

AHAB Monthly call – January 14th, 2021

Participants: Thomas Farrugia (AOOS), Rosie Masui (KBNERR), Sheyna Wisdom (AOOS), Grace Ellwanger (KANA), Naomi Bargmann (Sitka Tribe), Chandra Poe (Qawalangin), Darcy Dugan (AOOS), Michelle Morris (ADFG), Andie Wall (KANA), Kathi Lefebvre (NOAA), Racheal Lee (NSHC), Bill Carter (USFWS), Muriel Dittrich (UAS), Jeff Hetrick (Alutiiq Pride), Natalie Monacci (OARC), Jill Prewitt (AOOS), Dean Stockwell (UAF), Bridget Ferris (NOAA), Matt Smith (USGS), Patryce McKinney (ADEC), Steve Kibler (NOAA), Bailey Richards (ANTHC), Kevin Heller (ANTHC), Jasmine Maurer (KBNERR), John Harley (UAS), Robb Kaler (USFWS), Evie Fachon (WHOI), Don Anderson (WHOI), Hallie Brown (KANA), Danielle Gerik (USGS), Maile Branson (Alutiiq Pride), Chelsea Campbell (Kovalsik) (CRRC), Connie Melovidov (APIAI), Anne Garland (ARIES), Kris Holderied (NOAA), Karie Holterman (City of Unalaska)

HAB News:

CDC has a new report out on HABs across the US. Alaska contributed data to this report.

<https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6950a2-H.pdf>

HAB News – CDC report

The screenshot shows the CDC website interface. At the top left is the CDC logo and text: "Centers for Disease Control and Prevention CDC 24/7: Saving Lives, Protecting People™". To the right is a search bar and an "A-Z Index" link. Below the search bar is a blue header for "Morbidity and Mortality Weekly Report (MMWR)". The main title of the article is "Surveillance for Harmful Algal Bloom Events and Associated Human and Animal Illnesses — One Health Harmful Algal Bloom System, United States, 2016–2018". Below the title is the issue information: "Weekly / December 18, 2020 / 69(50):1889–1894". At the bottom, there is a list of authors: "Virginia A. Roberts, MSPH¹; Marissa Vigar, MPH¹; Lorraine Backer, PhD²; Gabriella E. Veytsel, MPH^{1,3}; Elizabeth D. Hilborn, DVM⁴; Elizabeth I. Hamelin, MS⁵; Kayla L. Vanden Esschert, MPH^{1,3}; Joana Y. Lively, MPH^{1,6}; Jennifer R. Cope, MD⁷; Michele C. Hlavsa, MPH¹; Jonathan S. Yoder, MPH¹ (View author affiliations)".

TABLE 1. (Continued) Characteristics of harmful algal bloom events (n = 421) — One Health Harmful Algal Bloom System (OHABs),* United States, 2016–2018

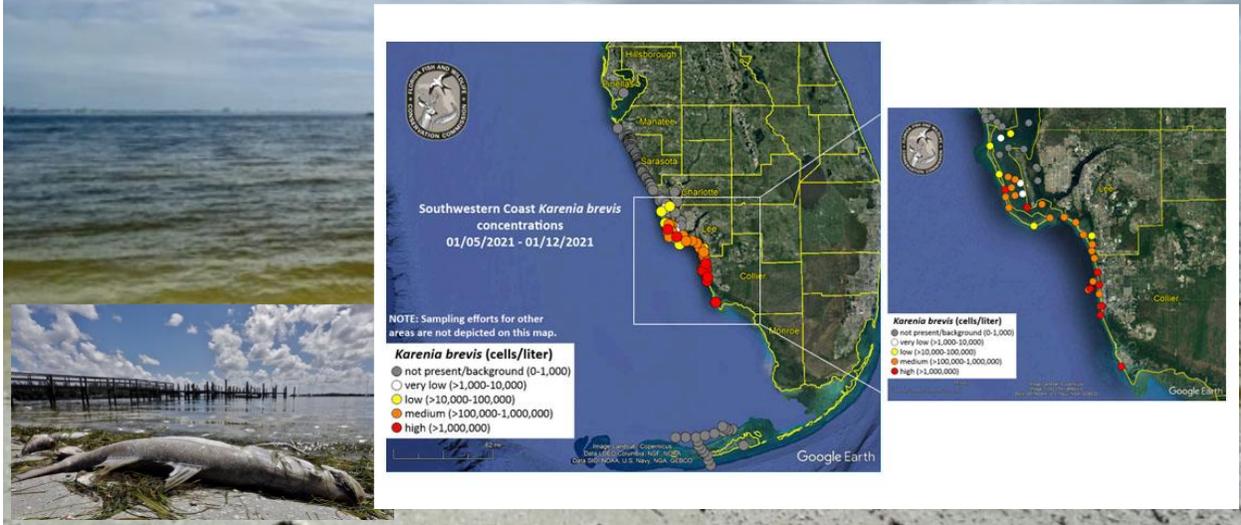
Characteristic	No. (%)
Testing results**††	
Toxins ^{§§}	308 (83)
Microcystins	291 (94)
Anatoxin-A	30 (10)
Saxitoxin	19 (6)
Cylindrospermopsin	4 (1)
Nodularin	3 (1)
Ciguatera	1 (—)
Other	1 (—)
Cyanobacteria	65 (17)
Dinoflagellates	8 (2)
Gonyaulacales	2 (25)
Gymnodiniales	3 (38)
Peridinales	1 (13)
Prorocentrales	1 (13)
Unknown	2 (25)
Raphidophyceans	3 (1)
Diatoms	2 (1)
Unknown ^{¶¶}	23 (7)

