CAPARDUS - Capacity-building in Arctic standardization development

Coordination and Support Action under EC Horizon2020
Grant Agreement no. 869673

Project coordinator: Nansen Environmental and Remote Sensing Center

Deliverable 5.2

Sharing & Use of Information from Community-Based Monitoring of Coastal Hazards in Alaska

Focus Groups Report

Type: Report

Start date of project:	01 December 2019	Duration:	42 months
Due date of deliverable:	31 May 2023	Actual submission date:	12 June 2023
Lead beneficiary for preparing the deliverable:	IARC/UAF		

Authors: N. Johnson, N. Kettle, N. Haycock-Chavez and O. Lee

Version	DATE	CHANGE RECORDS	LEAD AUTHOR
1.0	09 June 2023	Final version	N. Johnson

Approval	Date: 12 June 2023	Sign. Steve Sandven Coordinator

DISSEMINATION LEVEL		
PU	Public, fully open	X
CO	Confidential, restricted under conditions set out in Model Grant Agreement	
CI	Classified, information as referred to in Commission Decision 2001/844/EC	

EXECUTIVE SUMMARY

This report summarizes the information learned from focus group discussions with practitioners involved with community-based monitoring (CBM) and local environmental management in coastal Alaska. It is part of a case study of CBM of coastal risks and hazards that was conducted by researchers at the University of Alaska Fairbanks (UAF) and the University of Colorado Boulder (CU). The case study is a contribution to the CAPARDUS (Capacity-building in Arctic Standardisation Development) project, which is funded by the European Union's Horizon2020 Programme. We held two focus groups in March of 2023 with 14 total participants. The groups discussed three topics: 1) the use of community-based observations to support decision-making and planning to address hazards and risks related to coastal erosion and harmful algal blooms; 2) the role of standardization in supporting use of CBM observations; and 3) the role of coordination and networks in supporting use of CBM observations. CBM information informs development of a wide variety of products that are used at different scales of decision-making, from community-level to federal agencies. Participants saw advantages in development of shared training programs, data sovereignty recommendations and practices, and metadata formats. The diversity of CBM programs and program needs in Alaska creates challenges to standardization. Participants were supportive of increased coordination, which would require sustained resourcing but could also help distribute and share staffing and other resources.

Table of Contents

1. Cover photo

Cover photo caption: Monica Nuñez stands next to the exposed permafrost sediment along the coast of Utqiagvik, Alaska. Photo by Sasha Peterson, Courtesy of Monica Nuñez (PolarTREC 2019), Courtesy of ARCUS.

Suggested citation: Johnson, N., Kettle, N., Haycock-Chavez, N., and Lee, O. 2023. Sharing and Use of Information from Community-Based Monitoring of Coastal Hazards in Alaska: Focus Groups Report. Boulder, CO: National Snow and Ice Data Center, University of Colorado Boulder.

2. Background and purpose of the Alaska Case Study

The Alaska Case Study focuses on the use of observations from community-based monitoring (CBM) programs to support decision-making and planning on coastal risks and hazards, as well as the role of standardization in supporting use of observations. There are two objectives for this case study:

1. *To understand if and how CBM information is used in short and long-term decisions and planning for coastal risks and hazards*
2. *To understand the role of standardization in connecting community observations with decision processes, and the benefits and drawbacks of greater standardization for different actors.*

The Alaska Case Study is a contribution to the larger initiative "Capacity-building in Arctic Standardisation Development" (CAPARDUS) (Horizon2020, 2019 - 2023). CAPARDUS developed a roadmap for developing Arctic standards related to climate, environment and sustainable development. A major component of this effort was to identify and document common practices as a basis for development of standardization. The road map articulates the need to engage researchers, service providers, representatives of Indigenous communities, other Arctic residents and community organizations, commercial operators, and governance bodies in the development of standards.

The Alaska Case Study was conducted in three phases: a document analysis, interviews, and focus groups (Figure 1).

