work with them on the qPCR assay development for the cysts. So that was nice and wrapping up that this project here.

ALEUTIAN AND PRIBILOF ISLANDS

Rachel Lekanoff

As far as I know, not too many updates. I do know that Shayla our climate resilience coordinator just got a HELP learning grant. She's going to use it to relearn and teach some traditional knowledge and traditional uses for kelp and to explore some potential mariculture applications in the future. So that's something I'll be helping out with for the next couple years. So that's the big algae related news for us. But other than that, nothing new to report as far as I know.

NORTHERN BERING SEA

Ajit Subramaniam

No updates, but I do look forward to being up there in March.

ARCTIC

Evie Fachon

It was really nice to see so many people in person at AMSS, especially for me coming all the way from the East Coast. It's always good to get out to Alaska and see folks. So yeah, no huge updates from us. We're still working on our big backlog of samples from this summer. And also, of course, now starting to think forward to next summer and what our field season is going to look like. So the big cruise that we had up in the Bering Strait last summer was kind of a one-time NSF-funded project. We don't have a dedicated HAB cruise this year. But we do have a couple different ships of opportunity that we're sending people out on to sample and also looking for maybe a couple more opportunities to be able to do stuff like that. We'll keep keep y'all posted.

Thomas: Thanks Evie, and something to = keep in mind is that that the cruise that you guys did was dedicated to HAB and is not going to happen that way every year, but also we worked on trying to make sure we had that communication system in place in case something was detected on board. And that's not necessarily something that we're going to have every year unless we work to put those things in place every year. So I don't know if there's a solution yet right now really for the near future. But I think that cruise last summer was just a really great example of with enough money and resources, something we could do that did seem to be quite beneficial and really well received, not just what was being done, but how it was being communicated. So, you know, it's not being done every year unfortunately right now, but if we could that would be the kind of thing that we would want to be doing every year. So like you said, From now on, it's gonna be a lot of ships of opportunity. And, and we may have an IFCB on some of them, but we won't necessarily have a technician on board to get those data out right away like we did last year when Evie was on board those cruises. So just something to keep in mind, that monitoring and research efforts are just going to kind of wax and wane with availability and resources. We need to work to put that in place for future years if we want to

keep that going. And I just thought it was something to reinforce and highlight because it does take a lot of work.

Patrick Charapata

Yeah, just along those lines, it's great to see a bit more faces up at AMSS. Because you know, we're down here in Seattle. So always great to get up there and see people in Alaska. In terms of what we're focusing on now, like Evie said, setting up any kind of cruises of opportunity that we can go out on as well to collect some paired water samples and invertebrate samples. There are a few opportunities, but we're still lining those up. And then still running a lot of clam, worms samples from the couple legs of the dedicated cruise this past summer. So that's still going on, and lots to look forward to.

I'll give a talk at the ATCEM meeting in March. And then also that Nome Nugget article really touches on some good aspects of all the different parts of the project that Evie and Don and Kathi and I are all doing, so check that out, too.

OUTSIDE ALASKA

Maggie Broadwater

As Kris said, it was fantastic, it was a great discussion on Friday. I was really sorry to miss AMSS in person. But we I will not be present for the March workshop. But I think Marc Suddleson from our office is planning to come up and we'll confirm that a little bit later. I have been at Coastal Geotools in Charleston this week and have seen I feel like I've been at an Alaska meeting because there are a lot of Alaska related presentations. So I was able to meet some people that I think work right down the hall from you. But that's I'm just listening in today. So thanks.

Frances Gulland

Thank you for letting me join you. And I'm Frances, I'm a vet by training and I worked for 25 years at the Marine Mammal Center in California where we are basically inundated regularly with large numbers of mostly California sea lions, poisoned with domoic acid. And we did the first work back in '98, on documenting hippocampal necrosis and I've worked with Kathi Lefebvre a lot on associating levels with impact in sea lions. So currently I chair the US Marine Mammal Commission, we're little government oversight agency. And as we say, we're here to help. Obviously, the agency is based in DC, not Alaska. But I personally am very interested in the impact of biotoxins on marine mammals and how we actually correlate levels that we measure in guts or fluid samples with actual impacts on the marine mammals themselves. And obviously, that relates to, are they safe to eat. So I'm just really happy to join this group. And then if you think of ways that the Commission can help, we have a small budget for grants we can facilitate workshops, sometimes have money for travel, people, especially if there are emergencies, like marine mammal die offs, and you need to get somebody out there. That would be a way that I can see we can contribute. So anyway, I'm really happy to learn about everything you're doing. And let me know if you think of ways that you can support your work. Thanks.

I saw in an email chain someone in this group has worked on biotoxins in Namibia, I'd love to connect, as have been asked to look at the data from dead fur seals there , I'm at francesgulland@gmail.com

Maggie: That is Chelsea Kovalcsik. I'll add her email. I don't think she is on today. Chelsea is currently at UAF working with Kathi Lefebvre sampling seals on St Paul Island. chelseakovalcsik@gmail.com

Jen Maucher

Hopefully going to be able to attend the workshop next month.

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**NEXT AHAB MONTHLY CALL WILL BE: THURSDAY March 9TH, 2023 AT 9:30AM AK
(The meeting schedule for 2023 will remain the 2nd Thursday of every month)**