



ICE SEAL COMMITTEE

MINUTES - Draft

Feb 28 & Mar 1, 2023 - 9:00 am to 5:00 pm

Embassy Suites Hotel, 600 E. Benson Blvd., Anchorage, AK 99503

Minutes were generated by the ISC Executive Manager (Andrew Von Duyke) from notes taken at the meeting and from an audio recording.

1. **Call to Order (9 am)**.....Billy Adams, *ISC Chair*

Meeting was called to order at 9:03 am

2. **Invocation**.....*Sam Gosuk, ISC Hunter Representative BBNA*

3. **Roll Call**.....*Quorum¹ for ISC Board Meeting = majority (6 members)*

Ice Seal Committee		Present	Absent
Bristol Bay Native Association	Renee Roque	X	
	Sam Gosuk	X	
Association of Village Council Presidents	Jennifer Hooper	X	
	Albert Simon	X	
Kawerak, Inc.	Charles Menadelook	²	X
	Ben Payenna	-	X
Maniilaq Association	Isabelle Booth	-	X
	Cyrus Harris	X	
North Slope Borough	Billy Adams	X	
	Joe Mello Leavitt	X	
Total		7	

With 8 of 10 representatives present, there was a quorum.

¹ **ISC By-Laws – Article IV, Section 4.5:** *A majority of the members of this Working Group, when present at any meeting, shall constitute a quorum, and in case there is less than this number, the presiding officer may adjourn from time to time until a quorum is present.*

² *Brandon Ahmasuk attended virtually as an alternate*

4. **Introductions & Meeting Logistics**

A. Meeting will be recorded, so please:

Use a microphone – Speak clearly & loudly - Identify yourself before speaking

B. Lunch & video on Feb 28 (Day 1) provided courtesy of the North Pacific Research Board

C. Open session on Mar 1 (Day 2) will end at 3pm. We will then go into executive session.

INTRODUCTIONS OF THOSE PRESENT

- Andy Von Duyke.....ISC Executive Manager - NSB
- Billy Adams.....ISC Chair, Regional Representative - NSB
- Jennifer Hooper.....ISC Vice Chair, Regional Representative - AVCP
- Tyson Kade.....ISC Legal Counsel
- Albert Simon.....ISC Hunter Representative - AVCP
- Justin Olnes.....ADFG-AMMP
- Rowenna Gryba.....Ice Seal Researcher - UBC
- Danielle Dickson.....North Pacific Research Board
- Kimberly Pikok³.....UAF
- Anna Bryan.....ADFG-AMMP
- Colleen Reichmuth.....Ice Seal Researcher - UCSC
- Michelle Annenburg.....Marine Mammal Curator - ASLC
- Theodore Paulk.....Seal hunter - Togiak, AK
- Sam Gosuk.....ISC Hunter Representative - BBNA
- Cyrus Harris.....ISC Hunter Representative - Maniilaq
- Joe Leavitt.....ISC Hunter Representative - NSB
- Jared Nyakik³.....Seal Hunter - NSB
- Michael Cameron.....NMFS - MML Alaska Fisheries Science Center
- Erin Moreland.....NMFS - MML Alaska Fisheries Science Center
- Anne Marie Eich.....NOAA Fisheries - Alaska Regional Office
- Kristen Ciciel.....NOAA Fisheries - Alaska Regional Office
- Elisabeth Kruger.....WWF
- Peter Boveng.....NMFS - MML Alaska Fisheries Science Center
- Renee Roque.....ISC Regional Representative - BBNA
- Lauren Divine.....Aleut Community of St. Paul Island - Indigenous Sentinels Network
- Brandon Ahmasuk.....ISC Regional Representative (alternated) - Kawerak

5. **Welcome remarks**.....Billy Adams & Anne Marie Eich

Anne Marie Eich provided some brief comments. Indicated that she is here to learn.

Billy Adams provided some brief comments. Theme had to do with the role of ISC to serve the communities.

³ ISC Next Generation Participant

6. **Approve agenda**.....Ice Seal Committee
 Cyrus Harris made a motion to approve the agenda.
 Albert Simon seconded the motion.
 Agenda was approved.

7. **Approve Minutes**.....Ice Seal Committee
 A. FY2021-22 ISC Board Meeting
 Jennifer Hooper motioned to approve the FY2021-22 ISC Board Meeting minutes.
 Albert Simon seconded the motion.
 Minutes were approved.
 Mike Cameron mentioned that the NMFS reports will be made available.
- B. No minutes from strategic planning meeting in Nov. '22. Outcomes to be discussed in executive session. ISC board will receive report via email before the meeting.
 Minutes from this discussion are recorded on a separate document that is accessible to the ISC on the password protected page of the ISC website.
 Further, a report from Raven's Group is also available at the same location.

8. Unfinished Business

- A. Next meeting dates
 1) 2023 Meeting #2 (virtual)
 Setting of this date was tabled until the executive session. July has been the goal, but it has been difficult to keep this date. In 2022 it was postponed at least 2x and it ended up taking place in November.
- 2024 Annual Meeting⁴
 Setting of this date was tabled until the executive session.
- B. Reminder about officer elections (no action necessary)

Current Officers		Elected	End of Term
Chair	Billy Adams	2022	2024
Vice-Chair	Jennifer Hooper	2022	2024
Sec./Treas.	Joe Mello Leavitt	2022	2024

9. New Business - Reports

- A. ISC Chair.....Billy Adams
 Chairman Adams discussed the idea of payment for regional reports. He also mentioned that he was glad that the meeting minutes are being read. Chairman Adams did a written report and will submit it to the ISC Executive Manager upon his return to Utqiagvik. He also mentioned the losses of family members due to covid, and noted the ongoing struggle to get back to "normal". Chairman Adams made a point to mention the Alaska

⁴ Period between late-January and early-March is strongly preferred.