* A total of 18 states adopted OHABs and voluntarily reported 421 harmful algal bloom events: Alaska, Arizona, California, Connecticut, Florida, Kansas, Maryland, Michigan, Minnesota, Nevada, New York, North Carolina, Ohio, Oregon, Pennsylvania, Utah, Virginia, and Wisconsin.

<https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6950a2-H.pdf>

There has been a red Tide in Florida since mid-December. The red tide has led to fish kills and economic impact due to tourism loss. The HAB causes skin and eye irritation. The state of Florida monitors phytoplankton and produces weekly maps showing levels of dinoflagellate cells per liter.

HAB News – Red tide in Florida



A study came out recently on the link between climate/warming and domoic acid. The article is in *Frontiers in Science*. Takeway: after the Blob in 2014-16, a hotspot of domoic acid has continued affecting the coast even though the warm water subsided.
<https://www.frontiersin.org/articles/10.3389/fclim.2020.571836/full>

HAB News – West Coast Hotspot

Climate Extreme Seeds a New Domoic Acid Hotspot on the

Vera L. Trainer^{1*}, Raphael M. Ryan M. McCabe^{4,5}

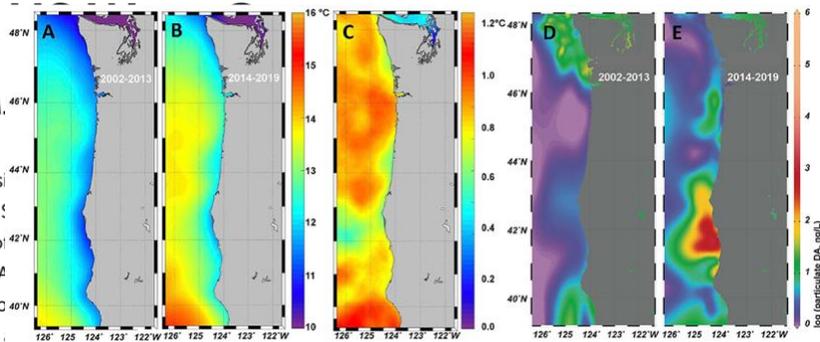
¹Environmental and Fisheries Science Division, National Oceanic and Atmospheric Administration, Silver Spring, MD

²Ocean Sciences Department, University of Oregon, Eugene, OR

³Oregon Department of Fish and Wildlife, Salem, OR

⁴Joint Institute for the Study of the Atmosphere and Ocean, University of Colorado Boulder, Boulder, CO