Figure 1 *- The three phases of the Alaska Case Study. Phases 1 & 2 were led by researchers at the UAF; Phase 3 was led by researchers at CU. Researchers from both universities worked closely throughout the entire case study process.*

Phase one of the case study involved a web-based search to identify documents related to community-based observations of coastal erosion and permafrost thaw. The purpose of the document review was to ground the contributions of the Alaska case into existing community priorities; identify key CBM programs and individuals involved in these programs; understand how community-based observations are situated in the decision context for risk and hazard mitigation; and provide an entry point for

conversations and interviews with key knowledge holders. The document analysis revealed that there was existing coordination among CBM programs, but that the amount of coordination varied depending on the focus area. This was identified as an area for further investigation in phases two and three of the study. Standardization was also a theme that was analyzed in the document analysis; CBM programs are interested in standardization when it supports improved data collection and use although there are challenges in implementation (Kettle et al. 2022).

Phase two of the case study involved interviews with 13 key individuals who were involved in CBM programs related to harmful algal blooms (HABS) and coastal erosion in Alaska, including monitoring programs supported by Tribes, the State of Alaska, consulting groups, and University of Alaska Fairbanks. Interviewees were identified by a web-based search and snowball sample. An interview analysis focused on three themes: 1) CBM monitoring data, collection, and management, which summarized the different data collection protocols used and the ways that programs manage data and tools used to store and share data; 2) the use of CBM data, which summarized how data from these programs is currently used as well as challenges to use by local, state, and federal agencies and decision makers; and 3) collaboration among CBM programs, including the ways that programs already work together as well as their interest in further coordination and collaboration.

A key theme that emerged from the interview phase of the case study was a strong interest in use of observations to support action that would be beneficial to community members. The use of information can inform either short or long term decision-processes. For example, HABs and water quality monitoring programs can help resource users decide whether or not it is safe to eat shellfish (short-term), they can also inform decision-making about sustainable planning for mariculture farms (medium-term). Erosion monitoring programs, in contrast, are more focused on providing information related to coastal hazards that can affect infrastructure in the medium and long term (Kettle et al. 2022).

3. Methodology for focus groups

In phase three of the project, we conducted a series of focus groups. Focus group participants were recruited by contacting individuals who had participated in interviews during phase two of this case study. Interview participants were invited to join the focus groups and were asked to share the opportunity with local environmental managers from the communities where their programs were active. In March of 2023, we held two separate 2 - 2.5 hour focus groups on Zoom, and each group had 6 - 8 participants with a total of 14 participants. Participants were able to choose between a $300 payment or a $99 Amazon gift card. We offered the choice because the larger payment required participants to fill out additional forms and wait longer to receive payment. The focus group goals, recruitment process, and methodology was reviewed and approved by CU's Institutional Review Board (IRB) office (protocol 22-0636).

We opened the groups by sharing background information about the case study and what we had learned during the initial stages. We then asked participants to respond to questions focusing on three themes. Visuals (based on figures 2 and 3) were shared using Jamboard so that participants and facilitators could revise the figures and see additions in real time. A note taker captured the discussion.

The CU research team referred to the notes and the jamboard documents to revisit themes and summarize findings for this report.

For the first theme, *the use of community-based observations to support decision-making and planning*, participants were asked to help identify products that use CBM and users of CBM information.

The first group was shown figure 2, which summarizes what was learned from interviews about the users of CBM information and the products that CBM information feeds into to inform decision-making and planning. When asked to comment on users and products that were missing, participants identified many additional examples of both users and products that should be included (see table 1). Discussion questions included: What are possible future users/products that could make use of CBM information? What actions would support greater use of CBM data/observations?