Beluga Whale Committee (ABWC) and the Alaska Eskimo Whaling Commission (AEWC) regarding their level of professionalism. He would like to see the ISC start to work toward the level of professionalism and capacity as the ABWC and AEWC. He further mentioned the recent strategic planning meeting and discussed the importance of advancing the ISC’s status and professionalism. Finally, Chairman Adams discussed the Alaska Waterways Safety Committee with respect to its benefits to all the ANOs.

B. ISC Executive Manager (summarize funding request).....Andy Von Duyke

The ISC Executive Manager (Andrew Von Duyke) provided a brief summary of the ISC funding request in preparation. Unlike previous years’ funding, this funding request will be for a three-year operational period (FY2023-26). Chairman Adams mentioned that he liked the key work = road map.

BREAK

C. Reports – Regional

1) Association of Village Council Presidents.....Jennifer Hooper & Albert Simon

Ms. Jennifer Hooper:

Ms. Hooper mentioned that there has been a big Board of Fish meeting, which has been very distracting. Here comments provided follow the format requested by the Executive Manager. The AVCP is big. It has 56 tribes. Its physical location is about 100 miles as the crow flies from the coast; and so there is no direct access to the hunting communities. As such, hunter representation is very valuable to regional reporting in the region of the AVCP. Ms. Hooper’s info is largely obtained via social media, word of mouth, and calls to villages. At times, if she hears nothing, she interprets this as “no news is good news”. In other words, people tend not to call unless they have concerns. Ms. Hooper’s recollection of the 2022 breakup is that the timing was normal. The winter was dry with no snow. It was also a dry summer into June. The freeze-up held off until late-October 2022, and then it came quickly; which is fairly normal. There was a warm up in December, and then it became very cold. There has been a warm up in the week prior to this meeting, and then cold again. The river is used as a transportation road to from Bethel. There is 2 feet of water on top of the ice. The salmon returns of salmon (seal prey) to the Y-K delta have been dismal, critically low. They are barely making their escapement (10% of average). Warming conditions are affecting salmon health. They are working on what they can control...fisheries (board of fish). Currently they are down to the last species (coho) that are an option for people to catch. The first three species are low in numbers, and even coho are low. This is leading to major food security issues. Ms. Hooper has not heard of any questions/concerns about shipping and industrial development. Donlin (?) mine is getting close to operational. At AVCP, there strategic plan involves implementing a new subsistence committee. There is now only one vacancy left at the AVCP natural resources department.

Mr. Albert Simon:

Mr. Simon briefly spoke in Yupik (no translation). His report pertains to Scammon Bay, Hooper Bay, and Chevak. Winters have been changing fast, which has had an effect on subsistence hunting. The shorefast ice has changed. It is much closer to the shore than it used to be (e.g., it is right along the shoreline)...not miles from shore, rather feet from shore. At the time of the meeting it was still forming and dangerous. Seals are coming in, but later than usual in the fall. In the spring, the seals come and go with the ice. If ice and seals are present, then the hunters immediately try to harvest the seals while they are able. The conditions are changing fast. The hunters at Scammon Bay could not hunt on their side (ice was too dangerous), and so they hunted at Hooper Bay. Used to have good ice in September. December used to have good well-frozen ice. Also, people used to be able to spend long periods on the ice and the tundra. Nowadays, the freeze-up is really late. The last freeze-up occurred in November. Earlier springs have become more common now. Persistent south and east winds warming the area in the spring. The boat launching spot is currently dangerous. Chevak did well with seal hunting. For a couple of years there were no tom cods. Seals this fall were found in the rivers. There was slow seal hunting in the bay.

Dr. Justin Olnes (ADFG-AMMP):

Asked about the hunting in Chevak and what constitutes “good hunting” for them. Mr. Simon responded that Chevak is 18 miles east of Hooper Bay. They mainly hunt in the river. They run into bearded seals “all the time” in the river. They see more seals in the river than in the bay. The seals are following whatever fish are running up the river.

- 2) Bristol Bay Native Association.....Renee Roque & Sam Gosuk

Ms. Renee Roque:

BBNA covers 32 tribes. Recently took over the position. She has not had much contact yet from tribes/villages.