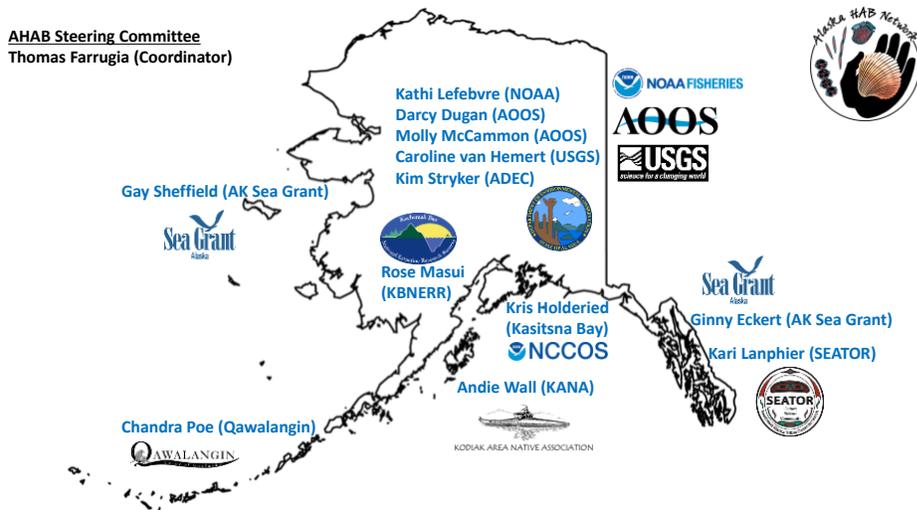
⁵Cooperative Institute for Climate, Ocean, and Ecosystems, University of Colorado Boulder, Boulder, CO



<https://www.frontiersin.org/articles/10.3389/fclim.2020.571836/full>

Thomas update:

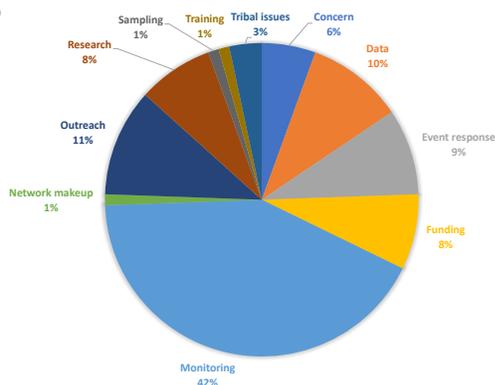
Updated steering committee (include map). Includes state and federal agencies, native organizations, geographic coverage. Front line people to help guide Thomas.



Thomas has been doing listening sessions with 50+ people from 30 organizations. (include graphic). Majority of comments about monitoring. This will help guide finalization of the action plan

Network Update

- Listening sessions finishing up
 - Conversations with 50+ people
 - from 30 organizations



Katie Gavenus (CACS):

There are two great opportunities for undergraduate students to participate in research in the Gulf of Alaska. This year, in addition to the Ocean Sciences Research Experience for Undergraduates (REU), the Northern Gulf of Alaska Long Term Ecological Research Project also has an REU opportunity that is open only to students with Alaska Native Heritage. It would be fantastic to include students who have connections to coastal Alaska communities or who are interested in HABs. Please share the announcement with any students you think might be interested. If there are any questions, I'm happy to try to answer them.

Funding from the U.S. National Science Foundation provides participant financial support, including a \$5760 stipend.

The application deadline is February 15, 2021.

More information: <https://nga.itsernet.edu/education-outreach/reu/>

ROUND ROBIN UPDATES

Bill Carter – Kotzebue

Nothing new. Everything frozen! Talked to Alex Whiting about sampling this summer but haven't made solid plan.

Don Anderson – WHOI

Because the dedicated HABs cruise from Nome to Chukchi/Beaufort was cancelled, they had rescheduled for 2021. But since learned Healy won't be supporting science operations in 2021. All other vessels are booked. So they will have to postpone again. But they have been getting samples from other cruises to help get a good map of *Alexandrium* in N. Bering sea northward. They have a lot of samples but are figuring out how to process them; have needed to use different preservation method because they've been taken by others and their usual method is cumbersome. The samples were preserved in neutral Lugol's, they may have to count them in less precise way.

Evie got back from a cruise in December where they picked up sediment samples along the coast to map out *Alexandrium* cysts. Highest abundance was in Chukchi between Point Hope and Point Lay. In previous years had picked up another seed bed near Pt. Barrow but the transect didn't extend that far this year. Cyst numbers high but maybe not as high as other years. But still very high, the highest being 8,500 cysts per cm³, but also the feature looks bigger and extends further out, so if we integrate the total number of cysts, it will still be very high. So this area could still be an inoculum in future blooms. We don't have cell counts from the summer to tell us how big the bloom was but we know there are a lot of cysts.

