

## AHAB Monthly Call – February 10<sup>th</sup>, 2022

**Participants:** Thomas Farrugia (AOOS), Morag Clinton (UAF), Marc Suddleson (NOAA), Sarah Pease (Sen. Murkowski’s office), Kris Holderied (NOAA Kasitsna Bay), Rosie Masui (KBNERR), Chandra Poe (Qawalangin), Dom Hondolero (NOAA Kasitsna Bay), Jeff Hetrick (APMI), Annette Jarosz (APMI), Maile Branson (APMI), Stephen Payton (Seldovia), Robb Kaler (USFWS), Caroline van Hemert (USGS), Matt Smith (USGS), Michelle Morris (ADFG), John Harley (UAS), Patryce McKinney (DEC), Carol Brady (DEC), Sarah Schoen (USGS), Natalie Rouse (AVPS), Darcy Dugan (AOOS), Lori Verbrugge (CDC), Grace Ellwanger (KANA), Veronica Padula (Aleut Community of St Paul), Hana Hellen (Aleut Community of St Paul), Sijo Smith (Northern Latitudes Partnership), Bill Carter (USFWS), Emma Pate (NSHC), Evie Facon (WHOI), Anne Garland (ARIES), Emily Bowers (NOAA), Brock Tabor (DEC), Dean Stockwell (UAF).

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

### HAB News

- WHOI 2022 report on HABs – identifies areas of concerns with HABs, specifically that HABs are increasing (but not everywhere equally) and incur an economic cost
- Salmon farming in Chile heavily impacted by HABs – models are being developed to mitigate
- Taxonomic Identification of Harmful Algae in US Marine Waters – in-person course in Maine August 16-28, 2022



### HAB Science

- New rapid screening method for STXs in water samples

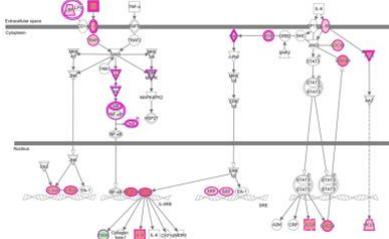
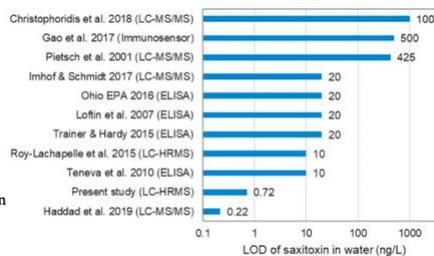
Fast screening of saxitoxin, neosaxitoxin, and decarbamoyl analogues in fresh and brackish surface waters by on-line enrichment coupled to HILIC-HRMS

Sung Vo Duy<sup>1</sup>, Gabriel Munoz<sup>2</sup>, Quoc Tuc Dinh<sup>3</sup>, Yanyan Zhang<sup>4,5</sup>, Dana F. Simon<sup>6</sup>, Sébastien Sauvé<sup>6\*</sup>

- Response of rainbow trout gill transcriptome to algal toxins

Gill Transcriptomic Responses to Toxin-producing Alga *Prymnesium parvum* in Rainbow Trout

Morag Clinton<sup>1,2,3,4</sup>, Edoardo Kral<sup>1,2</sup>, Dorothea Soudewitz<sup>5,6</sup>, Mikael R. Andersen<sup>7</sup>, Andrew S. Blevins<sup>8</sup>, Daniel S. R. Farber<sup>9</sup>, Per Juel Hansen<sup>10</sup>, Niels Lorenzen<sup>11</sup>, and Samuel A. M. Martin<sup>12\*</sup>

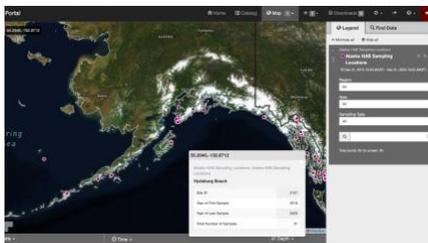
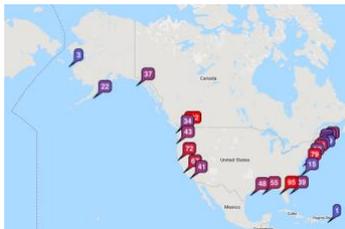


Morag Clinton: Thank you for introducing the paper. We were looking at the impact of algal toxins below the high mortality impacts on fish. Now we're very interested in immunological

deficits following exposure to algal toxins. So do these changes to the immune system of fish impact their ability to fend off additional infections? Does it reduce their survival long term in the environment? And we're starting to try and explore even reproductive deficits from low level exposure to toxins. One of the really interesting things in the paper was even below sort of clinical response detectable in the fish, we saw gene expression changes. So very interesting, but quite concerning. Just the level of toxin exposure that we hadn't considered would have an impact on fish, it still did.