Mr. Sam Gosuk:

Mr. Gosuk provided a written report in advance. His report is already posted on the website. The spring of 2022 was quick. Mr. Gosuk did ask weather King Eider counts were getting lower? Or, another hunter thought that the eiders were passing by but farther out. Maklak (bearded seals; *Erignathus barbatus*) at mouth the river (mostly younger, but some bigger). The freeze-up in October happened quickly. He received a ‘medium’ seal and thought its fat would fill a 5-gallon bucket, but it only rendered half of the bucket. So, there was less fat than he thought there would be. He stated that seals have less fat. Mr. Gosuk has not heard about seal pups in the area. In the past, there have been pups on the beach or up the river. In the winter, the bay froze to the river. During the hunt in January/February there was a lot of snow, but it was not cold. The rivers froze a bit, and/or the ice was not very thick (i.e., it was unsafe). Hunters need to get out before the wind blows the ice away, because the seals will go away too (i.e., with the ice). There has been a lack of king salmon,

chum salmon, and silver salmon. There was no herring roe on the kelp on the beach last year. The decline of herring continues to be a concern. The herring quota from ADFG is based on biomass. From IK in the area, there used to be much more herring biomass, and so there were seals all over the place. Seals used to be all over the place back then. Not so much now. A report from Portland, OR expressed concern and closed the herring fishery for a year. After a year, the herring came back. How can ADFG use Indigenous Knowledge (IK) to help preserve the herring? The example from Oregon can be used as an example of a management approach for herring. The last good herring harvest in Togiak was a long time ago. Can ADFG close the herring fishery for a year or two to help subsistence and to help the seals?⁵

Albert Simon:

Spoke in Yupik (asked about the seal that was less than 5 gallons of oil). Was it a spotted seal? Was it harvested in the winter?

Billy Adams:

Spotted seals have less *okrok* (fat). Sam Gosuk agreed.

Renee Roque:

Asked whether the seals being less fat had to do with trawlers working in the bay? Sam Gosuk did not know if the trawlers are harvesting herring. Sam has seen trawlers and a big factory ship.

- 3) Kawerak, Inc..... Charles Menadelook & Ben Payenna

Mr. Brandon Ahmasuk:

In his report, Mr. Ahmasuk indicated that not much has changed in comparison to the previous year. There was nothing abnormal with sick or dead seals. The sea ice conditions were favorable. Harvest was normal. People got what they needed. The timing of spring is the new norm (April / May breakup); and in winter, the freeze-up is the “new norm” (Nov / Dec). Generally earlier springs and later winter freeze-ups. Another area of concern, however, is the salmon crash. Another area of concern is harmful algal blooms. People have been able to harvest seals normally.

- 4) Maniilaq Association..... Isabelle Booth & Cyrus Harris

Mr. Cyrus Harris:

Mr. Harris agreed with the other regional reports regarding the weather. In his region, there is a focus on adult *ugruk* (bearded seal; *Erignathus barbatus*) in the spring, which depends on the sea ice. The hunters wait for the shore fast ice to break loose so their boats are able to get back home (so they don't get trapped). The wait before hunting is a challenge. The earliest hunt was in mid- to late-May (2018). However, now this date is a lot closer to “normal”. Spring *ugruk* hunting was pretty

⁵ Note: Sam Gosuk has mentioned this concern numerous times in previous ISC meetings.

good the last year 2022. There was pretty good ice. The hunt was in the first and second week of June. There was almost too much ice to get to and from certain areas. Mr. Harris focuses his hunting out toward the village of Kivalina. He ran into a large solid chunk of solid ice that had many *ugruk* on it. The challenge was to get across the slush and loose broken ice in the current. They had to wait for openings in the ice to get in and then out quickly to avoid getting crushed when it closed. Mr. Harris stated that if he had stayed longer, he may have seen a polar bear – this is because 2 of the 4 *ugruk* had polar bear claw marks on their sides under their armpits. One set of wounds was 3 days old, while the other set of wounds was less than 24 hrs old. Both sets of wounds were identical. His observations were about 10 miles from shore. If there was not a good spring hunt, the hunters (as a backup) would hunt in September; but now this occurs in October. During the backup hunt, the hunters are going for *ugrukchak* (young bearded seals), *natchiq* (ringed seals; *pusa hispida*), and *qassigiak* (spotted seals; *Phoca largha*). At freeze-up there were many seals at the channel in front of Kotzebue feeding on fish. Mr. Harris waits until the seals can haul out on the ice. When the ice is thick, the *ugrukchak* ride back out to sea. Spotted seals (*qassigiak*) are thinner than the *natchiq*. They are not skinny, just not as fat. *Natchiq* are very fat in the fall. Freeze up continues to be late and break up is early. There is coastal erosion. In July there was a high storm surge from a fall storm. The winds were 25 kts; there was high water, and the waves were heavier and bigger than normal. This was a flood. Kotzebue was almost an island. Fall storms are more frequent, with east and south-east winds. Storms can happen back-to-back-to-back. This is a different and new weather pattern that is becoming the norm. (referred to storm “Murdoch”) Wake-up call for coastal villages. It is hard to get past the shore fast ice to see seal pups. There is abundant seal prey...herring, blue cod, tom cod, saffron cod. Sheefish are full of herring after freeze up. Commercial shipping consists of the fuel and supply barges, sometimes the coast guard, and also fish factory boats. Mr. Harris was not sure about the status of development.

Albert Simon:

Asked about presence of walrus. Cyrus Harris replied that, yes, occasionally walrus are present. They occurred mostly drifting in the current toward the village of Kivalina. Sometimes they come into Kotzebue Sound.

Billy Adams:

Was interested in the polar bear near Kotzebue. Brought up the Wales (AK) polar bear attack. He mentioned that it seems like a return to how things used to be back in the 60s to the 80s. It was normal to see bears in the region. Interested that the ecosystem is changing as we watch.

Cyrus Harris:

Mentioned that the ecosystem is very important to Native people. The presence of Native people on the coast was for survival. However, competition from modern fisheries can destroy Native people, who are also a part of the ecosystem. It can destroy the livelihoods of Native people.