Evie – WHOI

Kate Hubbard in FL is looking at *Pseudo-nitzschia* genomic data from those cruises, so hopefully we'll have that to share as well in the future.

Kathi Lefebvre – NOAA

The Healy cruise was cancelled, but Phyllis Stabeno at NOAA AFSC is planning a cruise in Chukchi, Bering, and some DBO stations. Trying to determine what size boat they'll have. They may be able to put a dedicated HABs person on. This would allow them to collect the whole suite of samples: HABs cell density, zooplankton, benthic clams, benthic worms, sediment for cysts and fish. Then they can do a full food web toxin levels work. Hopefully will have more info for the next meeting.

They are continuing conversations to work out community sampling efforts, still in the early stages. They'd like to communicate directly with tribal councils to see if they're interested in taking weekly water samples and collaborating with ECOHAB and NPS.

Don: when would the cruises be?

Kathi: not worked out yet, but hopefully late summer, Aug-Sept? Will let us know.

Anne Garland – ARIES

No updates but looking to catch up on the listening sessions.

Racheal Lee – NSHC

NSHC Office of Environmental Health has a similar update as last month. Our HAB monitoring training is still scheduled for the end of Jan. with Chris Whitehead, Ocean & Earth Consulting. The training audience is primarily for our internal staff and for the Bering Strait Region's Tribal Environmental programs.

Chandra Poe – Qawalangin

Weather challenges and tide timing have made sampling a little difficult. Forging ahead to keep sampling over the winter. Lost Unalaska samples for Nov/Dec because of shipping issues, the samples arrived warmed up and had to be tossed.

Updated their website: <https://www.qawalangin.com/psp>

They did get data recently with analysis from King Cove. They did see a low total toxicity from a butter clam sample in a long time. They may increase frequency of sampling there with some extra funding not used in St. Paul.

Talking to Rosie about setting up training for phytoplankton tow in the spring.

Noted they went with Lake Clark Air for most recent sample transport and it was smooth and cheaper. They're trying to think creatively for future samples.

Karie Holtermann – City of Unalaska

Has been working on covid-19 sewage project. Did a net two yesterday and saw *Alexandrium* and *Pseudo-nitzschia* during a big blizzard here. The cells stay all year long. Will talk to Chandra more about monitoring in the spring. They do have a qPCR machine they could set up to do *Alexandrium* counts, which would be interesting.

Connie Melovidov – APIAI

No updates yet, happy to be here, and great to see that Chandra has been working with King Cove.

Natalie Monacci – OARC UAF

Hoping to tag along on some of the oceanographic cruises, and getting OA sampling on those. Looking to pair OA and HABS sampling. Hopefully on the cruise Kathi mentioned earlier through NOAA AFSC.

OARC has samples of opportunity – accepting proposals from any students to add OA measurements to their research project. If you know students who would like to do some training, education and outreach this summer, they could add samples of opportunity to your project.

<https://www.uaf.edu/cfos/files/research/oarc/oarc-graduate-research-sampling-flyer-2021.pdf>

Summer Research 2021  COLLEGE OF FISHERIES AND OCEAN SCIENCES
University of Alaska Fairbanks

Samples of Opportunity:
Add Ocean Acidification Measurements to your Research Project



The Ocean Acidification Research Center (OARC) is accepting proposals from UAF students to add ocean acidification (OA) measurements to their research projects. OA data can be applied to interdisciplinary research areas including aquaculture, environmental change, fisheries, marine biology, natural resource management, and oceanography.

Interested students should submit a one-page proposal outlining the project's main goals and fieldwork schedule to collect up to 20 discrete samples to be run at the OARC free of charge. Students new to OA and seawater sampling should contact the OARC in advance to discuss details and requirements for sample collection and analysis.

Students with awarded proposals are expected to participate in lab activities if COVID protocol allows involvement at the time of analysis. Proposals are due **March 15, 2021**.

For more information contact nmonacci@alaska.edu



Dean Stockwell – UAF

No report.

Muriel Dittrich – UAS student

Senior graduating in May. Working with Ginny Eckert and Courtney Hart at UAF-CFOS. Starting up a new project trying to coordinate *Alexadrium* in the water to oyster toxicity. More updates next month.