## AHAB work

- Starting a weekly news update email on Wednesdays to AHAB members
- Harmful Algal Event Database (HAEDAT)
  - Meta database that records harmful bloom events
  - Alaska has been included in the past
  - 2021 events needed by March 11
- AHAB data portal progress – sampling map first draft



Marc Suddleson: I want to reinforce the importance of adding data to HAEDAT and I just chatted two links. One is a recent paper by Anderson et al., it takes data from HAEDAT and looking globally and in the US trying to explain some trends for HABs. And a summary of the findings came out, Maggie Broadwater at NCCOS summarized those findings.

A recent paper using HAEDAT data to indicate global and US trends here:

<https://www.sciencedirect.com/science/article/pii/S1568988321000020?via%3Dihub>.

A summary of findings here: <https://coastalscience.noaa.gov/news/report-on-u-s-marine-habs-history-current-status-and-future-trends/>

## Round Robin Updates (going by region of work)

### SOUTHEAST

#### **Sarah Pease**

Hi, everybody. My name is Sarah Pease. And I'm the Knauss fellow right now in Senator Murkowski's office. I just finished my PhD from the Virginia Institute of Marine Science, working on harmful algae and their impacts on oysters. So I've worked closely with the Virginia Department of Health, trying to improve our ability to monitor HAB toxins. And I also have some experience working in the state of New Hampshire for their shellfish program. I'm very excited to meet you and work with you. And I apologize that I can't stay for the full meeting today. If you want to reach me, my e-mail is [Sarah\\_Pease@murkowski.senate.gov](mailto:Sarah_Pease@murkowski.senate.gov).

#### **Courtney Hart**

We're continuing our oyster monitoring project here. I'm excited that Sarah in Murkowski's office has experience with oysters and monitoring because that's exactly what we're doing. And then, on my end, I'm going to write up some manuscripts, all the mapping that I did, and looking to

see if I'm actually going to maybe try to incorporate some of the temperature data that was generated during the ferry going up and down in 2018-19 – starting to pull together a story there. So hopefully, I'll have that done in the next year.

### **Muriel Dittrich**

My time and funding with Courtney has ended. So we passed on the project to Becca Cates, and she's on this call right now. And so she'll be giving updates from now on. But I'll probably still attend, because I'm interested in HAB stuff but I won't be working on the project anymore. Becca is a Sea Grant fellow in Juneau, working with Jordan Hollarsmith at NOAA.

### **Rebecca Cates**

Hi everyone. It's good to be part of these meetings. Thanks for getting us going in the first place, Thomas. I'm just taking over the work that Courtney and Muriel have been doing at Salty Lady seafood company, and oyster farming in general. We'll just be monitoring at that location, trying to incorporate other farmers in the southeast area, and trying to bulk out their monitoring efforts. So I'm working with Brian Herman from Canoe Lagoon oysters, kind of near the Wrangell area. And he actually had a couple of HAB events throughout 2021. So he would probably love to be in touch with you on this to be updated on the website that you mentioned that database.

### **Michelle Morris**

We have sunshine today, which is the first time in a long time. Yeah, I got a few applications in. That's great. I just want to remind people that it does take time, I can't get it done in a day. So if you even think there's a possibility that you might do something or even if you're waiting on funding, go ahead and apply for your ARP, because then you can have it on hand as soon as your funding gets through or your travel gets approved. Doesn't hurt, it's free. You can go ahead and get it done and in place first.

## **SOUTHCENTRAL**

### **Kris Holderied**

I'm just flagging for folks who may not have heard before: one of the things going on nationally right now for NOAA is climate fisheries initiative, which is hopefully getting rebranded as climate fisheries ecosystems initiative. And one of the applications for that work is to harmful algal bloom risk assessment and forecasting/prediction. It's using coastal models more effectively for ecosystem related work in addition to what on the ocean service side of NOAA, is already being used for navigation services. So just wanted to flag there's a lot of things there. I don't think there's been as much discussion about the HAB related pieces there. Other initiatives would also be supporting some of the stuff we've been talking about in terms of having more three dimensional coastal model products available for people to work with on.

### **Dom Hondolero**

Now we were able to get out and do our monthly sampling this month, but it's there's not much in the water as far as phytoplankton or zooplankton. So we don't really have any updates on that right now.

### **Maile Branson**

Not much to update everyone on from this. And we are still sampling regularly and not seeing anything. No surprise there. The lab development is going great. We have all the ELISA stuff together. And we actually just ordered a scintillation counter for RBA. So we should be getting

that up and running in the spring as well. So yeah, all systems go for now. Maybe one of these days I can, like carry around a laptop and just sort of like zoom show everybody.