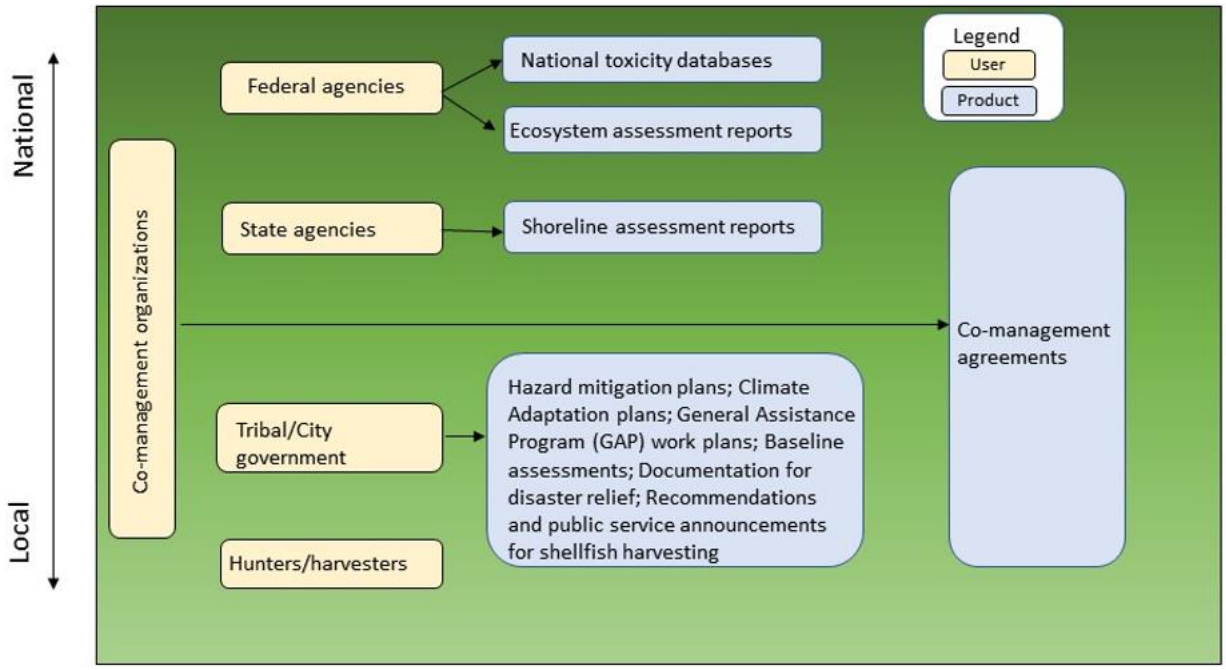

Figure 2. *Figure shared with focus group #1 that shows users of CBM information (in beige) at different scales of use (from local to national) and products that use CBM information at different scales of use (from local to national).*

Based on information provided by participants in the first focus group about users and products that involve CBM information, a new figure was developed for the second focus group (figure 3 - below), which included additional information gathered in the first focus group. Participants in the second focus group were asked three questions: 1) "What information needs for decisions or actions that use CBM are not captured here?" 2) "What products that use CBM data are not captured here?" and 3) "What users of CBM data/products are not captured here?"

For the second theme, *the role of standardization in supporting use of CBM observations*, participants were asked: What do you see as the highest priority areas for standard development for CBM programs? What is preventing greater standardization across CBM programs?

For the third theme, *the role of coordination and networks in supporting use of CBM observations*, participants were asked: what are the biggest areas of opportunity for coordination and collaboration among CBM programs? What kind of support would be most helpful to improve coordination?

To conclude each focus group, participants were asked about the best way to share information from this study in a way that could be useful to community-based monitoring programs.