Peter Boveng:

Mentioned Cyrus Harris' participation with a team of elders and scientists over the recent years in Kotzebue Sound. There have been papers written about the change in ice and snow. Another paper was written about seals and what is good seal habitat, particularly during a very warm year in 2019. This has been a very productive and useful collaboration, for science and for the communities.

Cyrus Harris:

Pointed out that this work was science combined with and informed by IK. This, he said, is the best type of science, and it is what Native people want.

5) North Slope Borough.....Billy Adams & Joe Mello Leavitt

Mr. Joe Leavitt:

Mr. Leavitt reported that the ice is depleted. It's mostly young ice now. Used to see mirages of sea ice beyond the horizon. Seal hunting in Barrow is getting earlier because of the loss of sea ice. Once the ice goes out, it tends to stay out and the seals go with it. Seal and walrus hunting is starting earlier. Glad to see the use of skin boats. It's getting harder to get seal skins for the *umiaqs* (skin boats). Fiberglass cover is good, but seal skin is better. He has seen herring close to Barrow. He saw humpbacks feeding on herring a couple of years ago. New species are moving north. New birds. If no Inupiaq name, then it's an invasive species. He's glad to see skin boats get skins for whaling. Women say that they whale likes the smell of rotten seal skin. He's seen whales turn into the wind when they can smell the boat. Need to use good science. For example, the whaling moratorium was based on bad science. Good science saved whaling. It's good when local/Indigenous knowledge is used alongside science. Seal hunting in barrow is in mid-June. It used to be in late June and early July. Prevailing winds have changed from prevailing east to south-east. When SE winds hit barrow because the tide will change. Successful seal hunting occurs past the shorefast ice. Need to be careful about sea ice coming in, which has led to the loss of 2 or 3 boats, which were crushed in the ice. Seal hunting is a window now, with a very short time to do it. Reiterated that he likes skin boats. Likes eating spotted, ringed, and bearded seals. Bearded seal meat is dried and this needs to be done before the rain changes. Weather is important. They need a "drying season". You can render oil of seals, whales, and even walrus. Ice is so young that it can be lifted from the tides in barrow. It's not grounded well. Last year there was some multi-year ice. Need multi-year ice to pull up the whale. Need stacked ice or multiyear ice. Seals always around barrow. Big bearded seals are seen during whaling. Their presence during whaling indicates that these seals are denning in the pressure ridges behind the whaling camps on the ice edge. Ducks will start in end of April. Earliest ducks was 23-April.

Mr. Jared Nyakik:

In his report, Mr. Nyakik noted that the weather has been bad for seal hunting. But when there is a break in the weather, seal hunters make a trail to the open lead in the

ice. Seal hunting started late this year due to poor ice conditions. Young ice was not safe enough to hunt on.

Joe Mello Leavitt:

Ice is currently still forming (Feb – Mar). By April and May, the ice is thicker. Need thick ice to land a whale and pull it up onto the ice. At a good *umwaq* (whale landing place on the ice), they butcher multiple whales there. Currents are important. Weather and currents control hunting. Hunting is good. Seals are in good health. Polar bears are in town and walking around.

Albert Simon:

Commented that the Bering Sea is mostly open. How is the Chukchi/Beaufort? Is it open?

Joe Mello Leavitt:

The sea ice just recently froze over. The young ice is fragile and can be broken by winds and current. Weather and current are very important. Currents are tricky and need to be studied scientifically. He wished that they had a tide gauge in Barrow. Occasional multi-year ice is good and helpful. But the window is short.

Billy Adams:

While hunting seals, he has seen more young bearded seals in Barrow this winter. Seals are healthy. Winds and tides and weather are factors that drive the hunt. It is exciting now. Trail building is going on now. Kimberly Pikok will be making a movie about whaling. Glad to see the sun and new year.

LUNCH

Ms. Danielle Dickson:

Introduced the Arctic Integrated Research Program in a video presentation. Working lunch after the film to go over a new project and to seek input from the ISC. Videos are available at the NPRB website. <https://nprb.org/arctic-program>

Brandon Smith (NPRB):

Introduced himself and provided a summary for how he used video as outreach products about the Arctic Program. Played video #1.

Billy Adams:

Spoke at length about the importance of partnering with other organizations and with other ANOs to do good science that is beneficial to communities, the ecosystem, seals. An ecosystem approach is important.

Brandon Smith (NPRB):

Played video #2, which is more “results focused”.

Cyrus Harris: Asked about research in the central Arctic Ocean? Baseline studies? New species? Critical habitat / nurseries? Spawning areas?

Danielle Dickson: Not yet. She will provide more info on new and interesting results. Data are all available on the web (www.nprb.org, look for 'Arctic'). NPRB does fund "long term ecosystem monitoring".

Cyrus Harris mentioned that IK covers spawning.

Brandon Smith (NPRB):
All footage goes back to the communities.

Danielle Dickson: Welcomes input for future programs. Reach out to her with ideas.

D. Reports – Research

- 1) NMFS.....Barbara Mahoney & Anne Marie Eich

Dr. Anne Marie Eich:

Dr. Eich mentioned the need to report marine mammal strandings required by national defense authorization act.