#### **Robb Kaler**

No updates, but just want to mention that Highly Pathogenic Avian Influenza is a growing global concern, in addition to exposure to biotoxins.

#### **Patryce McKinney**

Nothing really to report at this time just business as usual. Bruce is always a prolific submitter. I know he just did his report he sent out this last week. And actually Carol looks like she had a drop off as well. And she said there was no farm closures just as a heads up. I'm trying to work on a plan for some method validation work for some new methods, but it's really in its infancy to get some funding. So we'll see if that happens. I'm looking at what's called Wet storage. It's really more for the commercial shellfish, how they store their shellfish. But I just got a call this afternoon to talk about maybe some changes in PST methods, but it's way too early, even if it does start moving forward, we're talking a couple of years out so.

#### KODIAK

##### **Grace Ellwanger**

No, we've been sampling still regularly. I think last time we gave an update, we cut back on our sampling sites in our frequency due to funding, but we are still sampling regularly. Not seeing much activity here either. Our main focus right now: we're doing our we have our water quality workshop for Kodiak at the end of the month. So we're all kind of focused in on that over here. And for anyone that doesn't know that's just a workshop that we host annually for the tribes of Kodiak to provide training for water quality monitoring, and then hopefully this year, some other trainings and sessions as well.

#### ALEUTIAN AND PRIBILOF ISLANDS

##### **Veronica Padula**

Hey, everybody, nothing too serious update. We've been deep in the grant writing and planning our summer mode. So we have been sort of having talks about how we do our sampling for HABs on the project we've been coordinating with Thomas on. We will get a research plan to you soon. Hana is diligently working on our next work plan for IGAP, which doesn't include looking at HABs. So we're kind of trying to kill two birds with one stone and get that done. We just have to sort of dive in and figure out what our summer sampling regime looks like and, balancing that with getting out to island, which is kind of the other side of this coin for COVID times.

#### NORTHERN BERING SEA

##### **Emma Pate**

So the only update I have is I'm coordinating with a number of the environmental programs in our region. We're working through some of the detail of how they will participate in our regional phytoplankton baseline data collection project. And then traveling to all the villages in our region starting in March.

#### ARCTIC

##### **Bill Carter**

The only thing I have is that Alex got the herring sent out to his partner in North Carolina to look at the toxins in that and he's working on a new grant with Ajit to actually have a contract in place

when we have those kind of incidents again. So yeah, that's about it. Besides, it's you know, 29 below and cloudy here. It's not too bad when it's sunny, but cloudy isn't kind of depressing.

Thomas: Yeah, I've been talking to Ajit and Alex and the herring are in my freezer right now in Anchorage waiting for dry ice to be available. Then I'll put those into a cooler with dry ice and send off to Astrid Schnetzer in North Carolina. She'll be doing the cyanotoxin testing on those herring. And just as a background that this is the herring from the die off around Kotzebue in October of last year. And Alex has been working with Bill and getting them sent out to test for various things. But there has been no smoking gun so far. So Alex is thinking potentially cyanotoxins.

Bill: Thanks for catching those in and moving them along. The other thing is, I'm probably going to miss next month's meeting because I'm headed to the detail in Florida for the manatee die off which is kind of related to this because of the algae blooms killing off the seagrass down there.

### **Morag Clinton**

Hi! You mentioned the work with Ajit and Alex. Thomas actually really kindly connected me with them. And I think we're going to add an additional facet to their proposed projects and their sampling regime, or we're going to try and look at clinical effects on fish, we're going to look at tissue changes. And we're going to try and pair they're really interesting phytoplankton sampling and their toxin screens with trying to illustrate some biological effect as well and see what's actually happening in the herring population, but other fishes as well. So thank you for connecting with them. And just to update you on hopefully broadening the scope of the project a bit.

Bill: Did Alex send along the ADFG pathologist report?

Thomas: Yeah, he mentioned it last month and I put it on the website so it's actually up for people to see and they sent it out longer than I sent it specifically to Morag as well. But the problem is that I think there was just too much freezing damage to the gills, right?

Morag: Yeah, there's a lot of artefacts. But what they found is super interesting. It's a really detailed report. It's fantastic. But yeah, they're sort of suspicions around gill pathology. It's hard to really say because the samples are frozen, so hopefully we're gonna furnish Alex with some buffered formalin so he can take really nice samples going forward.

Otherwise, there's not a huge amount going on in my lab at the moment. I'm teaching my aquatic animal and environmental health class at the moment. So we've got lots of students really interested in HABs, which is fun.