Grace Ellwanger – KANA

Working on marine water quality workshop. 3rd year of doing it. 2-day workshop, one on OA and one on HABS for community samplers in the Kodiak area. Will be in February. Pushing our “Harvest and hold” effort: People in Kodiak region who want samples analyzed can give them to KANA and they’ll have them analyzed for free.

Andie Wall – KANA

KANA is part of the marine mammal stranding network. A baby orca was stranded in Kodiak last week. Necropsy last Friday and took samples for HABS to send off. Preliminary results determined that the cause of death was inhaling milk.

Rosie Masui – KBNERR

In planning mode at the reserve. There’s a Kachemak Bay Science Conference that happens every 3 years. Will be virtual this year, the week of March 15. Steering committee is outlining potential sessions; one focus area will likely be HABS. If you’d like to present, let Rosie know. There’s usually a good student participation as well. Rosie will reach out to Alutiiq Pride and CRRC.

Robb: Is there a website for the Conference?

Rosie: It's in the process of getting set up. We can share with AHAB once it is set up.

Also working on a few education events. KBNERR doing a NOAA Live webinar in May. Also ANSEP webinar: HABs and marine invasive species (March/April).

Planning out spring trainings: community monitoring (end of April/beginning of May), working with Chandra and Lauren Divine for training for Aleutians/Pribs for sampling. Also drafting resources on response (who do you call when something happens). KBNERR sent out annual reports in December which show data. Rosie is happy to share.

Jasmine Maurer – KBNERR

Had planned to update phytoplankton guide last year before COVID hit. New timeline – should be finished this spring!

Kris Holderied – Kasistna Bay Lab NOAA

Kachemak Bay Science Conference – call for talks will come out next week. But if you are interested in HABs, contact Rosie directly. If you haven't seen NOAA Live events, they're very interactive. <https://www.fisheries.noaa.gov/alaska/outreach-and-education/noaa-live-alaska>

Continuing to do sampling, but not seeing much.

On NCCOS call this week, Steve Morton at the Charleston lab that does phytoplankton monitoring network talked about phone app they developed. Has anyone used the app or heard about it? Kris will follow up with Steve.

Steve Kibler at the HABs forecasting branch, there is some effort to support some quantitative sampling for *Alexandrium* with qPCR, so would be very interested in following up with Karie in Unalaska.

Jeff Hetrick, Alutiiq Pride

Retrofitting dry lab to get set for ocean monitoring lab. Chelsea is rewriting work plans for communities to add additional sampling (nutrients and will be working with Rosie for HABs).

Maile: organizing training for their 7 communities and expect to have phytoplankton sampling up and running by May.

USGS –

Danielle Gerik – Planning to present poster at AMSS.

Matt Smith – finished seabird samples from 2020 die offs and sent results to National Wildlife Health Center. They will update communities on those results. Will start working on domoic acid in the coming weeks. Lab still working at diminished capacity.

Lori Verbrugge – CDC

No updates.

Robb Kaler – USFWS

No updates.

Patryce McKinney – DEC

No updates, just working on Chandra's samples and business as usual.

Kevin Heller – ANTHC

Representing contamination support program through Dept of community, environment and health. Trying to figure out how they fit within AHAB network, can see how we could help with drone-based HABS monitoring. They have available drones.

This shows research using drones (UAV's – unmanned aerial vehicles) in Great Lakes.

https://ilma-lakes.org/2019/Sess5b_01_RLi_Drone%20Based.pdf

ANTHC works with brownfields (abandoned or underused properties, can have contamination) in Alaska; trying to see how these types of sites cause more contamination.

Also Kevin is working along Cleveland Water Alliance and teachers, developing curriculum for Lake Erie watershed region. Working with them to study how algal blooms are an indicator of climate change. And developing 3-6 week units on digital fabrication and how that can be used on monitoring to help with water health. Also biological indicators and protocols that teachers can use in classrooms. Working on how we can adapt these protocols to Alaska communities.

Molly McCammon – AOOS

Introducing new executive director for AOOS – Sheyna Wisdom.

Molly will continue working with Thomas on AHAB, and AOOS' participation on the national monitoring.