4. Focus Group Findings

4.1 Sharing and use of observations

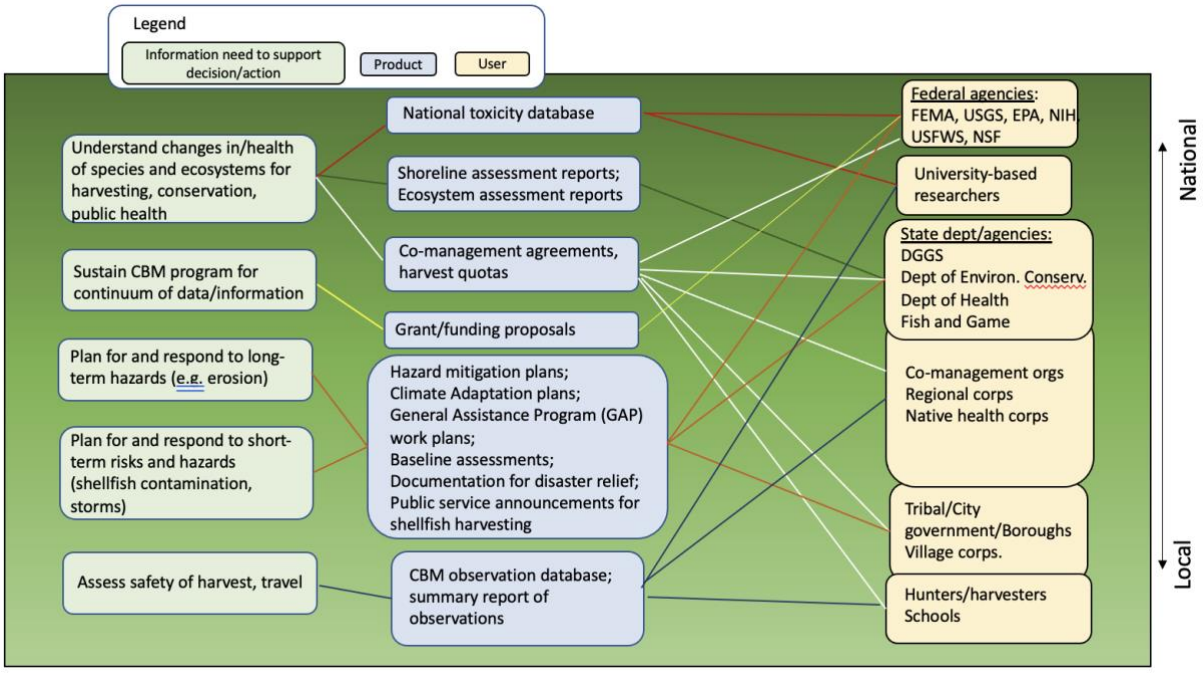

***Figure 3**. This figure illustrates how specific products using CBM information are linked to several information needs for decisions/actions using CBM data and how these products are connected to users at different levels, from community level users to federal agencies. The same color connecting lines illustrate product specific linkages.*

4.1.1 Information needs for action on coastal risks and hazards

CBM can provide useful data and information to address a wide range of information needs that are necessary to support decisions and action on coastal risks and hazards at different scales (figure 3 - green boxes). CBM programs support these information needs by developing products, such as summary reports of observations, and by contributing information to data products that synthesize or integrate information from a variety of sources, such as grant proposals or hazard mitigation plans

(figure 3 - blue boxes). Many different types of users (figure 3 - beige boxes), from harvesters and students at the community level, to university-based researchers, to state departments and federal agencies, interact with these products. One information need is to understand changes in the health of species and ecosystems, which has relevance for harvesting, conservation, and public health decisions. This information need is related to three products: 1) the national health toxicity database (maintained by the National Institute of Health [NIH], which is the "user"), 2) shoreline assessment reports and ecosystem assessment reports (developed by state agencies Alaska Division of Geological and Geophysical Surveys (DGGS) and the State of Alaska Department of Conservation, which are the "users"), and 3) co-management agreements and harvest quotas, which are developed with input from multiple users from federal and state agencies to tribes and other bodies. At the local scale, the need to "assess safety of harvest, travel" is linked to CBM observation database and summary reports, which are used by hunters, harvesters, and schools.

One important area for decision-making are day-to-day decisions pertaining to local management that are related to daily operations, rather than long-term planning. These decisions may not be related to safety but to supporting healthy population levels of species. Often, under co-management, daily decisions are made based on observations rather than harvest quotas. An example of this was about a CBM program that spotted a female seal during the breeding season, so they suspended harvesting for a few days and instead did outreach with the hunters.

Another example related to day-to-day decision-making was of commercial shellfish harvesters. There are many people who do commercial harvesting, so CBM data can directly inform them when there is food available and when not to harvest due to a toxic event. One participant described the level of direct communication that enables day to day decisions making. Weekly email summaries of CBM data that directly impacts harvesting (phytoplankton data), and calls with the Alaska Department of Fish and Game relating to decisions regarding salmon.

Information from CBM programs also provides input into the development of research questions, which can then inform grant and funding proposals. There is a feedback loop where university-based researchers can provide feedback for refining monitoring programs, for example by helping determine the best location to collect data and the best way to collect data (e.g. "what is the best way to monitor nutrients?"). Scientific journal articles were mentioned as an additional product that can use CBM information (related to this feedback loop when programs also involve researchers).

Participants expressed mixed feelings about use of CBM to support research projects, however, acknowledging that research involving university-based and non-local researchers can be fraught based on past misuses of data and concerns about data sovereignty. The group discussed the need to go through proper channels and processes and to ensure that the value of the data is recognized and communities are properly credited when the information is used for research purposes. They noted the higher costs associated with university-led efforts; when funding is provided by university partners, a lot of money goes towards high overheads instead of community program costs.

Data from CBM also informs the evolution of CBM programs. For example, a project might start out monitoring phytoplankton. After monitoring for a while, if the program observed that temperature seemed to be affecting phytoplankton, they might also start to collect data about water temperature.