### **Evie Fachon**

No big updates from us. We're getting geared up to cruise this summer. Nothing else in the meantime. It looks like we're gonna have two back to back cruises one in July/August and the second in August/September.

### **Anne Garland**

No, no news, just getting ready for the coming season and trying to figure out if we're gonna have this advisory group or not. I would enjoy anybody's input on how to approach locals for an advisory group for education purposes, and how we're going to let people know what's going on with HABs up there. I'm not sure how much people know what comes in the news, like from Don Anderson's work. So I've been trying to figure out a way to make sure that people know what's going on but not create anxiety.

Thomas: Yeah, I know Don was talking about the messaging around that and I think there was some amount of work put into crafting that message. He's not on but Evie, do you know of any

resources that were put out specifically to community members about that work on the *Alexandrium* cysts and communicating that with being alarmist?

Evie: Our group is planning to do an outreach touring after our cruise this summer to go to communities and explain our observations. Basically, what we what we saw out there and what that means. So we have that plan for then, but I know in the meantime, it is always really challenging with HABs to figure out the best way to message without creating anxiety. I can let Don know that you were asking about that Anne and have him reach out to you.

Anne: Yeah, Don, and I have been emailing back and forth keeping track of the offshore data, and how it might or might not affect the sampling that we're doing nearshore and in lagoon. So he knows that I'm up there with the local monitors trying to figure out how to spread the word of the new information. I know that they put out articles. But I just don't know how many people understand the consequences. You know what I mean? Even though there's articles out there.

Evie: Is there anything like the Strait Science talks up in your area?

Anne: Yeah, they used to have them all the time. But with COVID none of that is happening. So rather than us deciding, my lead is Laura Thomas, she's been on some of these calls. We both agreed that we need some local advisors to decide how to progress. She's in the Public Health Department anyway. But the public health people she says are currently blind to that. So that's an education right there. She's very reticent to bring this up as an issue with public health. But I'm trying to create this space for conversation. So I will just keep plugging along. Raphael Stimmlmayer is part of our team. So she knows what we've been doing. She's been participating for a number of years. Anyway, I will let you know. I will email Don, I think he should be in on the conversation whenever we get a group of people together.

Bill: Yeah, I just wanted to say that we've had these exact same conversations here. And Maniilaq kind of wants hands off because they don't want to be alarmist. And Alex doesn't really know how to message it. But people in my office want to get the thing out and let people know what's going on. So I would say we could talk to our outreach person here, except she's on a detail right now, so she's, you know, only working 25% for the office. But those conversations are going on other places. And the tribal health doesn't seem to want to touch it at the moment, at least in in Kotzebue area.

Lori: I work in public health at federal level. Please let me know if there is anything I can do to support you, including working with partners. My email is GUK7@cdc.gov if you want to follow up.

## OUTSIDE ALASKA

### **Marc Suddleson**

I appreciate you sending out a note to the community about an upcoming March webinar through the harmful algal bloom observing group. And I know you've contributed slides to a talk that'll be in there and making community science work. So I look forward to people engaging and providing feedback. So thanks for sharing that.

Thomas: And I'll share it again, it's March 16th. So we're gonna have one more monthly meeting before then on March 10. So I'll mention it there as well, as well as through my emails. But yeah, that actually could be quite relevant to some of the discussion we were just having about making community science work. Because outreach and awareness and communication is obviously a big part of that. So that's part of the national level IOOS HAB Observing Network webinar series as a third one. And yeah, the exact date and time and registration link is on a website, as well.

Marc: Seeding discussion among the presenters, and then also anybody who participates about how do you communicate the challenging information in a sensitive fashion to the public would be a valuable opportunity to share some lessons.

**Emily Bowers**

We're working through the backlog of samples. Nothing else to report but we reported out some results to folks today and still plugging away.

**Teri King**

Marc made the plug for the upcoming workshop, which is great. And I think he tickled my brain to add a slide to my deck. I'll be one of the presenters talking about outreach and education and how we've been doing it down and in our area. But just appreciate everybody and your comments today. And yeah, get to see everybody's data in this data portal as well. And hope everybody who is using the new data portals enjoying it.

Thomas: Yeah, I wonder is there would there be a way for you to provide maybe next time or something, a quick demo of that data portal, and what it can do. It always helps, I think, for people to see it in order to want to start using it and contributing to it.

Teri: Absolutely happy to do that. Let's talk offline.

**NEXT AHAB MONTHLY CALL WILL BE: THURSDAY March 10<sup>TH</sup>, 2022 AT 9:30AM AK  
(The meeting schedule for 2022 will remain the 2<sup>nd</sup> Thursday of every month)**