Budget did pass for with an increase from \$1M last year to \$2.5 M this year. May not mean more funding for AK but maybe more regions included. Congress is interested in HABS.

Jill Prewitt – AOOS

Putting together next edition for the Bering Science outreach publication (here are the previous publications: <https://aocs.org/wp-content/uploads/2020/06/Bering-Science-FOR-WEB-15June2020.pdf>, https://aocs.org/wp-content/uploads/2020/10/Bering-Science_fall-2020_HMcFarland-FINAL.pdf). Jill is starting out with input from Ecosystem Status Reports, but if anything has happened more recently than the last report you provided, Jill would be interested in that. Don and Evie, if you want to provide the results you showed earlier, Jill can include those.

Darcy Dugan – AOOS

No updates, but we had put together the 2020 HABS summary by region in October and we should probably circulate that around again to see if there are any updates and we can publish that final report.

John Harley – UAS

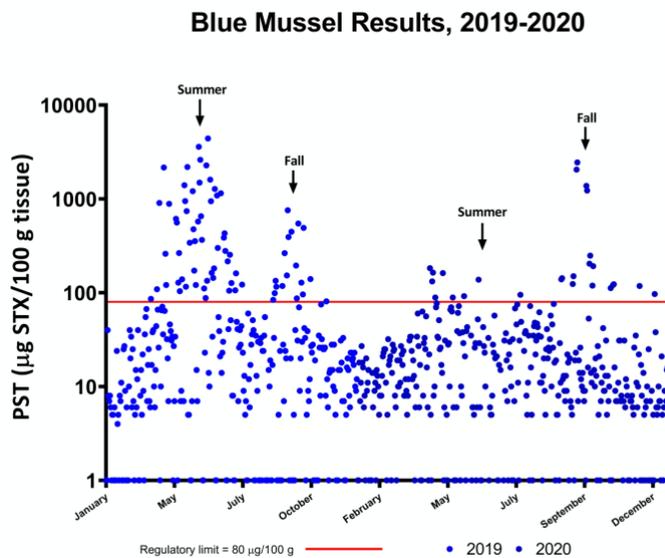
City of Juneau has lost power!

Got a paper published in Harmful Algae detailing results of the modeling effort using SEATOR data. John can share copy if people are interested.

<https://www.sciencedirect.com/science/article/abs/pii/S1568988320301979>

Naomi Bargmann – SEATOR

For 2020, they had over 800 shellfish samples collected and sent from partners. In 2019, 600 collected. Lots of participation this year even with pandemic. About 200 samples tested over the FDA limit of 80 $\mu\text{g}/100\text{g}$ (see figure below). There were over 400 blue mussels sampled in 2020 and 33 of them tested over the limit, but as a caveat 19 of those were from Kodiak over the summer, and Kodiak had a vastly different summer, southcentral was sunny; southeast was really wet. The highest values for 2020 was Hoonah. One site had 2,447 and another had 2,051 $\mu\text{g}/100\text{g}$. Both collected in September. Hoonah also collected the latest mussel in December that tested over the limit (97 $\mu\text{g}/100\text{g}$) ever, the previous record was November 16. Hoonah can't seem to clear out the PSP out of one of their sites. Hottest butter clam this season was 1,276, in Ketchikan. Ketchikan usually has hottest butter clam of any site. Graph below compares 2019 vs 2020 and shows different in levels corresponding to difference in weather that was opposite from one year to the next.



Bridget Ferris – NOAA AFSC in Seattle

Included AHAB data in Ecosystem Status Reports presented to the NPFMC in early December. Here are the links to the EBS, AI and GOA reports:

- https://archive.fisheries.noaa.gov/afsc/refm/stocks/plan_team/2020/EBSecosys.pdf
- <https://meetings.npfmc.org/CommentReview/DownloadFile?p=428d19c0-2e42-4bd2-af6e-1886f698cc31.pdf&fileName=C3%20AI%20Ecosystem%20Status%20Report.pdf>
- https://archive.fisheries.noaa.gov/afsc/refm/stocks/plan_team/2020/GOAecosys.pdf

The HAB data were really well received and we'd love to do that again next year. We can discuss about any changes we should make for next year.

Science and statistical committee – would love to see more data on higher trophic levels. If there are research projects that take higher trophic levels into account, they would be interested in that too.

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