Ms. Kristin Ciciel:

Ms. Ciciel introduced herself. The grant proposals are currently under technical review, and March 17th will be the decision date. Letters will be sent out by the end of March with requested revisions. These revisions are due by May 15th. Total budget annually \$1.5 million. If there is a new funding need that is outside of the scope of the current grant. Applications are due 2nd week in February. Same process of review, but will be amended to the original scope of the original grant.

- 2) Marine Mammal Laboratory.....Michael Cameron & Erin Moreland
a. Update on Research 2021-22

Dr. Michael Cameron:

Dr. Cameron discussed a printout of the report from the last meeting in 2022. These will be inserted into the minutes. Discussed a printout of the Ice Seal Research Summary. Framework for setting priorities and helps to track project progress. Comes with brief summaries from the projects and publications. Recent results and future work in '23-'24. Alaska Fisheries Science Center (AFSC). Monitoring in spring, which has potential for impact, so open communication is critical to avoid impact. Anticipate working again in 2024. Presented on vessel-based tagging activities. General summary on satellite tagging and why it is important. Further discussed bio sampling and drone work.

Brandon Ahmasuk:

Discussed expanding the avoidance areas. Island between King Island and Nome. Michael has heard about and acknowledged this information and stated that this

will be discussed more during our workshop. Set a temporal constraint for avoiding impacts to hunting.

Justin Olnes:

Asked about the focus on ribbon and spotted seals.

Michael said that they see very few ringed or bearded seals. Michael responded that yes, this is what they see. Also, they are not equipped to catch adult bearded seals, and they are not set up to catch adult bearded seals.

Albert Simon:

Asked about the US/Russia border.

Michael explained that the NOAA vessel is quasi-military and is only allowed to go 12 nm from the EEZ at the closest.

Sam Gosuk:

Asked about the cost for capture weigh seal, can the aerial photo of the seal be used to determine the seal's weight by its dimensions?

Michael mentioned that ADFG subsistence data provides very similar data on body condition from harvested seals. He also stated that it is possible to estimate the body size (dia) for use in estimating weight. This estimate does come with some assumptions about the cross-sectional shape of the seal.

Billy Adams:

Asked about cruises that were cut short. Mentioned that Native people get blindsided by research that is used against people. It does not seem appropriate to base outcomes on a sampling season that is cut short when it can lead to hardship of subsistence communities. He used an example of bowhead census, which typically needs several separate attempts in order ensure that it is done correctly. There is a need to replicate, for example the year 2018 was a terrible year. We have to get great information. Should not settle for what you get during a poor year. Michael Cameron acknowledged that this is the basis of co-management. This is a relationship. All need to work together on good science.

- b. Brief update on upcoming research in 2023-24⁶

Ms. Erin Moreland:

Ms. Moreland introduced herself and her family. Her focus has been on the instrument-based aerial surveys for seal (and polar bear) abundance and distribution. Because aerial surveys could have impacts on subsistence, a number of mitigation actions are taken: (1) good communication with communities and co-management organizations; (2) fly higher (using instruments). Their technology allows them to fly at a maximum altitude of 1200' and still be able to detect species. At season's end there are about 1-million visible spectrum images.

⁶ More comprehensive discussion to occur during Co-Management Committee Meeting and Workshop.

Hot spots on IR and UV images help to find the animal and the visible spectrum images help to ID the animal.

Albert Simon:

Asked how the populations were estimated.

Erin Moreland provided a brief response about confidence intervals and the point estimate. She explained that this depends on the amount of data available.

Sam Gosuk:

Asked about trends.

Erin pointed out that the surveys are very thorough. These are considered “baseline” numbers. Previous surveys (helicopter from a ship) did not have enough coverage. These will be used for comparison.

Brandon Ahmasuk:

Asked about accuracy of new vs older system. Erin answered that a side by side comparative study has been done. Peter reiterated this. He also mentioned that there are ways to measure how much better this method is. For example, experiments to see if the plane disturbs seals and scares them into the ice. Can compare with lower flying aircraft. And for old visual based surveys, human error and failure to observe have been quantified. And can test this data set.

Tyson Kade:

Asked about polar bear detections.

Erin’s answer had to do with a very low number to begin with, so it is difficult to fine tune model. Also, polar bears’ form of travel (i.e., in and out of the water) confuses the algorithm and the cameras.

Andy Von Duyke:

Asked whether lairs or polar bear dens were detected.

Erin Moreland pointed out that they did not, but this does not mean that they were not picked up by the cameras, just that MML is not actively searching through the data for this. Andy also asked about bowhead detection ability. Erin Moreland said that, yes, it can be done, not just blowing, but a thermal signature.

Billy Adams:

Asked about airspeed vs photo quality.

Erin Moreland mentioned that the cameras are fast enough to avoid blur at high speed. Cameras will be upgraded to allow for even faster speeds.

Danielle Dickson:

Asked if images can be made available to community members in “near real time” for the benefit of the community: safety, etc. Erin said that, yes, images can be made available. It would be good to know what type of imagery the communities may be interested in seeing.

Michael Cameron:

Added that, just like MML would like to have AK Native participants on their upcoming cruise in 2024, there are also opportunities for AK Native participants on these survey flights.

Andy Von Duyke:

Asked about ways to work closer to communities (inside the buffer zones around the communities) in ways that do not cause impacts.

Billy Adams added that village locations are where they are because, historically, that's where the game was. Assuming that there is trust and good communication, and that the question being addressed is important to the community, then yes, there should be ways to expand effort using mutually agreeable methods, along with local participation.