4.1.2 Users of CBM information and products that communicate CBM information

Focus group participants identified many users of CBM information and products that communicate CBM information (see table 1).

Scale	Users or disseminators of CBM information	Products that use CBM information
Local	Hunters/harvesters; schools/students; Public health nurses/community health aids; Libraries, Boys & Girls Club	Summary of observations for community use; newsletters; shellfish warnings/PSAs; social media; printed announcements posted on bulletin boards
	Tribal/city government	Hazard mitigation plans; climate adaptation plans; General Assistance Program (GAP) work plans; Grant applications; shellfish warnings/PSAs; grant reports; annual reports; newsletters
	Boroughs	Hazard mitigation plans; climate adaptation plans
Regional	Alaska Native Regional Corporations and service providers; Native health corporations	Shellfish warnings/PSAs and alerts
	Native health corporations	Shellfish warnings/PSAs and alerts
	Co-management organizations	Co-management agreements, harvest quotas
State	Alaska Native Tribal Health Consortium (ANTHC)	Shellfish warnings/PSAs
	State agencies, including: Department of health, Department of Environmental Conservation, Department of Natural Resources (DGGS)	Shellfish warnings; Ecosystem assessment reports; DGGS website for state-level coastal hazards information
State/national	University and research partners	Scientific journal articles; workshop reports
National/Federal	Federal agencies, including: US Geological Survey, National Institute of Health, US Fish and Wildlife Service, Federal Emergency Management Agency, Environmental Protection Agency; National Weather Service	National toxicity database (NIH); Ecosystem assessment reports (EPA, US Global Change Research Program); Shoreline assessments (USGS); hazard mitigation plans (FEMA)
International	Fisheries and Oceans Canada	

Table 1 - Users of CBM information and products that use CBM information organized by level of governance. Text in black indicates data from the document analysis and interviews (phase 2). Text in blue indicates additions made by members of the focus groups.

At the **local governance level**, schools and students are both contributors and users of CBM data and information. Working with students has been an effective way to transfer and share knowledge for some programs. One individual noted that high school students can sometimes be the most consistent samplers. CBM data related to HABs is often used for decision-making pertaining to community health. Curriculum and afterschool programs have also been informed by CBM data. School curricula also can incorporate information from CBM programs, which helps integrate CBM into high school curricula and supports the role of students in collecting data and contributing to as well as learning from CBM programs. Many after school and youth programs at schools, youth clubs, and libraries have used CBM data to create programs for the youth, such as doing field trainings to understand local hazards.

Users of CBM data at the local scale include community members making daily decisions such as whether it is safe to harvest or travel on the ice. The public health officer and veterinarian (who may be the same person, as it is in the North Slope) are local users of information about HABs. Public health nurses and community health aids are also important resources for getting information about health risks to community members. For example, during a HABs event in Kachemak Bay, the public health nurse would issue a Public Service Announcement (PSA) and then bring the information to the local clinic so community health workers were familiar with signs and symptoms of exposure, since often clinics are staffed with visiting nurses.

Other products that are used to share CBM information locally are printed announcements on bulletin boards, radio, newsletters, social media, and posting data to CBM program websites.

Participants commented on the *importance of community capacity* to be able to use observations from CBM programs. Use of information from CBM programs is also connected to data sovereignty concerns and the importance of data use agreements. CBM data is more valuable to a community when the project reflects community interests and when data use supports those interests in a direct way.

Focus groups identified one of the important functions of CBM information as *communication about risk to individuals who are not in the community* (e.g. through hazard mitigation plans as required by the Federal Emergency Management Agency (FEMA); Indian General Assistance Program (IGAP) work plans that are required to receive funding for this important environmental coordinator position funded by the Environmental Protection Agency (EPA). These are important products for sharing and communicating risk and for sustaining funding to support local environmental coordination and communication, but the intended audiences for these products are federal agencies/funders and not community members. CBM information is also useful to support development of grant and funding proposals that can support continuation of these programs as well as related efforts (for example, development of mariculture programs, guardian programs, or other community-led efforts that support resource conservation and use).

There are also many **regional** organizations and government entities that can support and also use information from CBM programs. These include Regional Health Corporations (such as the Norton

Sound Health Corporation, which is very active in HABs monitoring), village and regional corporations, consortiums of cultural organizations, boroughs, and regional service providers.