Erin Moreland explained that their mission is to collect information that is important to the communities. So, if there is a pressing question, and with approval, it would be possible to fly transects within a buffer zone in ~ half an hour. Data collected can be related to ice seals, but also could be for other purposes. Need more collaboration to ensure that this is done right. Aircraft and drones are options.

Cyrus Harris:

Late-April and early-May in the Kotzebue area is a good time to fly within the buffer.

Brandon Ahmasuk:

Community members know where to find the animals. Flying higher should not be a problem for seal hunting. Seal haul outs (e.g., gravel island) which is a safe haven for 100s to 1000s of spotted seals. Seal Island has 1000s spotted seals. Info is important enough that community would be willing to work with MML so long that it does not impact subsistence. Wants to revisit having outreach and interaction at the community level. This could be helpful for research.

Erin Moreland mentioned that the statement from Brandon would be covered in greater detail during the upcoming workshop.

3) Long Marine Lab (UCSC).....Colleen Reichmuth

Dr. Colleen Reichmuth:

Presented on her current research. She provided an introduction about the contributions of captive research to the collective knowledge about seals that will address knowledge gaps and be beneficial to conservation and management. Questions that can only be answered with live captive seals will enhance what can be learned using science and IK.

Dr. Reichmuth presented two research results:

- Energetics of molting vs non-molting and in and out of the water, including body-condition. Spotted, ringed, and bearded seals.

- Seals can maintain their heat loss when in the water during the molt.
- Seals have adapted to compensate for controlling energy balance.
- When you learn these costs, it can inform other models.
- Phenology of vocalization in spotted seals, which seem to be associated with male reproductive behavior.
 - No recordings of spotted seal vocalizations and their context.
 - Raised spotted seals from pup stage to adulthood.
 - Males vocalized at age 4 (onset of sexual maturity).
 - Peak of calls was Feb through May.
 - Call rates = 100s times per hour
 - Calling behavior associated with other indicators of their reproductive status
 - Brandon Ahmasuk provided IK on this topic, which is consistent with these results.
 - At least 8 call types.
 - Their calls can sound like walruses.

Dr. Reichmuth and her team are working harder to communicate better with community members based on feedback from Billy Adams at the 2022 ISC annual meeting. She again discussed the value of using captive animals to improve field based work (even though it is disturbing to some people to think about these animals living in captivity for their entire lives).

Albert Simon:

Asked something about the use of these captive animals (release them?).

Colleen explained that ISC and NMFS agreed that release of rehab seals into the wild was not permitted. But, the greater good could be achieved if they were used in research geared toward conservation and management. For example, captive seals are being used to calibrate drones that will measure seal body condition when they are hauled out on the sea ice.

Justin Olnes:

Asked about observations of captive seals sleeping in the water.

Colleen noted that the seals are monitored constantly and so they observe every aspect of the captive seals' behavior. Time in and out of the water. Bearded seals spend the least amount of time out of the water of the 3 species. They do observe the seals resting in the water. However, their preferred place to sleep is out of the water. Bearded seals in particular can and do sleep in the water.

4) Bearded Seals (UNH & NSB).....Michelle Fournet & Andy Von Duyke

Dr. Michelle Fournet:

Logistical issues prevented Dr. Fournet from presenting on day #1 of the meeting, but she was able to call in on day #2. Ordinarily, Dr. Fournet would have met with the ISC in person, but was unable to travel due to her advanced pregnancy. Dr. Fournet

presented an update on the ongoing bearded seal acoustics project. The work is analyzing historical data, planning to collect new acoustic data with moorings near Utqiagvik, and to look at bearded seal movements. Dr. Fournet also played examples of bearded seal vocalizations. She also briefly discussed plans to work down in Bristol Bay on an analogous bearded seal acoustics project.

Billy Adams:

Glad to hear of plans to work in Togiak with Sam Gosuk.

Sam Gosuk:

Asked about whether there is a relationship between the amount of sea ice and bearded seal presence and timing of pupping. Do they move with the ice? Where would the move if they did move with the ice?

Dr. Fournet replied that bearded seals are not calling within the ice. When the ice forms, they either stop calling, they move, or stop breeding behavior. She does not have the data to tell where they are moving. Timing of bearded seal calling may be shifting. IK can help inform and provide guidance for where to look.

Albert Simon:

Told of how he first heard bearded seal mating calls with his grandfather. His grandfather used a boat oar to rub against the hull to attract the seal. To do it, you wait for the seal to stop vocalizing and then you rub the oar on the boat. The bearded seal will pop up close to the boat because they are the bravest.

Brandon Ahmasuk:

Appreciative of Albert's story and could relate to similar experiences. He also noted that there are female-pup vocalizations.

Michael Cameron:

Regarding the map of acoustic recorder placement and the differences from the coast by study season. Asked about the differences and their potential to confound the results. Michael suggested that "stopping calling" may actually be "not hearing calling".

Michelle looks at about 12 km range for ice presence/absence. The call of a bearded seal can be heard for 10-20 km. Important to consider variables such as sound intensity to help estimate distance. Multiple hydrophones in an array also allows for sound source identification.

Michael Cameron asked follow-up questions about the use of the array to localize locations of callers and also the placement of the arrays.

Michelle noted that sea ice data is much coarser than acoustic data. It is definitely a local analysis.