State-level organizations and agencies that use CBM information include the State of Alaska Department of Health, The Alaska Native Tribal Health Consortium (a statewide organization serving tribes), and the State of Alaska Department of Environmental Conservation (invasive species monitoring data, HABs data), and the State of Alaska Division of Geological and Geophysical Surveys (DGGS) within the Department of Natural Resources (erosion monitoring and surge data). DGGS maintains a state-level coastal hazards website that includes erosion data, videos, and photo archives including information from CBM programs.

Federal agencies (**national governance level)** that use information from CBM programs or products that may be informed by CBM information/data (such as community adaptation plans, for example) include FEMA (emergency planning/preparedness/response), USGS (erosion and coastline monitoring), EPA (which manages the IGAP program that funds local environmental coordinators for tribes), USFWS (species management), NOAA (HABs and ocean related data), NSF (grant proposals related to scientific and collaborative CBM), and NIH (HABs).

Finally, although this project did not explicitly consider **international** uses of CBM data from Alaskan programs, participants noted that some phenomena or species that are part of monitoring programs cross international boundaries. A HABs event in the Bering Strait might affect people in Russia as well as Alaska. Similarly, information about coastal ecosystems or species might be of interest to the Department of Fisheries and Oceans in Canada. Finally, some programs are in touch with CBM programs in other states, such as Washington State, where some of the species that are now more prominent in Alaska have been monitored for a longer period of time.

4.1.3 Supporting enhanced use of CBM information in the future

Focus groups discussed future uses and users for CBM information and actions that could be taken to support greater use of CBM data/observations. Two themes emerged from this discussion: ensuring that the use of CBM information builds local capacity and scaling up this information to regional and national levels.

Several *actions* that support local capacity were discussed, including:

- Involving students and offering school credits
- Paying stipends to observers
- Ensuring that CBM observations are directly relevant and interesting to the community
- Being aware and mindful of methods and practices that support co-production of knowledge
- Respecting Indigenous Knowledge
- Writing grant funding language to create sustaining programs
- Finding meaningful ways to share and acknowledge the information
- Develop products that are useful locally

Future uses of information that could be scaled up or enhanced to support local capacity include:

- Subsistence harvesting (shellfish and marine mammals)
- Sustainable development opportunities related to coastal infrastructure or coastal and marine food resources (such as expansion of mariculture and kelp farming - water sampling to help inform the best locations for future farming sites)
- K-12 curriculum and culture-based science education
- Local community planning departments (infrastructure or mitigation planning)

The following areas of regional and national decision-making and planning related to coastal hazards could benefit from increased engagement and use of CBM in the future:

- Disaster and threat preparedness
- Wildlife co-management decision-making
- National level projects/programs on climate change could use CBM data to support modeling efforts, such as statewide flood models (that inform them National Weather Service)
- Tracking epidemics and zoonotic disease outbreaks - CBM as an “early warning system” to detect emerging health threats. Local and tribal organizations, schools, and local governments are best positioned to support this function of CBM
- Improvements to sea ice and weather forecasting

In addition to sharing *information* from CBM programs, if federal, regional, and local agencies had more access to local observations to inform what the current needs are, the *funding workflow* could be expedited and issues and needs could be addressed more quickly.

Overall, participants expressed the need for greater use of CBM information by regional and national agencies. The value and importance of this information was stressed.

4.2 Standard Development for Data Collection

The focus groups discussed priorities for standard development as well as what is preventing standardization in CBM practice.

Some of the priorities for standardization participants highlighted include:

- Training programs that have common elements or can be conducted for more than one program to build a shared understanding
- Development of shared data sovereignty recommendations and practices
- Developing EPA quality assurance project plans that are usable and referenceable by the local program/IGAP coordinator

- Shared metadata formats (meaning standard formats for what information is stored about CBM such as who collected it, when it was collected, where it was collected, etc.)

The diversity of CBM programs presents a challenge for standardization of practices and approaches. CBM programs monitor a wide range of phenomena, have different goals, are based in communities with different environments, and have different staff capacity for data collection, curation, and dissemination, shapes the discussion about standards and means that only some aspects of practice will lend themselves to standardization. Community members make observations in a more holistic way than western-trained scientists do, and scientists do not always have the capacity (or necessary understanding) to document the context robustly. Additionally, when CBM programs engage Indigenous Knowledge and observations, there is no way to standardize that knowledge since it is relayed holistically.

Figure 4*. Undergraduate student Hector Dominguez gathers water samples from a pond. Utqiagvik, Alaska. Photo by Monica Nuñez (PolarTREC 2019), Courtesy of ARCUS.*

The remoteness and challenges of transportation access to many Alaskan communities creates challenges for CBM practice that may also impede standardization. Some of the issues raised include limited technology and connectivity, issues with equipment breaking and not being able to fix it in a timely manner due to lack of local training and capacity, a lack of local (and state) lab resources to

support sample processing, and problems with samples being destroyed by cold weather or not being able to ship samples in time to process them due to transportation delays. Additionally, Alaska is a large state with very different environmental conditions across the state. This heterogeneity creates challenges for standardization, as there are different data needs between regions (and tribes). In some parts of Alaska and at some times of the year, extreme weather can make data collection challenging.

Additional factors that were mentioned as presenting a challenge for standardization:

- Turnover of staff, which creates challenges for data collection (making sure observers are paid is one way to address this issue)
- Lack of access to regular training for community members and CBM staff
- Lack of community level baseline data needed as reference points
- Funding for long-term efforts remains a challenge

The groups also discussed what would be helpful to support development of shared standards for CBM. An important underlying support for standardization is high-level coordination so that everyone understands what to do and why, as well as strong and consistent communication across different members of the program, and especially with community members and observers. Consistent and personal communication can ensure that observers understand the importance of their contributions and how data is being used (participants noted that this type of communication was difficult during the COVID-19 pandemic). Communication could take different forms and could happen in different venues – one participant mentioned that they start each season with a potluck as a way to build communication and (re)orient everyone to what they are doing, another mentioned the importance of Facebook as a place to share observations at the community level.

Participants also mentioned the value of having a consortium or collective that could help with standardization and standardized communication. A consortium could offer coordinated trainings across CBM programs and including standardization as part of the training (e.g., “why do we need to fill out all the fields in the data sheet?”), apply for funding together, make decisions across larger regions, and share staff members and resources.

Additionally, development of standards and shared practices will only happen if programs have enough capacity to both sustain their own practices and coordinate with others; this will require more robust funding models as well as direct funding to tribes at adequate levels of funding to support CBM programming in a coordinated way.

Participants felt that having a central repository of protocols for all coastal CBM projects could be helpful in supporting standardization so that programs do not need to reinvent the wheel and can learn from what is working well for others. For data management and data sharing tools, linking existing tools so that data can be shared, and ensuring ease of submission and access to data are important considerations for standardization. Another suggestion was having low cost and low tech equipment for data collection, so that there is less to calibrate and more consistency in data collection.

4.3 Coordination and Collaboration

4.3.1 Priorities for coordination and collaboration

Focus group participants shared priorities and areas of opportunity for improved coordination and collaboration. One suggestion was to leverage existing communities of practice and collaboration among CBM programs to increase efficiency for community members such as IGAP coordinators who are supporting multiple programs and to reduce the administrative burden on individual programs. This could take the form of tribal consortia assisting with information sharing and coordination. If coordination was organized regionally (rather than topically) this would allow for a more holistic approach.

Another area identified for coordination was data management. Participants noted that coordinated data management could support enhanced use of information. Before undertaking efforts to coordinate, it would be important to demonstrate what the benefits of increased coordination would be for communities and tribes. For example, producing a synthetic data product could support increased use of observations, such as in co-management.

An additional area for coordination is in developing grant proposals to support efforts across more than one program. There are many opportunities for CBM projects to work together and apply for large grants to fund the programs collectively. This will also support greater space for knowledge transfer and adoption. One participant mentioned a successful example of a proposal to fund training for green crab monitoring (an invasive species) across multiple programs, learning from efforts in Washington State where green crab monitoring has a longer history. Participants also noted that there have been successes in applying for funding with university-based researchers, who can provide access to new methods, laboratories, and who may prioritize consistency in data collection. A related strategy for HABs projects is to pursue a cooperative research and development agreement with NOAA for research and monitoring. Under this agreement, training is provided for free, which is helpful in maintaining standards for data collection and processing.