Billy Adams provided context about the dynamics of the sea ice in the region of Michelle's historical analyses.

Brandon Ahmasuk:

Suggested that the Bering Strait “choke point” has high densities of bearded seals. Gay Sheffield let hunters in Diomedea use a hydrophone and there was a huge number of bearded seal calls.

Peter Boveng:

Curious about the placement of the older hydrophones and whether they were in Barrow Canyon.

Michelle Fournet did not know for sure, but suggested that the strategy was to avoid the canyon. So, they were likely shallow but deep enough to avoid being destroyed by the ice.

Billy Adams:

Very eager to see work begin in Bristol Bay.

5) Indigenous Knowledge / Science Integration.....Rowenna Gryba & Andy Von Duyke

Ms. Rowenna Gryba:

In her brief presentation, Ms. Gryba included an update on her work that is integrating IK with science through a Bayesian statistical framework. In particular, her results included the mapping of probability of ringed seal probability of use for habitat. Now is combining with science.

Sam Gosuk:

Asked a question about summer fall or gen ← what is gen?

Rowenna Gryba clarified that ‘gen’ is “general”...something that seals do all the time.

Billy Adams:

Said that this is an important start and should continue. This will be important in the future for other species too.

Renee Roque:

Commented that she likes Rowenna’s maps, which are easy to understand. This is a good way to work with hunters.

Andy Von Duyke:

Commented about the differences among the different locations. Emphasized the importance of spending quality time with hunters.

Jennifer Hooper:

Considers this to be a timely thing to do. There has been a need for this type of work for a long time. North Pacific Fisheries Council is working on incorporating IK into regulatory processes.

Andy Von Duyke:

Responded to Jennifer’s thoughts. Mentioned the PBTC meeting. The Canadians have a head start on the US on the application of IK with wildlife management. Mentioned that David Lee (Canada) uses IK-Science integration methods for caribou. Encouraged that US agencies work with and learn from the Canadian model.

Day 2

Joe Mello Leavitt gave the invocation

Roll Call:

- Billy Adams
- Joe Mello Leavitt
- Renee Roque
- Sam Gosuk
- Jennifer Hooper
- Albert Simon
- Brandon Ahmasuk
- Cyrus Harris

Quorum on day 2

- 6) ADFG⁷.....Justin Olnes, Anna Bryan, Alex Sletten, Lori Quakenbush
 - a) Spotted seal paper

Dr. Justin Olnes (ADFG-AMMP):

Dr. Olnes works on harvest monitoring. A paper was recently published in Arctic. The ISC is a co-author and Albert Simon is specifically mentioned as a co-author. Paper looked at all the historical harvest data in the YK Delta (including the time when bounty was in place). Regional patterns were observed. Compared AVCP regional harvest in the 1960s and 1970s with more current time. Human population has doubled, but seal harvest per capita has declined. Also looked at trends of households that use seal products. Hunter perception of seal abundance was not clear to most hunters. Of those that could make statements on abundance said that it was stable. ADFG is funded for next round of harvest survey work. Wants to look at Togiak and Koyuk(?). Would also like to work in Nome. Manuscript submitted on satellite data analysis using CTD tags. It’s in review. Examined oceanography data to explain seal behavioral states. “Foraging” behavior tended to be on a boundary between water masses. CAFF paper Marine Mammal Hotspots across the polar arctic. Data will also be used for aerial survey correction factors. Other studies were mentioned...

Brandon Ahmasuk:

Emphasized that the seal harvest info is region specific to the study area, and should not be extrapolated to other regions.

⁷ Requested to present on March 1 due to scheduling issues. Also, there will be a half day workshop on 3-Mar.

Justin Olnes confirmed that the harvest paper is specific to the regions sampled.

b) Harvest monitoring update

Ms. Anna Bryan (ADFG-AMMP):

Presented the ADFG biomonitoring program. Biological samples from harvested seals. Repro tracts. Digestive system. Data goes back to the 1960s. She discussed bearded seal harvest sampling. A couple “odd” animals were observed:

- One female had a full-term fetus in it in June. Fetus may have been “stuck”. Female was clearly unhealthy and was likely to die very soon.
- Also observed two bearded seals (2019 and 2022) that were bruised with twisted intestines and stomach pushed up. It looked like they were hit from the underside. Both were very poor condition and likely to die.

Introduced the upcoming close-kin mark-recapture study. Using genetic samples and ages, the relatedness of the population can be determined and the population size can be estimated. Anna Bryan requested samples from bearded seals, specifically jaws (tooth for aging and DNA from tissue). Anna Bryan also mentioned a number of other collaborative studies that use the biomonitoring program tissue samples. Monitoring for toxic algae. Spotted seal diet research on energetics with MML. Monitoring whether canine distemper has spread from dogs to seals. Morphometric body-condition data of seals vs polar bear health. She discussed the winter ringed seal density study at Prudhoe Bay. They used dogs to find haulout and breeding lairs. Lairs had thermistors and cameras installed. Found that seals slept in the hole in the lair (1/2 hour to 10-hour stretch). Observed clawing at the hole to keep it open.