The Alaska Harmful Algal Blooms Network (AHAB) is one example of a network that is supporting coordination for HABs programs. Not all AHAB members are doing CBM - agencies and other organizations are involved. AHAB provides regular, monthly meetings. Additional networks that are already supporting coordination include the Alaska Invasive Species Partnership, the CORaL (Community Organized Restoration and Learning) Network, and Rising Voices Changing Coasts. Participants noted that a paid coordinator position is helpful in supporting consistent activities and network continuity, although several of these networks were started without a paid coordinator.

4.3.2 How to support improved coordination

Focus group participants recognized the importance of regional coordination and shared trainings to increase resources and support. Participants noted that there may be a greater need for regional coordination for HABs programs - which make up a larger group - than for erosion monitoring, since there are relatively few of the latter type of programs.

Participants emphasized the importance of having a coordinator at different levels - regional and local. At the regional level, a coordinator can help organize exchanges, trainings, and shared funding proposals. Additionally, there is a need to resource community coordinators; pooling funds from across CBM programs or resourcing this role from a collective grant would allow a coordinator to serve multiple programs that may not each need a full-time community support person.

Other suggestions for improving coordination include:

- Having meaningful and productive ways of connecting among monitoring groups.
- Developing a "start-up guide" based on practices of established programs to make it easier for new programs to get started
- Regional corporations and associations provide support for the IGAP role and they also have connections to tribes to help implement CBM programs, but capacity is limited within these regional organizations, as well
- It may be helpful to develop Memorandums of Understandings (MOUs) among organizations working in similar areas to clarify who is leading on what and avoid duplication
- Finding ways to share information about opportunities for training and coordination/exchange with observers and community participants (who are usually involved only part time and have other responsibilities)

5. Next Steps and Conclusion

To conclude both focus groups, participants were asked about ways to share the information from this study, including any products. Both focus groups shared the idea of creating a product that could be used to show funders the importance of CBM programs. This relates to the idea of sharing information that reflects what is happening at the local level. Ideas that were shared included using community radio and inviting community CBM practitioners, developing a podcast (that could be shared on local radio), and developing a white paper that explains the role of CBM and highlights how funders could support CBM, including enhanced use of observations.

Several existing webinars, networks, and fora were mentioned as good places to share what was learned from this case study, including:

- Inter-Agency Arctic Research and Policy Committee (IARPC) webinars
- Local Environmental Observer (LEO) Network Webinars
- Indigenous Peoples Council for Marine Mammals
- Strait Science lecture series: https://www.uaf.edu/nwc/outreach/strait-science.php
- Sea Week in Juneau and state-wide

Participants suggested sharing results at conferences focusing on environment and health in Alaska, including:

- Alaska Forum of the Environment
- Alaska Marine Science Conference
- OneHealth Conference
- Alaska Tribal Conference on Environmental Management

Figure 5. *Coastal erosion exposes the permafrost along the coast of Utqiagvik, Alaska. Photo by Monica Nuñez (PolarTREC 2019). Courtesy of ARCUS.*

6. Acknowledgement

We would like to thank the participants in the focus groups for sharing their experience and expertise. This research was funded by the European Union's Horizon2020 program as part of the CAPARDUS (Capacity-building in Arctic Standardisation Development) project.

7. Reference

Kettle, N., Lee, O., N. Johnson. (2022). CAPARDUS - Alaska Case: Interview Findings. University of Alaska Fairbanks. 5 pages.

This report is made under the project

Capacity-building in Arctic standardization development (CAPARDUS)

funded by the European Commission Horizon 2020 program

Grant Agreement no. 869673.

Project partners:

No	Acronym	Participant Legal Name	Country
1	NERSC	STIFTELSEN NANSEN SENTER FOR MILJO OG FJERNMALING	NO
2	NORDECO	NORDISK FOND FOR MILJØ OG UDVIKLING	DK
3	Ilisimatusarfik	Ilisimatusarfik, Grønlands Universitet, University of Greenland	GL
4	AWI	Alfred-Wegener-Institut Helmholtz-Zentrum fur Polar- und Meeresforschung	DE
5	IEEE	IEEE France Section	FR
6	NINA	STIFTELSEN NORSK INSTITUTT FOR NATURFORSKNING NINA	NO
7	UCPH	KOBENHAVNS UNIVERSITET	DK
8	NIERSC	Scientific foundation Nansen International Environmental and Remote Sensing Centre	RU
9	ARC-HU	Arctic Research Centre, Hokkaido University	JP