Brandon Ahmasuk:

Kawerak region interested in providing jaw samples for the close kin work. Brandon mentioned that seals sleeping in the hole is well known among AK Natives. Incorporate TK holders to get info from them to integrate into the study.

c) Micro-plastics & seals – preliminary results (UAF / ADFG)

Ms. Alex Sletten:

Masters student at UAF. She is also a technician at ADFG-AMMP. Presented on her micro-plastics research. Her report is archived on the ISC website. Results show that micro-plastics have been around for at least a decade. There is now a baseline. Micro-plastics are in fish. Now it is known that they are detectable in spotted seals. Future work will look into the physiological mechanisms of transport into other tissues.

Billy Adams:

Made several comments about the work presented by ADFG. Wants to be careful that info is not misused once it is published.

Renee Roque:

Has testing been done with PFAS?

Anna Bryan responded that ADFG has looked at PFAS in seal tissue. She didn't have details available at the meeting. Contaminant levels in AK were lower than in Canada. Chemicals and micro-plastics are not only in ice seals, but are the human food globally. Trying to work with Alaska Native Health Consortium. However, ADFG-AMMP is not currently looking at contaminants other than micro-plastics. Anna gave more info on the ringed seal density project at Prudhoe.

Andy Von Duyke:

Asked about temperature sensors in the lair. Were there differences between seals hauled out in the lair vs sleeping in the hole. How might this affect detections of seals.

Anna said that they can clearly detect haulout. Sleeping in the hole is less clear. If only looking at temperature, then you may not detect the seal.

Billy Adams recalled placing thermistors in the lairs back in a previous study.

Sam Gosuk:

How do micro-plastics affect the health of seals?

Alex Sletten cited studies with rodents in the lab that showed negative health effects. Not clear yet how it may affect seals? But something to keep an eye on given their importance.

Albert Simon:

Asked whether there were differences in micro-plastics in different locations and age-classes.

Alex Sletten replied that all tested seals (but one) had micro-plastics. No spatial or age-class differences.

Billy Adams:

Speculated that different species would be different with respect to micro-plastics given their differing ecologies. Alex Sletten agreed.

Andy Von Duyke:

Asked about differences in quantities vs presence.

Alex Sletten did not find big differences.

Brandon Ahmasuk:

Wanted to look at other species of seals. For example, ribbon seals, to get a bigger picture of what's going on. Also wanted to know the route of ingestion; whether it's direct or through prey (fish).

Alex Sletton agreed and mentioned what she’s doing to address this.

Anna Bryan:

Praised the work that Alex Sletton has done. It is very labor intensive. Did not know if the study would work. Started with spotted seals because they had a lot of spotted seal stomachs in their freezer. But ADFG has plans to look at micro-plastics in other seal species. Not sure of how/if micro-plastics will affect seal health.

Brandon Ahmasuk:

Asked about blubber samples (micro-plastics) and whether there will be testing for diet. Several years at ISC meetings, Brandon has been asking about winter diet for ice seals.⁸

Anna Bryan asked for clarification, and gave examples of fatty-acid studies on ice seal blubber. It is not very detailed regarding fine resolution diet.

Albert Simon:

Spoke of his IK on seal hunting practices.

Made a comment on observations of different age-classes of bearded seals.

Observed that only adult bearded seals are seen near Hooper Bay in the spring only (and no other age classes). Curious to know about age-class use of habitat...i.e., why are adults around only at certain times?

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Ms. Elisabeth Kruger (WWF):

Ms. Kruger announced a small grants program is up and running now.

Opportunity for up to \$25K through a tribal/community driven initiative. Lots of flexibility in the rules. Can apply verbally, written, and on-line. She also brought duck eggs for the group. She noted that they are “unwashed” = shelf stable for now. They should be washed prior to eating. If incubated, you may get a duckling.

- 7) AAOKH Research Updates (UAF).....Donna Hauser & Roberta Tuurraq Glenn

Dr. Donna Hauser (UAF):

Dr. Hauser provided a brief introduction to the AAOKH research.

Ms. Roberta Glenn gave a more detailed presentation. A summary of this information is available on the ISC website (www.iceseals.org).

10. Adjourn open-session

Note that there was an Executive Session. The notes from this portion of the meeting are on a separate document.

⁸ Brandon Ahmasuk has requested this type of investigation numerous times at ISC meetings over the years.

List of Acronyms:

AAOKH	Alaska Arctic Observation and Knowledge Hub
ADFG	Alaska Department of Fish and Game
ADFG-AMMP	Alaska Department of Fish and Game - Arctic Marine Mammal Program
AVCP	Association of Village Council Presidents
BBNA	Bristol Bay Native Association
CAFF	Council for Arctic Flora and Fauna
CTD	Conductivity Temperature Depth
IK	Indigenous Knowledge
IR	Infra-red
ISC	Ice Seal Committee
MML	Marine Mammal Lab
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPRB	North Pacific Research Board
NSB	North Slope Borough
NSB-DWM	North Slope Borough - Department of Wildlife Management
PBTC	Polar Bear Technical Committee
PFAS	Polyflouroalkyl substances
TK	Traditional Knowledge
UAF	University of Alaska Fairbanks
UNH	University of New Hampshire
UV	Ultra-violet
WWF	World Wildlife Fund

Executive Session

11. New Business (Executive Session @ 3:00 pm)

- A. AAOKH Funding / Collaboration discussion.....Donna Hauser

Notes are on a separate document

- B. November 2022 meeting outcomes
 - 1) Strategic planning summary.....Raven’s Group

Notes are on a separate document

- 2) Mark up of ISC Governance Documents.....Tyson Kade

Notes are on a separate document

12. Adjourn